

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Denver

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Arvada, CO 80002

Tel: (303)736-0100

TestAmerica Job ID: 280-88429-1

Client Project/Site: COGCC - Rob Young

For:

Colorado Oil&Gas Conservation Commision

1120 Lincoln St.

Suite 801

Denver, Colorado 80203

Attn: Ms. Angie Gipson



Authorized for release by:

10/6/2016 4:12:34 PM

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: Colorado Oil&Gas Conservation Commission
Project/Site: COGCC - Rob Young

TestAmerica Job ID: 280-88429-1

Job ID: 280-88429-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: Colorado Oil&Gas Conservation Commission

Project: COGCC - Rob Young

Report Number: 280-88429-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 9/22/2016 at 7:35 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 8.4°C.

Receipt Exceptions

These samples arrived above the recommended temperature of 6.0 degrees Celsius due to the ice melting. Per the client laboratory is to proceed with analysis. The client notified on 9/22/2016.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples S01@4' (280-88429-1), S02@5' (280-88429-2), S03@5' (280-88429-3) and S04@5' (280-88429-4) were analyzed for volatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 09/27/2016 and 09/28/2016.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO)

Samples S01@4' (280-88429-1), S02@5' (280-88429-2), S03@5' (280-88429-3) and S04@5' (280-88429-4) were analyzed for gasoline range organics (GRO) in accordance with EPA SW-846 Method 8015B - GRO. The samples were analyzed on 09/30/2016.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS

Samples S01@4' (280-88429-1), S02@5' (280-88429-2), S03@5' (280-88429-3) and S04@5' (280-88429-4) were analyzed for diesel range organics in accordance with EPA SW-846 Method 8015B - DRO. The samples were prepared on 09/23/2016 and analyzed on 09/27/2016.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples S01@4' (280-88429-1), S02@5' (280-88429-2), S03@5' (280-88429-3) and S04@5' (280-88429-4) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 09/29/2016.

Case Narrative

Client: Colorado Oil&Gas Conservation Commision
Project/Site: COGCC - Rob Young

TestAmerica Job ID: 280-88429-1

Job ID: 280-88429-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Definitions/Glossary

Client: Colorado Oil&Gas Conservation Commision
Project/Site: COGCC - Rob Young

TestAmerica Job ID: 280-88429-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Detection Summary

Client: Colorado Oil&Gas Conservation Commision
Project/Site: COGCC - Rob Young

TestAmerica Job ID: 280-88429-1

Client Sample ID: S01@4'

Lab Sample ID: 280-88429-1

No Detections.

Client Sample ID: S02@5'

Lab Sample ID: 280-88429-2

No Detections.

Client Sample ID: S03@5'

Lab Sample ID: 280-88429-3

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Diesel Range Organics [C10-C28]	23		4.3	mg/Kg	1	☼	8015B	Total/NA

Client Sample ID: S04@5'

Lab Sample ID: 280-88429-4

No Detections.

This Detection Summary does not include radiochemical test results.

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Method Summary

Client: Colorado Oil&Gas Conservation Commision
Project/Site: COGCC - Rob Young

TestAmerica Job ID: 280-88429-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015B	Gasoline Range Organics - (GC)	SW846	TAL DEN
8015B	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Colorado Oil&Gas Conservation Commision
Project/Site: COGCC - Rob Young

TestAmerica Job ID: 280-88429-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-88429-1	S01@4'	Solid	09/21/16 12:00	09/22/16 07:35
280-88429-2	S02@5'	Solid	09/21/16 12:05	09/22/16 07:35
280-88429-3	S03@5'	Solid	09/21/16 12:10	09/22/16 07:35
280-88429-4	S04@5'	Solid	09/21/16 14:00	09/22/16 07:35

Client Sample Results

Client: Colorado Oil&Gas Conservation Commision
Project/Site: COGCC - Rob Young

TestAmerica Job ID: 280-88429-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: S01@4'

Date Collected: 09/21/16 12:00

Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-1

Matrix: Solid

Percent Solids: 94.0

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		6.3	ug/Kg	☼	09/27/16 12:00	09/27/16 23:56	1
Ethylbenzene	ND		6.3	ug/Kg	☼	09/27/16 12:00	09/27/16 23:56	1
Toluene	ND		6.3	ug/Kg	☼	09/27/16 12:00	09/27/16 23:56	1
m-Xylene & p-Xylene	ND		3.1	ug/Kg	☼	09/27/16 12:00	09/27/16 23:56	1
o-Xylene	ND		3.1	ug/Kg	☼	09/27/16 12:00	09/27/16 23:56	1
Xylenes, Total	ND		6.3	ug/Kg	☼	09/27/16 12:00	09/27/16 23:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		58 - 140	09/27/16 12:00	09/27/16 23:56	1
Toluene-d8 (Surr)	103		80 - 126	09/27/16 12:00	09/27/16 23:56	1
4-Bromofluorobenzene (Surr)	100		76 - 127	09/27/16 12:00	09/27/16 23:56	1
Dibromofluoromethane (Surr)	103		75 - 121	09/27/16 12:00	09/27/16 23:56	1

Client Sample ID: S02@5'

Date Collected: 09/21/16 12:05

Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-2

Matrix: Solid

Percent Solids: 94.0

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		5.6	ug/Kg	☼	09/27/16 12:00	09/28/16 01:04	1
Ethylbenzene	ND		5.6	ug/Kg	☼	09/27/16 12:00	09/28/16 01:04	1
Toluene	ND		5.6	ug/Kg	☼	09/27/16 12:00	09/28/16 01:04	1
m-Xylene & p-Xylene	ND		2.8	ug/Kg	☼	09/27/16 12:00	09/28/16 01:04	1
o-Xylene	ND		2.8	ug/Kg	☼	09/27/16 12:00	09/28/16 01:04	1
Xylenes, Total	ND		5.6	ug/Kg	☼	09/27/16 12:00	09/28/16 01:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		58 - 140	09/27/16 12:00	09/28/16 01:04	1
Toluene-d8 (Surr)	103		80 - 126	09/27/16 12:00	09/28/16 01:04	1
4-Bromofluorobenzene (Surr)	95		76 - 127	09/27/16 12:00	09/28/16 01:04	1
Dibromofluoromethane (Surr)	104		75 - 121	09/27/16 12:00	09/28/16 01:04	1

Client Sample ID: S03@5'

Date Collected: 09/21/16 12:10

Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-3

Matrix: Solid

Percent Solids: 94.1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		6.6	ug/Kg	☼	09/27/16 12:00	09/28/16 01:26	1
Ethylbenzene	ND		6.6	ug/Kg	☼	09/27/16 12:00	09/28/16 01:26	1
Toluene	ND		6.6	ug/Kg	☼	09/27/16 12:00	09/28/16 01:26	1
m-Xylene & p-Xylene	ND		3.3	ug/Kg	☼	09/27/16 12:00	09/28/16 01:26	1
o-Xylene	ND		3.3	ug/Kg	☼	09/27/16 12:00	09/28/16 01:26	1
Xylenes, Total	ND		6.6	ug/Kg	☼	09/27/16 12:00	09/28/16 01:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		58 - 140	09/27/16 12:00	09/28/16 01:26	1
Toluene-d8 (Surr)	95		80 - 126	09/27/16 12:00	09/28/16 01:26	1
4-Bromofluorobenzene (Surr)	95		76 - 127	09/27/16 12:00	09/28/16 01:26	1
Dibromofluoromethane (Surr)	107		75 - 121	09/27/16 12:00	09/28/16 01:26	1

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Client Sample Results

Client: Colorado Oil&Gas Conservation Commision
Project/Site: COGCC - Rob Young

TestAmerica Job ID: 280-88429-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: S04@5'
Date Collected: 09/21/16 14:00
Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-4
Matrix: Solid
Percent Solids: 91.7

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		5.6	ug/Kg	☼	09/27/16 12:00	09/28/16 01:49	1
Ethylbenzene	ND		5.6	ug/Kg	☼	09/27/16 12:00	09/28/16 01:49	1
Toluene	ND		5.6	ug/Kg	☼	09/27/16 12:00	09/28/16 01:49	1
m-Xylene & p-Xylene	ND		2.8	ug/Kg	☼	09/27/16 12:00	09/28/16 01:49	1
o-Xylene	ND		2.8	ug/Kg	☼	09/27/16 12:00	09/28/16 01:49	1
Xylenes, Total	ND		5.6	ug/Kg	☼	09/27/16 12:00	09/28/16 01:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		58 - 140	09/27/16 12:00	09/28/16 01:49	1
Toluene-d8 (Surr)	99		80 - 126	09/27/16 12:00	09/28/16 01:49	1
4-Bromofluorobenzene (Surr)	96		76 - 127	09/27/16 12:00	09/28/16 01:49	1
Dibromofluoromethane (Surr)	103		75 - 121	09/27/16 12:00	09/28/16 01:49	1

