

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

June 29, 2015

Shad Martin
Kinetic Energy
PO Box 1625
Loveland, CO 80539
RE: Frontier 10

Enclosed are the results of analyses for samples received by Summit Scientific on 06/18/15 12:43. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury
President



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Cuttings 10@12640'	1506162-01	Soil	06/18/15 10:00	06/18/15 12:43
Drill Mud 10@12640'	1506162-02	Water	06/18/15 10:00	06/18/15 12:43

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.



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

Summit Scientific

S₂

1506162

741 Corporate Circle, Suite J • Golden, Colorado 80401
303-277-9310 • 303-374-5933

Client: Kinetic Energy Services Project Manager: Shad Martin Page 1 of 1
Address: PO Box 1625 E-Mail: Shad.Martin@KineticHydrovac.com
City/State/Zip: Loveland CO 80539 Alvessa Fralick @ 11/11
Phone: 720-552-1221 Fax: Project Name: Frontier 10
Sampler Name: Alvessa Fralick Project Number: Sherley G 4-9HN

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested										Special Instructions
					HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	Asbestos/PCB	Q10 Metals	Br, Cl, F, S, Se	Cd, Fe, Hg, Mn	K, Na						
1	Cuttings 10@12640	6-8	1000	1			X			X			X	X	X	X	X						
2	Drill Mud 10@12640	6-8	1000	1			X			X			X	X	X	X	X						
3													X	X	X	X	X						
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Relinquished by: <u>[Signature]</u>	Date/Time: <u>6-18-15 12:45</u>	Received by: <u>[Signature]</u>	Date/Time: <u>6-18-15 12:43</u>	Turn Around Time (Check) Same Day <input type="checkbox"/> 72 hours <input type="checkbox"/> 24 hours <input type="checkbox"/> Standard <input type="checkbox"/> 48 hours <input type="checkbox"/>	Notes: <u>Need by 23rd EOB</u> <u>credit</u>
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity: Temperature Upon Receipt: <u>30.</u> Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	
Relinquished by:	Date/Time:	Received by:	Date/Time:		

www.s2scientific.com

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.



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

Sample Receipt Checklist

S2 Work Order: 1506162

Client: Kinetic Energy Client Project ID: Frontier

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

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

Cooler ID					
Temp (°C)	<u>36</u>				

Thermometer ID: _____

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C ⁽¹⁾ ?				
NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.	<input checked="" type="checkbox"/>			
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact ⁽¹⁾ ?			<input checked="" type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present?			<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form 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 w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		<input checked="" type="checkbox"/>		
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?			<input checked="" type="checkbox"/>	
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, etc.				
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?			<input checked="" type="checkbox"/>	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

Melissa Sherman
Custodian Printed Name

MSM
Signature or Initials of Custodian

6-18-15
Date/Time



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

Cuttings 10@12640'
1506162-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1506243	06/18/15	06/19/15	8015M	

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		104 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	0.68	0.20	mg/kg	100	1506246	06/18/15	06/19/15	EPA 8260B	
Toluene	4.5	0.50	"	"	"	"	"	"	
Ethylbenzene	0.69	0.50	"	"	"	"	"	"	
Xylenes (total)	11	0.50	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	600	50	"	"	"	"	"	"	

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		98.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Total Metals by EPA Method 6020 - Dry Weight Basis

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	9.56	0.119	mg/kg dry	1	1506248	06/19/15	06/19/15	EPA 6020A	
Barium	790	0.119	"	"	"	"	"	"	

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.



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

Cuttings 10@12640'
1506162-01 (Soil)

Summit Scientific

Total Metals by EPA Method 6020 - Dry Weight Basis

Boron	9.57	1.19 mg/kg dry	1	1506248	06/19/15	06/19/15	EPA 6020A
Cadmium	1.42	0.119 "	"	"	"	"	"
Chromium	17.1	0.597 "	"	"	"	"	"
Copper	25.1	0.597 "	"	"	"	"	"
Lead	10.9	0.119 "	"	"	"	"	"
Nickel	23.2	0.119 "	"	"	"	"	"
Selenium	2.94	0.0597 "	"	"	"	"	"
Silver	0.193	0.119 "	"	"	"	"	"
Zinc	75.2	11.9 "	"	"	"	"	"

