Atha 1RP-4547

Table 3.

Sample Number on Figure 2	Sample Date	Depth (feet bgs)	Proposed Action	BTEX ppm	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	**Total TPH** mg/Kg	Cl- Field Screens (ppm)	Cl- Laboratory mg/Kg
NMOCD RRAL's for Site Ranking 0				50 mg/Kg	10 mg/Kg			5000 mg/Kg		
L1	1/4/2017	0.5	in-situ	--	--	--	--	--	7562	--
D1	1/4/2017	2	in-situ	--	--	--	--	--	781	--
	1/4/2017	4	in-situ	--	--	--	--	--	4765	--
	1/4/2017	5	in-situ	--	--	--	--	--	5336	--
	1/4/2017	6	in-situ	--	--	--	--	--	3019	4710
	1/4/2017	9	in-situ	<12	<7.0	<6.3	<6.3	0	461	433
	2/16/2017	10	in-situ	--	--	--	--	--	<135	72
	2/16/2017	12	in-situ	--	--	--	--	--	<135	--
	2/16/2017	15-16	in-situ	--	--	--	--	--	<135	44
	2/16/2017	20	in-situ	--	--	--	--	--	<135	<30
L2	1/4/2017	1	in-situ	--	--	--	--	--	9423	--
D2	1/4/2017	2	in-situ	--	--	<6.0	<1.4	0	--	4900
	1/4/2017	3	in-situ	<12	<7.1	3.66	3.66	7.32	--	1770
	2/21/2017	20	in-situ	--	--	--	--	--	1400	1300
	2/21/2017	25	in-situ	--	--	--	--	--	<135	32
	2/21/2017	30	in-situ	<0.093	<0.023	<4.7	<9.7	0	<135	36
L3	1/4/2017	1	in-situ	--	--	--	--	--	20	5.3
L4	1/4/2017	1	in-situ	--	--	--	--	--	7699	--
L5	1/4/2017	1	in-situ	--	--	--	--	--	--	2050
L6	1/4/2017	1	in-situ	--	--	--	--	--	2950	--
L7	1/4/2017	1	in-situ	--	--	--	--	--	39	161
L8	1/4/2017	1	in-situ	--	--	--	--	--	872	502
L9	1/4/2017	1	in-situ	--	--	--	--	--	381	115
L10	1/4/2017	1	in-situ	--	--	--	--	--	255	0

"--" = Not Analyzed

SGS ACCUTEST IS PART OF SGS, THE WORLD'S LEADING INSPECTION, VERIFICATION, TESTING AND CERTIFICATION COMPANY.

e-Hardcopy 2.0
Automated Report

Technical Report for

Key Energy

Atha SWD

SGS Accutest Job Number: TC97218

Sampling Date: 01/04/17

Report to:

austin.weyant@soudermiller.com

ATTN: Austin Weyant

Total number of pages in report: 47

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Richard Rodriguez
Laboratory Director

Client Service contact: Electa Brown 713-271-4700

Certifications: TX (T104704220-17-26) AR (14-016-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) NJ (TX010) OK (2014-172) VA (7654)

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Sections: 1 2 3 4 5 6 7 8

Table of Contents

Sample Summary

Key Energy

Atha SWD

Job No: TC97218

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
TC97218-1	01/04/17	13:00		01/07/17	SO	Soil	D1-6
TC97218-2	01/04/17	13:00		01/07/17	SO	Soil	D1-9
TC97218-3	01/04/17	13:00		01/07/17	SO	Soil	L3
TC97218-4	01/04/17	13:00		01/07/17	SO	Soil	L5
TC97218-5	01/04/17	13:00		01/07/17	SO	Soil	L7
TC97218-6	01/04/17	13:00		01/07/17	SO	Soil	L8
TC97218-7	01/04/17	13:00		01/07/17	SO	Soil	L9
TC97218-8	01/04/17	13:00		01/07/17	SO	Soil	L10
TC97218-9	01/04/17	13:00		01/07/17	SO	Soil	D2-2
TC97218-10	01/04/17	13:00		01/07/17	SO	Soil	D2-3

