

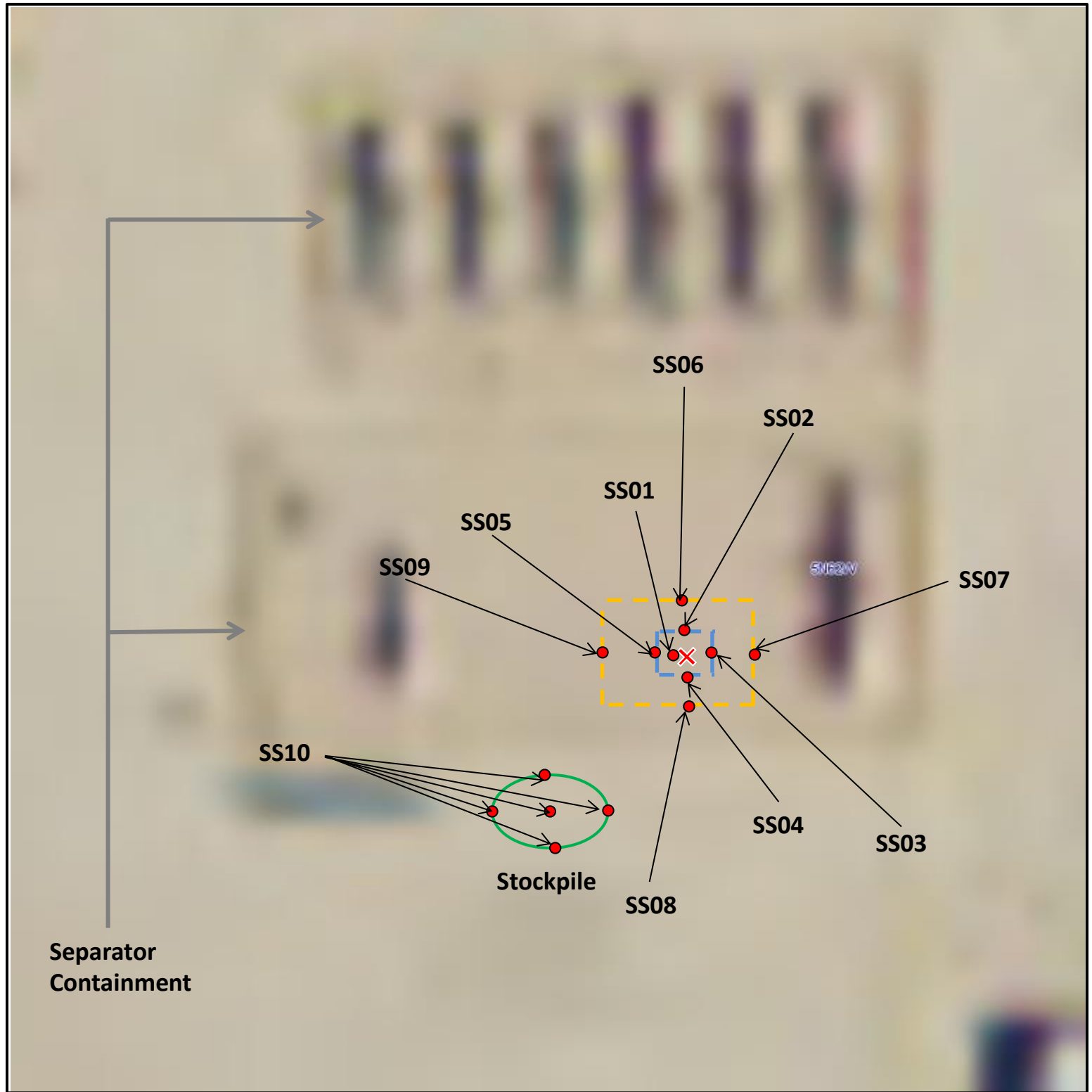
LEGEND

 Site Location



Figure 1
Location Site Map
January 22, 2018 LBK

State Antelope 14-2
Location ID: 435952
SWSW Sec 2, T5N, R62W, 6th PM
Weld County, Colorado



