



SCALE 1 : 9,000

FEET

LEGEND



Site Location

N



Figure 1
Location Site Map
October 15, 2020 LBK

North Platte T-27 PW Flowline
Location ID: 470917
SESW Sec 27, T5N, R63W, 6th PM
Weld County, Colorado



Aerial photograph courtesy of COGIS

LEGEND

- X Release Location
- Release Footprint
- Sample Locations



Figure 2
Site Map

January 22, 2021 LBK

North Platte T-27 PW Flowline
Location ID: 470917
SESW Sec 27, T5N, R63W, 6th PM
Weld County, Colorado

TABLE 1
SOIL ANALYTICAL RESULTS
NORTH PLATTE T-27
WELD COUNTY, COLORADO
BONANZA CREEK ENERGY OPERATING COMPANY LLC.

Parameters		COGCC Table 910-1 Concentration Level	SS01	SS02	SS03	SS04	SS05
Sample Date			11/2/2020	11/2/2020	11/2/2020	11/2/2020	11/2/2020
Sample Depth (feet)			3-3.5	3-3.5	3-3.5	3-3.5	3.5-4
BTEX	Benzene	0.17	<0.002	<0.002	<0.002	<0.002	<0.002
	Toluene	85	<0.002	<0.002	<0.002	<0.002	<0.002
	Ethylbenzene	100	<0.002	<0.002	<0.002	<0.002	<0.002
	Total Xylenes	175	<0.002	<0.002	<0.002	<0.002	<0.002
TPH	DRO	--	<50	<50	<50	<50	<50
	GRO	--	<50	<50	<50	<50	<50
	Total	500	<50	<50	<50	<50	<50
Inorganics	EC (mmhos/cm)	<4	0.185	0.033	0.038	0.061	0.038
	SAR	<12	1.15	1.26	0.93	1.9	7.04
	pH (unitless)	6 - 9	7.20	7.31	7.22	7.58	9.18

Notes:

COGCC - Colorado Oil and Gas Conservation Commission

-- - no concentration level is available

BTEX - benzene, toluene, ethylbenzene, xylenes (total)

DRO - diesel range organics

GRO - gasoline range organics

TPH - total petroleum hydrocarbons

EC - electrical conductivity

mmhos/cm - millimhos per centimeter

SAR - sodium adsorption ratio

NA - not analyzed

All results are in mg/kg unless stated otherwise.



November 09, 2020

Bonanza Creek Energy, Inc.

Luke Kelly

410 17th St, Suite 1400

Denver

CO 80211

Project Name - NP T-27

Project Number - [none]

Attached are your analytical results for NP T-27 received by Origins Laboratory, Inc. November 02, 2020. This project is associated with Origins project number Y011013-01.

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

Luke Kelly

Project Number: [none]

Project: NP T-27

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01(N) 3-3.5'	Y011013-01	Soil	November 2, 2020 11:50	11/02/2020 15:00
SS02(E) 3-3.5'	Y011013-02	Soil	November 2, 2020 11:55	11/02/2020 15:00
SS03(S) 3-3.5'	Y011013-03	Soil	November 2, 2020 12:00	11/02/2020 15:00
SS04(W) 3-3.5'	Y011013-04	Soil	November 2, 2020 12:05	11/02/2020 15:00
SS05(B) 3.5-4'	Y011013-05	Soil	November 2, 2020 12:10	11/02/2020 15:00

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

Luke Kelly

Project Number: [none]

Project: NP T-27

www.originslaboratory.com

page 1 of 1

701013

ORIGINS
LABORATORY, INC

Project Manager: Luke Kelly
Project Name: North Plate T-27
Project Number:
Samples Collected By: Luke Kelly

Client: Bonanza Creek Energy
Address: 410 17th Street Suite 1700 Denver, CO 80202
Telephone Number: 720-315-8934
Email Address:

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

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Oil Summa #	Other	Other	Other	Other		
SS02(N) 3-3.5'	11/2/20	1150	2	X				X					X	X	X	1
SS02(E) 3-3.5'		1155	1										X	X	X	2
SS03(S) 3-3.5'		1200	1										X	X	X	3
SS04(W) 3-3.5'		1205	1										X	X	X	4
SS05(B) 3.5-4'		1210	1										X	X	X	5
																6
																7
																8
																9
																10

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:
[Signature]	11/2/2020	1500	[Signature]	11/2/20	1500	Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> Standard <input checked="" type="checkbox"/>

Date Results Needed

7/15

Origins Laboratory, Inc.

[Signature]

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

Luke Kelly

Project Number: [none]

Project: NP T-27

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 1011013

Client: BCEI

Client Project ID: NP T-27

Checklist Completed by: SG

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

Date/time completed: 11/2/20

Airbill #: N/A

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

Cooler Number/Temperature: 1 22.5 °C °C °C (Describe) °C

Thermometer ID: 7003

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"/>		<u>Same Day</u>
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.

Reviewed by (Project Manager) Jm

11-3-20
Date/Time Reviewed

Origins Laboratory, Inc.

Jm

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Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Luke Kelly

Project Number: [none]

Project: NP T-27

SS01(N) 3-3.5'

11/2/2020 11:50:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.

Y011013-01 (Soil)

BTEX by EPA 8260D

Benzene	ND	0.002	mg/kg	1	B0K0201	TEM	11/02/2020	11/02/2020	U
Toluene	ND	0.002	"	"	"	TEM	"	"	U
Ethylbenzene	ND	0.002	"	"	"	TEM	"	"	U
Xylenes, total	ND	0.002	"	"	"	TEM	"	"	U

Surrogate: 1,2-Dichloroethane-d4

115 %

70-130

"

"

"

Surrogate: Toluene-d8

99.9 %

70-130

"

"

"

Surrogate: 4-Bromofluorobenzene

102 %

70-130

"

"

"

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

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B0K0210	DJL	11/02/2020	11/02/2020	U
Diesel (C10-C28)	ND	50.0	"	"	"	DJL	"	"	U

Surrogate: o-Terphenyl

76.8 %

50-150

"

"

"

Metals (Saturated Paste Prep)

Calcium	14.99		me/L	1	[none]		11/03/2020	11/05/2020	
Magnesium	7.49		"	"	"		"	"	
Sodium	3.84		"	"	"		"	"	

pH in Soil by EPA 9045D

pH	7.20		pH Units	1	B0K0212	DJL	11/02/2020	11/02/2020	
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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

Luke Kelly

Project Number: [none]

Project: NP T-27

SS01(N) 3-3.5'

11/2/2020 11:50:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.

Y011013-01 (Soil)

SAR by 20B Saturated Paste

SAR	1.15			1	[none]		11/03/2020	11/05/2020	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.185	0.00500	mmhos/cm	1	B0K0213	DJL	11/02/2020	11/02/2020	
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Origins Laboratory, Inc.



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Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Luke Kelly

Project Number: [none]

Project: NP T-27

SS02(E) 3-3.5'

11/2/2020 11:55:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.

Y011013-02 (Soil)

BTEX by EPA 8260D

Benzene	ND	0.002	mg/kg	1	B0K0201	TEM	11/02/2020	11/02/2020	U
Toluene	ND	0.002	"	"	"	TEM	"	"	U
Ethylbenzene	ND	0.002	"	"	"	TEM	"	"	U
Xylenes, total	ND	0.002	"	"	"	TEM	"	"	U

Surrogate: 1,2-Dichloroethane-d4

115 %

70-130

"

"

"

Surrogate: Toluene-d8

99.4 %

70-130

"

"

"

Surrogate: 4-Bromofluorobenzene

102 %

70-130

"

"

"

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

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B0K0210	DJL	11/02/2020	11/02/2020	U
Diesel (C10-C28)	ND	50.0	"	"	"	DJL	"	"	U

Surrogate: o-Terphenyl

80.5 %

50-150

"

"

"

Metals (Saturated Paste Prep)

Calcium	1.59	me/L	1	[none]			11/03/2020	11/05/2020	
Magnesium	1.12	"	"	"			"	"	
Sodium	1.47	"	"	"			"	"	

pH in Soil by EPA 9045D

pH	7.31	pH Units	1	B0K0212	DJL	11/02/2020	11/02/2020		
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Origins Laboratory, Inc.

