

# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

December 13, 2018

Blake Ford

Extraction Oil&Gas

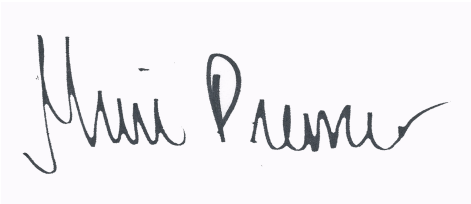
370 17th Street Suite 5300

Denver, CO 80202

RE: Rinn Valley Pipeline-KPK

Enclosed are the results of analyses for samples received by Summit Scientific on 12/07/18 15:50. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Muri Premier", on a light blue background.

Muri Premier For Ben Shrewsbury

Laboratory Manager



Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Rinn Valley Pipeline-KPK

Project Number: [none]  
Project Manager: Blake Ford

**Reported:**  
12/13/18 10:37

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
W01@3.5'	1812100-01	Soil	12/05/18 13:15	12/07/18 15:50
W02@3.5'	1812100-02	Soil	12/05/18 13:50	12/07/18 15:50
W03@3.5'	1812100-03	Soil	12/05/18 14:00	12/07/18 15:50
N01@3'	1812100-04	Soil	12/05/18 14:13	12/07/18 15:50
E01@3'	1812100-05	Soil	12/05/18 14:22	12/07/18 15:50
E02@3.5'	1812100-06	Soil	12/07/18 11:30	12/07/18 15:50
E03@3.5'	1812100-07	Soil	12/07/18 12:30	12/07/18 15:50
S01@3.5'	1812100-08	Soil	12/07/18 12:45	12/07/18 15:50

Summit Scientific

*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.*

1812100

# Summit Scientific

S<sub>2</sub>

4653 Table Mountain Drive ♦ Golden, Colorado 80403


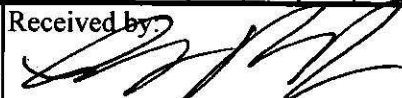
303-277-9310

Page 1 of 1

Client: Extraction Oil & GasProject Manager: Blake FordAddress: 2234 117th Ave, Ste 106E-Mail: bford@extractionog.com ; bgibson@extractionog.comCity/State/Zip: Greeley, CO 80634Phone: 970-576-3446Project Name: Rinn Valley Pipeline - KPKSampler Name: Brian Gibson

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO <sub>3</sub>	None	Other	Water	Soil	Air-Canister #	Other	BTEX	TPH (GRO/DRG)							
1	W01@3.5'	12/5/18	1315	1			X			X				X	X						
2	W02@3.5'	↓	1350	↓			↓			↓				↓	↓						
3	W03@3.5'	↓	1400	↓			↓			↓				↓	↓						
4	N01@3'	↓	1413	↓			↓			↓				↓	↓						
5	E01@3'	↓	1422	↓			↓			↓				↓	↓						
6	E02@3.5'	12/7/18	1130	↓			↓			↓				↓	↓						
7	E03@3.5'	↓	1230	↓			↓			↓				↓	↓						
8	S01@3.5'	↓	1245	↓			↓			↓				↓	↓						
9																					
10																					

Relinquished by: 	Date/Time: <u>12/7/18 1550</u>	Received by: 	Date/Time: <u>12.7.18 1550</u>	Turn Around Time (Check) Same Day <input type="checkbox"/> 72 hours 24 hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 hours <input type="checkbox"/> Sample Integrity: Temperature Upon Receipt: <u>9.2</u> Samples Intact: Yes No	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

# Sample Receipt Checklist

S2 Work Order: 1812100

Client: XOG Client Project ID: Rinn Valley Pipeline - KPK

Shipped Via: Up. Airbill #: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Matrix (check all that apply):    Air    Soil/Solid    Water    Other: \_\_\_\_\_  
(Describe)

Temp (°C)	9.2
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Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.				
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect				
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

Up  
Custodian Printed Name or Initials

[Signature]  
Signature or Initials of Custodian

12.7.18 1650  
Date/Time



Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Rinn Valley Pipeline-KPK

Project Number: [none]  
Project Manager: Blake Ford

**Reported:**  
12/13/18 10:37

**W01@3.5'**  
**1812100-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **12/05/18 13:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	1812124	12/10/18	12/11/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>6.8</b>	0.50	"	"	"	"	"	"	

Date Sampled: **12/05/18 13:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		89.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		206 %	21-167		"	"	"	"	S-02