Aerial photograph courtesy of COGIS

LEGEND

- Excavated 4' BGS
- Excavated 8' BGS
- Release Location
- Sample Location

N



Figure 2
Site Map

February 1, 2018 LBK

State Antelope 14-2
Location ID: 435952
SWSW, Sec 2, T5N, R62W, 6th PM
Weld County, Colorado

TABLE 1
SOIL ANALYTICAL RESULTS
STATE ANTELOPE 14-2
WELD COUNTY, COLORADO
BONANZA CREEK ENERGY OPERATING COMPANY LLC.

Parameters		COGCC Table 910-1 Concentration Level	SS01	SS02	SS03	SS04	SS05	SS06	SS07	SS08	SS09	SS10
Sample Date			1/25/2018	1/25/2018	1/25/2018	1/25/2018	1/25/2018	1/26/2018	1/26/2018	1/26/2018	1/26/2018	1/26/2018
Sample Depth (feet)		XXXXXXXXXX	8.0-8.5	7.0-8.0	7.0-8.0	7.0-8.0	7.0-8.0	4.0-4.5	4.0-4.5	4.0-4.5	4.0-4.5	Stockpile - Composite
BTEX	Benzene	0.17	<0.002	<0.002	<0.002	<0.002	0.004	0.005	<0.05	<0.002	<0.002	<0.002
	Toluene	85	<0.002	<0.002	<0.002	<0.002	0.002	0.009	<0.05	<0.002	<0.002	<0.002
	Ethylbenzene	100	<0.002	<0.002	<0.002	<0.002	<0.002	0.004	<0.05	<0.002	<0.002	<0.002
	Total Xylenes	175	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.05	<0.002	<0.002	<0.002
TPH	DRO	--	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	GRO	--	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	Total	500	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Inorg.	EC	<4.0 (mmhos/cm)	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.109
	pH	6-9 (standard units)	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.96
	SAR	<12 (unitless)	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.70

Notes:

-- - no concentration level is available
BTEX - benzene, toluene, ethylbenzene, xylenes (total)
COGCC - Colorado Oil and Gas Conservation Commission
DRO - diesel range organics
EC - specific conductivity
GRO - gasoline range organics
Inorg. - inorganics
NA - not analyzed
SAR - sodium adsorption ratio
TPH - total petroleum hydrocarbons
All results are in mg/kg unless stated otherwise.



January 31, 2018

Bonanza Creek Energy, Inc.

Brian Dodek

410 17th St, Suite 1400

Denver CO 80211

Project Name - State Antelope 14-2

Project Number - [none]

Attached are your analytical results for State Antelope 14-2 received by Origins Laboratory, Inc. January 26, 2018. This project is associated with Origins project number Y801368-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



1725 Elk Place, Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Brian Dodek

Project Number: [none]

Project: State Antelope 14-2

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01	Y801368-01	Soil	January 25, 2018 13:30	01/26/2018 12:35
SS02	Y801368-02	Soil	January 25, 2018 13:35	01/26/2018 12:35
SS03	Y801368-03	Soil	January 25, 2018 13:40	01/26/2018 12:35
SS04	Y801368-04	Soil	January 25, 2018 13:45	01/26/2018 12:35
SS05	Y801368-05	Soil	January 25, 2018 13:50	01/26/2018 12:35
SS06	Y801368-06	Soil	January 26, 2018 9:00	01/26/2018 12:35
SS07	Y801368-07	Soil	January 26, 2018 9:05	01/26/2018 12:35
SS08	Y801368-08	Soil	January 26, 2018 9:10	01/26/2018 12:35
SS09	Y801368-09	Soil	January 26, 2018 9:15	01/26/2018 12:35
SS10	Y801368-10	Soil	January 26, 2018 9:20	01/26/2018 12:35