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Summary of Hits

Job Number: TC97218
Account: Key Energy
Project: Atha SWD
Collected: 01/04/17

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
TC97218-1	**D1-6**					
Chloride		4710	300		mg/kg	EPA 300
TC97218-2	**D1-9**					
TPH-DRO (C10-C28) [a]		2.92 J	5.6	1.4	mg/kg	SW846 8015C
Chloride		433	14		mg/kg	EPA 300
TC97218-3	**L3**					
Chloride		5.3	2.6		mg/kg	EPA 300
TC97218-4	**L5**					
Chloride		2050	130		mg/kg	EPA 300
TC97218-5	**L7**					
Chloride		161	5.2		mg/kg	EPA 300
TC97218-6	**L8**					
Chloride		502	26		mg/kg	EPA 300
TC97218-7	**L9**					
Chloride		115	5.3		mg/kg	EPA 300
TC97218-8	**L10**					
No hits reported in this sample.						
TC97218-9	**D2-2**					
TPH-DRO (C10-C28) [a]		1.43 J	5.7	1.4	mg/kg	SW846 8015C
Chloride		4900	290		mg/kg	EPA 300
TC97218-10	**D2-3**					
TPH-DRO (C10-C28) [a]		3.66 J	5.6	1.4	mg/kg	SW846 8015C
Chloride		1770	140		mg/kg	EPA 300

(a) Analysis performed at SGS Accutest, Lafayette, LA.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	D1-6		
Lab Sample ID:	TC97218-1	**Date Sampled:**	01/04/17
Matrix:	SO - Soil	**Date Received:**	01/07/17
		Percent Solids:	83.2
Project:	Atha SWD		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	4710	300	mg/kg	100	01/10/17 13:29	ES	EPA 300
Solids, Percent	83.2		%	1	01/09/17	NM	SM 2540 G

RL = Reporting Limit

Report of Analysis

Client Sample ID:	D1-9		
Lab Sample ID:	TC97218-2	**Date Sampled:**	01/04/17
Matrix:	SO - Soil	**Date Received:**	01/07/17
Method:	SW846 8015C	**Percent Solids:**	88.6
Project:	Atha SWD		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	LA259481.D	1	01/11/17	ALA	n/a	n/a	L:GLA1045
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.90 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	6.4	6.3	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	78%		63-139%
540-36-3	1,4-Difluorobenzene	82%		52-140%

(a) Analysis performed at SGS Accutest, Lafayette, LA.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	D1-9		
Lab Sample ID:	TC97218-2	**Date Sampled:**	01/04/17
Matrix:	SO - Soil	**Date Received:**	01/07/17
Method:	SW846 8021B SW846 5035	**Percent Solids:**	88.6
Project:	Atha SWD		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	LC026834.D	1	01/10/17	ALA	01/10/17 15:00	n/a	L:GLC927
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.90 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	64	12	ug/kg	
108-88-3	Toluene	ND	64	40	ug/kg	
100-41-4	Ethylbenzene	ND	64	9.7	ug/kg	
1330-20-7	Xylenes (total)	ND	190	7.0	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
540-36-3	1,4-Difluorobenzene	103%		80-115%
460-00-4	4-Bromofluorobenzene	98%		79-135%

(a) Analysis performed at SGS Accutest, Lafayette, LA.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	D1-9		
Lab Sample ID:	TC97218-2	**Date Sampled:**	01/04/17
Matrix:	SO - Soil	**Date Received:**	01/07/17
Method:	SW846 8015C SW846 3546	**Percent Solids:**	88.6
Project:	Atha SWD		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	S0025950.D	1	01/10/17	ALA	01/10/17	L:OP7264	L:GLG428
Run #2							

	Initial Weight	Final Volume
Run #1	20.1 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	2.92	5.6	1.4	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	53%		31-130%

(a) Analysis performed at SGS Accutest, Lafayette, LA.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	D1-9		
Lab Sample ID:	TC97218-2	**Date Sampled:**	01/04/17
Matrix:	SO - Soil	**Date Received:**	01/07/17
		Percent Solids:	88.6
Project:	Atha SWD		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	433	14	mg/kg	5	01/10/17 14:15	ES	EPA 300
Solids, Percent	88.6		%	1	01/09/17	NM	SM 2540 G