Total Mercury by EPA Method 7471

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Mercury	ND	0.0347	mg/kg dry	1	1506279	06/22/15	06/23/15	EPA 7471	

Hexavalent Chromium by EPA 7196

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	1.37	mg/kg dry	1	1506273	06/22/15	06/23/15	EPA 7196	

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Trivalent Chromium	17.1	1.96	"	"	[CALC]	"	"	EPA 7196/3060A	

Anions by EPA Method 300.0

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Bromide	1.60	0.100	mg/kg	1	1506343	06/26/15	06/26/15	EPA 300.0	

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.



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

Cuttings 10@12640'
1506162-01 (Soil)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	403	0.100	mg/kg	1	1506343	06/26/15	06/26/15	EPA 300.0	

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Fluoride	17.3	0.100	"	"	"	"	"	"	

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sulfate	625	0.100	"	"	"	"	"	"	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	73.2		%	1	1506252	06/19/15	06/22/15	% calculation	

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.



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

Drill Mud 10@12640'
1506162-02 (Water)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	214	10.0	mg/L	1	1506288	06/22/15	06/23/15	8015M	

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		101 %	47.2-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	970	10	ug/l	10	1506245	06/18/15	06/19/15	EPA 8260B	
Toluene	7900	100	"	100	"	"	06/19/15	"	
Ethylbenzene	1200	10	"	10	"	"	06/19/15	"	
Xylenes (total)	18000	100	"	100	"	"	06/19/15	"	
Gasoline Range Hydrocarbons	520000	50000	"	"	"	"	"	"	

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		87.7 %	37-154		"	"	06/19/15	"	
<i>Surrogate: Toluene-d8</i>		91.0 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		204 %	45-146		"	"	"	"	S-02

Total Metals by EPA Method 200.8

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	426	0.0500	mg/L	1	1506271	06/22/15	06/22/15	EPA 200.8	

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.



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

Drill Mud 10@12640'
1506162-02 (Water)

Summit Scientific

Total Metals by EPA Method 200.8

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Iron	1120	0.0500	mg/L	1	1506271	06/22/15	06/22/15	EPA 200.8	

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Potassium	84.3	0.0500	"	"	"	"	"	"	

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Magnesium	104	0.0500	"	"	"	"	"	"	

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Manganese	20.4	0.00100	"	"	"	"	"	"	

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium	614	0.0500	"	"	"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Bromide	2.40	0.500	mg/L	1	1506345	06/26/15	06/29/15	EPA 300.0	

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.



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

Drill Mud 10@12640'
1506162-02 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	630	50.0	mg/L	1	1506345	06/26/15	06/29/15	EPA 300.0	

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Fluoride	24.8	4.50	"	"	"	"	"	"	

Date Sampled: **06/18/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sulfate	906	50.0	"	"	"	"	"	"	

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.



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

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 1506243 - EPA 3550A

Blank (1506243-BLK1)				Prepared & Analyzed: 06/18/15						
C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	14.7		"	12.2		121	30-150			
LCS (1506243-BS1)				Prepared & Analyzed: 06/18/15						
C10-C28 (DRO)	575	50	mg/kg	501		115	73-134			
Surrogate: o-Terphenyl	14.2		"	12.2		117	30-150			
Matrix Spike (1506243-MS1)				Source: 1506158-04		Prepared & Analyzed: 06/18/15				
C10-C28 (DRO)	556	50	mg/kg	460	9.89	119	50-148			
Surrogate: o-Terphenyl	12.5		"	11.2		111	30-150			
Matrix Spike Dup (1506243-MSD1)				Source: 1506158-04		Prepared & Analyzed: 06/18/15				
C10-C28 (DRO)	724	50	mg/kg	467	9.89	153	50-148	26.2	13	QM-07
Surrogate: o-Terphenyl	13.3		"	11.4		117	30-150			

