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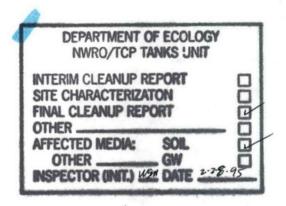
November 22, 1994

15,169.142

Mr. Bill Westwood GTE Northwest Incorporated 1800 41st Street, WA0105SS Everett, Washington 98206

Dear Bill:

Transmittal
Cleanup Documentation and
Reporting Forms
GTE Kirkland Garage Facility
Kirkland, Washington



This letter transmits cleanup documentation prepared by AGI Technologies, and Washington State Department of Ecology (Ecology) reporting forms. We understand you will use this information to apply for a determination by Ecology as to whether further cleanup action is required. A brief summary of the project and related documentation are presented herein.

SUMMARY

The project involved removal of underground storage tanks and a gasoline dispenser. Contaminated soil was encountered around both the underground tanks and the gasoline dispenser. Perched groundwater at the gasoline dispenser was also encountered.

Contaminated soil was removed except where it was located around buried utilities near the gasoline dispenser. Contaminated perched groundwater was also removed, but a groundwater recovery and monitoring system was implemented to address potential impact of remaining contaminated soil on recharging perched groundwater. After approximately 1 year, the results of groundwater monitoring indicated there is no impact on recharging perched groundwater.

DOCUMENTATION

Reports and letters which document the cleanup are presented in Attachment A, and comprise:

- August 12, 1993 Status Report letter, which explains actions taken after perched groundwater was removed.
- September 2, 1993 Contamination Assessment Report, which summarizes contaminated soil and groundwater removal.

Mr. Bill Westwood GTE Northwest Incorporated November 22, 1994 Page 2



- May 6, 1994 Groundwater Monitoring letter report, which summarizes the results of our first round of groundwater monitoring.
- August 23, 1994 Groundwater Monitoring letter report, which summarizes the results of our second and final round of groundwater monitoring.

Also included are the following Ecology forms, presented in Attachment B:

- Request for Review Independent Remedial Action Report
- Independent Remedial Action Report Summary

Sincerely,

AGI Technologies

Glen M. Bobnick, P.E.

Senior Engineer

GMB/jlh

attachments



ATTACHMENT A

Cleanup Documentation



May 6, 1994

15,169.145

Mr. Bill Westwood GTE Northwest Incorporated 1800 41st Street, WA0105SS Everett, Washington 98206

Dear Mr. Westwood:

Groundwater Monitoring GTE Kirkland Support Center GTE W.O. #2970-B1B-3C001AD Kirkland, Washington

INTRODUCTION

This letter report presents AGI Technologies' (AGI) summary of groundwater monitoring activities at the GTE Kirkland Garage Facility (site) in Kirkland, Washington. AGI investigated potential hydrocarbon contamination originating from three underground storage tanks (USTs) and a gasoline dispenser at the site. This project was the subject of an AGI Contamination Assessment report dated September 2, 1994.

Soil and groundwater surrounding the three tanks was within state cleanup levels, but contamination remains around utilities and under building foundations at the dispenser location. As a result, groundwater monitoring continues in the dispenser area and this report serves as a follow-up to continuing efforts on the site.

PROJECT DESCRIPTION

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, 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. An 8,000-gallon, decommissioned UST was located immediately west of the office building.

During excavation to remove the dispenser, seepage with a hydrocarbon-like sheen was observed in the excavation from contaminated soil remaining around adjacent underground utilities, beneath the building, and pipe bedding associated with a storm line. A sump and pump was placed in the excavation to control migration of seepage from these sources. Two 8-foot-deep monitoring wells were installed through the pipe bedding immediately east and west of the excavated area. The entire excavation was filled with pea gravel and paved with concrete. Perched water was pumped into an aboveground storage tank and disposed of.

Mr. Bill Westwood GTE Northwest Incorporated May 6, 1994 Page 2



At the time of our September 1993 Contamination Assessment report, remaining contaminated soil and perched groundwater around the former dispenser appeared limited in depth by a silt layer approximately 4 feet below grade surface. Our observations and results of chemical analysis indicate the lateral extent of soil contamination appears to be within about 20 feet of the former dispenser area. The extent of the hydrocarbons in groundwater appear to be limited primarily to the immediate contaminated soil area.

We returned to the site in December 1993 to check water levels and to evaluate whether remaining contaminated soil was impacting perched groundwater. However, there was insufficient water in the wells to sample. We planned to return to the site when perched groundwater recharged enough to sample.

CURRENT STATUS

An AGI field representative collected groundwater samples from the east and west monitoring wells on March 31, 1994. The wells were noted to recover quickly with a groundwater elevation at approximately 6.75 feet below grade surface. No odors were detected during sampling. Samples were sent in for analytical testing. Chemical analysis indicates petroleum hydrocarbon levels do not exceed laboratory detection limits in the groundwater at the two monitoring wells. Refer to the attached laboratory report.

CONCLUSIONS AND RECOMMENDATIONS

We recommend that perched groundwater levels be checked again in three months and samples collected for analysis if sufficient water is present in the wells. Otherwise samples can be collected once the groundwater level rises to sufficient level for sampling. The results of analysis can be used to evaluate requirements for further action. If contamination is detected in the perched groundwater, a minimum of periodic monitoring will likely be required to verify that contamination is not migrating off site. However, if the next round of groundwater sampling does not detect any hydrocarbon contamination, no further action would be warranted and we would recommend abandoning the wells.

Sincerely,

AGI Technologies

Peter J. Sajer, P.E.

Staff Engineer

Glen M. Bobnick, P.E.

Senior Engineer

PJS/GMB/tag

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

ATI I.D. # 9404-006

April 6, 1994

RECEIVED

APR - 7 1994

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

APPLIED GEOTECHNOLOGY INC.

Attention: Glen Bobnick

Project Number: 15169.145

Project Name : GTE/Kirkland G.W. Monitoring

Dear Mr. Bobnick:

On April 1, 1994, 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,

Victoria L. Bayly Project Manager

VLB/hal/ff

Enclosure



SAMPLE CROSS REFERENCE SHEET

CLIENT : APPLIED GEOTECHNOLOGY, INC.

PROJECT # : 15169.145

PROJECT NAME : GTE/KIRKLAND G.W. MONITORING

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9404-006-1	WEST MW	03/31/94	WATER
9404-006-2	EAST MW	03/31/94	WATER

---- TOTALS ----

MATRIX # SAMPLES
----WATER 2

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 # : 15169.145

PROJECT NAME : GTE/KIRKLAND G.W. MONITORING

ANALYSIS	TECHNIQUE	REFERENCE	LAB
BETX	GC/PID	EPA 8020	D

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

SUB = Subcontract



PROJECT #	: APPLIED GEOTECHNOLOGY, INC. : 15169.145 : GTE/KIRKLAND G.W. MONITORING : METHOD BLANK : WATER : 8020 (BETX)	DATE SAMPLED DATE RECEIVED DATE EXTRACTED DATE ANALYZED UNITS DILUTION FACTO	: 04/01/94 : ug/L
COMPOUNDS		RESULTS	
BENZENE ETHYLBENZENE TOLUENE TOTAL XYLENES		<0.5 <0.5 <0.5 <0.5	
su	RROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBEN	IZENE	108	76 - 120 .



ATI I.D. # 9404-006-1

CLIENT : APPLIED GEOTECHNOLOGY, INC. PROJECT # : 15169.145 PROJECT NAME : GTE/KIRKLAND G.W. MONITORING CLIENT I.D. : WEST MW SAMPLE MATRIX : WATER EPA METHOD : 8020 (BETX)	DATE SAMPLED : 03/31/94 DATE RECEIVED : 04/01/94 G DATE EXTRACTED : N/A DATE ANALYZED : 04/01/94 UNITS : ug/L DILUTION FACTOR : 1
COMPOUNDS	RESULTS
BENZENE ETHYLBENZENE TOLUENE TOTAL XYLENES	<0.5 <0.5 <0.5 <0.5
SURROGATE PERCENT RECOVERY	LIMITS
BROMOFLUOROBENZENE	108 76 - 120



ATI I.D. # 9404-006-2

PROJECT # : PROJECT NAME : CLIENT I.D. : SAMPLE MATRIX :	APPLIED GEOTECHNOLOGY, INC. 15169.145 GTE/KIRKLAND G.W. MONITORING EAST MW WATER 8020 (BETX)	DATE SAMPLED DATE RECEIVED DATE EXTRACTED DATE ANALYZED UNITS DILUTION FACTOR	: 03/31/94 : 04/01/94 : N/A : 04/02/94 : ug/L
COMPOUNDS		RESULTS	
BENZENE ETHYLBENZENE TOLUENE TOTAL XYLENES		<0.5 <0.5 <0.5	
SURR	OGATE PERCENT RECOVERY	I	IMITS
BROMOFLUOROBENZE	:NE	110 7	76 - 120



VOLATILE ORGANICS ANALYSIS QUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC.

SAMPLE I.D. # : BLANK

PROJECT # : 15169.145

DATE EXTRACTED : N/A

PROJECT NAME : GTE/KIRKLAND G.W. MONITORING

DATE ANALYZED : 04/01/94 UNITS : ug/L

SAMPLE MATRIX : WATER

EPA METHOD : 8020 (BETX)

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC∙.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
BENZENE TOLUENE TOTAL XYLENES	<0.500 <0.500 <0.500	20.0 20.0 40.0	21.1 21.0 41.6	106 105 104	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				89 - 1 89 - 1 89 - 1	L13		10 10 10
SURROGATE RECOVERIE	S	SPIKE		DUP. S	SPIKE	LIMITS	3
BROMOFLUOROBENZENE		109		N/A		76 - 1	L20



VOLATILE ORGANICS ANALYSIS QUALITY CONTROL DATA

CLIENT: APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : 9404-006-1

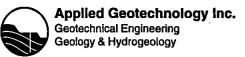
PROJECT # : 15169.145 DATE EXTRACTED : N/A

PROJECT NAME : GTE/KIRKLAND G.W. MONITORING DATE ANALYZED : 04/01/94

SAMPLE MATRIX : WATER UNITS : ug/L

EPA METHOD : 8020 (BETX)

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
BENZENE TOLUENE TOTAL XYLENES	<0.500 <0.500 <0.500	20.0 20.0 40.0	20.2 20.2 39.9	101 101 100	20.0 19.9 39.8	100 100 100	1 1 0
CONTROL LIMITS				% REC.			RPD
BENZENE TOLUENE TOTAL XYLENES				86 - 1 87 - 1 85 - 1	14		10 10 10
SURROGATE RECOVERIES	S	SPIKE		DUP. S	PIKE	LIMITS	3
BROMOFLUOROBENZENE		109		109		76 - 1	.20



CHAIN-OF-CUSTODY

Geology & Hydrogeology																							⊃ag	je		/		_of_	1			_
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Project Number: 15/169.145 Site Location: Kickland	Sam _l	pled By: _	1216	물	묏	刐	418.1 State:	0151	8010 Halogenated VOCs	8020 Aromatic VOCs	8240 GCMS Volatiles	8270 GCMS Semivol.	8310 HPLC PAHs	8040 Phenois	8080 OC Pest/PCBs	8080M PCBs only	8140 OP Pesticides	B150 OC Herbicides	Selected metals: list	Total Lead (Wa)	Organic Lead (Ca)	TCL Metals (23)	DWS - Metals	MFSP - Metals (Wa)	TCLP - Volatiles (ZHE	짇	TCLP - Pesticides	TCI P - Metals				NUMBER OF CONTAINERS
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AGI OFFICES: Bellevue: (206) 453-8383 Portland: (503) 222-2820

) 453-8383 Tacoma: (206) 383-4380) 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



August 23, 1994

15,169.145

Mr. Bill Westwood GTE Northwest Incorporated 1800 41st Street, WA0105SS Everett, Washington 98206

Dear Mr. Westwood:

Groundwater Monitoring GTE Kirkland Support Center GTE W.O. #2970-B1B-3C001AD Kirkland, Washington

This letter presents the results of AGI Technologies' (AGI) groundwater monitoring visit at the GTE Kirkland Garage Facility in Kirkland, Washington. AGI previously visited the site in spring of 1994 and presented a summary of project background, monitoring results, and recommendations in a May 6, 1994 letter. The purpose of the groundwater monitoring is to evaluate whether gasoline-contaminated soil, which remains around buried utilities, is migrating away from a former dispenser location with the groundwater. The results of our latest groundwater monitoring visit are summarized and evaluated, and presented along with recommendations for completing the project.

GROUNDWATER MONITORING VISIT

An AGI representative collected groundwater samples from the east and west monitoring wells (East MW and West MW) on August 1, 1994. Depth to groundwater was measured at 7.02 and 7.17 feet below ground surface for East MW and West MW, respectively. No odors were detected during sampling. Groundwater samples from each monitoring well were submitted to Analytical Technologies Inc. for chemical analysis in accordance with EPA Method 8020 for benzene, ethylbenzene, toluene, and total xylenes (BETX). The results of chemical analyses indicate BETX does not exceed laboratory detection limits in either of the samples (refer to the attached laboratory report).

EVALUATION AND RECOMMENDATIONS

We previously recommended abandoning the wells if groundwater contamination was not detected. No contamination was detected based on our August 1, 1994 groundwater monitoring visit and chemical analyses, which is consistent with the monitoring we performed on March 31, 1994 as summarized in the May 6, 1994 letter.

(206) 453-8383 **FAX** (206) 646-9523

Mr. Bill Westwood GTE Northwest Incorporated August 23, 1994 Page 2



Based on the results of groundwater monitoring performed since contamination was encountered at the site in summer 1993, it does not appear contaminated soil is impacting groundwater or is migrating away from the former dispenser location. Continued groundwater monitoring does not appear warranted.

We recommend the monitoring wells and sump be abandoned in accordance with Chapter 173-160 of the Washington Administrative Code. Remaining contaminated soil around buried utilities should also be removed when the utilities are no longer required or they are relocated.

Sincerely,

AGI Technologies

Glen M. Bobnick, P.E.

Senior Engineer

GMB/jlh

enclosure

cc: Mr. Roger Nye; Washington State Department of Ecology

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

ATI I.D. # 408005

August 15, 1994

SECTIVED

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AGI Technologies P.O. Box 3885 Bellevue WA 98009

Attention : Glen Bobnick

Project Number: 15169.145

Project Name : GTE/Kirkland

Dear Mr. Bobnick:

On August 1, 1994, 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,

Victoria L. Bayly Project Manager

VLB/hal/mrj

Enclosure



SAMPLE CROSS REFERENCE SHEET

CLIENT : AGI TECHNOLOGIES

PROJECT # : 15169.145
PROJECT NAME : GTE/KIRKLAND

ATT #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
408005-1	WEST MW (DS 5)	08/01/94	WATER
408005-2	EAST MW (DS 3)	08/01/94	WATER

---- TOTALS ----

MATRIX # SAMPLES
WATER 2

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 : AGI TECHNOLOGIES

PROJECT # : 15169.145
PROJECT NAME : GTE/KIRKLAND

ANALYSIS	TECHNIQUE	REFERENCE	E LAB			
BETX	GC/PID	EPA 8020	R			

R = ATI - Renton
SD = ATI - San Diego
PHX = ATI - Phoenix
PTL = ATI - Portland
ANC = ATI - Anchorage
PNR = ATI - Pensacola
FC = ATI - Fort Collins

SUB = Subcontract



CLIENT : AGI TECHNOLOGIES PROJECT # : 15169.145 PROJECT NAME : GTE/KIRKLAND CLIENT I.D. : METHOD BLANK SAMPLE MATRIX : WATER EPA METHOD : 8020 (BETX)	DATE SAMPLED : N/A DATE RECEIVED : N/A DATE EXTRACTED : N/A DATE ANALYZED : 08/04/94 UNITS : ug/L DILUTION FACTOR : 1
COMPOUNDS	RESULTS
BENZENE ETHYLBENZENE TOLUENE TOTAL XYLENES	<0.5 <0.5 <0.5 <0.5
SURROGATE PERCENT RECOVERY	LIMITS
BROMOFLUOROBENZENE	100 76 - 120



CLIENT PROJECT # PROJECT NAME CLIENT I.D. SAMPLE MATRIX EPA METHOD	: AGI TECHNOLOGIES : 15169.145 : GTE/KIRKLAND : METHOD BLANK : WATER : 8020 (BETX)	DATE SAMPLED DATE RECEIVED DATE EXTRACTED DATE ANALYZED UNITS DILUTION FACTOR	: N/A : N/A : N/A : 08/05/94 : ug/L
COMPOUNDS		RESULTS	
BENZENE ETHYLBENZENE TOLUENE TOTAL XYLENES	••••••••	<0.5 <0.5 <0.5 <0.5	
S	URROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBE	NZENE	92	76 - 120



PROJECT # PROJECT NAME CLIENT I.D. SAMPLE MATRIX	: AGI TECHNOLOGIES : 15169.145 : GTE/KIRKLAND : METHOD BLANK : WATER : 8020 (BETX)	DATE SAMPLED DATE RECEIVED DATE EXTRACTED DATE ANALYZED UNITS DILUTION FACTO	: 08/08/94 : ug/L
COMPOUNDS		RESULTS	
BENZENE ETHYLBENZENE TOLUENE TOTAL XYLENES		<0.5 <0.5 <0.5 <0.5	•
SU	RROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBEN	ZENE	98	76 - 120



ATI I.D. # 408005-1

CLIENT PROJECT # PROJECT NAME CLIENT I.D. SAMPLE MATRIX EPA METHOD	: 8020 (BETX)	DATE SAMPLED DATE RECEIVED DATE EXTRACTED DATE ANALYZED UNITS DILUTION FACTOR	
COMPOUNDS		RESULTS	
		<0.5 <0.5 <0.5 <0.5	
SI	URROGATE PERCENT RECOVERY	:	LIMITS
BROMOFLUOROBE	NZENE	92	76 - 120



ATI I.D. # 408005-2

CLIENT PROJECT # PROJECT NAME CLIENT I.D. SAMPLE MATRIX EPA METHOD	: AGI TECHNOLOGIES : 15169.145 : GTE/KIRKLAND : EAST MW (DS 3) : WATER : 8020 (BETX)	DATE SAMPLED DATE RECEIVED DATE EXTRACTED DATE ANALYZED UNITS DILUTION FACTOR	: 08/01/94 : 08/01/94 : N/A : 08/05/94 : ug/L : 1
COMPOUNDS		RESULTS	
BENZENE ETHYLBENZENE TOLUENE		<0.5 <0.5 <0.5 <0.5	.•
St	JRROGATE PERCENT RECOVERY	I	imits -
BROMOFT HOROBEI	NZENE	95 7	6 - 120



VOLATILE ORGANICS ANALYSIS QUALITY CONTROL DATA

: AGI TECHNOLOGIES CLIENT

SAMPLE I.D. # : BLANK

DATE EXTRACTED : N/A

PROJECT # : 15169.145
PROJECT NAME : GTE/KIRKLAND

DATE ANALYZED : 08/04/94

SAMPLE MATRIX : WATER

ug/L . UNITS

EPA METHOD : 8020 (BETX)

	,								
COMPOUNDS	SPIKE ADDED	SPIKED RESULT	ዩ REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD			
BENZENE TOLUENE TOTAL XYLENES		<0.500 <0.500 <0.500	20.0 20.0 40.0	20.1 20.6 40.6	101 103 ·102	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					89 - 1 89 - 1 89 - 1	13		10 10 10	
SURROGA	TE RECOVERIES	5	SPIKE		DUP. S	PIKE	LIMITS		
BROMOFLUOROBE	NZENE	100		N/A		76 - 1	.20 ·		



VOLATILE ORGANICS ANALYSIS QUALITY CONTROL DATA

: AGI TECHNOLOGIES CLIENT

SURROGATE RECOVERIES

BROMOFLUOROBENZENE

SAMPLE I.D. # : BLANK

DUP. SPIKE

N/A

PROJECT #

: 15169.145

DATE EXTRACTED : N/A

DATE ANALYZED : 08/05/94

76 - 120

PROJECT NAME : GTE/KIRKLAND SAMPLE MATRIX : WATER

UNITS

: ug/L .