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Brian Dodek

Project Number: [none]

Project: State Antelope 14-2

Origins Laboratory

F-012207-01-R1
Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: Y801368

Client: Bonanza Creek Energy
Client Project ID: State Antelope 14-2

Checklist Completed by: JG

Shipped Via: HD
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 1/26/18

Airbill #: 117

Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____

Cooler Number/Temperature: 1 / 0.8 °C _____ / _____ °C _____ / _____ °C (Describe)

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

JG
Reviewed By (Project Manager)

1/29/18
Date/Time Reviewed

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Brian Dodek

Project Number: [none]

Project: State Antelope 14-2

SS01

1/25/2018 1:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y801368-01 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	B8A2602	01/26/2018	01/26/2018	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	113 %	70-130			"	"	"	
Surrogate: Toluene-d8	97.7 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	98.8 %	70-130			"	"	"	

GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B8A2603	01/26/2018	01/26/2018	U
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	U

Surrogate: o-Terphenyl	87.4 %	59-131			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Brian Dodek

Project Number: [none]

Project: State Antelope 14-2

SS02

1/25/2018 1:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y801368-02 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	B8A2602	01/26/2018	01/26/2018	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	117 %	70-130			"	"	"	
Surrogate: Toluene-d8	97.6 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	98.5 %	70-130			"	"	"	

GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B8A2603	01/26/2018	01/26/2018	U
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	U

Surrogate: o-Terphenyl	85.6 %	59-131			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Brian Dodek

Project Number: [none]

Project: State Antelope 14-2

SS03

1/25/2018 1:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y801368-03 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	B8A2602	01/26/2018	01/26/2018	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	102 %	70-130			"	"	"	
Surrogate: Toluene-d8	95.6 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.1 %	70-130			"	"	"	

GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B8A2603	01/26/2018	01/26/2018	U
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	U

Surrogate: o-Terphenyl	73.4 %	59-131			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Brian Dodek

Project Number: [none]

Project: State Antelope 14-2

SS04

1/25/2018 1:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y801368-04 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	B8A2602	01/26/2018	01/26/2018	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	117 %	70-130			"	"	"	
Surrogate: Toluene-d8	97.7 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.1 %	70-130			"	"	"	

GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B8A2603	01/26/2018	01/26/2018	U
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	U

Surrogate: o-Terphenyl	77.2 %	59-131			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Brian Dodek

Project Number: [none]

Project: State Antelope 14-2

SS05

1/25/2018 1:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y801368-05 (Soil)

BTEX by EPA 8260C

Benzene	0.004	0.002	mg/kg	1	B8A2602	01/26/2018	01/26/2018	
Toluene	0.002	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	120 %	70-130			"	"	"	
Surrogate: Toluene-d8	96.5 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	97.8 %	70-130			"	"	"	

GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B8A2603	01/26/2018	01/26/2018	U
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	U

Surrogate: o-Terphenyl	87.1 %	59-131			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Brian Dodek

Project Number: [none]

Project: State Antelope 14-2

SS06

1/26/2018 9:00:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y801368-06 (Soil)

BTEX by EPA 8260C

Benzene	0.005	0.002	mg/kg	1	B8A2602	01/26/2018	01/26/2018	
Toluene	0.009	0.002	"	"	"	"	"	
Ethylbenzene	0.004	0.002	"	"	"	"	"	
Xylenes, total	0.018	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	124 %	70-130			"	"	"	
Surrogate: Toluene-d8	96.2 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	101 %	70-130			"	"	"	

GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B8A2603	01/26/2018	01/26/2018	U
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	U

Surrogate: o-Terphenyl	88.1 %	59-131			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Brian Dodek

Project Number: [none]

Project: State Antelope 14-2

SS07

1/26/2018 9:05:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y801368-07 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.050	mg/kg	25	B8A2602	01/26/2018	01/26/2018	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	107 %	70-130			"	"	"	
Surrogate: Toluene-d8	98.8 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	97.0 %	70-130			"	"	"	

GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B8A2603	01/26/2018	01/26/2018	U
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	U

Surrogate: o-Terphenyl	77.2 %	59-131			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Brian Dodek

Project Number: [none]

Project: State Antelope 14-2

SS08

1/26/2018 9:10:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y801368-08 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	B8A2602	01/26/2018	01/26/2018	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	112 %	70-130			"	"	"	
Surrogate: Toluene-d8	97.7 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	100 %	70-130			"	"	"	

GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B8A2603	01/26/2018	01/26/2018	U
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	U

Surrogate: o-Terphenyl	88.0 %	59-131			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Brian Dodek

Project Number: [none]

Project: State Antelope 14-2

SS09

1/26/2018 9:15:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y801368-09 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	B8A2602	01/26/2018	01/26/2018	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	118 %	70-130			"	"	"	
Surrogate: Toluene-d8	96.3 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.4 %	70-130			"	"	"	

GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B8A2603	01/26/2018	01/26/2018	U
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	U

Surrogate: o-Terphenyl	91.5 %	59-131			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Brian Dodek

Project Number: [none]

Project: State Antelope 14-2

SS10

1/26/2018 9:20:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y801368-10 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	B8A2602	01/26/2018	01/26/2018	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	113 %	70-130			"	"	"	
Surrogate: Toluene-d8	96.9 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	98.8 %	70-130			"	"	"	

GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B8A2603	01/26/2018	01/26/2018	U
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	U

Surrogate: o-Terphenyl	85.6 %	59-131			"	"	"	
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Metals (Saturated Paste Prep)

Calcium	6.10		me/L	1	'[none]'	01/29/2018	01/31/2018	
Magnesium	2.95		"	"	"	"	"	
Sodium	1.48		"	"	"	"	"	

pH in Soil by EPA 9045D

pH	6.96		pH Units	1	B8A2604	01/26/2018	01/26/2018	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Brian Dodek

Project Number: [none]

Project: State Antelope 14-2

SS10

1/26/2018 9:20:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y801368-10 (Soil)

SAR by 20B Saturated Paste

SAR	0.70			1	'[none]'	01/29/2018	01/31/2018	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.109		mmhos/cm	1	B8A2605	01/26/2018	01/26/2018	
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Origins Laboratory, Inc.



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Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Brian Dodek

Project Number: [none]

Project: State Antelope 14-2

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B8A2602 - EPA 5030 (soil)

Blank (B8A2602-BLK1)

Prepared: 01/26/2018 Analyzed: 01/26/2018

Benzene	ND	0.002	mg/kg							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		112	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.3	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.8	70-130			

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410 17th St, Suite 1400

Denver CO 80211

Brian Dodek

Project Number: [none]

Project: State Antelope 14-2

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B8A2602 - EPA 5030 (soil)

LCS (B8A2602-BS1)

Prepared: 01/26/2018 Analyzed: 01/26/2018

Benzene	0.102	0.002	mg/kg	0.100		102	77.1-124			
Toluene	0.097	0.002	"	0.100		96.9	74.5-128			
Ethylbenzene	0.093	0.002	"	0.100		92.9	66.4-127			
m,p-Xylene	0.189	0.004	"	0.200		94.7	76.6-124			
o-Xylene	0.098	0.002	"	0.100		98.4	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.1	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.1	70-130			

Origins Laboratory, Inc.



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Bonanza Creek Energy, Inc.