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Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Luke Kelly

Project Number: [none]

Project: NP T-27

SS02(E) 3-3.5'

11/2/2020 11:55:00AM

Analyte	Result	Reporting	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.

Y011013-02 (Soil)

SAR by 20B Saturated Paste

SAR	1.26		1	[none]		11/03/2020	11/05/2020
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0333	0.00500	mmhos/cm	1	B0K0213	DJL	11/02/2020	11/02/2020
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Origins Laboratory, Inc.



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Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Luke Kelly

Project Number: [none]

Project: NP T-27

SS03(S) 3-3.5'

11/2/2020 12:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.

Y011013-03 (Soil)

BTEX by EPA 8260D

Benzene	ND	0.002	mg/kg	1	B0K0201	TEM	11/02/2020	11/02/2020	U
Toluene	ND	0.002	"	"	"	TEM	"	"	U
Ethylbenzene	ND	0.002	"	"	"	TEM	"	"	U
Xylenes, total	ND	0.002	"	"	"	TEM	"	"	U

Surrogate: 1,2-Dichloroethane-d4

115 %

70-130

"

"

"

Surrogate: Toluene-d8

99.4 %

70-130

"

"

"

Surrogate: 4-Bromofluorobenzene

102 %

70-130

"

"

"

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

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B0K0210	DJL	11/02/2020	11/02/2020	U
Diesel (C10-C28)	ND	50.0	"	"	"	DJL	"	"	U

Surrogate: o-Terphenyl

78.7 %

50-150

"

"

"

Metals (Saturated Paste Prep)

Calcium	3.75	me/L	1	[none]			11/03/2020	11/05/2020	
Magnesium	2.12	"	"	"			"	"	
Sodium	1.60	"	"	"			"	"	

pH in Soil by EPA 9045D

pH	7.22	pH Units	1	B0K0212	DJL	11/02/2020	11/02/2020		
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Origins Laboratory, Inc.

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Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Luke Kelly

Project Number: [none]

Project: NP T-27

SS03(S) 3-3.5'

11/2/2020 12:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.

Y011013-03 (Soil)

SAR by 20B Saturated Paste

SAR	0.93			1	[none]		11/03/2020	11/05/2020	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0375	0.00503	mmhos/cm	1	B0K0213	DJL	11/02/2020	11/02/2020	
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Origins Laboratory, Inc.



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Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Luke Kelly

Project Number: [none]

Project: NP T-27

SS04(W) 3-3.5'

11/2/2020 12:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.

Y011013-04 (Soil)

BTEX by EPA 8260D

Benzene	ND	0.002	mg/kg	1	B0K0201	TEM	11/02/2020	11/02/2020	U
Toluene	ND	0.002	"	"	"	TEM	"	"	U
Ethylbenzene	ND	0.002	"	"	"	TEM	"	"	U
Xylenes, total	ND	0.002	"	"	"	TEM	"	"	U

Surrogate: 1,2-Dichloroethane-d4

115 %

70-130

"

"

"

Surrogate: Toluene-d8

99.9 %

70-130

"

"

"

Surrogate: 4-Bromofluorobenzene

102 %

70-130

"

"

"

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

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B0K0210	DJL	11/02/2020	11/02/2020	U
Diesel (C10-C28)	ND	50.0	"	"	"	DJL	"	"	U

Surrogate: o-Terphenyl

81.1 %

50-150

"

"

"

Metals (Saturated Paste Prep)

Calcium	0.97		me/L	1	[none]		11/03/2020	11/05/2020	
Magnesium	0.40		"	"	"		"	"	
Sodium	1.57		"	"	"		"	"	

pH in Soil by EPA 9045D

pH	7.58		pH Units	1	B0K0212	DJL	11/02/2020	11/02/2020	
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Origins Laboratory, Inc.

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Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Luke Kelly

Project Number: [none]

Project: NP T-27

SS04(W) 3-3.5'

11/2/2020 12:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
---------	--------	--------------------	-------	----------	-------	---------	----------	----------	-------

Origins Laboratory, Inc.