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **12/05/18 13:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	1812122	12/10/18	12/11/18	EPA 8015M	

Date Sampled: **12/05/18 13:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		117 %	30-150		"	"	"	"	

Summit Scientific

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Rinn Valley Pipeline-KPK

Project Number: [none]  
Project Manager: Blake Ford

**Reported:**  
12/13/18 10:37

**W02@3.5'**  
**1812100-02 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **12/05/18 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>0.0034</b>	0.0020	mg/kg	1	1812124	12/10/18	12/11/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>3.2</b>	0.50	"	100	"	"	"	"	
<b>Xylenes (total)</b>	<b>16</b>	1.0	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>770</b>	50	"	"	"	"	"	"	

Date Sampled: **12/05/18 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		147 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **12/05/18 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1812122	12/10/18	12/11/18	EPA 8015M	

Date Sampled: **12/05/18 13:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		117 %	30-150		"	"	"	"	

Summit Scientific

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Rinn Valley Pipeline-KPK

Project Number: [none]  
Project Manager: Blake Ford

**Reported:**  
12/13/18 10:37

**W03@3.5'**  
**1812100-03 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **12/05/18 14:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1812124	12/10/18	12/11/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>3.7</b>	<b>0.50</b>	<b>"</b>	<b>"</b>	<b>"</b>	<b>"</b>	<b>"</b>	<b>"</b>	

Date Sampled: **12/05/18 14:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		88.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		157 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **12/05/18 14:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1812122	12/10/18	12/11/18	EPA 8015M	

Date Sampled: **12/05/18 14:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		116 %	30-150		"	"	"	"	

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Rinn Valley Pipeline-KPK

Project Number: [none]  
Project Manager: Blake Ford

**Reported:**  
12/13/18 10:37

**N01@3'**  
**1812100-04 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **12/05/18 14:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1812124	12/10/18	12/11/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	<b>0.31</b>	0.050	"	10	"	"	"	"	
Xylenes (total)	<b>1.2</b>	0.10	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	<b>1100</b>	50	"	100	"	"	"	"	

Date Sampled: **12/05/18 14:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		198 %	21-167		"	"	"	"	S-02

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **12/05/18 14:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	<b>290</b>	50	mg/kg	1	1812122	12/10/18	12/11/18	EPA 8015M	

Date Sampled: **12/05/18 14:13**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		119 %	30-150		"	"	"	"	

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Rinn Valley Pipeline-KPK

Project Number: [none]  
Project Manager: Blake Ford

**Reported:**  
12/13/18 10:37

**E01@3'**  
**1812100-05 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **12/05/18 14:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1812124	12/10/18	12/11/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.0098</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.022</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>13</b>	0.50	"	"	"	"	"	"	

Date Sampled: **12/05/18 14:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		98.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		193 %	21-167		"	"	"	"	S-02

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **12/05/18 14:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1812122	12/10/18	12/11/18	EPA 8015M	

Date Sampled: **12/05/18 14:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		117 %	30-150		"	"	"	"	

Summit Scientific

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Rinn Valley Pipeline-KPK

Project Number: [none]  
Project Manager: Blake Ford

**Reported:**  
12/13/18 10:37

**E02@3.5'**  
**1812100-06 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **12/07/18 11:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1812124	12/10/18	12/11/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.12</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.16</b>	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>33</b>	0.50	"	"	"	"	"	"	

Date Sampled: **12/07/18 11:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		403 %	21-167		"	"	"	"	S-02

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **12/07/18 11:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1812122	12/10/18	12/11/18	EPA 8015M	

Date Sampled: **12/07/18 11:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		120 %	30-150		"	"	"	"	

Summit Scientific

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Rinn Valley Pipeline-KPK

Project Number: [none]  
Project Manager: Blake Ford

**Reported:**  
12/13/18 10:37

**E03@3.5'**  
**1812100-07 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **12/07/18 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1812124	12/10/18	12/11/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>2.2</b>	<b>0.50</b>	"	"	"	"	"	"	

Date Sampled: **12/07/18 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		87.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		130 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **12/07/18 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1812122	12/10/18	12/11/18	EPA 8015M	

Date Sampled: **12/07/18 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		111 %	30-150		"	"	"	"	

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Rinn Valley Pipeline-KPK

Project Number: [none]

