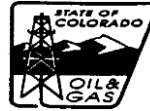


State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303) 894-2100 Fax 894-2109



FOR OGCC USE ONLY

Document 2314500
Received 3/27/2015
REM 8991

SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

OGCC Employee:

☐ Spill ☐ Complaint☐ Inspection ☐ NOAV

Tracking No:

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

☐ Spill or Release ☐ Plug & Abandon ☐ Central Facility Closure ☐ Site/Facility Closure ☒ Other (describe): Flare Pit Closure

GENERAL INFORMATION

OGCC Operator Number: 8960		Contact Name and Telephone	
Name of Operator: Bonanza Creek Energy Operating Company LLC		Name: Brian Dodek	
Address: 410 17th Street, Suite 1400		No: 720-225-6653	
City: Denver State: CO Zip: 80202		Fax: 720-279-2331	
API/Facility No: 324735		County: Jackson	
Facility Name: Rooke 9-79-69N79W/ 25NWNW		Facility Number:	
Well Name: Rooke		Well Number: 9-79 25-1H	
Location (QtrQtr, Sec, Twp, Rng, Meridian): NWNW T9N-R79W-Sec 25 - 6PM		Latitude: 40.727218 Longitude: -106.221441	

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): N/A		
Site Conditions: Is location within a sensitive area (according to Rule 901e)? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N If yes, attach evaluation.		
Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Rangeland		
Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Fluetsch-Tiagos Association		
Potential receptors (water wells within 1/4 mi, surface waters, etc.): N/A		
Description of Impact (if previously provided, refer to that form or document):		
Impacted Media (check):	Extent of Impact:	How Determined:
<input type="checkbox"/> Soils	N/A	
<input type="checkbox"/> Vegetation	N/A	
<input type="checkbox"/> Groundwater	N/A	
<input type="checkbox"/> Surface water	N/A	

REMEDIALTION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document): NA
Describe how source is to be removed: N/A
Describe how remediation of existing impacts is to be accomplished , including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.: NA



REMEDIATION WORKPLAN (CONT.)

OGCC Employee:

Tracking Number: _____
Name of Operator: Bonanza Creek Energy Operating Company LLC
OGCC Operator No: 8960
Received Date: _____
Well Name & No: Rooke 9-79 25-1
Facility Name & No.: Rooke 9-79 25-1 - 324735

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):

N/A

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.

Location will be abandoned. Site will be reclaimed as per COGCC requirements.

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.

Is further site investigation required? ☐ Y ☒ N If yes, describe:

The location will be abandoned and reclaimed. The flare pit was reclaimed during abandonment activities. A sample was collected from the base of the flare pit to document soil conditions. The flare pit was unused and vegetated. See attached documents for details and results.

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

N/A

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: <u>8/5/14</u>	Date Site Investigation Completed: <u>8/5/14</u>	Remediation Plan Submitted: <u>3/27/2015</u>
Remediation Start Date: <u>NA</u>	Anticipated Completion Date: <u>NA</u>	Actual Completion Date: <u>8/5/2014</u>