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Denver CO 80211

Brian Dodek

Project Number: [none]

Project: State Antelope 14-2

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B8A2602 - EPA 5030 (soil)

Matrix Spike (B8A2602-MS1)	Source: Y801368-01			Prepared: 01/26/2018 Analyzed: 01/26/2018						
Benzene	0.105	0.002	mg/kg	0.100	ND	105	71.8-126			
Toluene	0.101	0.002	"	0.100	ND	101	65.1-130			
Ethylbenzene	0.097	0.002	"	0.100	ND	96.6	62.2-130			
m,p-Xylene	0.196	0.004	"	0.200	ND	98.1	46.5-137			
o-Xylene	0.101	0.002	"	0.100	ND	101	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	65		ug/kg	62.5		103	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.3	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.2	70-130			

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Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Brian Dodek

Project Number: [none]

Project: State Antelope 14-2

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B8A2602 - EPA 5030 (soil)

Matrix Spike Dup (B8A2602-MSD1)	Source: Y801368-01			Prepared: 01/26/2018 Analyzed: 01/26/2018						
Benzene	0.099	0.002	mg/kg	0.100	ND	99.2	71.8-126	5.87	11.3	
Toluene	0.096	0.002	"	0.100	ND	96.2	65.1-130	4.87	15.4	
Ethylbenzene	0.090	0.002	"	0.100	ND	89.6	62.2-130	7.58	19.6	
m,p-Xylene	0.183	0.004	"	0.200	ND	91.7	46.5-137	6.76	19.2	
o-Xylene	0.095	0.002	"	0.100	ND	94.9	54.2-134	6.54	17.9	
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		103	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.6	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.2	70-130			

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Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Brian Dodek

Project Number: [none]

Project: State Antelope 14-2

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Extractable Petroleum Hydrocarbons by 8015C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B8A2603 - EPA 3550B

Blank (B8A2603-BLK1)

Prepared: 01/26/2018 Analyzed: 01/26/2018

Gasoline (C6-C10)	ND	50.0	mg/kg							U
Diesel (C10-C28)	ND	50.0	"							U
Surrogate: o-Terphenyl	49		"	50.0		97.4	59-131			

LCS (B8A2603-BS1)

Prepared: 01/26/2018 Analyzed: 01/26/2018

Gasoline (C6-C10)	977	50.0	mg/kg	1000		97.7	59-133			
Diesel (C10-C28)	1030	50.0	"	1000		103	64-121			
Surrogate: o-Terphenyl	53		"	50.0		106	59-131			

Matrix Spike (B8A2603-MS1)

Source: Y801368-01

Prepared: 01/26/2018 Analyzed: 01/26/2018

Gasoline (C6-C10)	993	50.0	mg/kg	1000	ND	99.3	57-139			
Diesel (C10-C28)	1030	50.0	"	1000	ND	103	53-125			
Surrogate: o-Terphenyl	53		"	50.0		107	59-131			

Matrix Spike Dup (B8A2603-MSD1)

Source: Y801368-01

Prepared: 01/26/2018 Analyzed: 01/26/2018

Gasoline (C6-C10)	999	50.0	mg/kg	1000	ND	99.9	57-139	0.594	20	
Diesel (C10-C28)	1040	50.0	"	1000	ND	104	53-125	0.976	20	
Surrogate: o-Terphenyl	55		"	50.0		110	59-131			

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Denver CO 80211

Brian Dodek

Project Number: [none]

Project: State Antelope 14-2

Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B8A2604 - NO PREP										
Duplicate (B8A2604-DUP1)		Source: Y801368-10			Prepared: 01/26/2018 Analyzed: 01/26/2018					
pH	6.86		pH Units		6.96			1.45	25	
Batch B8A2605 - NO PREP										
Blank (B8A2605-BLK1)		Prepared: 01/26/2018 Analyzed: 01/26/2018								
Specific Conductance (EC)	0.00290		mmhos/cm							
Duplicate (B8A2605-DUP1)		Source: Y801368-10			Prepared: 01/26/2018 Analyzed: 01/26/2018					
Specific Conductance (EC)	0.118		mmhos/cm		0.109			7.49	25	

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Bonanza Creek Energy, Inc.
410 17th St, Suite 1400
Denver CO 80211

Brian Dodek
Project Number: [none]
Project: State Antelope 14-2

Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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Jen Pellegrini For Noelle Doyle Mathis, President