RL = Reporting Limit

Report of Analysis

Client Sample ID:	L3		
Lab Sample ID:	TC97218-3	**Date Sampled:**	01/04/17
Matrix:	SO - Soil	**Date Received:**	01/07/17
		Percent Solids:	95.4
Project:	Atha SWD		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	5.3	2.6	mg/kg	1	01/10/17 14:31	ES	EPA 300
Solids, Percent	95.4		%	1	01/09/17	NM	SM 2540 G

RL = Reporting Limit

Report of Analysis

Client Sample ID:	L5		
Lab Sample ID:	TC97218-4	**Date Sampled:**	01/04/17
Matrix:	SO - Soil	**Date Received:**	01/07/17
		Percent Solids:	95.1
Project:	Atha SWD		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	2050	130	mg/kg	50	01/10/17 14:46	ES	EPA 300
Solids, Percent	95.1		%	1	01/09/17	NM	SM 2540 G

RL = Reporting Limit

Report of Analysis

Client Sample ID:	L7		
Lab Sample ID:	TC97218-5	**Date Sampled:**	01/04/17
Matrix:	SO - Soil	**Date Received:**	01/07/17
		Percent Solids:	95.7
Project:	Atha SWD		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	161	5.2	mg/kg	2	01/10/17 15:02	ES	EPA 300
Solids, Percent	95.7		%	1	01/09/17	NM	SM 2540 G

RL = Reporting Limit

Report of Analysis

Client Sample ID:	L8		
Lab Sample ID:	TC97218-6	**Date Sampled:**	01/04/17
Matrix:	SO - Soil	**Date Received:**	01/07/17
		Percent Solids:	95.1
Project:	Atha SWD		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	502	26	mg/kg	10	01/10/17 15:17	ES	EPA 300
Solids, Percent	95.1		%	1	01/09/17	NM	SM 2540 G

RL = Reporting Limit

Report of Analysis

Client Sample ID:	L9		
Lab Sample ID:	TC97218-7	**Date Sampled:**	01/04/17
Matrix:	SO - Soil	**Date Received:**	01/07/17
		Percent Solids:	95.0
Project:	Atha SWD		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	115	5.3	mg/kg	2	01/10/17 15:33	ES	EPA 300
Solids, Percent	95		%	1	01/09/17	NM	SM 2540 G

RL = Reporting Limit

Report of Analysis

Client Sample ID:	L10		
Lab Sample ID:	TC97218-8	**Date Sampled:**	01/04/17
Matrix:	SO - Soil	**Date Received:**	01/07/17
		Percent Solids:	94.9
Project:	Atha SWD		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	< 2.6	2.6	mg/kg	1	01/10/17 15:48	ES	EPA 300
Solids, Percent	94.9		%	1	01/09/17	NM	SM 2540 G

RL = Reporting Limit

Report of Analysis

Client Sample ID:	D2-2		
Lab Sample ID:	TC97218-9	**Date Sampled:**	01/04/17
Matrix:	SO - Soil	**Date Received:**	01/07/17
Method:	SW846 8015C	**Percent Solids:**	87.1
Project:	Atha SWD		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	LA259483.D	1	01/11/17	ALA	n/a	n/a	L:GLA1045
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.40 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	6.1	6.0	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	80%		63-139%
540-36-3	1,4-Difluorobenzene	83%		52-140%

(a) Analysis performed at SGS Accutest, Lafayette, LA.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	D2-2		
Lab Sample ID:	TC97218-9	**Date Sampled:**	01/04/17
Matrix:	SO - Soil	**Date Received:**	01/07/17
Method:	SW846 8015C SW846 3546	**Percent Solids:**	87.1
Project:	Atha SWD		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	S0025951.D	1	01/10/17	ALA	01/10/17	L:OP7264	L:GLG428
Run #2							

	Initial Weight	Final Volume
Run #1	20.3 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	1.43	5.7	1.4	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	55%		31-130%

(a) Analysis performed at SGS Accutest, Lafayette, LA.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	D2-2		
Lab Sample ID:	TC97218-9	**Date Sampled:**	01/04/17
Matrix:	SO - Soil	**Date Received:**	01/07/17
		Percent Solids:	87.1
Project:	Atha SWD		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	4900	290	mg/kg	100	01/10/17 16:35	ES	EPA 300
Solids, Percent	87.1		%	1	01/09/17	NM	SM 2540 G

RL = Reporting Limit

Report of Analysis

Client Sample ID:	D2-3		
Lab Sample ID:	TC97218-10	**Date Sampled:**	01/04/17
Matrix:	SO - Soil	**Date Received:**	01/07/17
Method:	SW846 8015C	**Percent Solids:**	87.6
Project:	Atha SWD		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	LA259485.D	1	01/11/17	ALA	n/a	n/a	L:GLA1045
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.00 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	6.4	6.3	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	78%		63-139%
540-36-3	1,4-Difluorobenzene	82%		52-140%

(a) Analysis performed at SGS Accutest, Lafayette, LA.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	D2-3		
Lab Sample ID:	TC97218-10	**Date Sampled:**	01/04/17
Matrix:	SO - Soil	**Date Received:**	01/07/17
Method:	SW846 8021B SW846 5035	**Percent Solids:**	87.6
Project:	Atha SWD		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	LC026836.D	1	01/10/17	ALA	01/10/17 15:00	n/a	L:GLC927
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.00 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	64	12	ug/kg	
108-88-3	Toluene	ND	64	40	ug/kg	
100-41-4	Ethylbenzene	ND	64	9.7	ug/kg	
1330-20-7	Xylenes (total)	ND	190	7.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
540-36-3	1,4-Difluorobenzene	101%		80-115%
460-00-4	4-Bromofluorobenzene	96%		79-135%

(a) Analysis performed at SGS Accutest, Lafayette, LA.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	D2-3		
Lab Sample ID:	TC97218-10	**Date Sampled:**	01/04/17
Matrix:	SO - Soil	**Date Received:**	01/07/17
Method:	SW846 8015C SW846 3546	**Percent Solids:**	87.6
Project:	Atha SWD		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	S0025952.D	1	01/10/17	ALA	01/10/17	L:OP7264	L:GLG428
Run #2							

	Initial Weight	Final Volume
Run #1	20.4 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	3.66	5.6	1.4	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	56%		31-130%

(a) Analysis performed at SGS Accutest, Lafayette, LA.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	D2-3		
Lab Sample ID:	TC97218-10	**Date Sampled:**	01/04/17
Matrix:	SO - Soil	**Date Received:**	01/07/17
		Percent Solids:	87.6
Project:	Atha SWD		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	1770	140	mg/kg	50	01/10/17 16:50	ES	EPA 300
Solids, Percent	87.6		%	1	01/09/17	NM	SM 2540 G

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS ACCUTEST — CHAIN OF CUSTODY

PAGE 1 OF 1

4036 Youngfield Street, Wheat Ridge, CO 80033
TEL. 303-425-6021 FAX: 303-425-6854
www.accutest.com

FED-EX Tracking # 241143937 | Bottle Order Control # | SGS Accutest Quote # | SGS Accutest Job # TC97218

Client / Reporting Information

Company Name: Key Energy
Street Address:
City:
Project Contact:
Phone #:
Sampler(s) Name(s): Lucas Middleton

Project Information

Project Name: Atha SWD
Street:
City: State:
Project #:
Client Purchase Order #:
Project Manager:

Billing Information (If different from Report to)

Company Name:
Street Address:
City:
Attention:

Requested Analysis (see TEST CODE sheet)

SGS Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	8021 BTEX	8015B TPH	EPA 300 Cl	LAB USE ONLY
1	D1-6		1-4-16	1:00	LM	SOIL	1									X	X	X	
2	D1-9																	X	
3	L3																	X	
4	L5																	X	
5	L7																	X	
6	L8																	X	
7	L9																	X	
8	L10																	X	
9	D2-2																X	X	
10	D2-3															X	X	X	

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

VERIFIED BY: TAGGED BY:

Turnaround Time (Business days)

- Std. 15 Business Days
- Std. 10 Business Days
- 5 Day RUSH
- 3 Day Emergency
- 2 Day Emergency
- 1 Day Emergency
- Emergency & Rush T/A data available VIA Lablink

Approved By (SGS Accutest PM): / Date:

Data Deliverable Information

- Commercial "A" (Level 1)
- Commercial "B" (Level 2)
- COMMBN
- COMMBN+
- State Forms Required
- Send Forms to State
- Report by Fax
- Report by PDF
- EDD Format

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial BN = Results/QC/Narrative (+ = chromatograms)

Comments / Special Instructions

60 to Houston, TX

Sample Custody must be documented below each time samples change possession, including courier delivery.