Project Manager: Blake Ford

**Reported:**  
12/13/18 10:37

**S01@3.5'**  
**1812100-08 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **12/07/18 12:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1812124	12/10/18	12/11/18	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **12/07/18 12:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		89.1 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **12/07/18 12:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1812122	12/10/18	12/11/18	EPA 8015M	

Date Sampled: **12/07/18 12:45**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		111 %	30-150		"	"	"	"	

Summit Scientific

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Rinn Valley Pipeline-KPK

Project Number: [none]  
Project Manager: Blake Ford

**Reported:**  
12/13/18 10:37

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

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

#### Batch 1812124 - EPA 5030 Soil MS

##### Blank (1812124-BLK1)

Prepared & Analyzed: 12/10/18

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0352		"	0.0396		89.0	23-173			
Surrogate: Toluene-d8	0.0406		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0416		"	0.0400		104	21-167			

##### LCS (1812124-BS1)

Prepared: 12/10/18 Analyzed: 12/12/18

Benzene	0.122	0.0020	mg/kg	0.100		122	70-130			
Toluene	0.120	0.0050	"	0.100		120	70-130			
Ethylbenzene	0.124	0.0050	"	0.100		124	70-130			
m,p-Xylene	0.242	0.010	"	0.200		121	70-130			
o-Xylene	0.121	0.0050	"	0.100		121	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0344		"	0.0396		86.8	23-173			
Surrogate: Toluene-d8	0.0416		"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene	0.0406		"	0.0400		101	21-167			

##### Matrix Spike (1812124-MS1)

Source: 1812069-01

Prepared: 12/10/18 Analyzed: 12/12/18

Benzene	0.113	0.0020	mg/kg	0.100	ND	113	70-130			
Toluene	0.111	0.0050	"	0.100	ND	111	70-130			
Ethylbenzene	0.115	0.0050	"	0.100	ND	115	70-130			
m,p-Xylene	0.226	0.010	"	0.200	ND	113	70-130			
o-Xylene	0.114	0.0050	"	0.100	ND	114	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0336		"	0.0396		84.9	23-173			
Surrogate: Toluene-d8	0.0413		"	0.0400		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0405		"	0.0400		101	21-167			

Summit Scientific

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.



Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Rinn Valley Pipeline-KPK

Project Number: [none]

Project Manager: Blake Ford

**Reported:**  
12/13/18 10:37

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

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

#### Batch 1812124 - EPA 5030 Soil MS

Matrix Spike Dup (1812124-MSD1)		Source: 1812069-01			Prepared: 12/10/18 Analyzed: 12/12/18					
Benzene	0.113	0.0020	mg/kg	0.100	ND	113	70-130	0.451	30	
Toluene	0.113	0.0050	"	0.100	ND	113	70-130	2.04	30	
Ethylbenzene	0.115	0.0050	"	0.100	ND	115	70-130	0.365	30	
m,p-Xylene	0.225	0.010	"	0.200	ND	113	70-130	0.531	30	
o-Xylene	0.114	0.0050	"	0.100	ND	114	70-130	0.316	30	
Surrogate: 1,2-Dichloroethane-d4	0.0334		"	0.0396		84.5	23-173			
Surrogate: Toluene-d8	0.0415		"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene	0.0398		"	0.0400		99.6	21-167			

Summit Scientific

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Rinn Valley Pipeline-KPK

Project Number: [none]  
Project Manager: Blake Ford

**Reported:**  
12/13/18 10:37

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch 1812122 - EPA 3550A**

**Blank (1812122-BLK1)**

Prepared: 12/10/18 Analyzed: 12/11/18

C10-C28 (DRO) ND 50 mg/kg

**LCS (1812122-BS1)**

Prepared: 12/10/18 Analyzed: 12/11/18

C10-C28 (DRO) 577 50 mg/kg 500 115 70-130

**Matrix Spike (1812122-MS1)**

**Source: 1812086-05**

Prepared: 12/10/18 Analyzed: 12/11/18

C10-C28 (DRO) 601 50 mg/kg 500 78.2 105 70-130

**Matrix Spike Dup (1812122-MSD1)**

**Source: 1812086-05**

Prepared: 12/10/18 Analyzed: 12/11/18

C10-C28 (DRO) 566 50 mg/kg 500 78.2 97.6 70-130 5.91 20

Summit Scientific

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Rinn Valley Pipeline-KPK

Project Number: [none]  
Project Manager: Blake Ford

**Reported:**  
12/13/18 10:37

### Notes and Definitions

S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference