

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

December 11, 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 12/10/18 18:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury 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:
12/11/18 06:04

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW01@4	1812108-01	Water	12/10/18 08:35	12/10/18 18:00

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.

1812108

Summit Scientific

741 Corporate Circle Suite I ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-374-5933 Fax

Client: Extraction Oil & Gas
 Address: 370 17th Street, Suite 5300
 City/State/Zip: Denver, CO 80202
 Phone: 720-481-2362 Fax: _____
 Sampler Name: Brian Gibson

Project Manager: Blake Ford
 E-Mail: bford@extractionog.com; bgibson@extractionog.com
 Project Name: Rinn Valley Pipeline - KPK
 Project Number: _____

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:				Special Instructions			
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	TPH (GRO/DRO)	BTEX	pH, EC, SAR				
GW01@4'	12/10/2018	8:35	3	X				X					X					
Relinquished by: <i>[Signature]</i>		Date/Time: <u>12/10/18 1600</u>		Received by: <i>[Signature]</i>		Date/Time: <u>12.10.18 1600</u>		Turn Around Time (Check)				Notes:						
Relinquished by:		Date/Time:		Received by:		Date/Time:		Same Day <input checked="" type="checkbox"/> 72 Hours <input type="checkbox"/>				24 Hours <input type="checkbox"/> Standard <input type="checkbox"/>						
Relinquished by:		Date/Time:		Received in Lab by:		Date/Time:		Sample Integrity:				Temperature Upon Receipt: <u>8.9</u>						
								Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>										

Sample Receipt Checklist

S2 Work Order: 1812108

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

Shipped Via: H.O. Airbill #: _____
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

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

Temp (°C)	8.9
-----------	-----

Thermometer ID: 61857155-K

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

Additional Comments (if any):

⁽¹⁾ 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

12.10.18 1642
 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:
 12/11/18 06:04

GW01@4'
1812108-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/10/18 08:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	1812136	12/10/18	12/10/18	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	18	1.0		"	"	"	"	"	"	
Xylenes (total)	70	2.0		"	"	"	"	"	"	

Date Sampled: **12/10/18 08:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		100 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %		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:
12/11/18 06:04

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch 1812136 - EPA 5030 Water MS

Blank (1812136-BLK1)

Prepared & Analyzed: 12/10/18

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	11.9		"	13.2		90.1		23-173		
Surrogate: Toluene-d8	15.6		"	13.3		117		20-170		
Surrogate: 4-Bromofluorobenzene	12.5		"	13.3		93.6		21-167		

LCS (1812136-BS1)

Prepared & Analyzed: 12/10/18

Benzene	31.2	1.0	ug/l	33.3		93.5		70-130		
Toluene	30.8	1.0	"	33.3		92.3		70-130		
Ethylbenzene	30.2	1.0	"	33.3		90.6		70-130		
m,p-Xylene	59.2	2.0	"	66.7		88.8		70-130		
o-Xylene	29.4	1.0	"	33.3		88.3		70-130		
Surrogate: 1,2-Dichloroethane-d4	12.1		"	13.2		91.7		23-173		
Surrogate: Toluene-d8	14.0		"	13.3		105		20-170		
Surrogate: 4-Bromofluorobenzene	12.6		"	13.3		94.2		21-167		

Matrix Spike (1812136-MS1)

Source: 1812102-01

Prepared & Analyzed: 12/10/18

Benzene	42.4	1.0	ug/l	33.3	11.4	92.9		70-130		
Toluene	30.9	1.0	"	33.3	ND	92.6		70-130		
Ethylbenzene	31.1	1.0	"	33.3	ND	93.3		70-130		
m,p-Xylene	59.2	2.0	"	66.7	ND	88.8		70-130		
o-Xylene	30.2	1.0	"	33.3	ND	90.7		70-130		
Surrogate: 1,2-Dichloroethane-d4	13.4		"	13.2		101		23-173		
Surrogate: Toluene-d8	13.6		"	13.3		102		20-170		
Surrogate: 4-Bromofluorobenzene	13.5		"	13.3		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:
 12/11/18 06:04

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch 1812136 - EPA 5030 Water MS

Matrix Spike Dup (1812136-MSD1)

Source: 1812102-01

Prepared & Analyzed: 12/10/18

Benzene	42.5	1.0	ug/l	33.3	11.4	93.3	70-130	0.259	30	
Toluene	31.1	1.0	"	33.3	ND	93.2	70-130	0.646	30	
Ethylbenzene	32.0	1.0	"	33.3	ND	96.1	70-130	2.91	30	
m,p-Xylene	61.5	2.0	"	66.7	ND	92.2	70-130	3.71	30	
o-Xylene	30.5	1.0	"	33.3	ND	91.5	70-130	0.889	30	
Surrogate: 1,2-Dichloroethane-d4	12.8		"	13.2		97.3	23-173			
Surrogate: Toluene-d8	13.6		"	13.3		102	20-170			
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		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:
12/11/18 06:04

Notes and Definitions

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