1 Relinquished by Sampler:	Date Time: 1-5-16	Received By: 1 FedEx	Relinquished By: 2 FedEx	Date Time:	Received By: 2 Jessica 1130 1-7-17
3 Relinquished by Sampler:	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
5 Relinquished by:	Date Time:	Received By: 3	Custody Seal # ☑ Intact ☐ Not intact	Preserved where applicable ☐	On Ice ☑ Cooler Temp. 1.9

QA 065-00 Rev. 1 1/21/2016

ACCUTEST LABORATORIES

COOLER TEMP FORM

TC# 97218

Delivered by: (circle one) FedEx/UPS ALGC Driver Client

Date: 11-7-11

Client: KEY ENERGY

Cooler Number: 1

Thermometer ID: TH5 CF, °C: 0.0 Corrected Temp, °C: 1.9

SAMPLES CONTAINED IN COOLER

BLUE ICE

1-4oz. ca. SAMPLE

FedEx 8102 5855 3766

SATURDAY 12:00P
PRIORITY OVERNIGHT

77036
TX-US
IAH

X0 SGRA

Form: SM027-04 Rev 08/20/14

TC97218: Chain of Custody
Page 2 of 4

SGS Accutest Sample Receipt Summary

Job Number: TC97218 **Client:** KEY ENERGY **Project:** ATHA SWD

Date / Time Received: **Delivery Method:** **Airbill #'s:** 810258553766

No. Coolers: 1 **Therm ID:** IR-5; **Temp Adjustment Factor:** 0;

Cooler Temps (Initial/Adjusted): #1: (1.9/1.9);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:			
3. Cooler media:	Ice (Bag)		

Quality Control Preservation	Y	or	N	N/A	WTB	STB
1. Trip Blank present / cooler:	☐		☐	☑	☐	☐
2. Trip Blank listed on COC:	☐		☐	☑		
3. Samples preserved properly:	☑		☐			
4. VOCs headspace free:	☐		☐	☑		

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Sample Receipt Log

Job #: TC97218 **Date / Time Received:** 1/7/2017 11:30:00 AM **Initials:** DS

Client: KEY ENERGY

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
	TC97218-1	4oz	1	2-75	N/P	Note #2 - Preservative check not applicable.				
1	TC97218-2	4oz	1	VR	N/P	Note #2 - Preservative check not applicable.	IR-5	1.9	0	1.9
	TC97218-3	4oz	1	2-75	N/P	Note #2 - Preservative check not applicable.				
	TC97218-4	4oz	1	2-75	N/P	Note #2 - Preservative check not applicable.				
	TC97218-5	4oz	1	2-75	N/P	Note #2 - Preservative check not applicable.				
	TC97218-6	4oz	1	2-75	N/P	Note #2 - Preservative check not applicable.				
	TC97218-7	4oz	1	2-75	N/P	Note #2 - Preservative check not applicable.				
	TC97218-8	4oz	1	2-75	N/P	Note #2 - Preservative check not applicable.				
	TC97218-9	4oz	1	2-75	N/P	Note #2 - Preservative check not applicable.				
1	TC97218-10	4oz	1	VR	N/P	Note #2 - Preservative check not applicable.	IR-5	1.9	0	1.9

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC97218
Account: KEYETXM - Key Energy
Project: Atha SWD

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chloride	GP40192/GN78771	2.5	0.0	mg/kg	49.8	47.0	94.4	90-110%

Associated Samples:
Batch GP40192: TC97218-1, TC97218-2, TC97218-3, TC97218-4, TC97218-5, TC97218-6, TC97218-7, TC97218-8, TC97218-9, TC97218-10
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC97218
Account: KEYETXM - Key Energy
Project: Atha SWD

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chloride	GP40192/GN78771	TC97218-1	mg/kg	4710	4780	1.5	0-20%
Solids, Percent	GN78712	TC97160-4	%	81.5	82.2	0.9	0-5%

Associated Samples:
Batch GN78712: TC97218-1, TC97218-2, TC97218-3, TC97218-4, TC97218-5, TC97218-6, TC97218-7, TC97218-8, TC97218-9, TC97218-10
Batch GP40192: TC97218-1, TC97218-2, TC97218-3, TC97218-4, TC97218-5, TC97218-6, TC97218-7, TC97218-8, TC97218-9, TC97218-10
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC97218
Account: KEYETXM - Key Energy
Project: Atha SWD

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP40192/GN78771	TC97218-1	mg/kg	4710	60	5090	633.6(a)	80-120%

Associated Samples:
Batch GP40192: TC97218-1, TC97218-2, TC97218-3, TC97218-4, TC97218-5, TC97218-6, TC97218-7, TC97218-8, TC97218-9, TC97218-10
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

Misc. Forms

Custody Documents and Other Forms

(SGS Accutest Lafayette)

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

SGS ACCUTEST

10165 Harwin Drive, Houston, TX 77036
TEL. 713-271-4700 FAX: 713-271-4770
www.sgs.com

FED-EX Tracking # | Bottle Order Control #
SGS Accutest Quote # | SGS Accutest Job TC97218

Client / Reporting Information
Company Name: SGS Accutest
Street Address: 10165 Harwin Drive
City: Houston State: TX Zip: 77036
Project Contact / E-mail: Trameshia.Brown@sgs.com
Phone #: 713-271-4700 Fax #
Sampler(s) Name(s) Phone

Project Information
Project Name: Atha SWD
Street
City State
Project #
Client Purchase Order #
Project Manager

Billing Information (if different from Report to)
Company Name
Street Address
City State Zip
Attention:

Requested Analysis (see TEST CODE sheet)

Matrix Codes: DW - Drinking Water, GW - Ground Water, WW - Water, SW - Surface Water, SO - Soil, SL- Sludge, SED-Sediment, OI - Oil, LIQ - Other Liquid, AIR - Air, SOL - Other Solid, WP - Wipe, FB-Field Blank, EB-Equipment Blank, RB- Rinse Blank, TB-Trip Blank

SGS Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	B8015DRO ,V8015GRO ,	B8015DRO ,V8015GRO ,V8021BTX ,	LAB USE ONLY
2	D1-9		1/4/17	1:00:00 PM		SO	1					X					X	/
9	D2-2		1/4/17	1:00:00 PM		SO	1					X				X		/
10	D2-3		1/4/17	1:00:00 PM		SO	1					X					X	/

Turnaround Time (Business days)
- [ ] Std. 10 Business Days
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [X] other Due 1/16/2017

Emergency & Rush T/A data available VIA Lablink

Approved By (SGS Accutest PM): / Date: RUSH

Data Deliverable Information
- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULLT1 (Level 3+4)
- [ ] NJ Reduced
- [ ] Commercial "C"
- [ ] NYASP Category A
- [ ] NYASP Category B
- [ ] State Forms
- [ ] EDD Format
- [X] Other COMMB

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data

Comments / Special Instructions
(7) RL-25 AZ BS-126 (VS)

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 [signature]	1/9/17 1800	1 TX Driver Initials	2 TX Driver Initials		2 LA Driver Initials EF
Relinquished by Sampler: 3 LA Driver Initials EF	1/10/17 11:00	3 Mark Reed	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # 25/6C	Intact / Not intact	Preserved where applicable

On Ice: ☑ Cooler Temp. 2.8 DV 260

TC97218: Chain of Custody
Page 1 of 3
SGS Accutest Lafayette

6.1 6

Date / Time: 1/9/2017 2:28:13 PM
CSR: TRAMESHB
Job #: TC97218
Client Project: Atha SWD
Deliverable: COMMB
TAT: Due 1/16/2017

Sub Lab: Accutest Gulf Coast Louisiana
Address: 500 Ambassador Caffery Prkway
City: Scott
State: LA Zip: 70583
Contact: Sample Receiving
Phone: 800-304-5227

SGS Accutest Sample #	Client Sample Description	Analysis	Location	Sampled By	Date Sampled	Time Sampled	Aliquot
TC97218-2	D1-9	B8015DRO ,V8015GRO ,V8021BTX ,	VR ,		1/4/2017	1:00:00 PM	
TC97218-9	D2-2	B8015DRO ,V8015GRO ,	2-75 ,		1/4/2017	1:00:00 PM	
TC97218-10	D2-3	B8015DRO ,V8015GRO ,V8021BTX ,	VR ,		1/4/2017	1:00:00 PM	

Comments:

Sample Management Receipt: _____ Date: _____

1 - 4oz soil amb RL-25 (7) A2

3/4/1

B-Tex prep 3 - 40ml w/ methanol

BS-126 (VS)

SGS Accutest Sample Receipt Summary

Job Number: TC97218 **Client:** SGS **Project:** ATHA SWD

Date / Time Received: 1/10/2017 11:00:00 AM **Delivery Method:** Accutest Courier **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (2.8/2.8);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Thermometer ID:	DV260;		
3. Cooler media:	Ice (direct contact)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

GC Volatiles

QC Data Summaries

(SGS Accutest Lafayette)

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: TC97218
Account: ALGC SGS Accutest Gulf Coast
Project: KEYETXM: Atha SWD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GLA1045-MB3	LA259479.D	1	01/11/17	JF	n/a	n/a	GLA1045

The QC reported here applies to the following samples: **Method:** SW846 8015C

TC97218-2, TC97218-9, TC97218-10

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	5.0	4.9	mg/kg	

CAS No.	Surrogate Recoveries		Limits
460-00-4	4-Bromofluorobenzene	87%	63-139%
540-36-3	1,4-Difluorobenzene	85%	52-140%

Method Blank Summary

Job Number: TC97218
Account: ALGC SGS Accutest Gulf Coast
Project: KEYETXM: Atha SWD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GLC927-MB1	LC026821.D	1	01/10/17	JF	n/a	n/a	GLC927

The QC reported here applies to the following samples: **Method:** SW846 8021B

TC97218-2, TC97218-10

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	9.7	ug/kg	
100-41-4	Ethylbenzene	ND	50	7.6	ug/kg	
108-88-3	Toluene	ND	50	31	ug/kg	
1330-20-7	Xylenes (total)	ND	150	5.5	ug/kg	

CAS No.	Surrogate Recoveries		Limits
540-36-3	1,4-Difluorobenzene	104%	80-115%
460-00-4	4-Bromofluorobenzene	98%	79-135%

Blank Spike Summary

Job Number: TC97218
Account: ALGC SGS Accutest Gulf Coast
Project: KEYETXM: Atha SWD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GLA1045-BS3	LA259477.D	1	01/11/17	JF	n/a	n/a	GLA1045

The QC reported here applies to the following samples: **Method:** SW846 8015C

TC97218-2, TC97218-9, TC97218-10

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	50	47.2	94	79-121

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	84%	63-139%
540-36-3	1,4-Difluorobenzene	99%	52-140%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: TC97218
Account: ALGC SGS Accutest Gulf Coast
Project: KEYETXM: Atha SWD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GLC927-BS2	LC026820.D	1	01/10/17	JF	n/a	n/a	GLC927

The QC reported here applies to the following samples: **Method:** SW846 8021B

TC97218-2, TC97218-10

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2600	104	80-120
100-41-4	Ethylbenzene	2500	2540	102	84-121
108-88-3	Toluene	2500	2500	100	83-122
1330-20-7	Xylenes (total)	7500	7670	102	85-120

CAS No.	Surrogate Recoveries	BSP	Limits
540-36-3	1,4-Difluorobenzene	104%	80-115%
460-00-4	4-Bromofluorobenzene	98%	79-135%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC97218
Account: ALGC SGS Accutest Gulf Coast
Project: KEYETXM: Atha SWD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
LA29319-2MS [a]	LA259491.D	1	01/11/17	JF	n/a	n/a	GLA1045
LA29319-2MSD [a]	LA259493.D	1	01/11/17	JF	n/a	n/a	GLA1045
LA29319-2	LA259489.D	1	01/11/17	JF	n/a	n/a	GLA1045