EPA METHOD

: 8020 (BETX)

SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
<0.500 <0.500 <0.500	20.0 20.0 40.0	18.0 18.8 37.2	90 94 93	N/A N/A N/A	N/A N/A N/A	N/A N/A N/A
,			% REC.			RPD
			89 - 1	.13		10 10 10
	RESULT <0.500 <0.500	RESULT ADDED <0.500 20.0 <0.500 20.0	RESULT ADDED RESULT <0.500 20.0 18.0 <0.500 20.0 18.8 <0.500 40.0 37.2	RESULT ADDED RESULT REC. <0.500 20.0 18.0 90 <0.500 20.0 18.8 94 <0.500 40.0 37.2 93 REC. 89 - 1	SAMPLE SPIKE SPIKED & SPIKED RESULT ADDED RESULT REC. SAMPLE <0.500 20.0 18.0 90 N/A <0.500 20.0 18.8 94 N/A <0.500 40.0 37.2 93 N/A REC. 89 - 110 89 - 113	SAMPLE SPIKE SPIKED % SPIKED % RESULT ADDED RESULT REC. SAMPLE REC. <0.500 20.0 18.0 90 N/A N/A <0.500 20.0 18.8 94 N/A N/A <0.500 40.0 37.2 93 N/A N/A N/A % REC. 89 - 110 89 - 113

SPIKE

94



VOLATILE ORGANICS ANALYSIS QUALITY CONTROL DATA

: AGI TECHNOLOGIES

: BLANK SAMPLE I.D. #

PROJECT # : 15169.145 DATE EXTRACTED : N/A

PROJECT NAME : GTE/KIRKLAND

DATE ANALYZED : 08/08/94 : ug/L UNITS

SAMPLE MATRIX : WATER EPA METHOD

: 8020 (BETX)

							
COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
BENZENE TOLUENE TOTAL XYLENES	<0.500 <0.500 <0.500	20.0 20.0 40.0	19.5 19.3 38.3	98 97 96	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				89 - 1 89 - 1 89 - 1	13		10 10 10
SURROGATE RECOVERIES		SPIKE		DUP. S	PIKE	LIMITS	i
BROMOFLUOROBENZENE		98		N/A		76 - 1	.20



VOLATILE ORGANICS ANALYSIS QUALITY CONTROL DATA

CLIENT : AGI TECHNOLOGIES

SAMPLE I.D. # : 407275-10

PROJECT #

: 15169.145

DATE EXTRACTED : N/A

PROJECT NAME : GTE/KIRKLAND

DATE ANALYZED : 08/04/94

SAMPLE MATRIX : WATER

UNITS : ug/L

EPA METHOD : 8020 (BETX)

			_					
Sample Result	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD		
<0.500 0.580 0.630	20.0 20.0 40.0	18.5 18.4 36.7	93 89 90	19.3 19.0 37.7	97 92 93	4 3 3		
			% REC.			RPD		
			87 - 1	.14		10 10 10		
s ,	SPIKE		PIKE	LIMITS				
	95		95	76 - 120				
	RESULT <0.500 0.580	RESULT ADDED <0.500 20.0 0.580 20.0 0.630 40.0 SPIKE	RESULT ADDED RESULT <0.500 20.0 18.5 0.580 20.0 18.4 0.630 40.0 36.7 SPIKE	RESULT ADDED RESULT REC. <0.500 20.0 18.5 93 0.580 20.0 18.4 89 0.630 40.0 36.7 90 * REC. 86 - 1 87 - 1 85 - 1 SPIKE DUP. S	SAMPLE SPIKE SPIKED & SPIKED & SPIKED & SPIKED & SPIKED & SAMPLE &	SAMPLE SPIKE SPIKED % SPIKED % RESULT ADDED RESULT REC. SAMPLE REC. <0.500 20.0 18.5 93 19.3 97 0.580 20.0 18.4 89 19.0 92 0.630 40.0 36.7 90 37.7 93 % REC. 86 - 113 87 - 114 85 - 113 SPIKE DUP. SPIKE LIMITS		



CHAIN-OF-CUSTODY

PROJECT INFORMATION	Laboratory Number: 408 005												
Project Manager: Glen Bohnich / GMD/AGT			YSIS REQUEST										
Project Name: GTE / Kir Klaud	PETROLEUM	NS ORGANIC COMPOUNDS PEST	TS/PCB's METALS LEACHING TESTS OTHER										
Project Number:													
Site Location: Kirkland wa. Sampled By: AER	418.1 State: TPH Special Instructions TPH-D State: TPH-G State: TPH-ID State:	8080M PCBs only 8080 OC Pest/PCBs DWS - Volatiles and Semivol. 8040 Phenois 8310 HPLC PAHs 8270 GCMS Semivol. 8240 GCMS Volatiles 8020M - BETX only 8020 Aromatic VOCs 8010 Halogenated VOCs	MFSP - Metals (Wa) DWS - Metals Priority Poll. Metals (13) TCL Metals (23) Organic Lead (Ca) Total Lead (Wa) Selected metals: Le DWS - Herb/pest 8150 OC Herbicides 8140 OP Pesticides	NUMBER OF CONTAINERS TCLP - Metals TCLP - Pesticides TCLP - Volatiles TCLP - Volatiles (ZHE)									
DISPOSAL INFORMATION	State: State: State State	PCB PLO PLO PLO PLO PLO PLO PLO PLO PLO PLO	Meta Meta Meta Meta Meta Meta Meta Meta	BER OF (Pestici - Pestici - Volatil									
	ate:	B Volleratic V	Metz (Va) (C3) Wa) was tricic	Lies Codes									
Disposal Method:		and CBs attiles											
Disposed by: Disposal Date:													
QC INFORMATION (check one)	41111												
□SW-846 □CLP □Screening □AGI Std. □Special	4 1 1			11111111									
SAMPLE ID DATE TIME MATRIX LAB ID	╂┈╂╼╂╼╂╼╂	╎╏╡ ╁╁┼┼┼┼┼┼	┦╸┨ ╸┨╌╂╼╂╼╂╼╂╼╂╾╂	111112									
mst MW (D55) 8-1-94 1/28 Mater	┨ ═╂═╂═╂═╂	┞┨╶╏ ╬╌╂╌╂╌╂╌╂╌╂╌╂	╏╸╏╺╏╸╏╸╏╸╏╸╏╸╏╸	 - - - - - - - 									
EAST MW (DS3) 8-1-94 1158 Water 2	- - - - - -	╎┧╎╱ ┩┼┼┼┼┼┼┼	╎╸ ┤╶┤╌┤╌┼╌┼╌┼╌┼	┨┈╎┈╎┈╎┈ ╽									
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		RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.									
LAB INFORMATION SAMPLE RE	4		Signature: Time:	Signature: Time:									
Lab Name: ATT Total Number of Containers Lab Address: Chain of Custody Seals: Y/		Signature: Time: Name: 1300	Printed Name: Date:	Printed Name: Date:									
Intact2: VININA	U	Printed Name: Date: Al Reed 8-1-14	Financia isania.										
Renton Wa		Company:	Company:	Company:									
Aig. Hand Cally		RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY: 3.									
Turn Around Time: Standard □ 24 hr. □ 48 hr. □ 72 PRIOR AUTHORIZATION IS REQUIRED FOR RUSH		Signatury: Time:	Signature: Time:	Signature: Time:									
	<u> </u>	Printed Name: Date:	Printed Name: Date:	Printed Name: Date:									
Special Instructions:		M. WESTAIA B/1/94	Company:	Company:									
		Company:		ect Files: Gold to AGI Disposal File									

Date 8-1-94

• 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

A Report Prepared For

GTE Northwest Incorporated 1800 41st Street, WA0104LB Everett, Washington 98201

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

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- Table 2 TPH Concentrations in Soil 12,000-Gallon and 500-Gallon UST Excavations
- Table 3 TPH and BETX Concentrations in Soil and Groundwater Gasoline
 Dispenser Excavation

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- 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 hydrocarbons.
- ▶ 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:

Gler W Bobnick P.F.

Senior Engineer

JST/JEN/jlh

TABLES

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

Sample Number	Sample Location	Date Sampled	Qasoline (mg/kg)	WTPH-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
Laboratory De	tection Limits		20	50	100
State Cleanup	Levels ^a	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 Gal	Ion Unleaded Gasoline UST Excavati	<u>ion</u>			
S1	North portion of excavation bottom	04/15/93	ND	ND	86
S2	South portion of excavation bottom	04/15/93	ND .	ND	ND
S 3	North & east sides	04/16/93	ND	ND	ND
S 4	South & west sides	04/15/93	ND	ND	ND
S 5	Soil stockpile	04/15/93	ND	ND	ND
500-Gallo	n Waste-Oil UST Excavation				
SS1	Bottom of excavation	04/16/93	ND	ND	ND
SS2	North & east sides of excavation	04/16/93	ND	ND	ND
SS3	South & west sides of excavation	04/16/93	ND	ND	ND
SS4	Soil stockpile	04/16/93	ND	ND	ND
SS5	Beneath oil—water separator and associated piping	04/16/93	ND	ND 	ND
Laboratory D	Detection Limits		20	50	100
State Cleanu			100		

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

		4			EPA Test Met	hods	
Sample I.D.	Matrix	Sample Location	Benzene	<u>BETX 5</u> Ethylbenzei	0 <u>90/8020</u> ne Toluene	Total Xylenes	<u>WTPH=G</u> Gasoline
			<u>(mg/kg)</u>	(mg/kg)	<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	ND	ND
DS6	Soil	Bottom of excavation, 15' northwest of former dispenser location	ND	ND	ND	0.17	ND
DS7	Soll	Contaminated soil stockpile	ND	6.6	13	72	2,500
DS8	Soil	"Clean" soil stockpile	NA	NA	NA	NA	ND
	<u> </u>		(µg/L)	<u>(µg/L)</u>	<u>(μg/L)</u>	<u>(μg/L)</u>	(µg/L)
DS9	Water	Bottom of excavation	31	ND	41	18.0	2,700
Laboratory Dete	ction Limit	Soil	0.028-0.59	0.028-0.59	0.028-0.59	0.028-0.59	6-7
Laboratory Doto	ouon Emil	Water	2.5	2.5	2.5	2.5	100
State Cleanup I	Levels ^a	Soil	0.5	20	40	20	100
		Water	5	30	.40	20	1,000

Notes:

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.

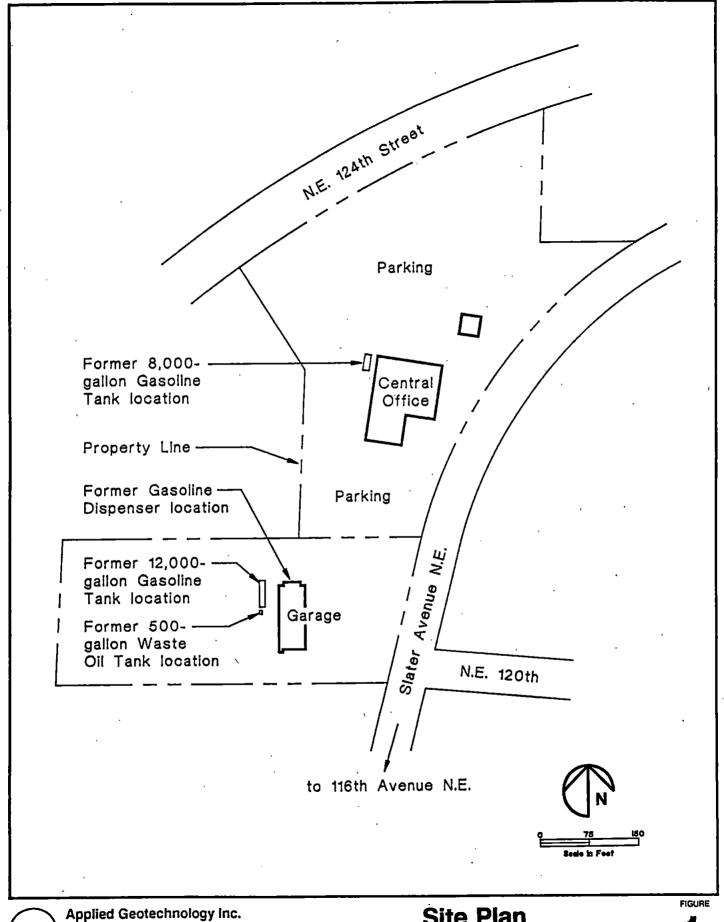
NA - Not analyzed.

Kirkland, Washington

ND - Not detected.

TPH - Total petroleum hydrocarbons.

FIGURES





Geotechnical Engineering Geology & Hydrogeology

Site Plan

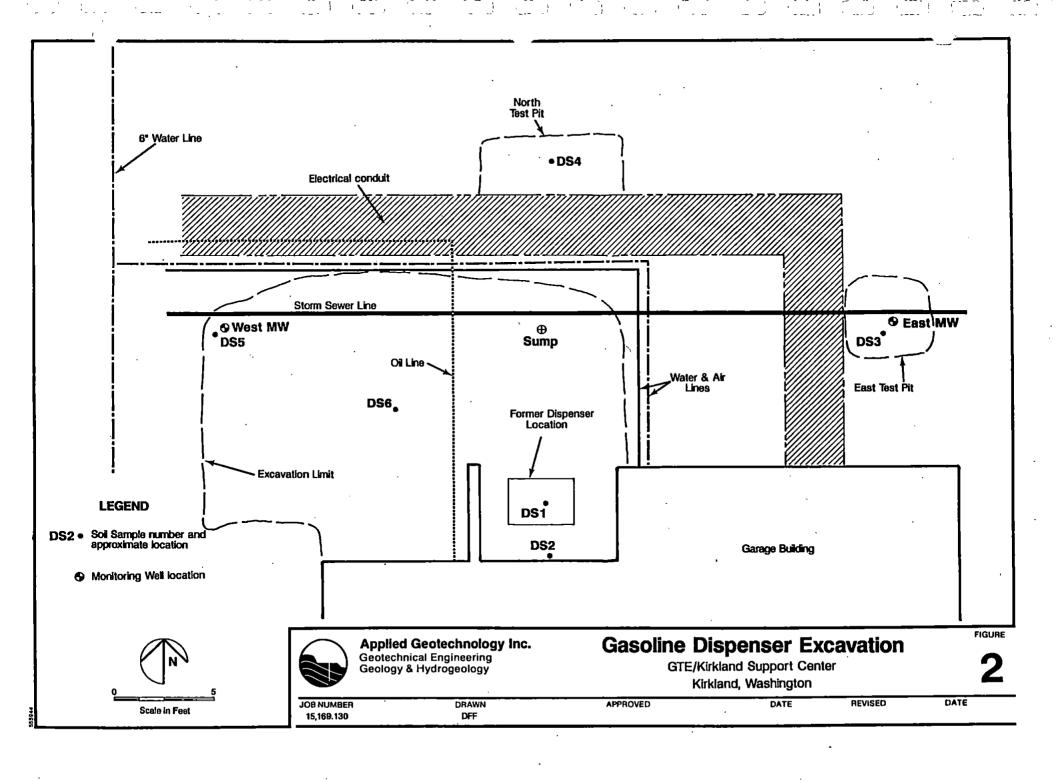
GTE/Kirkland Garage Facility Kirkland, Washington

JOB NUMBER 15,169.130 DRAWN JFL

APPROVED

DATE 21 Jun. 93 REVISED

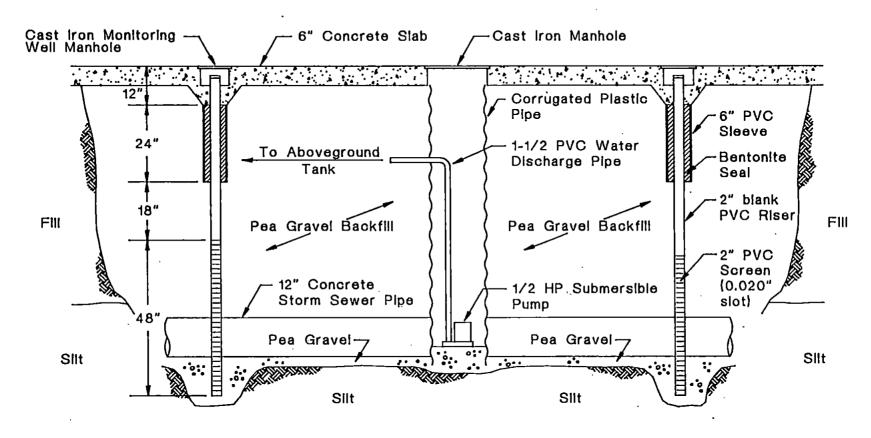
DATE



WEST MONITORING WELL

SUMP '

EAST MONITORING WELL



Not to Scale



Applied Geotechnology Inc.

Geotechnical Engineering Geology & Hydrogeology

Sump and Monitoring Well Diagram

GTE/Kirkland Garage Facility Kirkland, Washington

DATE REVISED

DATE

FIGURE

JOB NUMBER 15,169.130 DRAWN **JFL**

APPROVED

APPENDIX

Laboratory and Quality Assurance Reports

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

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

TIMELINESS

Parameter	'Date <u>Sampled</u>	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".

PROJECT AND SAMPLE INFORMATION

Project Name: GTE/Kirkland - Tank Removal

Project No.: 15,169.130

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

Lab Number: 9304-098

S1, S2, S3, S4 Sample No.:

FIELD QUALITY CONTROL SAMPLES

Field Duplicates: None collected.

None collected. Rinsate:

Trip Blank: None collected.

LAB QUALITY CONTROL SAMPLES

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

reporting limits by WA WTPH-HCID.

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

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

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

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

ture.

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

control limit criteria for WA WTPH-HCID.

SIGNATURES

Date 5/3 Prepared by Date

Checked by

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

Lar 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



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 ----

MATRIX # SAMPLES
SOIL 4

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, passe contact our sample control department before the scheduled a posal date.



ANALYTICAL SCHEDULE

CLIENT : APPLIED GEOTECHNOLOGY, INC.

PROJECT # : 15169.130

PROJECT NAME : GTE/KIRKLAND - TANK REMOVAL

ANALYSIS	TECHNIQUE	REFERENCE	LAB	
HYDROCARBON IDENTIFICATION	GC/FID		R	
MOISTURE	GRAVIMETRIC	CLP SOW ILM01.0	R	

ATI - Renton SD = ATI - San Diego F = ATI - Phoenix FC = 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

UNITS : mg/Kg

SAMPLE MATRIX : SOIL

: WA DOE WTPH-HCID

DILUTION FACTOR: 1

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

109

50 - 150



ATI I.D. # 9304-098-2

HYDROCARBON IDENTIFICATION DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/10/93
PROJECT # : 15169.130 DATE RECEIVED : 04/12/93

PROJECT # : 15169.130 DATE RECEIVED : 04/12/93
PROJECT NAME : GTE/KIRKLAND - TANK REMOVAL DATE EXTRACTED : 04/14/93
CLIENT I.D. : S2 DATE ANALYZED : 04/14/93 CLIENT I.D. : S2

SAMPLE MATRIX : SOIL UNITS : mg/Kg

: WA DOE WTPH-HCID DILUTION FACTOR: 1

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 · 107 50 - 150



ATI I.D. # 9304-098-3

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 : 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

104

50 - 150



ATI I.D. # 9304-098-4

HYDROCARBON IDENTIFICATION DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/10/93
PROJECT # : 15169.130 DATE RECEIVED : 04/12/93

PROJECT NAME : CTE/KIRKIAND - TANK REMOVAL DATE EXTRACTED : 04/14/93

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.