Method: 8015B - Gasoline Range Organics - (GC)

Client Sample ID: S01@4'
Date Collected: 09/21/16 12:00
Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-1
Matrix: Solid
Percent Solids: 94.0

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		1.2	mg/Kg	-	09/26/16 14:50	09/30/16 02:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	89		77 - 123	09/26/16 14:50	09/30/16 02:33	1

Client Sample ID: S02@5'
Date Collected: 09/21/16 12:05
Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-2
Matrix: Solid
Percent Solids: 94.0

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		1.2	mg/Kg	-	09/26/16 14:50	09/30/16 02:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	90		77 - 123	09/26/16 14:50	09/30/16 02:57	1

Client Sample ID: S03@5'
Date Collected: 09/21/16 12:10
Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-3
Matrix: Solid
Percent Solids: 94.1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		1.2	mg/Kg	-	09/26/16 14:50	09/30/16 03:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	91		77 - 123	09/26/16 14:50	09/30/16 03:22	1

Client Sample ID: S04@5'
Date Collected: 09/21/16 14:00
Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-4
Matrix: Solid
Percent Solids: 91.7

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		1.2	mg/Kg	-	09/26/16 14:50	09/30/16 03:47	1

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Client Sample Results

Client: Colorado Oil&Gas Conservation Commission
Project/Site: COGCC - Rob Young

TestAmerica Job ID: 280-88429-1

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	89		77 - 123	09/26/16 14:50	09/30/16 03:47	1

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: S01@4'
Date Collected: 09/21/16 12:00
Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-1
Matrix: Solid
Percent Solids: 94.0

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		4.2	mg/Kg	☼	09/23/16 09:47	09/27/16 17:56	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
o-Terphenyl	88		49 - 115			09/23/16 09:47	09/27/16 17:56	1

Client Sample ID: S02@5'
Date Collected: 09/21/16 12:05
Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-2
Matrix: Solid
Percent Solids: 94.0

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		4.2	mg/Kg	☼	09/23/16 09:47	09/27/16 18:21	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
o-Terphenyl	91		49 - 115			09/23/16 09:47	09/27/16 18:21	1

Client Sample ID: S03@5'
Date Collected: 09/21/16 12:10
Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-3
Matrix: Solid
Percent Solids: 94.1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	23		4.3	mg/Kg	☼	09/23/16 09:47	09/27/16 18:45	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
o-Terphenyl	94		49 - 115			09/23/16 09:47	09/27/16 18:45	1

Client Sample ID: S04@5'
Date Collected: 09/21/16 14:00
Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-4
Matrix: Solid
Percent Solids: 91.7

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		4.2	mg/Kg	☼	09/23/16 09:47	09/27/16 19:10	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
o-Terphenyl	89		49 - 115			09/23/16 09:47	09/27/16 19:10	1

General Chemistry

Client Sample ID: S01@4'
Date Collected: 09/21/16 12:00
Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-1
Matrix: Solid
Percent Solids: 94.0

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	6.0		0.1	%	-		09/29/16 09:59	1

Client Sample ID: S02@5'
Date Collected: 09/21/16 12:05
Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-2
Matrix: Solid
Percent Solids: 94.0

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	6.0		0.1	%	-		09/29/16 09:59	1

TestAmerica Denver

Client Sample Results

Client: Colorado Oil&Gas Conservation Commision
Project/Site: COGCC - Rob Young

TestAmerica Job ID: 280-88429-1

General Chemistry

Client Sample ID: S03@5'
Date Collected: 09/21/16 12:10
Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-3
Matrix: Solid
Percent Solids: 94.1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	5.9		0.1	%			09/29/16 09:59	1

Client Sample ID: S04@5'
Date Collected: 09/21/16 14:00
Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-4
Matrix: Solid
Percent Solids: 91.7

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	8.3		0.1	%			09/29/16 09:59	1

Surrogate Summary

Client: Colorado Oil&Gas Conservation Commision
Project/Site: COGCC - Rob Young

TestAmerica Job ID: 280-88429-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (58-140)	TOL (80-126)	BFB (76-127)	DBFM (75-121)
280-88429-1	S01@4'	98	103	100	103
280-88429-1 MS	S01@4'	95	94	88	103
280-88429-1 MSD	S01@4'	95	91	85	101
280-88429-2	S02@5'	95	103	95	104
280-88429-3	S03@5'	99	95	95	107
280-88429-4	S04@5'	95	99	96	103
LCS 280-344030/2-A	Lab Control Sample	97	106	90	104
LCSD 280-344030/3-A	Lab Control Sample Dup	98	96	91	102
MB 280-344030/1-A	Method Blank	95	95	94	100

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8015B - Gasoline Range Organics - (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TFT1 (77-123)			
280-88429-1	S01@4'	89			
280-88429-2	S02@5'	90			
280-88429-3	S03@5'	91			
280-88429-4	S04@5'	89			
LCS 280-343784/2-A	Lab Control Sample	94			
MB 280-343784/1-A	Method Blank	92			

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		OTPH1 (49-115)			
280-88429-1	S01@4'	88			
280-88429-2	S02@5'	91			
280-88429-3	S03@5'	94			
280-88429-4	S04@5'	89			
LCS 280-343449/2-A	Lab Control Sample	92			
MB 280-343449/1-A	Method Blank	93			

Surrogate Legend

OTPH = o-Terphenyl

TestAmerica Denver

QC Association Summary

Client: Colorado Oil&Gas Conservation Commision
Project/Site: COGCC - Rob Young

TestAmerica Job ID: 280-88429-1

GC/MS VOA

Prep Batch: 344030

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-88429-1	S01@4'	Total/NA	Solid	5030B	
280-88429-2	S02@5'	Total/NA	Solid	5030B	
280-88429-3	S03@5'	Total/NA	Solid	5030B	
280-88429-4	S04@5'	Total/NA	Solid	5030B	
MB 280-344030/1-A	Method Blank	Total/NA	Solid	5030B	
LCS 280-344030/2-A	Lab Control Sample	Total/NA	Solid	5030B	
LCSD 280-344030/3-A	Lab Control Sample Dup	Total/NA	Solid	5030B	
280-88429-1 MS	S01@4'	Total/NA	Solid	5030B	
280-88429-1 MSD	S01@4'	Total/NA	Solid	5030B	

Analysis Batch: 344033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-88429-1	S01@4'	Total/NA	Solid	8260B	344030
280-88429-2	S02@5'	Total/NA	Solid	8260B	344030
280-88429-3	S03@5'	Total/NA	Solid	8260B	344030
280-88429-4	S04@5'	Total/NA	Solid	8260B	344030
MB 280-344030/1-A	Method Blank	Total/NA	Solid	8260B	344030
LCS 280-344030/2-A	Lab Control Sample	Total/NA	Solid	8260B	344030
LCSD 280-344030/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	344030
280-88429-1 MS	S01@4'	Total/NA	Solid	8260B	344030
280-88429-1 MSD	S01@4'	Total/NA	Solid	8260B	344030

GC VOA

Prep Batch: 343784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-88429-1	S01@4'	Total/NA	Solid	5030B	
280-88429-2	S02@5'	Total/NA	Solid	5030B	
280-88429-3	S03@5'	Total/NA	Solid	5030B	
280-88429-4	S04@5'	Total/NA	Solid	5030B	
MB 280-343784/1-A	Method Blank	Total/NA	Solid	5030B	
LCS 280-343784/2-A	Lab Control Sample	Total/NA	Solid	5030B	

Analysis Batch: 344485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-88429-1	S01@4'	Total/NA	Solid	8015B	343784
280-88429-2	S02@5'	Total/NA	Solid	8015B	343784
280-88429-3	S03@5'	Total/NA	Solid	8015B	343784
280-88429-4	S04@5'	Total/NA	Solid	8015B	343784
MB 280-343784/1-A	Method Blank	Total/NA	Solid	8015B	343784
LCS 280-343784/2-A	Lab Control Sample	Total/NA	Solid	8015B	343784