Y011013-04 (Soil)

SAR by 20B Saturated Paste

SAR	1.90			1	[none]		11/03/2020	11/05/2020	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0610	0.00505	mmhos/cm	1	B0K0213	DJL	11/02/2020	11/02/2020	
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Origins Laboratory, Inc.



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Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Luke Kelly

Project Number: [none]

Project: NP T-27

SS05(B) 3.5-4'

11/2/2020 12:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.

Y011013-05 (Soil)

BTEX by EPA 8260D

Benzene	ND	0.002	mg/kg	1	B0K0201	TEM	11/02/2020	11/02/2020	U
Toluene	ND	0.002	"	"	"	TEM	"	"	U
Ethylbenzene	ND	0.002	"	"	"	TEM	"	"	U
Xylenes, total	ND	0.002	"	"	"	TEM	"	"	U

Surrogate: 1,2-Dichloroethane-d4

115 %

70-130

"

"

"

Surrogate: Toluene-d8

99.9 %

70-130

"

"

"

Surrogate: 4-Bromofluorobenzene

102 %

70-130

"

"

"

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

Gasoline (C6-C10)	ND	50.0	mg/kg	1	B0K0210	DJL	11/02/2020	11/02/2020	U
Diesel (C10-C28)	ND	50.0	"	"	"	DJL	"	"	U

Surrogate: o-Terphenyl

74.1 %

50-150

"

"

"

Metals (Saturated Paste Prep)

Calcium	0.54	me/L	1	[none]			11/03/2020	11/05/2020	
Magnesium	0.54	"	"	"			"	"	
Sodium	5.17	"	"	"			"	"	

pH in Soil by EPA 9045D

pH	9.18	pH Units	1	B0K0212	DJL	11/02/2020	11/02/2020		
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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

Luke Kelly

Project Number: [none]

Project: NP T-27

SS05(B) 3.5-4'

11/2/2020 12:10:00PM

Analyte	Result	Reporting	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.

Y011013-05 (Soil)

SAR by 20B Saturated Paste

SAR	7.04		1	[none]		11/03/2020	11/05/2020
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0378	0.00500	mmhos/cm	1	B0K0213	DJL	11/02/2020	11/02/2020
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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

Luke Kelly

Project Number: [none]

Project: NP T-27

Volatile Organic Compounds by GC/MS SW846 8260D - 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 B0K0201 - EPA 5030 (soil)

Blank (B0K0201-BLK1)

Prepared: 11/02/2020 Analyzed: 11/02/2020

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	0.13		"	0.125	107		70-130			
Surrogate: Toluene-d8	0.13		"	0.125	102		70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125	103		70-130			

Origins Laboratory, Inc.



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Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Luke Kelly

Project Number: [none]

Project: NP T-27

Volatile Organic Compounds by GC/MS SW846 8260D - 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 B0K0201 - EPA 5030 (soil)

LCS (B0K0201-BS1)

Prepared: 11/02/2020 Analyzed: 11/02/2020

Benzene	0.053	0.002	mg/kg	0.0500		105	70-130			
Toluene	0.052	0.002	"	0.0500		104	70-130			
Ethylbenzene	0.054	0.002	"	0.0500		109	70-130			
m,p-Xylene	0.111	0.004	"	0.100		111	70-130			
o-Xylene	0.054	0.002	"	0.0500		109	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		107	70-130			
Surrogate: Toluene-d8	0.13		"	0.125		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		106	70-130			

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Denver CO 80211

Luke Kelly

Project Number: [none]

Project: NP T-27

Volatile Organic Compounds by GC/MS SW846 8260D - 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 B0K0201 - EPA 5030 (soil)

Matrix Spike (B0K0201-MS1)		Source: Y011001-01			Prepared: 11/02/2020 Analyzed: 11/02/2020					
Benzene	0.047	0.002	mg/kg	0.0500	0.0005	93.7	70-130			
Toluene	0.045	0.002	"	0.0500	ND	89.2	70-130			
Ethylbenzene	0.046	0.002	"	0.0500	ND	91.9	70-130			
m,p-Xylene	0.094	0.004	"	0.100	ND	94.0	70-130			
o-Xylene	0.047	0.002	"	0.0500	ND	93.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.125		108	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.9	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		105	70-130			