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

111

50 - 150



GENERAL CHEMISTRY ANALYSIS DATA SUMMARY

: APPLIED GEOTECHNOLOGY, INC. MATRIX : SOIL CLIENT

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	S 3	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

SAMPLE DUP SPIKED RESULT RESULT RPD RESULT ADDED ATI I.D. MOISTURE 9304-098-4 9.8 N/A N/A10

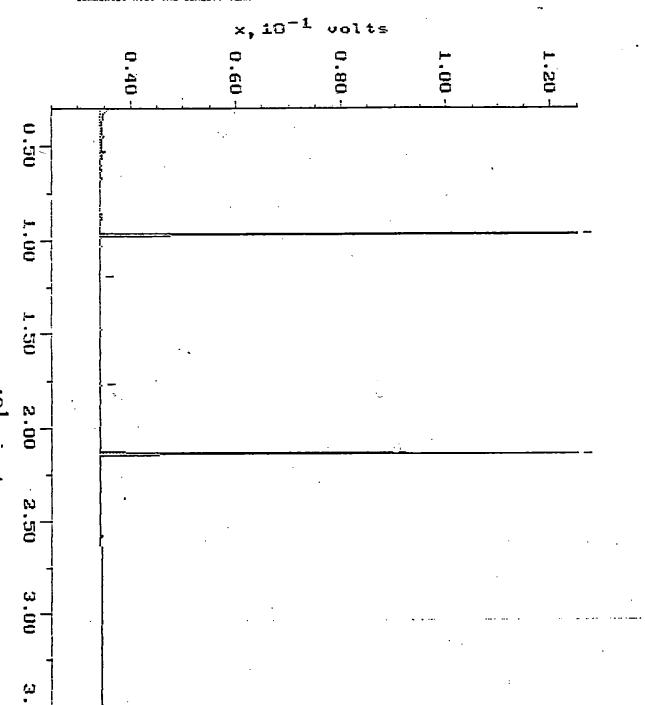
% Recovery = (Spike Sample Result - Sample Result) Spike Concentration RPD (Relative % Difference) = (Sample Result - Duplicate Result) Average Result

Blank

WA DOE WTPH-HCID

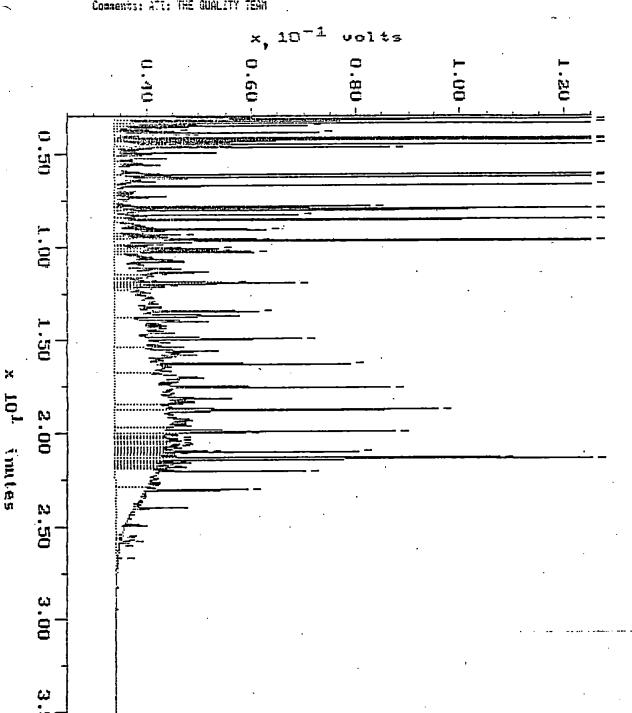
Sample: SRB 4-14 Channel: ERNIE
Acquired: 14-APR-93 19:82 Method: F:\BRO2\HAXDATA\ERNIE\FUEL8414
Comments: ATI: THE QUALITY TEAM

Filename: R4148E34 Operator: ATI



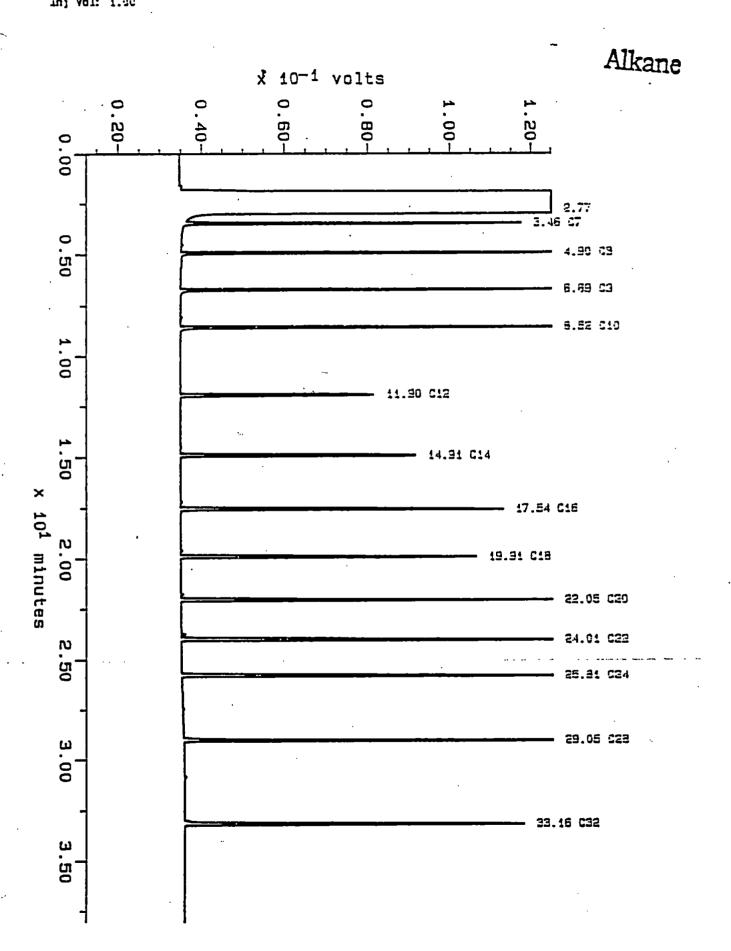
Continuing Calibration

Sample: 30 ±95 Channel: ERNIE Filename: R4148E31
Acquireg: 14-APR-93 13:37 Method: F:\BRO2\MAXDATA\ERNIE\FUEL9414 Operator: ATI
Comments: ATI: THE GUALITY TEAM



Channel: EFNIE

Sample: ALXANE Acquired: 24-HAR-33 32:33 Inj Vol: 1.30 Filename: R3248E93 Operator: ATI Method: F: \ERCS\JAXCATA\ERNIE\JUEL0324





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Date	4/8/93	Pageof

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

TIMELINESS

Parameter	Date Sampled	Date Extracted	Date <u>Analyzed</u>	Time Until Extraction	Time Until Analysis
TPH-HCID	4/15/93	4/16/93	4/17/93	1 (14)	2 (21)
TPH-D	4/15/93	4/20/93	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 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

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 ILM01.0

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

control limit criteria for the following methods:

WA WTPH-HCID WA WTPH-D

SIGNATURES

Prepared by _______ Date 5/4/93

Checked by Kathorine Frombonain 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 GEOTECHNOLOGY HAC.

Attention: Glen Bobnick

Project Number : 15,169.130

Project Name : GTE/Kirkland

L ar 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. McKinney

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

R = ATI - Renton SD = ATI - San Diego PHX = ATI - Phoenix

PNR = ATI - PROGRITA

PNR = ATI - Pensacola

Fo = ATI - Fort Collins

= 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

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 134 50 - 150



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 9304-167-4 9304-167-5	S1 S2 S3 S4 S5	04/15/93 04/15/93 04/16/93 04/15/93 04/15/93	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, \mathbf{r} as contact our sample control department before the scheduled \mathbf{r} posal 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
DATE EXTRACTED: 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 **



ATI I.D. # 9304-167-3

HYDROCARBON IDENTIFICATION DATA SUMMARY

: APPLIED GEOTECHNOLOGY, INC. CLIENT

DATE SAMPLED : 04/16/93

PROJECT # : 15,169.130 PROJECT NAME : GTE/KIRKLAND DATE RECEIVED : 04/16/93 DATE EXTRACTED : 04/16/93

CLIENT I.D. : S3

DATE ANALYZED : 04/17/93

SAMPLE MATRIX : SOIL

: mg/Kg UNITS

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

116

50 - 150



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 LIMITS

O-TERPHENYL 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

DATE RECEIVED : 04/16/93
DATE EXTRACTED : 04/16/93 PROJECT NAME : GTE/KIRKLAND CLIENT I.D. : S5 DATE ANALYZED : 04/17/93

: mq/Kq SAMPLE MATRIX : SOIL UNITS

DILUTION FACTOR: 1 METHOD : WA DOE WTPH-HCID

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.

> LIMITS SURROGATE PERCENT RECOVERY

50 - 150 111 O-TERPHENYL



GENERAL CHEMISTRY ANALYSIS

: APPLIED GEOTECHNOLOGY, INC. CLIENT

MATRIX : SOIL

PROJECT #

: 15169.130

PROJECT NAME : GTE/KIRKLAND - TANK REMOVAL

DATE ANALYZED

MOISTURE

04/16/93



O-TERPHENYL

ATI I.D. # 9304-167

50 - 150

TOTAL PETROLEUM HYDROCARBONS DATA SUMMARY

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

85



ATI I.D. # 9304-167-1

TOTAL PETROLEUM HYDROCARBONS DATA SUMMARY

;	PROJECT # PROJECT NAME CLIENT I.D. SAMPLE MATRI METHOD		DATE SAMPLED DATE RECEIVED DATE EXTRACTED DATE ANALYZED UNITS DILUTION FACTOR	: 04/15/93 : 04/16/93 : 04/20/93 : 04/20/93 : mg/Kg : 1
	COMPOUND		RESULT	
ľ	FUEL HYDROCA HYDROCARBON HYDROCARBON		86 C24 - C34 MOTOR OIL	
•		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	SAMPLE DUP. RESULT	RPD	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
DIESEL		36	36	0	200	217	90	226	95	4
1	CONT	ROL LIMI	TS			•	% REC	-		RPD
DIESEL							63 -	131		20
	SURR	OGATE RE	COVERIES		SPIKE		DUP.	SPIKE	LIMIT	S
O-TERPHEN	Ϋ́L				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	: .		KPD
DIESEL					69 -	122		20
	SURROGATE RECOVER	IES	SPIKE		DUP.	SPIKE	LIMIJ	S
O-TERPHEN	TYT,		100		N/A		50 -	150



GENERAL CHEMISTRY ANALYSIS

CLIENT: APPLIED GEOTECHNOLOGY, INC. MATRIX: SOIL

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

......

PARAMETER DATE ANALYZED

MOISTURE 04/16/93



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
Ì	9304	-167-	-1	S1		19
	9304	-167-	-2	S2		. 27
	9304	-167-	-3	S3	• =	16
,	9304	-167-	- 4	S4		25
	9304	-167	- 5	S 5		18



GENERAL CHEMISTRY ANALYSIS QUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC. MATRIX : SOIL

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

SAMPLE DUP SPIKED SPIKE %
PARAMETER ATI I.D. RESULT RESULT RPD RESULT ADDED REC

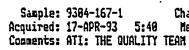
MOISTURE 9304-166-5 12 12 0 N/A N/A

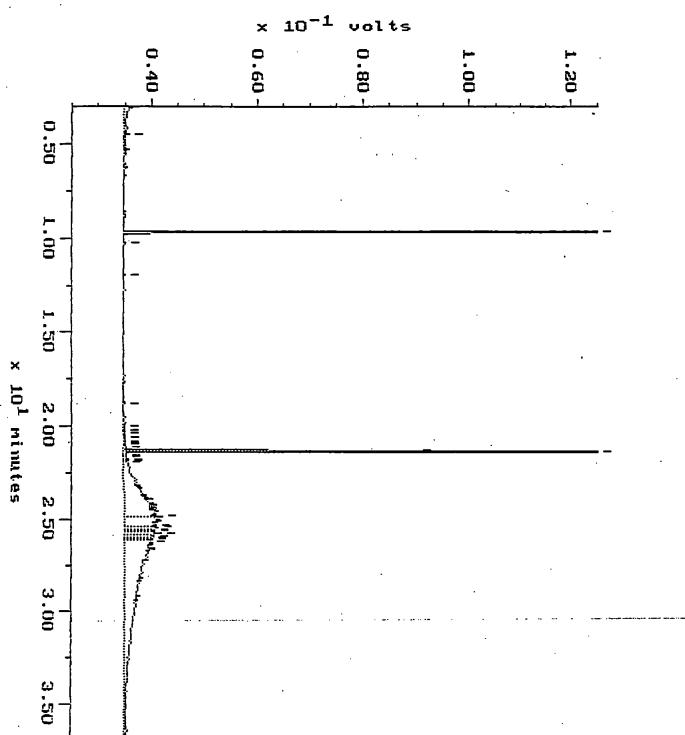
Average Result

WA DOE WTPH-HCID

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

Filename: R4168R10 Operator: ATI



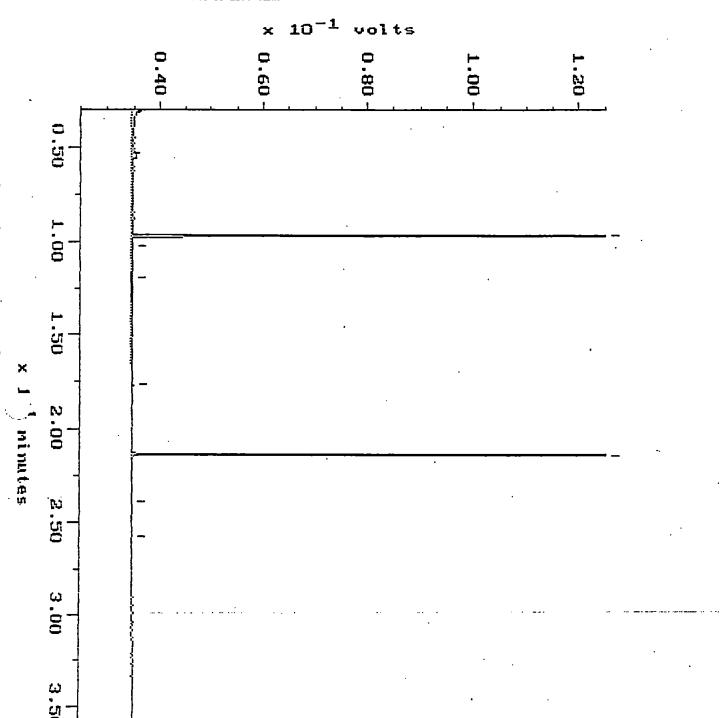


WA DOE WTPH-HCID

Channel: ERNIE
Method: F:\BRO2\MAXDATA\ERNIE\FUEL6416

Filename: R4168R03 Operator: ATI

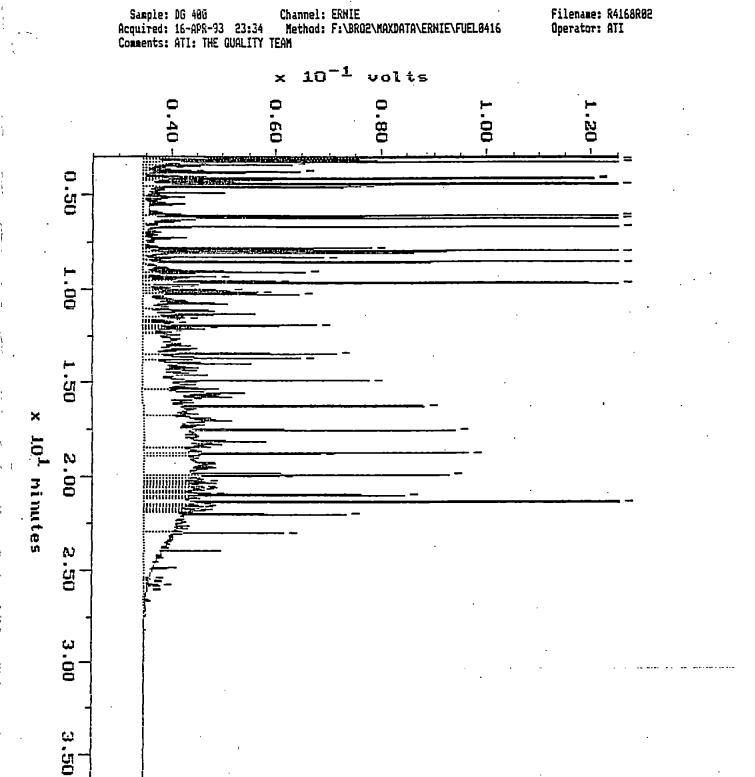
Sample: SRB 4-16 Characteristics
Characteristics
Comments: ATI: THE QUALITY TEAM



Continuing Calibration

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

Filename: R4168R02 Operator: ATI



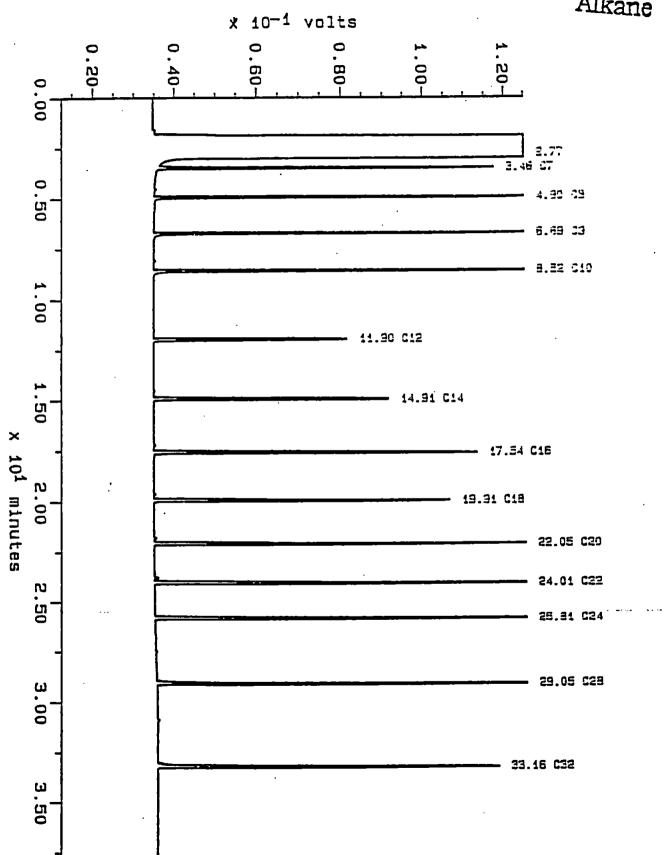
Sample: ALKANE Acquired: 24-HAR-82 R2 09 Inj Vol: 1.80