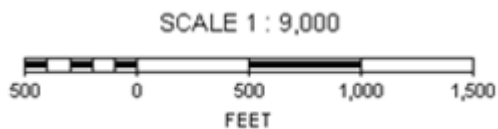
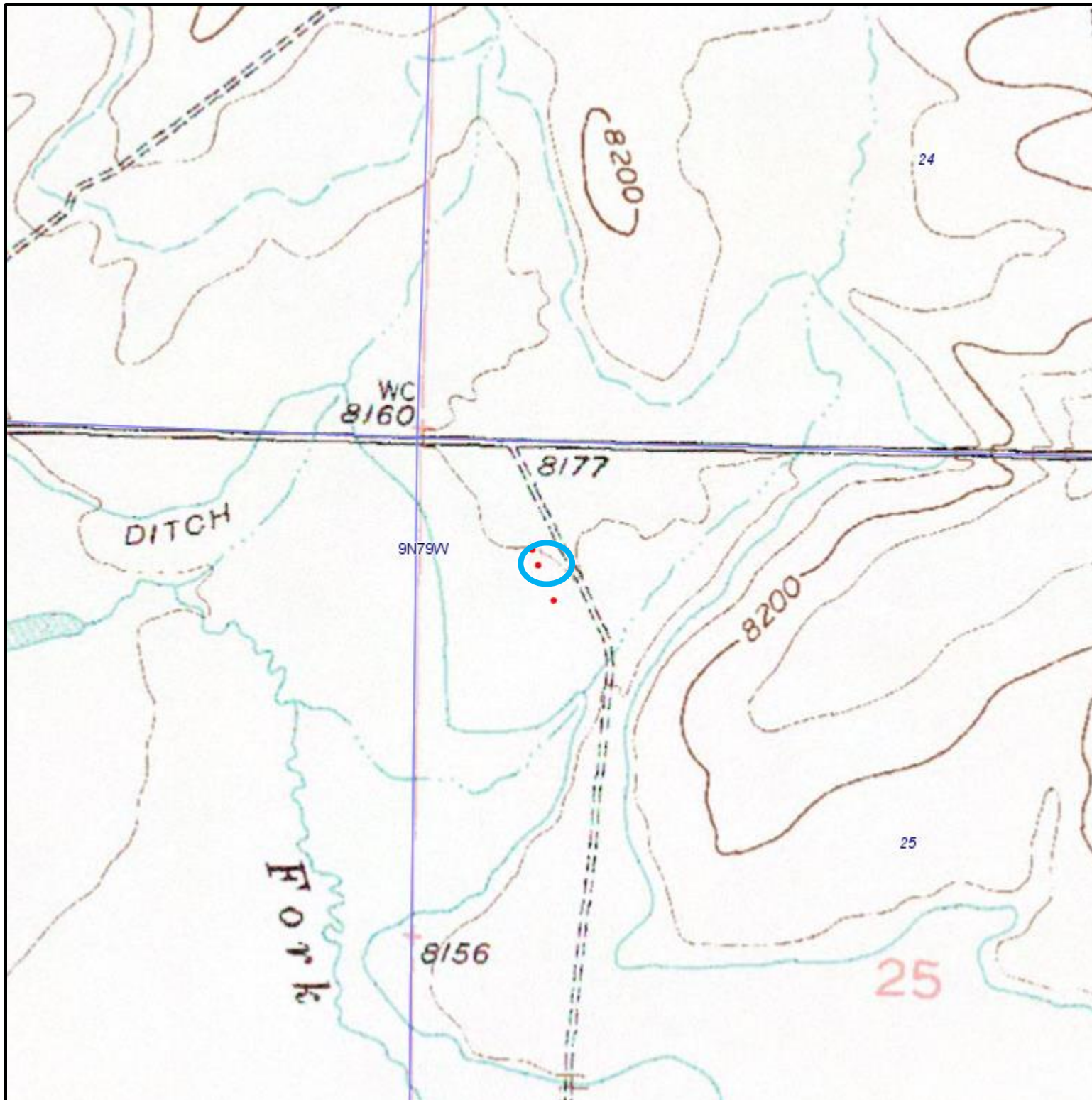
I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name: Brian Dodek

Signed: Brian Dodek Title: Senior Environmental Specialist Date: 3/27/15

OGCC Approved: [Signature] Title: EPS Date: 3/30/15

location # 441324 was created to document the Pit location



LEGEND



Site Location

N



Figure 1
Site Location Map
March 27, 2015 BDD

**Rooke 9-79 25-1H Flare Pit
Facility ID: 324735
NWNW, Sec 25, T9N, R79W, 6th PM
Jackson County, Colorado**



Aerial photograph courtesy of Google Earth Pro

LEGEND

● Soil Sample

N



Figure 2
Soil Sample Location Map
March 27, 2015 BDD

Rooke 9-79 25-1H Flare Pit
Facility ID: 324735
NWNW, Sec 25, T9N, R79W, 6th PM
Jackson County, Colorado

TABLE 1
SOIL ANALYTICAL RESULTS
ROOKE 9-79 25-1H
JACKSON COUNTY, COLORADO
BONANZA CREEK ENERGY OPERATING COMPANY LLC.