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Denver CO 80211

Luke Kelly

Project Number: [none]

Project: NP T-27

Volatile Organic Compounds by GC/MS SW846 8260D - 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 B0K0201 - EPA 5030 (soil)

Matrix Spike Dup (B0K0201-MSD1)		Source: Y011001-01			Prepared: 11/02/2020 Analyzed: 11/02/2020					
Benzene	0.048	0.002	mg/kg	0.0500	0.0005	95.1	70-130	1.51	20	
Toluene	0.046	0.002	"	0.0500	ND	91.5	70-130	2.52	20	
Ethylbenzene	0.047	0.002	"	0.0500	ND	94.1	70-130	2.37	20	
m,p-Xylene	0.096	0.004	"	0.100	ND	96.2	70-130	2.38	20	
o-Xylene	0.048	0.002	"	0.0500	ND	95.1	70-130	2.00	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		107	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.4	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		104	70-130			

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Denver CO 80211

Luke Kelly

Project Number: [none]

Project: NP T-27

Volatile Organic Compounds by GC/MS SW846 8260D - 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 B0K0210 - EPA 3580

Blank (B0K0210-BLK1)

Prepared: 11/02/2020 Analyzed: 11/02/2020

Gasoline (C6-C10)	ND	25.0	mg/kg							U
Diesel (C10-C28)	ND	25.0	"							U
Surrogate: o-Terphenyl	23		"	25.0		93.4	50-150			

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Denver CO 80211

Luke Kelly

Project Number: [none]

Project: NP T-27

Extractable Petroleum Hydrocarbons by 8015D - 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 B0K0210 - EPA 3580

LCS (B0K0210-BS1)

Prepared: 11/02/2020 Analyzed: 11/02/2020

Gasoline (C6-C10)	840	50.0	mg/kg	1000		84.0	70-130			
Diesel (C10-C28)	792	50.0	"	1000		79.2	70-130			
Surrogate: o-Terphenyl	42		"	50.0		84.7	50-150			

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Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Luke Kelly

Project Number: [none]

Project: NP T-27

Extractable Petroleum Hydrocarbons by 8015D - 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 B0K0210 - EPA 3580

Matrix Spike (B0K0210-MS1)		Source: Y011012-01			Prepared: 11/02/2020 Analyzed: 11/02/2020					
Gasoline (C6-C10)	955	50.0	mg/kg	1000	ND	95.5	70-130			
Diesel (C10-C28)	905	50.0	"	1000	ND	90.5	70-130			
Surrogate: o-Terphenyl	47		"	50.0		94.5	50-150			

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Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Luke Kelly

Project Number: [none]

Project: NP T-27

Extractable Petroleum Hydrocarbons by 8015D - 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 B0K0210 - EPA 3580

Matrix Spike Dup (B0K0210-MSD1)		Source: Y011012-01			Prepared: 11/02/2020 Analyzed: 11/02/2020					
Gasoline (C6-C10)	940	50.0	mg/kg	1000	ND	94.0	70-130	1.59	35	
Diesel (C10-C28)	887	50.0	"	1000	ND	88.7	70-130	2.00	35	
Surrogate: o-Terphenyl	47		"	50.0		93.8	50-150			

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410 17th St, Suite 1400

Denver CO 80211

Luke Kelly

Project Number: [none]

Project: NP T-27

Extractable Petroleum Hydrocarbons by 8015D - 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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Classical Chemistry Parameters - 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 B0K0212 - NO PREP

Duplicate (B0K0212-DUP1)

Source: Y011012-01

Prepared: 11/02/2020 Analyzed: 11/02/2020

pH	6.96		pH Units	7.24		3.94	25
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Batch B0K0213 - NO PREP

Blank (B0K0213-BLK1)

Prepared: 11/02/2020 Analyzed: 11/02/2020

Specific Conductance (EC)	0.00490	0.00500	mmhos/cm
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Duplicate (B0K0213-DUP1)

Source: Y011012-01

Prepared: 11/02/2020 Analyzed: 11/02/2020

Specific Conductance (EC)	0.0315	0.00506	mmhos/cm	0.0294		6.90	25
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Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Luke Kelly

Project Number: [none]

Project: NP T-27

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.

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