The QC reported here applies to the following samples: **Method:** SW846 8015C

TC97218-2, TC97218-9, TC97218-10

CAS No.	Compound	LA29319-2 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	Spike mg/kg	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	801		490	1520	147*	490	1490	141*	2	79-121/6

CAS No.	Surrogate Recoveries	MS	MSD	LA29319-2	Limits
460-00-4	4-Bromofluorobenzene	86%	84%	87%	63-139%
540-36-3	1,4-Difluorobenzene	88%	87%	87%	52-140%

(a) Outside control limits due to matrix interference. Blank Spike meets acceptance criteria.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC97218
Account: ALGC SGS Accutest Gulf Coast
Project: KEYETXM: Atha SWD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
LA29247-1MS [a]	LC026831.D	1	01/10/17	JF	n/a	n/a	GLC927
LA29247-1MSD [a]	LC026832.D	1	01/10/17	JF	n/a	n/a	GLC927
LA29247-1	LC026830.D	1	01/10/17	JF	n/a	n/a	GLC927

The QC reported here applies to the following samples: **Method:** SW846 8021B

TC97218-2, TC97218-10

CAS No.	Compound	LA29247-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	13200		10000	28200	150*	10000	26300	131*	7	80-120/8
100-41-4	Ethylbenzene	28000		10000	43000	150* [b]	10000	44600	166* [b]	4	84-121/8
108-88-3	Toluene	84000	E	10000	112000	280* [b]	10000	115000	310* [b]	3	83-122/8
1330-20-7	Xylenes (total)	133000		30000	172000	130* [b]	30000	178000	150* [b]	3	85-120/7

CAS No.	Surrogate Recoveries	MS	MSD	LA29247-1	Limits
540-36-3	1,4-Difluorobenzene	106%	113%	111%	80-115%
460-00-4	4-Bromofluorobenzene	130%	130%	124%	79-135%

(a) Outside control limits due to matrix interference. Blank Spike meets acceptance criteria.
(b) Outside control limits due to high level in sample relative to spike amount.

* = Outside of Control Limits.

GC Semi-volatiles

QC Data Summaries

(SGS Accutest Lafayette)

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: TC97218
Account: ALGC SGS Accutest Gulf Coast
Project: KEYETXM: Atha SWD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7264-MB	S0025946.D	1	01/10/17	JT	01/10/17	OP7264	GLG428

The QC reported here applies to the following samples: **Method:** SW846 8015C

TC97218-2, TC97218-9, TC97218-10

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	5.0	1.2	mg/kg	

CAS No.	Surrogate Recoveries		Limits
84-15-1	o-Terphenyl	73%	31-130%

Blank Spike Summary

Job Number: TC97218
Account: ALGC SGS Accutest Gulf Coast
Project: KEYETXM: Atha SWD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7264-BS	S0025947.D	1	01/10/17	JT	01/10/17	OP7264	GLG428

The QC reported here applies to the following samples: **Method:** SW846 8015C

TC97218-2, TC97218-9, TC97218-10

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	150	121	81	60-115

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	76%	31-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC97218
Account: ALGC SGS Accutest Gulf Coast
Project: KEYETXM: Atha SWD

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7264-MS	S0025948.D	1	01/10/17	JT	01/10/17	OP7264	GLG428
OP7264-MSD	S0025949.D	1	01/10/17	JT	01/10/17	OP7264	GLG428
TC97218-9	S0025951.D	1	01/10/17	JT	01/10/17	OP7264	GLG428

The QC reported here applies to the following samples: **Method:** SW846 8015C

TC97218-2, TC97218-9, TC97218-10

CAS No.	Compound	TC97218-9 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	Spike mg/kg	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	1.43	J	169	131	77	170	129	75	2	60-115/46

CAS No.	Surrogate Recoveries	MS	MSD	TC97218-9	Limits
84-15-1	o-Terphenyl	75%	72%	55%	31-130%

* = Outside of Control Limits.