Parameters		COGCC Table 910-1 Concentration Level	SS01
BTEX	Benzene	0.17	<0.002
	Toluene	85	<0.002
	Ethylbenzene	100	<0.002
	Total Xylenes	175	<0.002
TPH	DRO	--	<50
	GRO	--	<50
	Total	500	<50

Notes:

-- - no concentration level is available

BOLD - analytical result exceeds the COGCC Table 910-1 Concentration Level

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

COGCC - Colorado Oil and Gas Conservation Commission

TPH - total petroleum hydrocarbons

DRO - diesel range organics

GRO - gasoline range organics

All results are in mg/kg unless stated otherwise.



August 13, 2014

Bonanza Creek Energy, Inc.

Brian Dodek

410 17th St, Suite 1400

Denver

CO 80211

Project Name - Rooke 25-1 Flare Pit

Project Number - [none]

Attached are your analytical results for Rooke 25-1 Flare Pit received by Origins Laboratory, Inc. August 06, 2014. This project is associated with Origins project number X408048-01.

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: Rooke 25-1 Flare Pit

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01	X408048-01	Soil	August 5, 2014 10:50	08/06/2014 07:40

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: Rooke 25-1 Flare Pit

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page ☐ of ☐

X408048

ORIGINS
LABORATORY, INC

Client:	Bonanza Creek Energy, Inc.	Project Manager:	Brian Dodek
Address:	410 17th Street, Suite 1400	Project Name:	ROOKE 25-1 FLARE PIT
Telephone Number:	720-225-6653	Project Number:	
Email Address:	bdodek@bonanzack.com	Samples Collected By:	Tom Peterson

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Sampling Container #			Other
5501	8/5/14	1050	2	X					X				1
													2
													3
													4
													5
													6
													7
													8
													9
													10

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:
Tom Peterson	8/6/14	0740	[Signature]	8/6/14	7:40	Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input checked="" type="checkbox"/>

Date Results Needed

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: Rooke 25-1 Flare Pit

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

Sample Receipt Checklist

Origins Work Order: X408048 Client: Bonanza Creek
Client Project ID: Rooke 25-1 Flare Pit

Checklist Completed by: Jeff Smith Shipped Via: H/D
(UPS, FedEx, Hand Delivered, Pick-up, etc.)
Date/time completed: 8/6/14 929 Airbill #: 223

Matrix(s) Received: (Check all that apply): ☒ Soil/Solid ☐ Water ☐ Other: _____
Cooler Number/Temperature: 13.0 °C ☐ °C ☐ °C (Describe) _____ °C
Thermometer ID: T602

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 in the additional comments (above) and the case narrative.

Reviewed by (Project Manager): Christy Date/Time Reviewed: 8/6/14 1314

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: Rooke 25-1 Flare Pit

SS01

8/5/2014 10:50:00AM

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

Origins Laboratory, Inc.
X408048-01 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	4H06007	08/06/2014	08/07/2014
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	116 %	70-130			"	"	"
Surrogate: Toluene-d8	111 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	104 %	70-130			"	"	"

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

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4H06008	08/06/2014	08/06/2014
Diesel (C10-C28)	ND	50.0	"	"	"	"	"

Surrogate: o-Terphenyl	74.2 %	59-131			"	"	"
------------------------	--------	--------	--	--	---	---	---

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: Rooke 25-1 Flare Pit

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
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 4H06007 - EPA 5030 (soil)

Blank (4H06007-BLK1)

Prepared: 08/06/2014 Analyzed: 08/06/2014

Benzene	ND	0.002	mg/kg							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	80		ug/kg	62.5	128		70-130			
Surrogate: Toluene-d8	69		"	62.5	110		70-130			
Surrogate: 4-Bromofluorobenzene	68		"	62.5	108		70-130			

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Brian Dodek

Project Number: [none]

Project: Rooke 25-1 Flare Pit

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 4H06007 - EPA 5030 (soil)

LCS (4H06007-BS1)

Prepared: 08/06/2014 Analyzed: 08/06/2014

Benzene	0.1	0.002	mg/kg	0.100		100	77.1-124			
Toluene	0.1	0.002	"	0.100		99.6	74.5-128			
Ethylbenzene	0.08	0.002	"	0.100		81.2	66.4-127			
m,p-Xylene	0.2	0.004	"	0.200		82.5	76.6-124			
o-Xylene	0.08	0.002	"	0.100		82.8	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		110	70-130			
Surrogate: Toluene-d8	69		"	62.5		110	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		105	70-130			

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Brian Dodek

Project Number: [none]

Project: Rooke 25-1 Flare Pit

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
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 4H06007 - EPA 5030 (soil)

Matrix Spike (4H06007-MS1)		Source: X408048-01			Prepared: 08/06/2014 Analyzed: 08/06/2014					
Benzene	0.09	0.002	mg/kg	0.100	ND	94.7	71.8-126			
Toluene	0.09	0.002	"	0.100	ND	91.2	65.1-130			
Ethylbenzene	0.08	0.002	"	0.100	ND	76.8	62.2-130			
m,p-Xylene	0.2	0.004	"	0.200	ND	76.9	46.5-137			
o-Xylene	0.07	0.002	"	0.100	ND	73.9	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	74		ug/kg	62.5		118	70-130			
Surrogate: Toluene-d8	69		"	62.5		111	70-130			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		107	70-130			

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

Bonanza Creek Energy, Inc.

410 17th St, Suite 1400

Denver CO 80211

Brian Dodek

Project Number: [none]

Project: Rooke 25-1 Flare Pit

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
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 4H06007 - EPA 5030 (soil)

Matrix Spike Dup (4H06007-MSD1)		Source: X408048-01			Prepared: 08/06/2014 Analyzed: 08/06/2014					
Benzene	0.1	0.002	mg/kg	0.100	ND	99.7	71.8-126	5.18	11.3	
Toluene	0.1	0.002	"	0.100	ND	99.3	65.1-130	8.44	15.4	
Ethylbenzene	0.08	0.002	"	0.100	ND	79.0	62.2-130	2.85	19.6	
m,p-Xylene	0.2	0.004	"	0.200	ND	79.0	46.5-137	2.67	19.2	
o-Xylene	0.08	0.002	"	0.100	ND	81.2	54.2-134	9.49	17.9	
Surrogate: 1,2-Dichloroethane-d4	72		ug/kg	62.5		116	70-130			
Surrogate: Toluene-d8	69		"	62.5		110	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		105	70-130			

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: Rooke 25-1 Flare Pit

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
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Extractable Petroleum Hydrocarbons by 8015M - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 4H06008 - EPA 3580

Blank (4H06008-BLK1)

Prepared: 08/06/2014 Analyzed: 08/06/2014

Gasoline (C6-C10) ND 50.0 mg/kg

Diesel (C10-C28) ND 50.0 "

Surrogate: o-Terphenyl 47 g 50.0 94.8 59-131

LCS (4H06008-BS1)

Prepared: 08/06/2014 Analyzed: 08/06/2014

Gasoline (C6-C10) 1040 50.0 mg/kg 1000 104 59-133

Diesel (C10-C28) 1190 50.0 " 1000 119 64-121

Surrogate: o-Terphenyl 53 g 50.0 105 59-131

Matrix Spike (4H06008-MS1)

Source: X408048-01

Prepared: 08/06/2014 Analyzed: 08/06/2014

Gasoline (C6-C10) 974 50.0 mg/kg 1000 ND 97.4 57-139

Diesel (C10-C28) 1090 50.0 " 1000 26.7 106 53-125

Surrogate: o-Terphenyl 49 g 50.0 98.0 59-131

Matrix Spike Dup (4H06008-MSD1)

Source: X408048-01

Prepared: 08/06/2014 Analyzed: 08/06/2014

Gasoline (C6-C10) 883 50.0 mg/kg 1000 ND 88.3 57-139 9.81 20

Diesel (C10-C28) 901 50.0 " 1000 26.7 87.5 53-125 18.8 20

Surrogate: o-Terphenyl 41 g 50.0 82.6 59-131

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: Rooke 25-1 Flare Pit

Notes and Definitions

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.



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.

Noelle Doyle Mathis, President