GC Semi VOA

Prep Batch: 343449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-88429-1	S01@4'	Total/NA	Solid	3546	
280-88429-2	S02@5'	Total/NA	Solid	3546	
280-88429-3	S03@5'	Total/NA	Solid	3546	
280-88429-4	S04@5'	Total/NA	Solid	3546	

TestAmerica Denver

QC Association Summary

Client: Colorado Oil&Gas Conservation Commision
Project/Site: COGCC - Rob Young

TestAmerica Job ID: 280-88429-1

GC Semi VOA (Continued)

Prep Batch: 343449 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-343449/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-343449/2-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 344008

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-88429-1	S01@4'	Total/NA	Solid	8015B	343449
280-88429-2	S02@5'	Total/NA	Solid	8015B	343449
280-88429-3	S03@5'	Total/NA	Solid	8015B	343449
280-88429-4	S04@5'	Total/NA	Solid	8015B	343449
MB 280-343449/1-A	Method Blank	Total/NA	Solid	8015B	343449
LCS 280-343449/2-A	Lab Control Sample	Total/NA	Solid	8015B	343449

General Chemistry

Analysis Batch: 344299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-88429-1	S01@4'	Total/NA	Solid	Moisture	
280-88429-2	S02@5'	Total/NA	Solid	Moisture	
280-88429-3	S03@5'	Total/NA	Solid	Moisture	
280-88429-4	S04@5'	Total/NA	Solid	Moisture	

QC Sample Results

Client: Colorado Oil&Gas Conservation Commission
Project/Site: COGCC - Rob Young

TestAmerica Job ID: 280-88429-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-344030/1-A

Matrix: Solid

Analysis Batch: 344033

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 344030

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		5.0	ug/Kg		09/27/16 12:00	09/27/16 17:32	1
Ethylbenzene	ND		5.0	ug/Kg		09/27/16 12:00	09/27/16 17:32	1
Toluene	ND		5.0	ug/Kg		09/27/16 12:00	09/27/16 17:32	1
m-Xylene & p-Xylene	ND		2.5	ug/Kg		09/27/16 12:00	09/27/16 17:32	1
o-Xylene	ND		2.5	ug/Kg		09/27/16 12:00	09/27/16 17:32	1
Xylenes, Total	ND		5.0	ug/Kg		09/27/16 12:00	09/27/16 17:32	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		58 - 140	09/27/16 12:00	09/27/16 17:32	1
Toluene-d8 (Surr)	95		80 - 126	09/27/16 12:00	09/27/16 17:32	1
4-Bromofluorobenzene (Surr)	94		76 - 127	09/27/16 12:00	09/27/16 17:32	1
Dibromofluoromethane (Surr)	100		75 - 121	09/27/16 12:00	09/27/16 17:32	1

Lab Sample ID: LCS 280-344030/2-A

Matrix: Solid

Analysis Batch: 344033

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 344030

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzene	50.0	50.6		ug/Kg		101	75 - 135
Ethylbenzene	50.0	54.7		ug/Kg		109	73 - 125
Toluene	50.0	50.9		ug/Kg		102	77 - 122
m-Xylene & p-Xylene	50.0	49.9		ug/Kg		100	77 - 135
o-Xylene	50.0	58.4		ug/Kg		117	75 - 135
Xylenes, Total	100	108		ug/Kg		108	76 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		58 - 140
Toluene-d8 (Surr)	106		80 - 126
4-Bromofluorobenzene (Surr)	90		76 - 127
Dibromofluoromethane (Surr)	104		75 - 121

Lab Sample ID: LCSD 280-344030/3-A

Matrix: Solid

Analysis Batch: 344033

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 344030

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	50.0	53.1		ug/Kg		106	75 - 135	5	20
Ethylbenzene	50.0	53.5		ug/Kg		107	73 - 125	2	20
Toluene	50.0	53.0		ug/Kg		106	77 - 122	4	20
m-Xylene & p-Xylene	50.0	47.7		ug/Kg		95	77 - 135	5	20
o-Xylene	50.0	53.2		ug/Kg		106	75 - 135	9	20
Xylenes, Total	100	101		ug/Kg		101	76 - 135	7	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		58 - 140
Toluene-d8 (Surr)	96		80 - 126
4-Bromofluorobenzene (Surr)	91		76 - 127

TestAmerica Denver

QC Sample Results

Client: Colorado Oil&Gas Conservation Commission
Project/Site: COGCC - Rob Young

TestAmerica Job ID: 280-88429-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 280-344030/3-A

Matrix: Solid

Analysis Batch: 344033

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 344030

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Dibromofluoromethane (Surr)	102		75 - 121

Lab Sample ID: 280-88429-1 MS

Matrix: Solid

Analysis Batch: 344033

Client Sample ID: S01@4'

Prep Type: Total/NA

Prep Batch: 344030

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Benzene	ND		58.9	59.2		ug/Kg	☼	101	75 - 135
Ethylbenzene	ND		58.9	58.7		ug/Kg	☼	100	73 - 125
Toluene	ND		58.9	59.9		ug/Kg	☼	102	77 - 122
m-Xylene & p-Xylene	ND		58.9	53.1		ug/Kg	☼	90	77 - 135
o-Xylene	ND		58.9	60.8		ug/Kg	☼	103	75 - 135
Xylenes, Total	ND		118	114		ug/Kg	☼	97	76 - 135

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	95		58 - 140
Toluene-d8 (Surr)	94		80 - 126
4-Bromofluorobenzene (Surr)	88		76 - 127
Dibromofluoromethane (Surr)	103		75 - 121

Lab Sample ID: 280-88429-1 MSD

Matrix: Solid

Analysis Batch: 344033

Client Sample ID: S01@4'

Prep Type: Total/NA

Prep Batch: 344030

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	ND		60.7	60.6		ug/Kg	☼	100	75 - 135	2	20
Ethylbenzene	ND		60.7	61.6		ug/Kg	☼	101	73 - 125	5	20
Toluene	ND		60.7	60.2		ug/Kg	☼	99	77 - 122	1	20
m-Xylene & p-Xylene	ND		60.7	55.1		ug/Kg	☼	91	77 - 135	4	20
o-Xylene	ND		60.7	61.7		ug/Kg	☼	102	75 - 135	1	20
Xylenes, Total	ND		121	117		ug/Kg	☼	96	76 - 135	3	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	95		58 - 140
Toluene-d8 (Surr)	91		80 - 126
4-Bromofluorobenzene (Surr)	85		76 - 127
Dibromofluoromethane (Surr)	101		75 - 121

Method: 8015B - Gasoline Range Organics - (GC)

Lab Sample ID: MB 280-343784/1-A

Matrix: Solid

Analysis Batch: 344485

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 343784

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		1.2	mg/Kg		09/26/16 14:50	09/29/16 23:39	1

TestAmerica Denver

QC Sample Results

Client: Colorado Oil&Gas Conservation Commission
Project/Site: COGCC - Rob Young

TestAmerica Job ID: 280-88429-1

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

Lab Sample ID: MB 280-343784/1-A

Matrix: Solid

Analysis Batch: 344485

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 343784

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	92		77 - 123	09/26/16 14:50	09/29/16 23:39	1

Lab Sample ID: LCS 280-343784/2-A

Matrix: Solid

Analysis Batch: 344485

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 343784

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	5.50	5.64		mg/Kg		103	85 - 153
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
a,a,a-Trifluorotoluene	94		77 - 123				

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 280-343449/1-A

Matrix: Solid

Analysis Batch: 344008

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 343449

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		4.0	mg/Kg		09/23/16 09:47	09/27/16 17:07	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
o-Terphenyl	93		49 - 115			09/23/16 09:47	09/27/16 17:07	1

Lab Sample ID: LCS 280-343449/2-A

Matrix: Solid

Analysis Batch: 344008

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 343449

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics [C10-C28]	66.7	57.9		mg/Kg		87	53 - 115
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
o-Terphenyl	92		49 - 115				

TestAmerica Denver

Lab Chronicle

Client: Colorado Oil&Gas Conservation Commision
Project/Site: COGCC - Rob Young

TestAmerica Job ID: 280-88429-1

Client Sample ID: S01@4'

Date Collected: 09/21/16 12:00

Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			10.42 g	10 mL	343784	09/26/16 14:50	NAS	TAL DEN
Total/NA	Analysis	8015B		1	0.1 mL	5 mL	344485	09/30/16 02:33	NAS	TAL DEN
Total/NA	Analysis	Moisture		1			344299	09/29/16 09:59	KMS	TAL DEN

Client Sample ID: S01@4'

Date Collected: 09/21/16 12:00

Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-1

Matrix: Solid

Percent Solids: 94.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			4.226 g	5 mL	344030	09/27/16 12:00	ADD	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	344033	09/27/16 23:56	ADD	TAL DEN
Total/NA	Prep	3546			30.1 g	1 mL	343449	09/23/16 09:47	TEB	TAL DEN
Total/NA	Analysis	8015B		1			344008	09/27/16 17:56	AMB1	TAL DEN

Client Sample ID: S02@5'

Date Collected: 09/21/16 12:05

Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			10.14 g	10 mL	343784	09/26/16 14:50	NAS	TAL DEN
Total/NA	Analysis	8015B		1	0.1 mL	5 mL	344485	09/30/16 02:57	NAS	TAL DEN
Total/NA	Analysis	Moisture		1			344299	09/29/16 09:59	KMS	TAL DEN

Client Sample ID: S02@5'

Date Collected: 09/21/16 12:05

Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-2

Matrix: Solid

Percent Solids: 94.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			4.773 g	5 mL	344030	09/27/16 12:00	ADD	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	344033	09/28/16 01:04	ADD	TAL DEN
Total/NA	Prep	3546			30.1 g	1 mL	343449	09/23/16 09:47	TEB	TAL DEN
Total/NA	Analysis	8015B		1			344008	09/27/16 18:21	AMB1	TAL DEN

Client Sample ID: S03@5'

Date Collected: 09/21/16 12:10

Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			10.33 g	10 mL	343784	09/26/16 14:50	NAS	TAL DEN
Total/NA	Analysis	8015B		1	0.1 mL	5 mL	344485	09/30/16 03:22	NAS	TAL DEN
Total/NA	Analysis	Moisture		1			344299	09/29/16 09:59	KMS	TAL DEN

TestAmerica Denver

Lab Chronicle

Client: Colorado Oil&Gas Conservation Commision
Project/Site: COGCC - Rob Young

TestAmerica Job ID: 280-88429-1

Client Sample ID: S03@5'

Date Collected: 09/21/16 12:10

Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-3

Matrix: Solid

Percent Solids: 94.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			4.055 g	5 mL	344030	09/27/16 12:00	ADD	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	344033	09/28/16 01:26	ADD	TAL DEN
Total/NA	Prep	3546			30.0 g	1 mL	343449	09/23/16 09:47	TEB	TAL DEN
Total/NA	Analysis	8015B		1			344008	09/27/16 18:45	AMB1	TAL DEN

Client Sample ID: S04@5'

Date Collected: 09/21/16 14:00

Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			10.33 g	10 mL	343784	09/26/16 14:50	NAS	TAL DEN
Total/NA	Analysis	8015B		1	0.1 mL	5 mL	344485	09/30/16 03:47	NAS	TAL DEN
Total/NA	Analysis	Moisture		1			344299	09/29/16 09:59	KMS	TAL DEN

Client Sample ID: S04@5'

Date Collected: 09/21/16 14:00

Date Received: 09/22/16 07:35

Lab Sample ID: 280-88429-4

Matrix: Solid

Percent Solids: 91.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			4.884 g	5 mL	344030	09/27/16 12:00	ADD	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	344033	09/28/16 01:49	ADD	TAL DEN
Total/NA	Prep	3546			30.8 g	1 mL	343449	09/23/16 09:47	TEB	TAL DEN
Total/NA	Analysis	8015B		1			344008	09/27/16 19:10	AMB1	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Login Sample Receipt Checklist

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-88429-1

Login Number: 88429

List Source: TestAmerica Denver

List Number: 1

Creator: Muniz, Ashley T

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	
Cooler Temperature is acceptable.	False	Cooler temperature outside required temperature criteria.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Not requested on COC.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

4955 Yarrow Street

Arvada, CO 80002

phone 303.736.0100 fax 303.431.7171

Client Con

Chain of Custody Record

TestAmerica Laboratories, Inc.

[illegible]