Channel: EFNIE

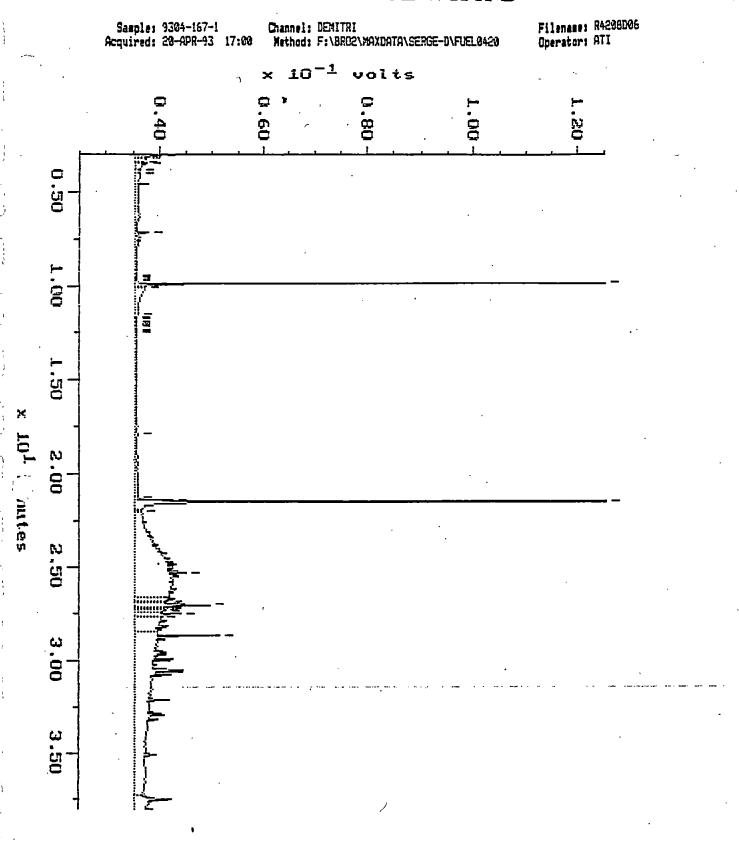
Method: F: \ERC2\MAXCATA\EFNIE\FUEL1224

Filename: A3249803 Operator: ATI

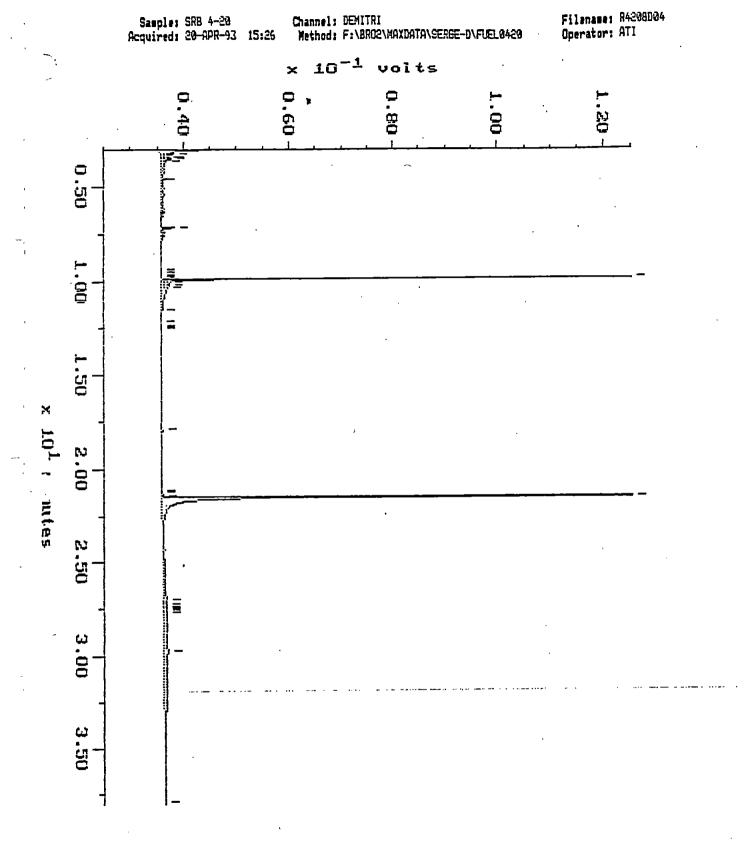
Alkane



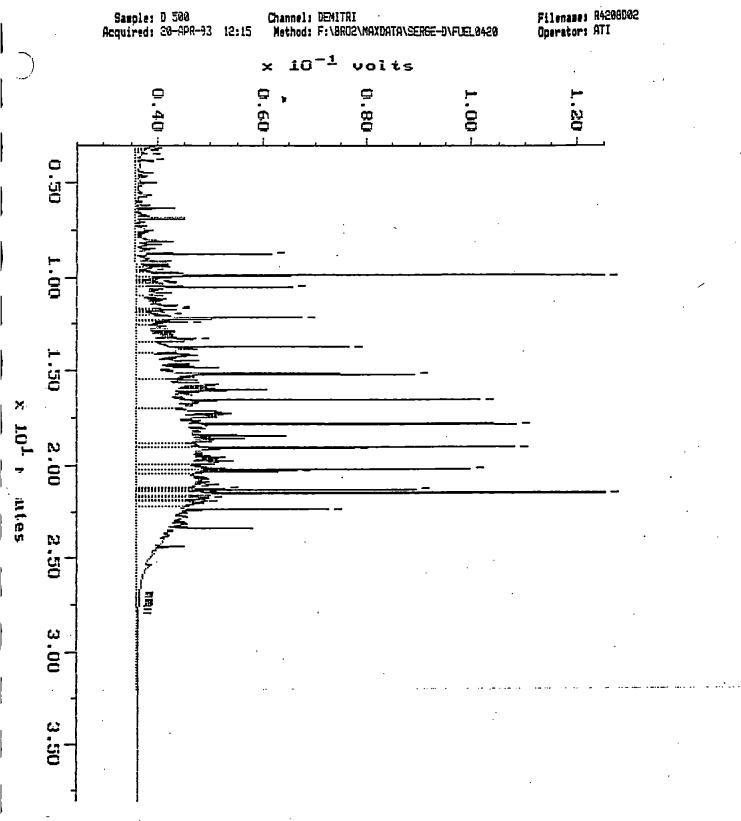
WA DOE WTPH-D



Blank



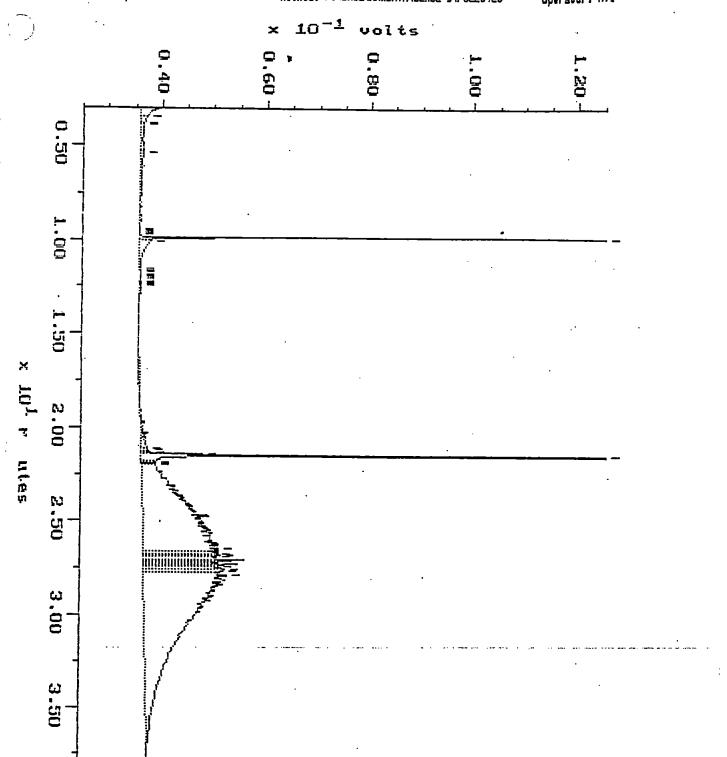
Continuing Calibration



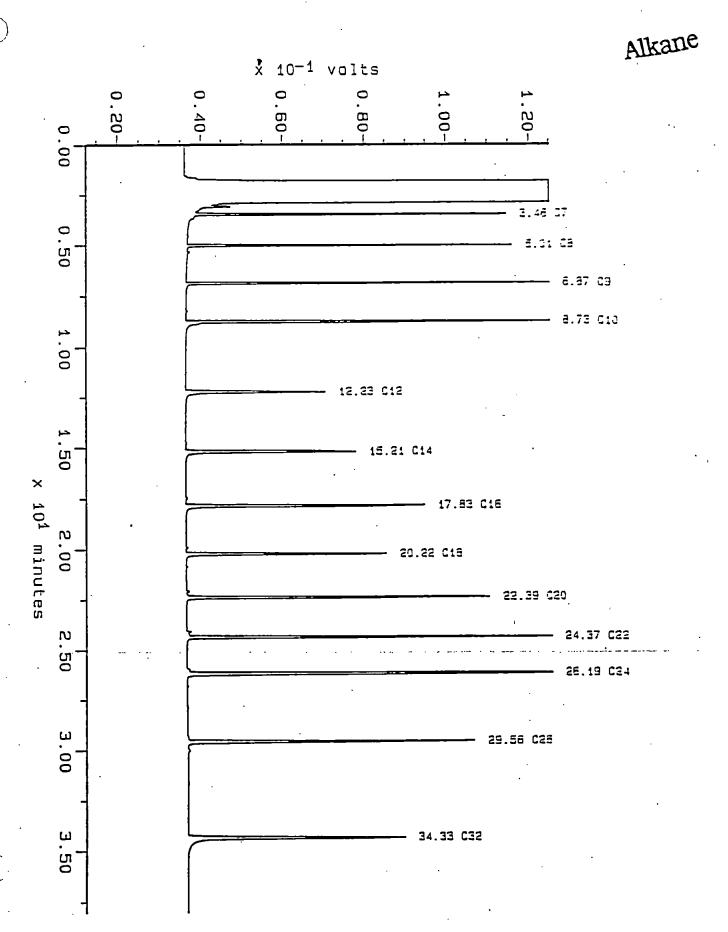
Continuing Calibration

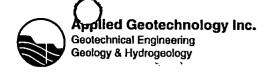
Sample: MO 500 Acquired: 29-APR-93 13:03 Channel: DEMITRI
Method: F:\BRO2\MAXDATA\SERGE-D\FUEL0420

Filename: R4208D03 Operator: ATI



Sample: ALKANG Channel: CEMITRI Filename: R418
Acquired: 16-AFR-93 16:56 Method: F:\ERC2\MAXCATA\SERSE-B\FUEL0416 Operator: ATI
Inj Vol: 1.30 Filename: R4:65000





Date	- 4/10	/93	Page.	l of 1
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	JECT INFOR	_ 14	N 4		La	abor	rato	ry f	Nun	nber	: {	93	04	-1	6	1																	
Project Manager: 6190 Bobnick									Ţ						A	NA	LY	SIS	RI	ΞQl	JES	ST	•					-					
Project Name: <u>GTE</u>	Project Name: GTE/Kirkland - UST Vograde					PETI	ROL	.EUN	1	ORG	AN	IC C	OME	POU	NDS	PE	EST	S/P(Bs	Τ		ME	ΓΔΙ	s			EAC				THE	—— R	-
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Disposal Method:					3			걸	-		ဗျို့	ie s	ivol.	,	la S	ß		Sel.	Sel	ធ្ល				1	Ē	봈	Si Si						힐
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QC INFORMATION (check one)					State:	TPH-D State: WA - EXT	State:		8010 Halogenated VOCs	8020 Aromatic VOCs	8240 GCMS Volatiles	SMS	8310 HPLC PAHs	olati olati	Pe	8080M PCBs only	8140 OP Pesticides	8150 OC Remidles	E	Total Lead (Wa)	Organic Lead (Ca)	TCL Metals (23)	Priority Poll. Metals (13)	DWS - Metals MFSP - Metals (Wa)	TCLP - Volatiles (ZHE)	- Semivolatil	TCLP - Pesticides	TCLP - Metals				NO H	
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SAMPLE ID	DATE	TIME	MATRIX	LAB ID	直	효		1PH S	80	8	802	824	827	8		808	8	814	2 2	Sel	Ţ	ŏ	힏		3 🖁	<u> </u>	TCLP.	ដ្ឋ	티	\perp			3
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Special Instructions: ** HOTOL OIL QUANT 754170193								F	rinted	Nam	9:				ate:	P	inted	Name	3:				Date	»:	Print	ed Ne	ame:				D	ale:	

AGI OFFICE

ellevue: (206) 453-8383 rortland: (503) 222-2820

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

Company:

ATT-WA

JTION: White, Canary to Analytical Laboratory; Pink to AGI Project Files; Gold to.

Company:

Disposal Files Rev, 12/91

Company:

QUALITY ASSURANCE REPORT

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

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

TIMELINESS

Parameter	Date Sampled	Date <u>Extracted</u>	Date <u>Analyzed</u>	Time Until Extraction	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.

OUALITY ASSURANCE REPORT

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

Checked by Katherine Bourborais Date 4/30/93

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

ATI I.D. # 9303-130

March 23, 1993

RECEIVED

MAR 24 1993

APPLIED GEOTECHNOLOGY INC.

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

Attention : Glen Bobnick

Project Number: 15169.129

pject 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
9303-130-1	SS1	03/10/93	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, as 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	Ŗ	
MOISTURE	GRAVIMETRIC	CLP SOW ILM01.0	R	

R = ATI - Renton

SD = ATI - San Diego

PHX = ATI - Phoenix

SUB = Subcontract



.'ERPHENYL .

ATI I.D. # 9303-130

FUEL HYDROCARBONS DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC.
PROJECT # : 15169.129
PROJECT NAME : GTE - KIRKLAND TANK REMOVAL : N/A DATE SAMPLED DATE RECEIVED : N/A DATE EXTRACTED : 03/15/93 DATE ANALYZED : 03/16/93 CLIENT I.D. : METHOD BLANK SAMPLE MATRIX : SOIL UNITS : mq/Kq DILUTION FACTOR: 1 METHOD : 8015 (MODIFIED) RESULTS ARE CORRECTED FOR MOISTURE CONTENT COMPOUND RESULT FUEL HYDROCARBONS <5 C7 - C12 HYDROCARBON RANGE HYDROCARBON QUANTITATION USING GASOLINE FUEL HYDROCARBONS <25 C12 - C24 HYDROCARBON RANGE HYDROCARBON QUANTITATION USING DIESEL SURROGATE PERCENT RECOVERY LIMITS

94

52 - 143



JERPHENYL

ATI I.D. # 9303-130-1

52 - 143

FUEL HYDROCARBONS DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. PROJECT # : 15169.129 PROJECT NAME : GTE - KIRKLAND TANK REMOVAL CLIENT I.D. : SS1 SAMPLE MATRIX : SOIL METHOD : 8015 (MODIFIED) RESULTS ARE CORRECTED FOR MOISTURE CONTENT	DATE RECEIVED : 03/11/93
COMPOUND	RESULT
FUEL HYDROCARBONS HYDROCARBON RANGE HYDROCARBON QUANTITATION USING	<6 C7 - C12 GASOLINE
FUEL HYDROCARBONS HYDROCARBON RANGE HYDROCARBON QUANTITATION USING	<31 C12 - C24 DIESEL
SURROGATE PERCENT RECOVERY	LIMITS

90



FUEL HYDROCARBONS QUALITY CONTROL DATA

: APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : 9303-147-6 : 15169.129 DATE EXTRACTED : 03/15/93 CLIENT 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

COMPOUND		SAMPLE RESULT	SAMPLE DUP. RESULT	RPD	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
FUEL HYDROCARBO (DIESEL)	ns	<25	<25	NC	500	493	99	487	97	1
·	CONT	ROL LIMI	TS				% REC	•		RPD
DIESEL	·			•			56 -	137		20
j	SURRO	OGATE RE	COVERIES		SPIKE	-	DUP.	SPIKE	LIMIT	S
rerpheny:	L				100		100		52 -	143



FUEL HYDROCARBONS QUALITY CONTROL DATA

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

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

•							
COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
FUEL HYDROCARBONS (DIESEL)	· <25	500	501	100	N/A	N/A	N/A
CONTROL LIMITS			% REC			RPD	
DIESEL			•	67 -	135		20
SURROGATE RECOV	SPIKE		DUP. SPIKE		LIMITS		
C TERPHENYL		104		N/A.		52 -	143



GENERAL CHEMISTRY ANALYSIS

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

MOISTURE

03/15/93



GENERAL CHEMISTRY ANALYSIS DATA SUMMARY

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

PROJECT NAME : GTE - KIRKLAND TANK REMOVAL UNITS : %

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 : %

			DUP					-
PARAMETER	ATI I.D.	RESULT	RESULT	RPD	RESULT	ADDED	REC	_
MOISTURE	9303-124-13							

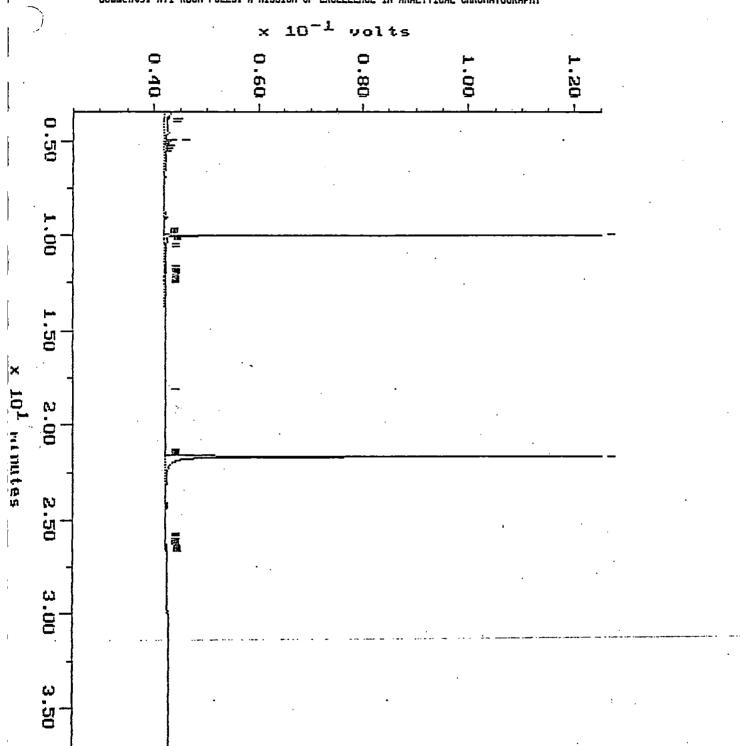
% Recovery = (Spike Sample Result - Sample Result)
Spike Concentration

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

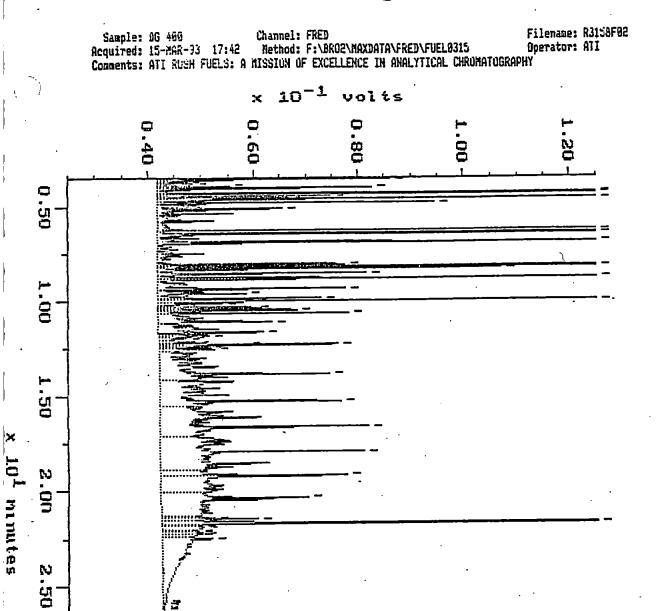
Average Result

EPA 8015 Modified

Sample: SRB 3-15 Channel: FRED Filename: R3158F14
Acquired: 16-MAR-93 3:19 Method: F:\BRO2\MAXDATA\FRED\FUEL9315 Operator: ATI
Comments: ATI RUSH FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY



Continuing Calibration



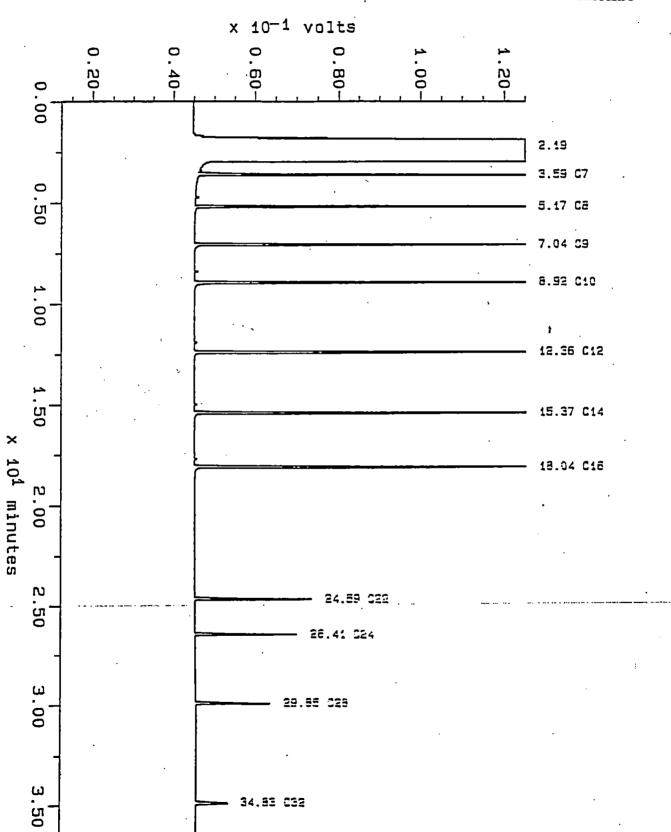
3.50

Sample: ALKANE Acquired: 11-JAN-93 12:01 Inj Vol: 1.00

Channel: FRED
Method: M:\8R02\MAXDATA\FRED\FUEL0111

Filename: 0111FA04 Operator: ATI

Alkane





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Geology & Hydrogeo	ology	•												Da	te _			<u>2</u>	/	D.		93	<u>_</u> I	⊃aç	ge_		1	_	of_	,** ·	1	
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allevue: (206) 453-8383 Portland: (503) 222-2820 Tacoma: (206) 383-4380 Pleasanton: (415) 460-5495 DIST

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

Jisposal Files

Company:

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

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

Matrix:

Soil

QUALITY ASSURANCE SUMMARY

All data are of known and acceptable quality.

ANALYTICAL METHODS

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

TIMELINESS

Parameter	Date <u>Sampled</u>	Date <u>Extracted</u>	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

Checked by Katherine Bourba ais 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. # 9304-166

RECEIVED

APR 28 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

Lar 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. 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	SS1	04/16/93	SOIL
9304-166-2	SS2	04/16/93	SOIL
9304-166-3	SS3	04/16/93	SOIL
9304-166-4	SS4	04/16/93	SOIL
9304-166-5	SS5	04/16/93	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, prase contact our sample control department before the scheduled a posal date.



ANALYTICAL SCHEDULE

: APPLIED GEOTECHNOLOGY, INC. : 15,169.130 CLIENT

PROJECT # PROJECT NAME : GTE/KIRKLAND

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

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

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.

SURROGATE PERCENT RECOVERY LIMITS

O-TERPHENYL 134 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. : SS1 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 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 : 04/17/93
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 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 : 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

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

PROJECT NAME : GTE/KIRKLAND

CLIENT I.D. : SS4 SAMPLE MATRIX : SOIL

METHOD : WA DOE WTPH-HCID

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

DATE SAMPLED : 04/16/93 DATE RECEIVED : 04/16/v3

DATE EXTRACTED : 04/16/93 DATE ANALYZED : 04/17/93

: mg/Kg UNITS

DILUTION FACTOR: 1

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 PROJECT # : 15,169.130 DATE RECEIVED

: 04/16/93

DATE RECEIVED : 04/16/93

PROJECT NAME : GTE/KIRKLAND

DATE EXTRACTED : 04/16/93 DATE ANALYZED : 04/17/93

CLIENT I.D. : SS5 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

112

50 - 150



GENERAL CHEMISTRY ANALYSIS

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

MOISTURE

04/16/93



GENERAL CHEMISTRY ANALYSIS DATA SUMMARY

: APPLIED GEOTECHNOLOGY, INC. CLIENT

MATRIX : SOIL

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

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

: APPLIED GEOTECHNOLOGY, INC. CLIENT

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

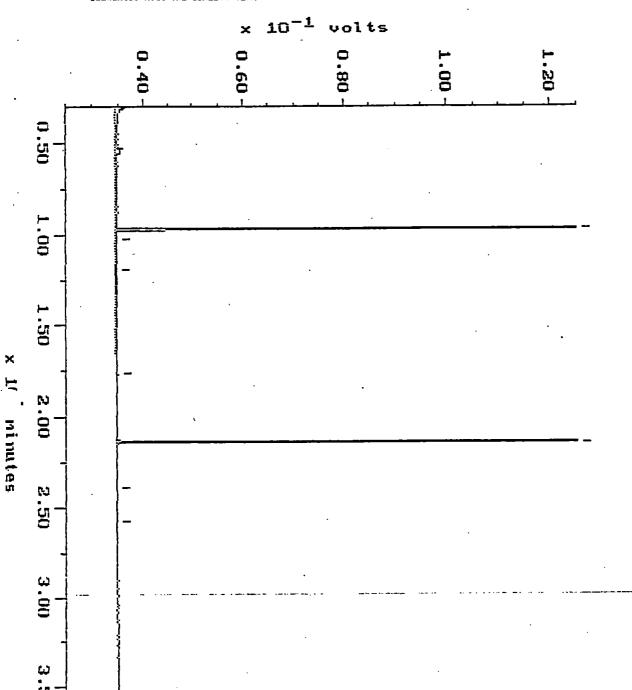
RPD (Relative % Difference) = (Sample Result - Duplicate Result) Average Result

Blank

WA DOE WTPH-HCID

Sample: SRB 4-16 Cha Acquired: 17-APR-93 0:19 Me Comments: ATI: THE QUALITY TEAM Channel: ERNIE
Method: F:\BRO2\MAXDATA\ERNIE\FUEL8416 Filename: R4168R03

Operator: ATI

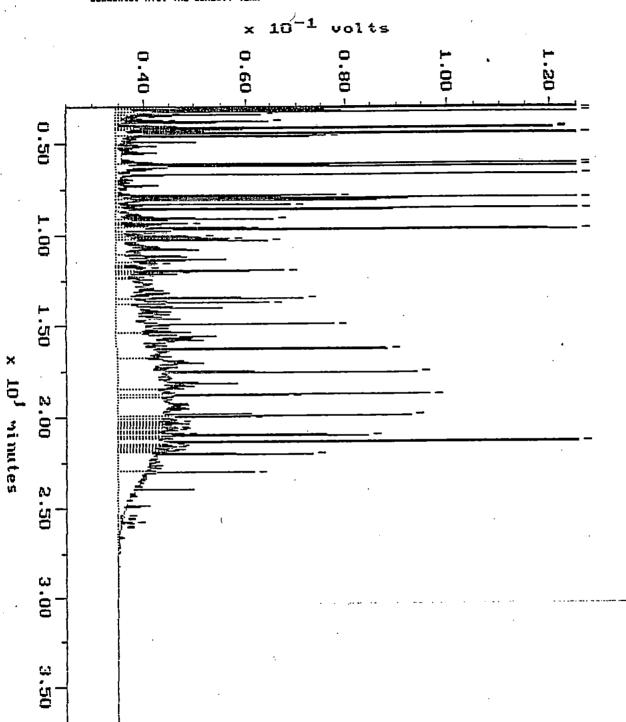


Continuing Calibration

Channel: ERNIE
Method: F:\BROZ\MAXDATA\ERNIE\FUEL9416

Filename: R4168R02 Operator: ATI

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

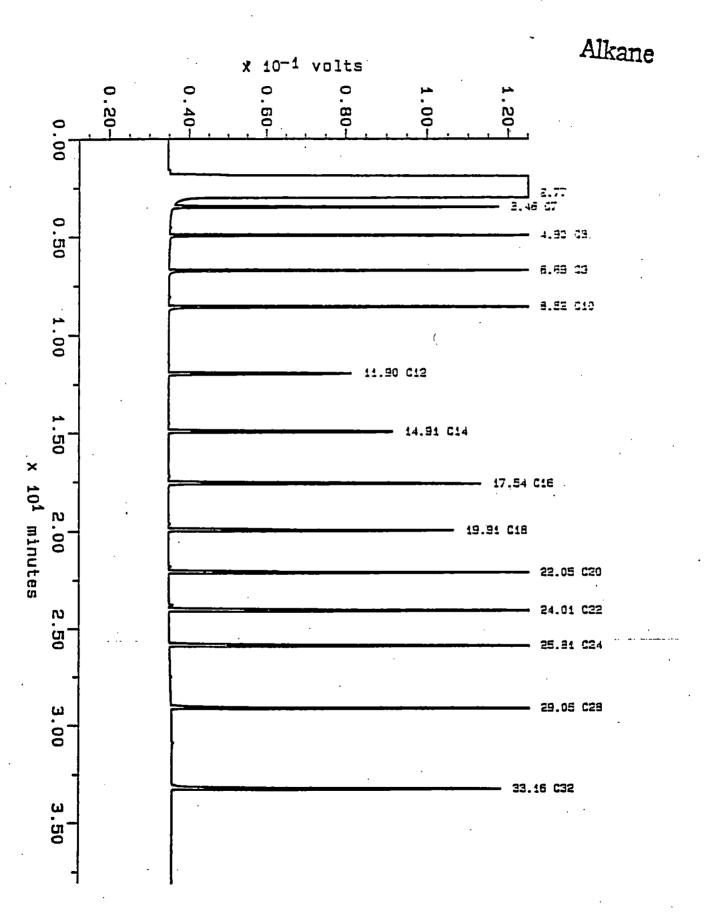


Sample: ALXANE Acquired: 24-HAR-93 32:39 Inj Vol: 1.00

Channel: SFNIE
Method: F: \2RC2\JAAXCATA\SFNIE\FUEL0324

Filename: R3248603

Operator: ATI





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Date	4/16/93	Page	<u>/</u> of	<u> </u>

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Glen Bobnick to confirm analysis	paly \$15 & special				cial 31 NA KTN SLED-1/16/93						_																				
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AGI OFFIC Bellevue: (206) 453-8383					DIL	. dE	BUTI	ION	: WI	hite	, Ca	nan	to /	Anal	ytic	al La	bora	itory	; Pi	nk to	AC	al P	roje	ct F	iles:	Go	ld i	.		posal • An	

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

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

TIMELINESS

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

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

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 ILM01.0.

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

control limit criteria for method WTPH-G.

SIGNATURES

Checked by Katherine Bourbonais Date 6/4/93

Date 6/4/93



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

L ar 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 2

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, rease contact our sample control department before the scheduled sposal 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 ATI - San Diego SD = ATI - Phoenix PHX = PNR = ATI - Pensacola FG = ATI - Fort Collins Subcontract



TRIFLUOROTOLUENE `

ATI I.D. # 9304-268

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 EXTRACTED : 04/28/93 CLIENT I.D. : METHOD BLANK DATE ANALYZED : 04/29/93 UNITS : mg/Kg SAMPLE MATRIX : SOIL DILUTION FACTOR: 1 METHOD : WA DOE WTPH-G RESULTS ARE CORRECTED FOR MOISTURE CONTENT RESULT FUEL HYDROCARBONS TOLUENE TO DODECANE HYDROCARBON RANGE GASOLINE HYDROCARBON QUANTITATION USING

SURROGATE PERCENT RECOVERY

96

50 - 150

LIMITS



TRIFLUOROTOLUENE

ATI I.D. # 9304-268-1

50 - 150

TOTAL PETROLEUM HYDROCARBONS DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : 04/27/93 PROJECT # : 15,169.130 DATE RECEIVED : 04/28/93 DATE RECEIVED : 04/28/93 DATE EXTRACTED : 04/28/93 PROJECT NAME : GTE/KIRKLAND 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 HYDROCARBON RANGE TOLUENE TO DODECANE HYDROCARBON QUANTITATION USING GASOLINE SURROGATE PERCENT RECOVERY LIMITS

81



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 DATE EXTRACTED : 04/28/93
CLIENT I.D. : DS2 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

COMPOIND RESULT

FUEL HYDROCARBONS 5900

HYDROCARBON RANGE TOLUENE TO DODECANE

HYDROCARBON QUANTITATION USING GASOLINE

SURROGATE PERCENT RECOVERY LIMITS

TRIFLUOROTOLUENE 142 50 - 150



73

50 - 150

TOTAL PETROLEUM HYDROCARBONS QUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : 9304-271-1 PROJECT #

DATE EXTRACTED : 04/28/93 : 15,169.130 DATE ANALYZED : 04/29/93

PROJECT NAME : GTE/KIRKLAND
METHOD : WA DOE WTPH-G UNITS : mg/Kg

SAMPLE MATRIX : SOIL

TRIFLUOROTOLUENE

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
GASOLINE	CONT	ROL LIMI	TS				% REC	•		RPD 20
,	SURR	OGATE RE	COVERIES	٠.	SAMPLE		SAMPL	E DUP.	LIMIT	'S

69



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

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
	CONT	ROL LIMI	rs				% REC	•		RPD
GASOLINE							50 -	112		20
	SURRO	GATE REG	COVERIES		SPIKE		DUP.	SPIKE	LIMIT	S
TRIFLUOROTOLUENE			138		116		50 -	150		

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



TOTAL PETROLEUM HYDROCARBON QUALITY 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
TRIFILIORO	TOLUENE		94		N/A		50 -	150



GENERAL CHEMISTRY ANALYSIS

CLIENT : APPLIED GEOTECHNOLOGY, INC. MATRIX : SOIL

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

PARAMETER DATE ANALYZED

MOISTURE 04/28/93



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	
9304-268-1	DS1	· 2 5	₽.
9304-268-2	DS2	15 ·	,



GENERAL CHEMISTRY ANALYSIS QUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC. MATRIX : SOIL

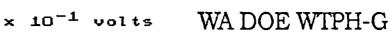
PROJECT # : 15,169.130

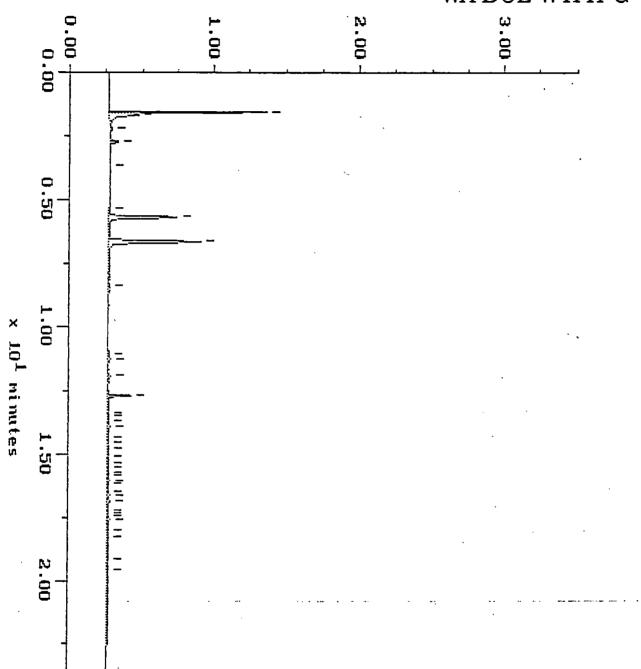
PROJECT NAME : GTE/KIRKLAND UNITS : %

PARAMETER	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	-	SPIKE ADDED	% REC
MOISTURE	9304-268-2	15	15	0	N/A	N/A	N/A

Sample: 9304-256-1 Channel: FID
Acquired: 29-APR-93 9:42 Method: F:\BRO2\MAXDATA\GLAD\042993GS
Comments: ATI : A COMMITMENT TO GUALITY

Filename: R4299604 Operator: ATI

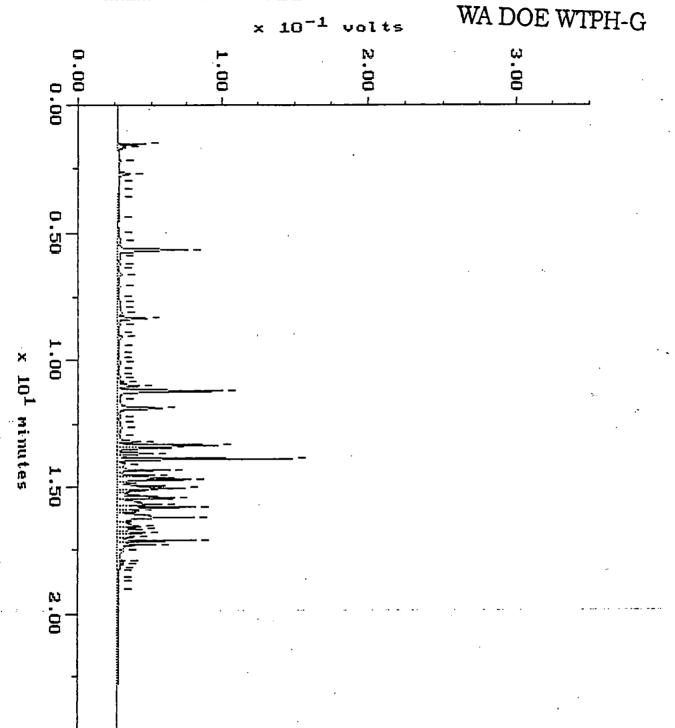




Channel: FID
Method: F:\BRO2\MAXDATA\GLAD\042993GS

Filename: R4299G13 Operator: ATI

Sample: 9304-258-2 DIL Channel: FII Acquired: 29-APR-93 14:38 Method: F: Dilution: 1 : 50.000 Comments: ATI : A COMMITMENT TO GUALITY

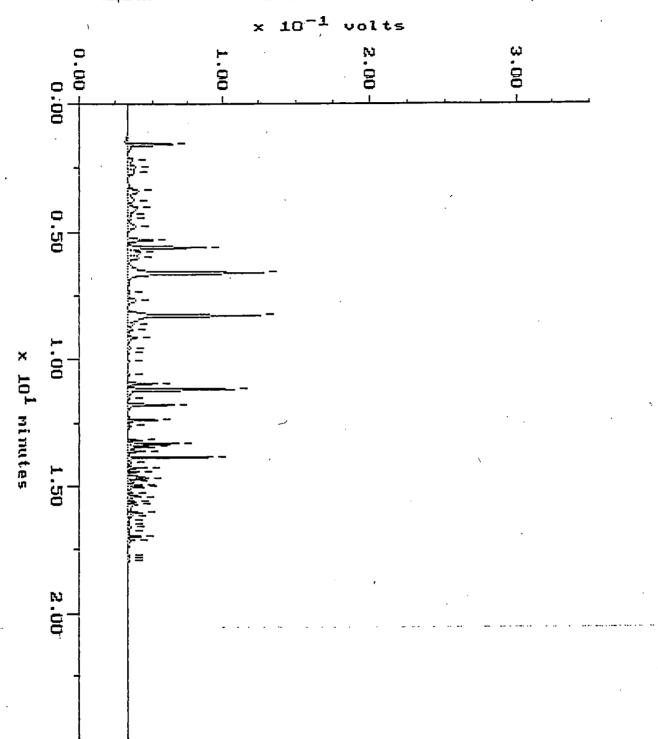


WA DOE WTP:
Filename:
Operator: Sample: SRB 4-28 Acquired: 29-APR-93 14:11 Channel: JEROME-FID
Method: F:\BRO2\MAXDATA\JEROME\042993JR Blank \times 10⁻¹ volts 0.00 2.00 3.00 1.00-0.50 1.00 x 10^1 minutes 1,50

Continuing Calibration
Channel: JERONE-FID
Hethod: F:\BRO2\MAXDATA\JEROME\042993JR

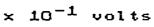
Sample: STD-C G Acquired: 29-APR-93 9:00

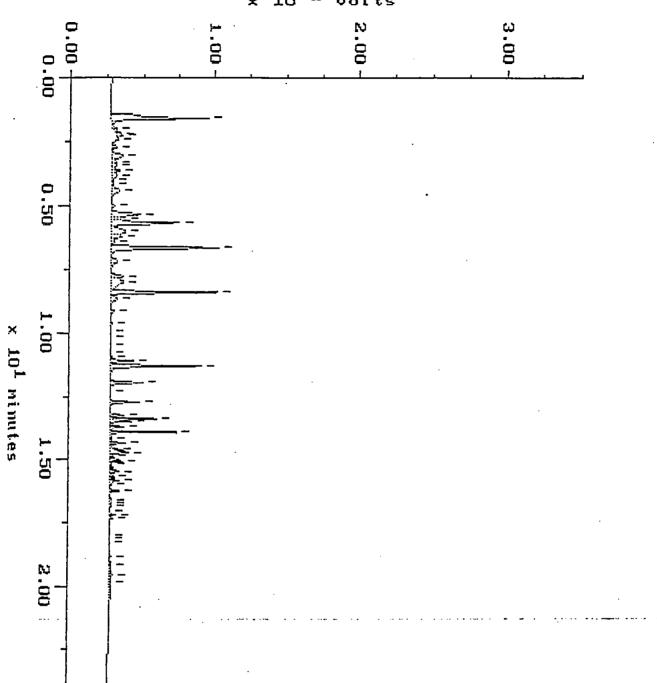
Filename: R4299J31 Operator:



Sample: STD-C 6 Continuing Calibration
Acquired: 29-APR-93 8:14 Method: F:\BRO2\MAXDATA\GLAD\04299365
Consents: 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 ILM01.0

TIMELINESS

Parameter	Date <u>Sampled</u>	Date Extracted	Date <u>Analyzed</u>	Time Until Extraction	Time Until <u>Analysis</u>
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

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 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 John Date 6/4/93

Checked by Katherene Bourbonain Date 617/93

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

14AY 20 1993

APPLIED GEOTECHNOLOGY 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

I r 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,

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	DS-3	04/29/93	SOIL
9304-304-2	DS-4	04/29/93	SOIL
9304-304-3	DS-5	04/29/93	SOIL
9304-304-4	DS-6	04/30/93	SOIL
9304-304-5	DS-7	04/30/93	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, ase contact our sample control department before the scheduled asposal 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 - Pensacola FC = ATI - Fort Collins

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
BROMOFIJIOROBENZENE	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	: N/A : N/A : 05/03/93 : 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	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	: 04/30/93 : 05/03/93 : 05/03/93 : mg/Kg
COMPOUND	RESULT	
·	<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 : 1
COMPOUND	RESULT	
BENZENE ETHYLBENZENE TOLUENE TOTAL XYLENES	<0.028 <0.028 <0.028 <0.028	,
SURROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBENZENE	83	52 - 116



CLIENT : APPLIED GEOTECHNOLOGY, INC. PROJECT # : 15,169.130 PROJECT NAME : GTE/KIRKLAND CLIENT I.D. : DS-6 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 : 05/03/93 : mg/Kg : 1
COMPOUND	RESULT	
BENZENE ETHYLBENZENE TOLUENE TOTAL XYLENES	<0.030 <0.030 <0.030 0.17	
SURROGATE PERCENT RECOVERY		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
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

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

EPA METHOD : 8020 (BETX)

: mg/Kg 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		N/A		52 -	116



VOLATILE ORGANIC ANALYSIS OUALITY 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

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

TRIFLUOROTOLUÈNE 91 50 - 150



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 PROJECT NAME : GTE/KIRKLAND DATE ANALYZED : 05/03/93 CLIENT I.D. : METHOD BLANK : mg/Kg UNITS SAMPLE MATRIX : SOIL DILUTION FACTOR: 1 METHOD : WA DOE WTPH-G RESULTS ARE CORRECTED FOR MOISTURE CONTENT COMPOUND FUEL HYDROCARBONS TOLUENE TO DODECANE HYDROCARBON RANGE 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

GOVERNOM DECOME.

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 DATE EXTRACTED : 04/30/93 PROJECT NAME : GTE/KIRKLAND DATE ANALYZED : 05/02/93 CLIENT I.D. : DS-4 SAMPLE MATRIX : SOIL : mg/Kg UNITS DILUTION FACTOR: 1 METHOD : WA DOE WTPH-G RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUND

FUEL HYDROCARBONS

TOLUENE TO DODECANE HYDROCARBON RANGE GASOLINE

HYDROCARBON QUANTITATION USING

LIMITS SURROGATE PERCENT RECOVERY

50 - 150 73 TRIFLUOROTOLUENE



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-5 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

DECLE BETWEEN THE PROPERTY OF

COMPOUND RESULT

FUEL HYDROCARBONS <6

HYDROCARBON RANGE TOLUENE TO DODECANE

HYDROCARBON QUANTITATION USING GASOLINE

SURROGATE PERCENT RECOVERY LIMITS

TRIFLUOROTOLUENE 75 50 - 150



TRIFLUOROTOLUENE

ATI I.D. # 9304-304-4

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 DATE ANALYZED : 05/03/93 CLIENT I.D. : DS-6 : mq/Kq UNITS SAMPLE MATRIX : SOIL DILUTION FACTOR: 1 METHOD : WA DOE WTPH-G RESULTS ARE CORRECTED FOR MOISTURE CONTENT RESULT <6 FUEL HYDROCARBONS TOLUENE TO DODECANE HYDROCARBON RANGE GASOLINE HYDROCARBON QUANTITATION USING LIMITS SURROGATE PERCENT RECOVERY

75



TOTAL PETROLEUM HYDROCARBONS DATA SUMMARY

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

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

RESULT

FUEL HYDROCARBONS TOLUENE TO DODECANE HYDROCARBON RANGE

GASOLINE

HYDROCARBON QUANTITATION USING

LIMITS SURROGATE PERCENT RECOVERY

50 - 150 94 TRIFLUOROTOLUENE



TOTAL PETROLEUM HYDROCARBONS QUALITY CONTROL DATA

: APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : 9304-295-3 CLIENT

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

UNITS METHOD : WA DOE WTPH-G

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
	CONTR	OL LIMI	TS				% REC	•		RPD
GASOLINE							N/A			20
	SURRO	GATE RE	COVERIES		SAMPLE		SAMPL	E DUP.	LIMIT	S
TRIFLUORO	rolue1	IE			75		76		50 -	150

i = 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 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
	CONTR	OL LIMI	TS				% REC	•		RPD
GASOLINE							50 -	112		20
	SURRO	GATE RE	COVERIES		SPIKE		DUP.	SPIKE	LIMIT	S
TRIFLUOROT	COLUEN	ΙE	·		71		73		50 -	150



TOTAL PETROLEUM HYDROCARBONS QUALITY CONTROL DATA

CLIENT

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

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	39.4	79 .	38.9	78	1
	CONT	ROL LIMI	TS				% REC	: .		RPD
GASOLINE							50 -	112		20
	SURR	OGATE RE	COVERIES		SPIKE		DUP.	SPIKE.	LIMIT	'S
Section	Doxu									
TRIFLUORO	TOLUE	NE			84		85		50 -	150

NC = Not Calculable.



TOTAL PETROLEUM HYDROCARBONS QUALITY CONTROL DATA

: APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : BLANK SPIKE : 15,169.130 DATE EXTRACTED : 04/30/93 CLIENT

PROJECT # : 15,169.130
PROJECT NAME : GTE/KIRKLAND DATE ANALYZED : 05/03/93 UNITS : mg/Kg : WA DOE WTPH-G

METHOD SAMPLE MATRIX : SOIL

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
		•			% REC	1		RPD
	CONTROL LIMITS				Jan e	• •		10
					80 -	119		20
GASOLINE	•				00	110		
•	SURROGATE RECOVER	RIES	SAMPLE		SAMPI	E DUP.	.ĻIMIT	:S
					N/A		50 -	150
TRIFLUORC	TOLUENE		89		IA\ W	3.	20	



TOTAL PETROLEUM HYDROCARBONS QUALITY CONTROL DATA

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

DATE EXTRACTED : 05/03/93 DATE ANALYZED : 05/03/93 : 15,169.130 PROJECT # PROJECT NAME : GTE/KIRKLAND : mg/Kg UNITS : WA DOE WTPH-G

SAMPLE MATRIX : SOIL

METHOD

	•							
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	:\$
TRIFLUORO	TOLUENE		103		N/A		50 -	150



GENERAL CHEMISTRY ANALYSIS

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

PROJECT NAME : GTE/KIRKLAND

DATE ANALYZED PARAMETER

04/30/93 MOISTURE



GENERAL CHEMISTRY ANALYSIS DATA SUMMARY

CLIENT : APPLIED GEOTECHNOLOGY, INC.

MATRIX : SOIL

PROJECT #

: 15,169.130

PROJECT NAME : GTE/KIRKLAND

UNITS : %

11100201 1114			
ATI I.D. #	CLIENT I.D.	MOISTURE	
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	11 18 11 16 15	



GENERAL CHEMISTRY ANALYSIS QUALITY CONTROL DATA

: APPLIED GEOTECHNOLOGY, INC. CLIENT

MATRIX : SOIL

PROJECT # : 15,169.130

PROJECT NAME : GTE/KIRKLAND

UNITS : %

PARAMETER	ATI I.D.	SAMPLE RESULT		RPD	SPIKED RESULT	SPIKE ADDED	% REC
MOISTURE	9304-313-1	7.9	7.9	0	N/A	N/A	N/A

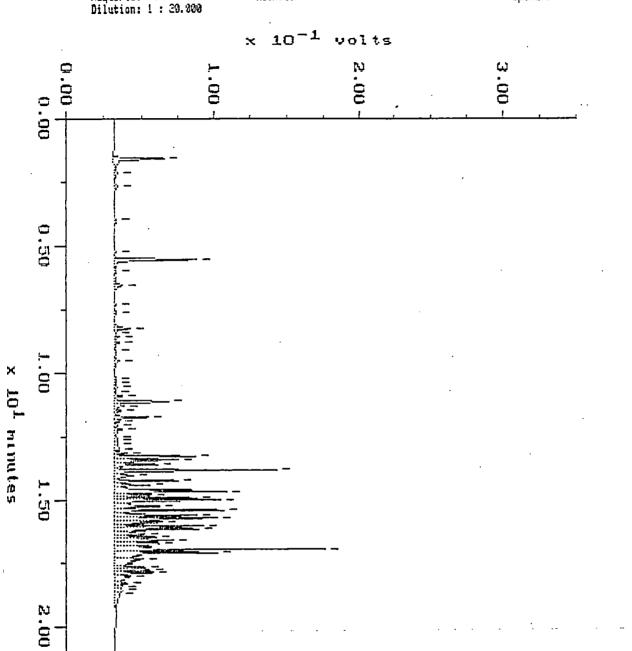
% Recovery = (Spike Sample Result - Sample Result) Spike Concentration RPD (Relative % Difference) = (Sample Result - Duplicate Result) Average Result

WA DOE WTPH-G

Sample: 9304-304-5 DIL Acquired: 02-769-93 19:36 Dilution: 1 : 20.000

Channel: JERCME-FID
Method: F:\BRO2\MAXDATA\JERBME\05@293JR

Filename: RE029J14 Operator:

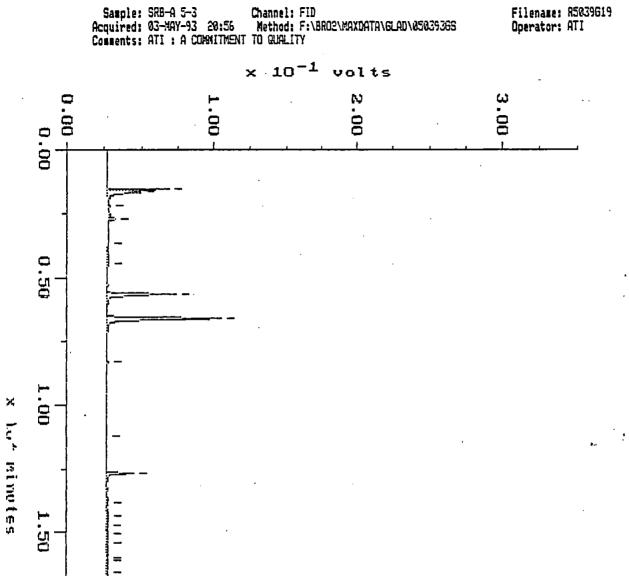


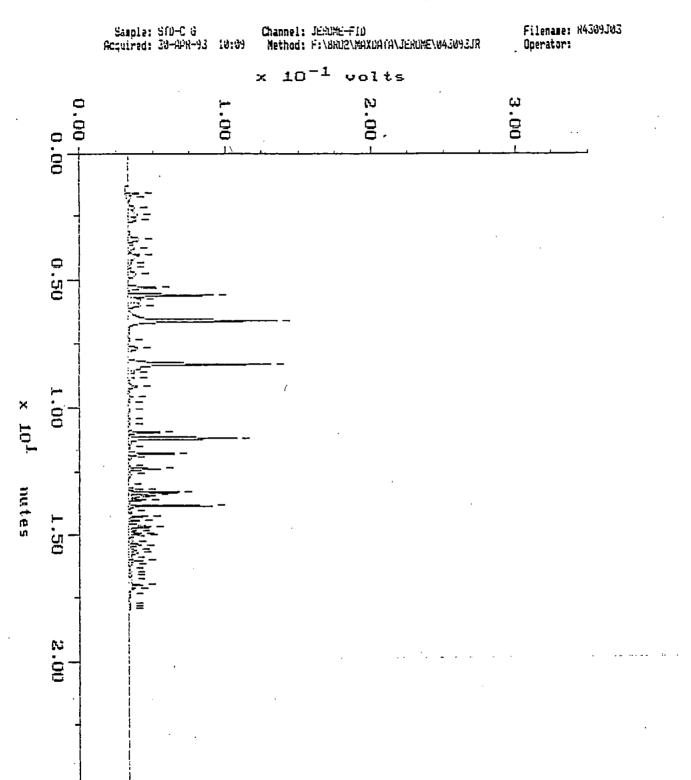
Filename: R5039J04 Operator: Channel: JERCME-FID
Method: F:\BRO2\MAXDATA\JEROME\050393JR Sample: SRB B 4-30 Acquired: 03-MAY-93 10:09 \times 10⁻¹ volts 0.00-2.00 -1.00 \times 10^1 minutes 1,50

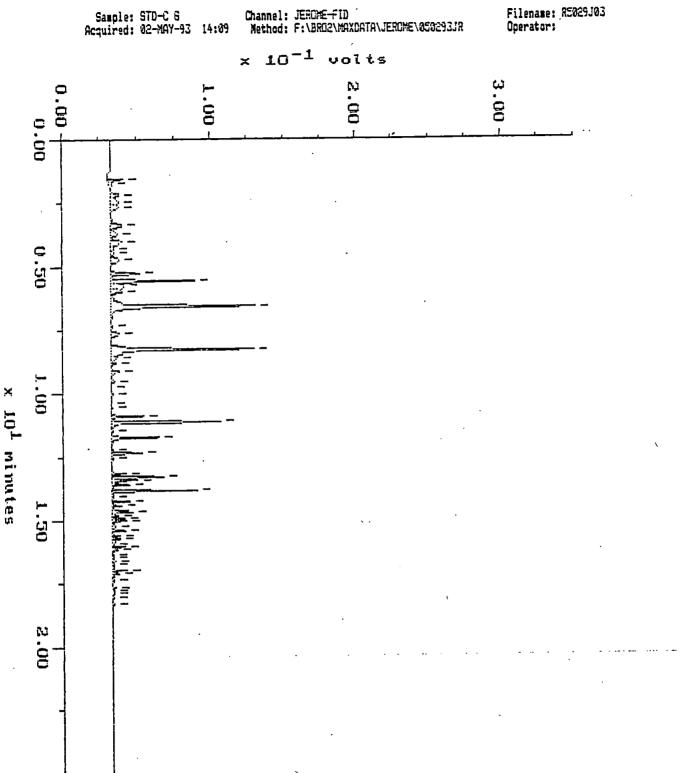
WA DOE WTPH-G

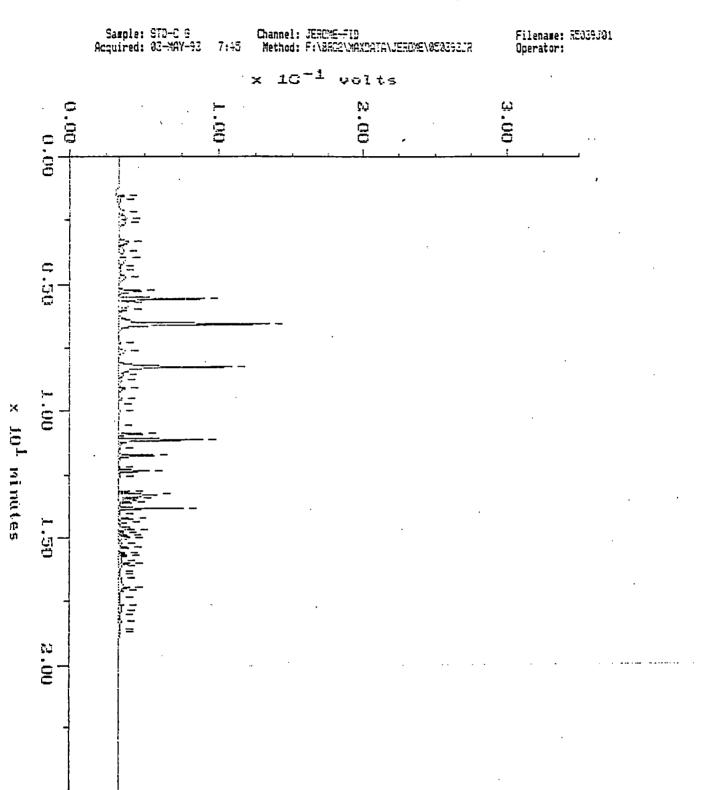
Blank

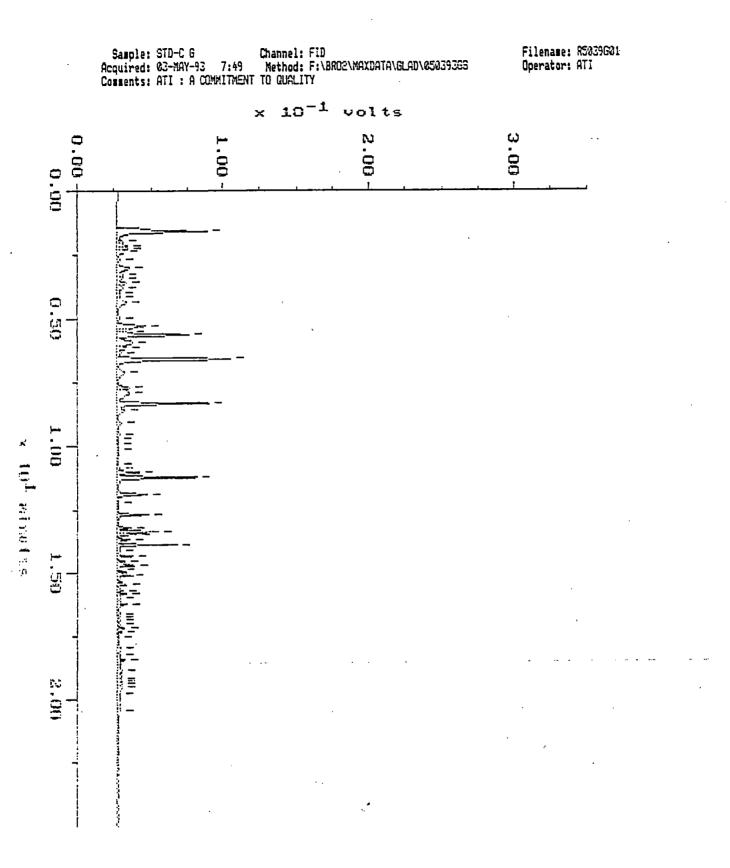
Filename: R5039619 Operator: ATI

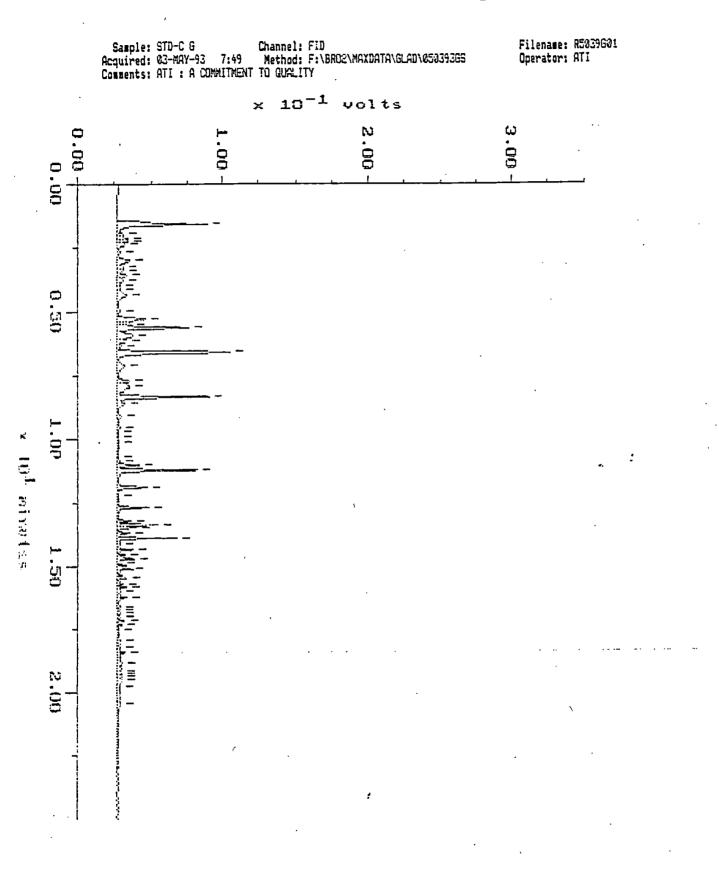












Applied Geotechnology Inc. Geotechnical Engineering Geology & Hydrogeology

CHAIN-OF-CUSTODY

Date 4-30-93 Page / of /

PROJECT INFORMATION Laboratory Number: 7 5 09 2 09													
MANDOLANDIONALIA A COMPANIO A COM													
Project Name: GTE/KIEKLAND - UST UTCADE Project Number: 15,169,130 Site Location: KIRKLAND Sampled By: LGC													
Project Number: 15,169.130	HYDROCARBON		-										
Site Location: KIRKLAND Sampled By: LGC]												
DISPOSAL INFORMATION			83										
Lab Disposal (return if not indicated)	\ \ \ \ \ \ \ \ \ \ \ \		N N										
Disposal Method:	Luctions	A VOCS S S S S S S S S S S S S S S S S S S	l S										
Disposed by: Disposal Date:	State: State: State: Cial Inst	Iticide (C) (23) Meticide als	니 다										
QC INFORMATION (check one)		8020 Aromatic VOCs 8020 Aromatic VOCs 8020 Aromatic VOCs 8020M - BETX only 8240 GCMS Volatiles 8270 GCMS Semivol. 8310 HPLC PAHs 8040 Phenols 100WS - Volatiles and Semivol. 8080 OC Pest/PCBs 8080 OC Pest/PCBs 8080 OC Pest/PCBs 8080 OC Pest/PCBs 8080 OC Pest/PCBs 8080 OC Pest/PCBs 8080 OC Pest/PCBs 8080 OC Pest/PCBs 8080 OC Pest/PCBs 8080 OC Pest/PCBs 8080 OC Pest/PCBs 8080 OC Pest/PCBs 8080 OC Pest/PCBs 8080 OC Pest/PCBs 8080 OC Pest/PCBs 8080 PCBs only 8140 OP Pest/PCBs 8080 OC Pest/PCBs 8080	NUMBER OF CONTAINERS										
□SW-846 □CLP □Screening □AGI Std. □Special	TPH-G TPH-G TPH-D TPH Spe 418.1	8010 Ar 8015M B 8010 HE 8010 HE 8010 HE 8010 HE 8010 HE 8010 HE 8010 HE 8010 HE 8010 HE 8010 HE SELECT TOTAL HE TOURS - TOTAL HE TOTAL HE SELECT TOTAL HE SELE	l Ba										
SAMPLE ID DATE TIME MATRIX LAB ID	4 4 4 4 4												
DS-3 4-29-93 1245 Sexu 1	×		- 1										
D5-4 1 1400 / 2		<u>╶╿╶┦╼┞</u> ╌┦╼╀╼┦╼┦╼┦╼┦╼┦╼┦╼┦╼┦╼┦╼┦╼┦╼┦╼┦╼┦╼┦═┦═┦═┦	_ <u>-</u> _										
D5-5 + 1595 3		╶┧╶╎╌╎╌╎╌╎╌╎╌╎╌╎╌╎╌╎╌╎╌╎╌╎╌╎╌╎╌╎	- -										
	×	_ _ _ _ _	- -										
D5-7 11 1035 + 5		╶╿╶╿╼╿╼╿╼╿╼╿╼╿╼╏╸╏┈╿╼┩╼╏╸╏╼╿╼╿╼╿╼╿ ╼┞╼┞╼┞═╿ ² ╒┩ ╵ ┞╸	- -										
	-	<u> </u>	- -										
	-	╶┃╶┼╼┞╼┞╌╎╼╿╼╂┈╎╼╏╼┼╼╄╼┼╼┞╼╂╼╂╼┞╼┼╼┞╼┞╼┞╼╏╼╏╼┞╼┞╼┞═┞═┞═	-										
	<u> </u>												
LAB INFORMATION SAMPLE REC	EIPT	RELINQUISHED BY: 1. RELINQUISHED BY: 2. RELINQUISHED BY	': 3. Time:										
Lab Name: ATI Total Number of Containers:	5	Signature: Time: Signature: Signature: 1130	14me:										
Lab Address: RENT Chain of Custody Seals?: Y/	NNA -7	Printed Name: Date: Printed Name: Date: Printed Name:	Date:										
Intact?: Y/N/NA	Ý,												
Via: Cource Received in Good Condition/6	Cold: YY	Aust Abet											
Turn Around Time: ☐ Standard ☐ 24 hr. ☐ 48 hr. ☐ 72	nr. 🗌 1 wk.	RECEIVED BY: 1. RECEIVED BY: 2. RECEIVED BY:	3.										
PRIOR AUTHORIZATION IS REQUIRED FOR RUSH	DATA	Man Lew 1131 / 451	111119:										
Special Instructions:			Date:										
	DIO.	Company: Company: Company: Company: Company:	ol Eilo										

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

TIMELINESS

Parameter	Date Sampled	Date Extracted	Date <u>Analyzed</u>	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
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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

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 and relative percent

difference (RPD) are within ATI's control limit criteria

for method WTPH-G.

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 ILM01.0.

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

control limit criteria for method WTPH-G.

SIGNATURES

Prepared by _	annotta	Soil Port		Date	6/4/93
Checked by				Date	

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

ATI I.D. # 9305-017

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

r 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, place contact our sample control department before the scheduled coposal 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 F7 = ATI - Fort Collins

3 = Subcontract



TOTAL PETROLEUM HYDROCARBONS DATA SUMMARY

: APPLIED GEOTECHNOLOGY, INC. DATE SAMPLED : N/A CLIENT DATE RECEIVED : N/A PROJECT # : 15,169.130 DATE EXTRACTED : 05/04/93 PROJECT NAME : GTE/KIRKLAND DATE ANALYZED : 05/04/93 CLIENT I.D. : METHOD BLANK : mg/Kg UNITS

SAMPLE MATRIX : SOIL

DILUTION FACTOR: 1 METHOD : WA DOE WTPH-G

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUND

<5 FUEL HYDROCARBONS

TOLUENE TO DODECANE HYDROCARBON RANGE

GASOLINE HYDROCARBON QUANTITATION USING

LIMITS SURROGATE PERCENT RECOVERY

50 - 150 96 TRIFLUOROTOLUENE.



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 <

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
	CONTR	OL LIMI	rs				% REC	•		RPD
GASOLINE							50 -	112		20
	SURRO	GATE RE	COVERIES		SPIKE		DUP.	SPIKE	LIMIT	S
TRIFLUORO'	TOLUEN	E			7 9		76		50 -	150



TOTAL PETROLEUM HYDROCARBONS QUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY, INC. SAMPLE I.D. # : BLANK SPIKE PROJECT # : 15,169.130 DATE EXTRACTED : 05/04/93 DATE ANALYZED : 05/04/93 UNITS : mg/Kg PROJECT NAME : GTE/KIRKLAND

UNITS : WA DOE WTPH-G METHOD

SAMPLE MATRIX : SOIL

		SAMPLE	SPIKE	SPIKED	%	DUP. SPIK E D	DUP. %	
COMPOUND		RESULT	ADDED	RESULT	REC.	RESULT	REC.	RPD
GASOLINE		<5.00	50.0	49.9	100	N/A	N/A	N/A
	CONTROL LIMITS		٠		% REC			RPD
GASOLINE					80 -	119		20
	SURROGATE RECOVER	IES	SPIKE		DUP.	SPIKE	LIMIT	.s
TRIFLUORO	TOLUENE		89		N/A		50 -	150



GENERAL CHEMISTRY ANALYSIS

MATRIX : SOIL

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

PARAMETER

05/05/93 MOISTURE



GENERAL CHEMISTRY ANALYSIS DATA SUMMARY

: APPLIED GEOTECHNOLOGY, INC. CLIENT

MATRIX : SOIL

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

UNITS : %

MOISTURE

9305-017-1

DS-8

11



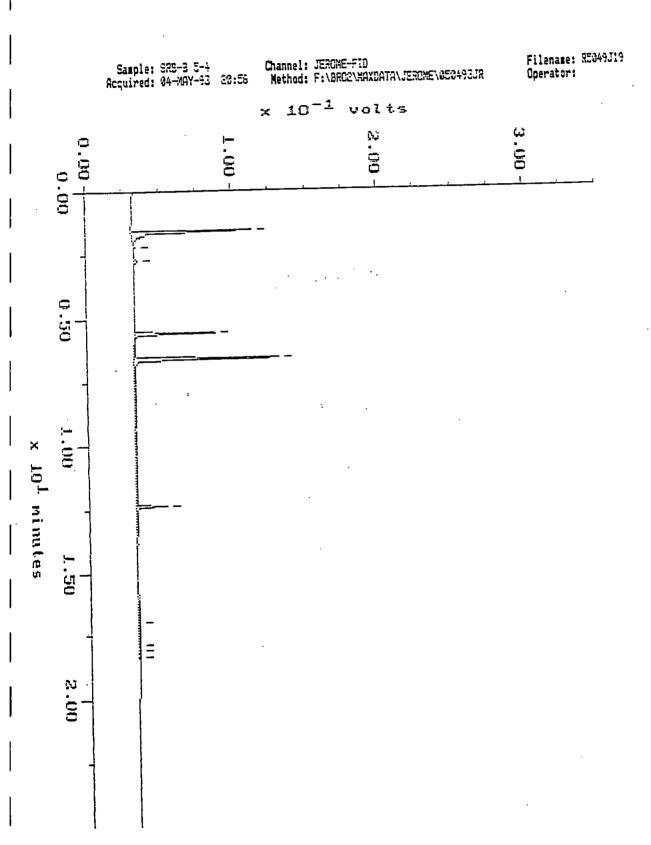
GENERAL CHEMISTRY ANALYSIS QUALITY CONTROL DATA

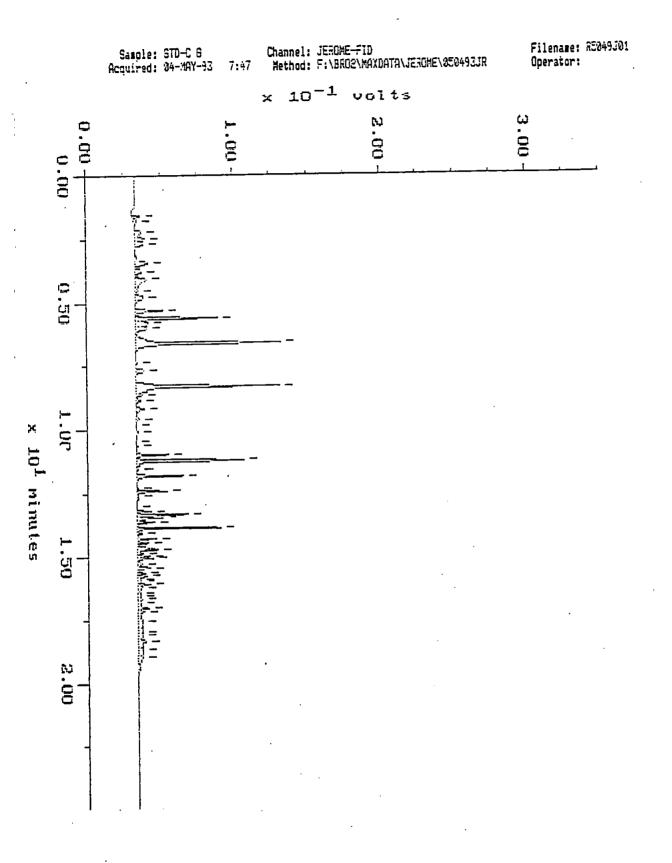
CLIENT : APPLIED GEOTECHNOLOGY, INC. MATRIX : SOIL

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

PROJECT NAME : GTE/KIRKLAND UNITS : %

		,					
PARAMETER	ATI I.D.	SAMPLE RESULT	DUP RESULT		SPIKED RESULT		% REC
MOISTURE	9305-009-1	18	19	5	N/A	N/A	N/A





Applied Geotechnology Inc. Geotechnical Engineering Geology & Hydrogeology

CHAIN-OF-CU	STODY
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Date 5/2/93 Page / of /

PROJECT INFORMATION Laboratory Number: 9305-017 Project Manager: 57-EN 30BN/CK ANALYSIS REQUEST																																			
Project Manager: _ <7										LY	SIS	RE	Ql	JES	ST.]									
Project Name: GTE	KIRKL	-4~	באנ				PETROLEUM HYDROCARBONS ORGANIC COMPOUNDS PESTS/										STS/PCB's METALS								LEACHING 01					тн	ER				
Project Number:	169.1	<u> </u>				8140 OP Pesticides 8080 M PCBs only 8080 OC Pest/PCBs 8040 Phenois 8270 GCMS Semivol. 8240 GCMS Volatiles 8020M - BETX only 8020 Aromatic VOCs 8010 Halogenated VOCs 7PH-D State: TPH-G State: TPH-ID State:																2 :	TCLP -							ై					
Site Location: KIRKL	AND	s	Sample	d By: <u>/</u>	<u>ت 12-</u>	뭂	문	뷥	밁	2 2)20 A)20M	60	706	4 6	S S S	800	8	6 6	5 S	lecte		ganic	֡֞֞֞֝֓֞֟֝֓֓֓֓֟֝֓֓֓֓֟֝֓֓֓֟֟֝֓֓֓֓֓֟֟֝֓֓֓֓֟֟֝֓֓֓֓֟֝֓֓֓֟֝֓֡֡֡֡֡֝		<u>د</u> ارة	ä		탕	5				MBE
DISPO	SAL INFOR	RMAT	ION			ဋ	St	ည္ည	TPH Special Instructions	ŽĮ.	8010 Halogenated VOCs	8020 Aromatic VOCs	8020M - BETX only	SK		8040 Phenois	Vola	CP	8080M PCBs only	8140 OP Pesticides	일품	E D	Total Lead (Wa)	Organic Lead (Ca)	TCL Metals (23)		Dws - Metals	MESP - Metals (Wa)	TCLP - Semivolatiles	Pesticides	TCLP - Metals		-		NUMBER OF CONTAINERS
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Lab Name: ATI			Total Nu	mber of C	Containers:				1_		Sign	natur	" it	ī	_	1	4	Time:	٤	Signal	ure:					Tir	ne:	S	ignatu	Jte:					Time:
Lab Address: TRENT			Chain of	Custody	Seals: Y/N	I/NA	\		Y											rinte	d Nan	18:				Da	ate:	Р	rinted	l Nan	ne;				Date:
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AGI OFFICES: Bellevue: (206) 453-8383 Portland: (503) 222-2820

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

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

PROJECT AND SAMPLE INFORMATION

Project Name: GTE/Kirkland - UST Upgrade

Water

Project No.: 15,169.130

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

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

_

Matrix:

QUALITY ASSURANCE SUMMARY

All data are of known and acceptable quality.

ANALYTICAL METHODS

<u>Parameter</u>	<u>Technique</u>	<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	N/A	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	AND	SAMPLE	INFORMATION
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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

STONATURES	

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

Karen L. Mixon, Laboratory Manager

in 20 1993

APPLIED GENICUARY ISC

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

Liar 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

አጥፕ #	CLIENT	DESCRIPTION	DATE	SAMPLED	MATRIX
9305-045-1	DS-9		05/05		WATER

---- TOTALS ----

SAMPLES MATRIX 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, ase contact our sample control department before the scheduled asposal date.



ANALYTICAL SCHEDULE

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

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

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

と 글 = Subcontract



BETX - GASOLINE DATA SUMMARY

PROJECT # PROJECT NAME CLIENT I.D. SAMPLE MATRIX METHOD	: METHOD BLANK		: N/A : N/A : 05/06/93 : ug/L R : 1
COMPOUNDS		RESULTS	
BENZENE ETHYLBENZENE TOLUENE TOTAL XYLENES FUEL HYDROCAF	RBONS	<0.5 <0.5 <0.5 <0.5 <100 TOLUENE TO DOI GASOLINE	DECANE
· .	SURROGATE PERCENT RECOVERY		LIMITS
BKOMOFLUOROBI TRIFLUOROTOLU	ENZENE	99 94	76 - 120 50 - 150



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 : 05/07/93 UNITS : ug/L DILUTION FACTOR : 1
COMPOUNDS	RESULTS
BENZENE ETHYLBENZENE TOLUENE TOTAL XYLENES	<0.5 <0.5 <0.5 <0.5
FUEL HYDROCARBONS HYDROCARBON RANGE HYDROCARBON QUANTITATION USING	<100 TOLUENE TO DODECANE GASOLINE
SURROGATE PERCENT RECOVERY	LIMITS
BKOMOFLUOROBENZENE	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
CHAISCHIANS	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

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

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

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

SAMPLE MATRIX: WATER UNITS: ug/L

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

				•					
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 30LINE					·	77 - 1 72 - 1 80 - 1 58 - 1	.13 .10		20 20 20 20
SURROGAT	E RECOVE	RIES		SPIKE		DUP. S	PIKE	LIMITS	ł
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

PROJECT #

DATE EXTRACTED : N/A

: 15,169.130

DATE ANALYZED : 05/06/93

PROJECT NAME : GTE/KIRKLAND

METHOD

UNITS

: ug/L

SAMPLE MATRIX : WATER

: 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	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 30LINE				80 - 1 78 - 3 80 - 3 75 - 1	11		20 20 20 20
SURROGATE RECOVERIE	S	SPIKE		DUP. S	SPIKE	LIMITS	3
BROMOFLUOROBENZENE TRIFLUOROTOLUENE		100 95		N/A N/A		76 - 3 50 - 3	L20 L50



BETX - GASOLINE QUALITY CONTROL DATA

: APPLIED GEOTECHNOLOGY, INC. CLIENT

SAMPLE I.D. # : BLANK SPIKE

: 15,169.130 PROJECT #

DATE EXTRACTED : N/A DATE ANALYZED : 05/07/93

PROJECT NAME : GTE/KIRKLAND

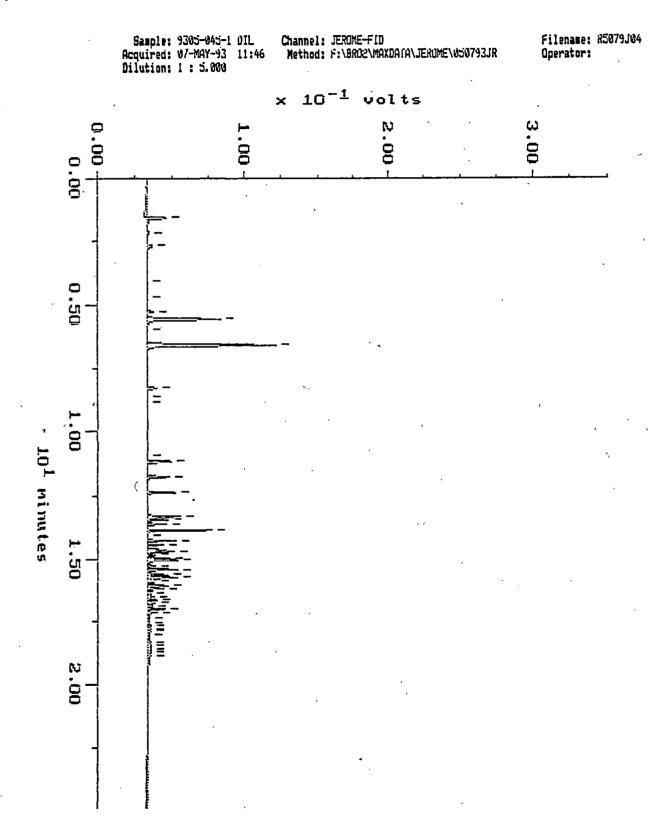
SAMPLE MATRIX : WATER

: ug/L UNITS

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

						<i> </i>	
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 SOLINE				80 - 3 78 - 3 80 - 3 75 - 3	L11 L14		20 20 20 20
SURROGATE RECOVERIE	S	SPIKE		DUP. S	SPIKE	LIMITS	3
BROMOFLUOROBENZENE TRIFLUOROTOLUENE		105 90		N/A N/A		76 - 3 50 - 3	120 150

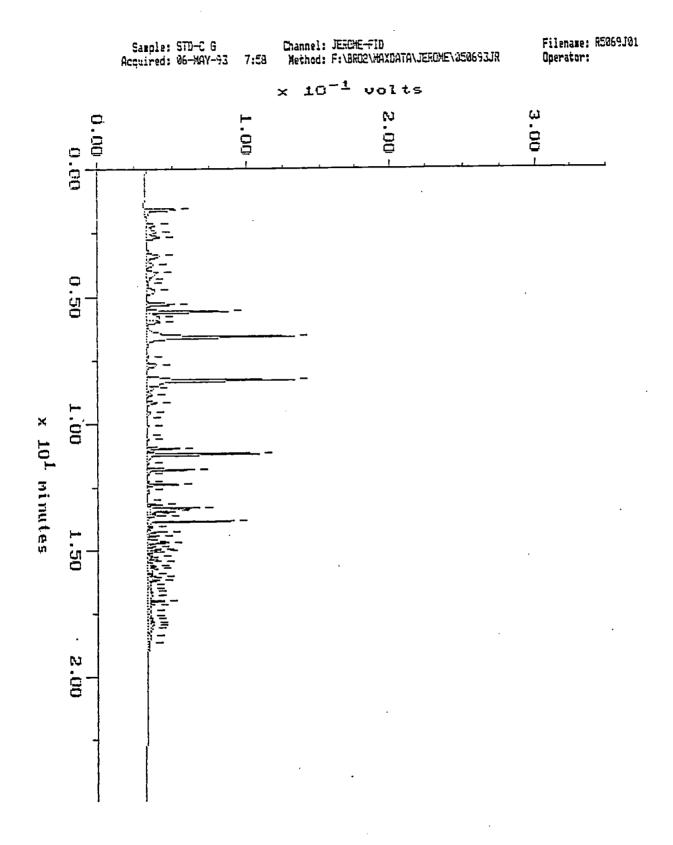
WA DOE WTPH-G



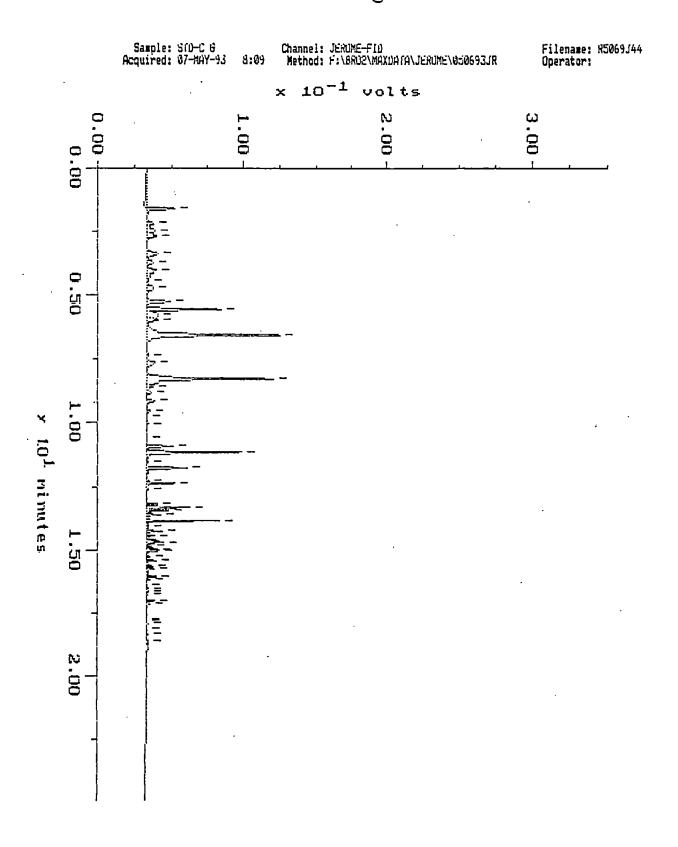
Blank Sample: WRE 3-75 Acquired: 05-75/-33 Filanase: RE069103 Operator: \times 10⁻¹ volts 2.50 0.00 |---1.00 x 19¹ minutes .50 2.00

Sample: WKB 5-67 Acquired: 07-MAY-93 Channel: JERUME-FID
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Continuing Calibration



Continuing Calibration



lied Geotechnology Inc. Geotechnical Engineering Geology & Hydrogeology

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PROJECT INFORMA	TION		La	bo	rato	гу I	Nur	mb	er:	7.5	17.		. <i>L</i>	5																			
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Applied Geotechnology Inc.

August 12, 1993

15,169.145



Mr. Bill Westwood GTE Northwest Incorporated 1800 41st Street, WA0105SS Everett, Washington 98206

Dear Bill:

Status Report Groundwater Recovery System GTE Kirkland Garage Facility Kirkland, Washington

This letter summarizes the status of the groundwater recovery system at the above project. A brief description of project background and status as of August 1993 are provided herein.

BACKGROUND

Petroleum-contaminated soil was encountered during removal of fuel dispensers at the Kirkland Garage Facility in April 1993. The dispensers were located immediately adjacent to the garage building. The contractor excavated to the bottom of the contaminated soil and determined the horizontal limits of contamination outside the building, but was unable to remove contaminated soil extending beneath the garage building and underground utilities located in the area. Vertical migration of the contamination appeared to be limited by a silt layer about 6 feet below ground surface. During excavation, seepage with a petroleum sheen was observed along the top of the silt layer and standing water was also observed in an exposed sewer trench.

Laboratory tests of a water sample collected from the excavation low point confirmed that petroleum hydrocarbon concentrations exceeded state cleanup levels. Standing water in test pits along the sewer trench on either side of the contaminated area did not have a petroleum sheen. Because of the limited extent of soil and water contamination, it does not appear there is an immediate threat to the environment.

Applied Geotechnology Inc. (AGI) contacted Mr. Roger Nye at the Washington Department of Ecology (Ecology) to identify an acceptable approach to address remaining contamination. Mr. Nye agreed that migration control or periodic monitoring of the contaminated perched groundwater would be appropriate. Mr. Nye also indicated that the site would be tracked by Ecology until contamination was removed to cleanup levels, but no schedule for cleanup would be established provided the contamination continues to pose no immediate threat to the environment.

FAX 206/646-9523 Telephone 206/453-8383

Mr. Bill Westwood GTE Northwest Incorporated August 12, 1993 Page 2

In early May 1993, AGI directed the contractor to install a sump and pump for recovery of the perched groundwater and two monitoring wells. The sump was located centrally in the contaminated area, and the two monitoring wells were located about 15 feet to either side of the sump and immediately adjacent to the sewer extending through the area. A temporary 6,500-gallon aboveground water storage tank with a high-level shutoff for the pump was also installed.

STATUS

An AGI representative visited the site on August 10, 1993 to observe conditions. The groundwater level was a few inches above the bottom of the monitoring wells and recovery sump, and below the level needed to activate the pump. Approximately 75 gallons of water was present in the temporary aboveground tank. No water samples were taken.

It appears most of the perched groundwater has been pumped out and has not recharged since the excavation was backfilled. We do not expect the perched groundwater levels to rise until late winter or early spring. We also do not expect soil contamination conditions have changed significantly since excavation was completed.

Stored water, assumed to be petroleum contaminated, will be treated and properly disposed of by a vendor. The pump will be disconnected and the temporary aboveground tank will be removed from the site. An evaluation of remaining contamination can be made when groundwater levels rise, which we anticipate occurring in February or March 1994.

Sincerely,

APPLIED GEOTECHNOLOGY INC.

Glen M. Bobnick, P.E.

Senior Engineer

GMB/jlh



ATTACHMENT B

Ecology Forms



Request for Review Independent Remedial Action Report

Please submit the following documents to the appropriate Ecology Office (see back of form)

Request for Review (ECY 020-74)

- A check or money order for \$1,000, payable to: Department of Ecology
- Independent Remedial Action Report Summary (ECY 020-73)
- An interim or Final Independent Remedial Action Report

Ecology's Independent Remedial Action Program provides for the review of Independent Remedial Action reports on a first-come, first-served basis. The Filing Fee paid with this submittal covers an initial review and is not refundable. The initial review will be completed within 90 days.

- If the enclosed remedial action report is accepted for detailed review, you will be notified if additional fees are required before detailed review begins (see fee schedule below).
- if the enclosed remedial action report is incomplete, you forfelt the \$1,000 Filing Fee. The report will be returned with suggestions about what additional information is needed. An additional \$1,000 fee will be required if you choose to resubmit.

Note: A copy of this form w TCP I.D. number loo	vill be mailed to	o you. If you	wish to inquire about the	status of this request	t for review, please re	efer to the
TOP I.D. Rumber loc	wear ou ma o	wom nam a	illei oi ans ionik			
TOTAL COST OF RE	MEDIAL ACTI	ON (Include	both contracted work and	i work performed by o	owner/operator):	
	Person/Enti	ity Performii	ng Work	•	Co	
O'Sullivan Pet	roleum (Cl	nange Ord	er #7)		\$ <u>28.979</u>	
AGI Technologi	es (10/3/9	94 Budget	Adjustment)		\$ <u>8,475</u>	
Rem-Tech					\$ 4.960	0.00
			Total Cost of	Remedial Action	\$ 42,35 ⁴	.12
		,				
Applicant William I		- ADMINISTO	oter tavinoumental	Phone	· · · · · · · · · · · · · · · · · · ·	
Name: GTE Northwe			Cumpliance	(206)	<u> 261 ⁻ 5481</u>	
Applicant Address: 1800 41st S Everett, WA	-		IUX 1003 EverlIT, WA 96206 WA 0105	ss	<u> </u>	
Site Name				Site Location	12055 SLATER 6	ave.
GTE Kirklan	d Garage I	Facility		Kirkland,	WA 98034	·
Site Owner Name (if different	than Applicant)			Phone ()		
Site Owner Address						
	(Ap.	pilcant complet	se above this line, Ecology co	mpletes below this line)		
			POR BOOLOGY USE CNUX			
APPLICABLE REVIEW FE	E (see schedul	beiow)	\$			
Received	Amo	unt	Date	<u></u>	Received by	
Filing Fee	\$					
*Fee Balance	\$			<u> </u>		
*Note: A fee balance may be	required. Pleas	se keep your r	eceipt for submittal of your fe	e balance.		
FEE SC	HEDULE		•			. •
Cost of Remedial A		Fee	173-02-94-005000-5000-		- 	: <u>*</u>
Filing Fee (applies to Detaile	d Review Fee)	\$ 1,000		(LUST/Non-LUST)	(Office)	
DETAILED I	REVIEW FEE		LUST/Non-LUST	☐ LUST-30	Non-LUST-20	·
. Mi	nimum Fee:	\$ 1,000	Office	☐ NWRO-40	SWRO-50	☐ ERO-60
\$50,000	- \$750,000:	2% of Cost		☐ CRO-70	☐ IND-80	SCS-90
Ma	ximum Fee:	\$15,000	Office/Receipt #			
FCY 020-74 (2/94)			TCDID #/SIS or LIN	2 T \•		

Where to Submit Your Forms, Report, and Fees

If you are mailing your report, you may mail all reports, regardless of site location, to:

Department of Ecology Independent Report Review PO Box 5128 Lacey, WA 98503-0210

If you need to ask questions and your site is in . . . County:

Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima

Call the Ecology Regional Office . . . Regional Office:

Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln,

Phone: (509) 575-2491 (voice) (509) 454-7673 (TDD) Location: Same as Mailing

Yakima, WA 98902-3387

Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom

Pend Oreille, Spokane, Stevens, Walla Walla, Whitman

Eastern Region

Central Region 106 S. 6th Avenue

N. 4601 Monroe, Suite 100 Spokane, WA 99205-1295

Phone: (509) 456-2926 (voice) (509) 458-2055 (TDD)

Clallam, Clark, Cowfitz, Grays Harbor, Jefferson, Lewis, Mason, Pacific, Pierce, Skamania, Thurston, Wahkiakum

Northwest Region

3190 160th Ave SE Bellevue, WA 98008-5452

Phone: (206) 649-7000 (voice) (206) 649-4259 (TDD)

- OR - if your site is part of a major pulp or paper mill, aluminum smelter, or oil refinery,

Southwest Region

PO Box 47775 Olympia, WA 98504-7775

Phone: (206) 407-6300 (voice) (206) 407-6306 (TDD)

Industrial Section

PO Box 47706

Olympia, WA 98504-7706

Phone: (206) 407-6900 (voice) (206) 407-6006 (TDD)

- OR - if your site is part of a federal facility.

Site Cleanup Section

PO Box 47600

Olympia, WA 98504-7600

Phone: (206) 407-7170 (voice) (206) 407-6006 (TDD)



Independent Remedial Action Report Summary

This report summary is an important part of the Independent Remedial Action Report. Please complete the summary and submit it with your Independent Remedial Action Report. If this document does not accompany your cleanup report, or if it is not fully completed, your report cannot enter the review process necessary for Ecology to provide you with a "no further action" determination, or to remove your site from the hazardous sites lists.

	FOR ECOLOGY USE ONLY		
ERTS No.	TCFLD. No.	Date Received	□ NFA
EUST No.	U.B.L.No.	Initial Investigation (Date)	☐ SHA Referral ☐ Interim Action
Reviewed by		Total Hours for Review	Emergency Action
neviewa by		soler Honta for Resea	
Does the cleanup comply with cleanup	etandarsts? YesO NoO	Total Fee:	

Please Print Clearly or Type

General Information

	Phone	
 -	(206) 261-5481
Everett, WA 98	206	Snohomish
State/Province	Zip	County
· · · · · · · · · · · · · · · · · · ·	Phone	261-5481
·	Phone (206)	823-8338
Kirkland, WA	9803	4 .
	State	Zip
	Phone (206)	823-8338
	Phone (206)	453-8383
Bellevue, W	A 9800	5
	State/Province	(206 Everett, WA 98206 State/Province Zip Phone (206) Phone (206) Kirkland, WA 9803 State Phone (206) Phone (206)

Report Information

Has a cleanup been conducted? Yes⊠ No□ Is this a Leaking Under	ground Storage Tank (LUST) report? Yes 🛛 No 🗆
Type of report (check all that apply)	Date release was reported to Ecology
☐ Combined release and independent remedial action report ☐ Independent remedial action report	Not documented - Approximately 4/16/93
☐ Interim action report ☐ Final deanup action report	Date cleanup was completed August, 1993

Facility information			
Site Name GTE Kirkland Garage Facility			
Other Names (the site may be known as) GTE Kirkland Support Yard	SLATELYA	N)	
,			
Site Control Person if other than Owner/Operator. (This qualified to answer questions about the site, or a person remediation.)	who is available	during normal business hours and has	
Name Bill Westwood/Environmental			Prione (200) 201-3461
Site Mailing Address (or site contact mailing address)	Po Boxlo	^ን ን · ·	
1800 41st St. WAO105SS	Everet	t, WA 98206	
Site Location Address (including zip code)		C 2011	
12055 Slater Avenue N.E.	Kirkla	T	
Closest City		County (where site is located)	•
Kirkland		King	•
Ownership and Operator Type. Complete the table below (For example, if the property owner is a port district and the municipal, code #2 row, and under the operator ident	the operator a pri	vate individual, then check the boxes a	
Ownership/Operator Type	Code#	Owner Identification	Operator Identification
Private Party	1	X	X
Municipal (Public)	2	,	
County	3		
Federal	4		
State ,	5		
Tribal	6		
Mixed	7		
Other	8		
Unknown	9	,	
Public Entity Acquisition through Bankruptcy	10		
Financial Institution Acquisition through Bankruptcy	11		
Standard Industrial Classification (SIC) Codes. List all t site, e.g., automotive repair and maintenance, constructio Fleet vehicle fueling and ma	n equipment stor		code, list activities conducted at the
*			
Hazardous Substances Management Practices(s). The h	zardous substant	ce(s) cleaned up from the site was the	esult of which of the following
sources, activities, or actions? Please circle all that apply			
1 = Drug Lab	-	7 = Pesticide Application	
2 = Drum		8 = Pesticide Disposal	
3 = A Leaking Impoundment		9 = A Spill	
4 = Improper Handling		10 = Storm Drain	
5 = Landfill	•	(1)= Leaking Tank: (a) below g	round; (b) above ground
6 = Land Application		12 = Unknown	

End use of property (circle one) COMMERCIAL INDUSTRIAL RESIDENTIAL

)

Re	ease .	ini	orma	tlon

Date of Release	e (if known)	Date of Discovery	Are there any d	rinking water sys		_	
		4.16.43 (APPROV)				nown 🗆	<u> </u>
	er systems are aff , or both? <i>(circle c</i>	ected, are the systems one)	If drinking wate provided?	r systems are affo Yes 🗆 N	ected, has alterna No 🗆 — Unk	ate drinking wate nown N/A	er been
		Categories. Using the contaminan			•		
(A more detaile	ed description of t	the contaminants can be found in a	Appendix C of th	e guidance.)			
Contaminants.	For each of the ap	pplicable contaminants, enter the			Affected Media	1	
C = Confirme	d or S = Suspend	e status of the contaminants: ed. (Contaminant status dix C of the guidance.)	Ground Water	Surface Water	Drinking Water	Soil	Air
1.	Halogenated Or	ganic Compounds					
2.	Metals - Priority	y Pollutants			•		
3.	Metals - Other						
4.	Polychlorinated	Bi-Phenyls (PCBs)					
5.	Pesticides/Hert	oicides					
6.	Unleaded Gas		Х		,	x]
	Leaded Gas						
	Diesel						
	Waste Oil						
	Heat Fuel						
	Other (Specity)						
7.	Phenolic Compo	nınds					<u> </u>
8.	Non-Halogenate	ed Solvents					
9.	Dioxins						_
10.	Polynuclear Arc	matic Hydrocarbons (PAHs)					
11.	Reactive Wastes	·]	
12.	Corrosive Waste						
13.	Radioactive Was	stes					
14.	Conventional Co	ontaminants Organics		٠.			
15.	Conventional Co	ontaminants Inorganics					
16.	Base/Neutral Or	rganic Compounds					
17.	Asbestos						

Cleanup Information

Indicate cleanup level methods used by completing Table 5-A below. (check all that apply)

TABLE 5-A				
	Soil	Ground Water	, Air	Surface Water
Method A	X	х		
В				
c				
Have these levels been met throughout the site? (circle only one)	(YES) NO	(YES) NO	YES NO	YES NO

Indicate the treatment mehtods used by completing Tables 5B - 5D below (check all that apply) (See Appendix D)

TABLE 5-B							
		Destruction or	r Detoxification	•		Media Transfer	
	Carbon Adsorption ¹	Biological Treatment	Chemical Destruction	Incineration	Air Stripping/ Air Sparging	Aeration/Vapor Extraction	Thermal Desorption
Soil	-NA-				-NA-		X
Ground Water				-NA-		-NA-	-NA-
Surface Water				-NA-		-NA-	-NA-
Air		-NA-		-		-NA-	
Wastes	-NA-				-NA-		-NA-

Carbon followed by regeneration; use of granular activated carbon followed by landfilling would be classified in these tables as volume reduction and off-site landfill

Cleanup Infor		,	/						-	
•		Immob	ilization	1	Reuse/Recycling ²		Separ	ation/Volum	me Red	luction
	Vib	rification	Solidifica Stabiliza	tion/	Specify	Solvent Extra	ection	Soil Was	hing	Physical Separation
Soil										
Ground Water		-NA-	-NA-			-NA-		-NA		
Surface Water		-NA-	-NA-			-NA-		-NA	-	
Wastes								· · · · · · · · · · · · · · · · · · ·		
For example, reuse of For example, oil/wa			luct recovered	l in a pump	o and treat system.	. •				
ABLE 5-D		· · · · · ·								
				osal/Conta	unment	Institu	tional C	Controls		Others
			ent or On-site	•	Off-site Landfill		Specify	,	Spec	ify treatment metho
Soil									ም >>>	tment/Dispose1
Ground Wate	-				-NA-					tment/Disposal coastal Tank
Surface Water	r		-NA-		-NA-	 			Clea	ning
Wastes				ļ.				-		
as free product en	$\overline{}$	d: on ground ank Descript		□ No	☐ In excavation	?Yes□ N	o 🗆 Tank :	Status (Y or	N)	··-
Tank ID		Product		Size	In	Place?	R	emoved?		Closed in Place?
970-B1B-2				-						
	_	oline		00 gal				X		
970-B1B-1	Gas	oline	12,0	00 gal	>			Х		
970-B1B-1 1970-B1B-3	Gas Was	oline te-Oil	12,0		>					
970-B1B-1 970-B1B-3 Environmenta Answer the following How many cubic yar rovide the name and ame Rem-Te ddress 9109 V ate/Zip Spokar	Gas Was I Indic g question d address ech W. Electore, Was	ators ons as they ar I have been to of the facility tric Avenu	12,0 5 e applicable to reated? 41 y where soil vue	o your site: When can be desired as treated	nere soil treatment v rcle one) off-site.	was conducted,	, was it c	X X	(off-si	te,)or both?
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2970-B1B-1 2970-B1B-3 2970-B1B-3 2970-B1B-3 2970-B1B-3 2970-B1B-1 2970-B1B-3	Gas Was I Indic g question d address ech W. Elect he, Was d address hown	ators ons as they are I have been to of the facility tric Avenus hington of the facility	12,0 5 e applicable to reated? 41 y where soil vue 99204 y where soil v	o your site: Why Coincide was treated was dispose site?41	nere soil treatment verle one) off-site.			X X	(off-si	te, or both?
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