Batch 1506288 - EPA 3520B

Blank (1506288-BLK1)				Prepared: 06/22/15 Analyzed: 06/23/15						
C10-C28 (DRO)	ND	5.00	mg/L							
Surrogate: o-Terphenyl	12.2		"	12.2		100	47.2-150			
LCS (1506288-BS1)				Prepared: 06/22/15 Analyzed: 06/23/15						
C10-C28 (DRO)	509	5.00	mg/L	501		102	80-149			
Surrogate: o-Terphenyl	12.4		"	12.2		102	47.2-150			
LCS Dup (1506288-BSD1)				Prepared: 06/22/15 Analyzed: 06/23/15						
C10-C28 (DRO)	527	5.00	mg/L	501		105	80-149	3.37	14	
Surrogate: o-Terphenyl	12.8		"	12.2		105	47.2-150			

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.



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

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 1506245 - EPA 5030 Water MS

Blank (1506245-BLK1)

Prepared & Analyzed: 06/19/15

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Gasoline Range Hydrocarbons	ND	500	"							
Surrogate: 1,2-Dichloroethane-d4	13.8		"	13.2		104	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		99.0	45-149			
Surrogate: 4-Bromofluorobenzene	13.2		"	13.3		99.4	45-146			

LCS (1506245-BS1)

Prepared & Analyzed: 06/19/15

Benzene	43.9	1.0	ug/l	50.0		87.9	51-132			
Toluene	43.8	1.0	"	50.0		87.6	51-138			
Ethylbenzene	44.2	1.0	"	50.0		88.4	58-146			
m,p-Xylene	86.7	2.0	"	100		86.7	57-144			
o-Xylene	44.1	1.0	"	50.0		88.2	53-146			
Surrogate: 1,2-Dichloroethane-d4	13.4		"	13.2		102	37-154			
Surrogate: Toluene-d8	13.5		"	13.3		101	45-149			
Surrogate: 4-Bromofluorobenzene	13.2		"	13.3		99.4	45-146			

Matrix Spike (1506245-MS1)

Source: 1506151-01

Prepared & Analyzed: 06/19/15

Benzene	45.8	1.0	ug/l	50.0	ND	91.6	34-141			
Toluene	45.6	1.0	"	50.0	ND	91.2	27-151			
Ethylbenzene	45.7	1.0	"	50.0	ND	91.4	29-160			
m,p-Xylene	91.1	2.0	"	100	ND	91.1	20-166			
o-Xylene	46.0	1.0	"	50.0	ND	92.0	33-159			
Surrogate: 1,2-Dichloroethane-d4	13.7		"	13.2		104	37-154			
Surrogate: Toluene-d8	13.6		"	13.3		102	45-149			
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		97.3	45-146			

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.



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

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 1506245 - EPA 5030 Water MS

Matrix Spike Dup (1506245-MSD1)				Source: 1506151-01		Prepared & Analyzed: 06/19/15				
Benzene	42.7	1.0	ug/l	50.0	ND	85.3	34-141	7.14	32	
Toluene	42.6	1.0	"	50.0	ND	85.2	27-151	6.89	25	
Ethylbenzene	43.5	1.0	"	50.0	ND	86.9	29-160	5.02	50	
m,p-Xylene	85.5	2.0	"	100	ND	85.5	20-166	6.31	36	
o-Xylene	43.1	1.0	"	50.0	ND	86.3	33-159	6.46	26	
Surrogate: 1,2-Dichloroethane-d4	13.4		"	13.2		101	37-154			
Surrogate: Toluene-d8	13.3		"	13.3		99.9	45-149			
Surrogate: 4-Bromofluorobenzene	13.3		"	13.3		99.9	45-146			

Batch 1506246 - EPA 5030 Soil MS

Blank (1506246-BLK1)				Prepared & Analyzed: 06/18/15						
Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.0050	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0387		"	0.0396		97.7	23-173			
Surrogate: Toluene-d8	0.0386		"	0.0400		96.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0393		"	0.0400		98.2	21-167			
LCS (1506246-BS1)				Prepared & Analyzed: 06/18/15						
Benzene	0.113	0.0020	mg/kg	0.100		113	58-130			
Toluene	0.102	0.0050	"	0.100		102	61-134			
Ethylbenzene	0.107	0.0050	"	0.0992		108	74-139			
m,p-Xylene	0.215	0.010	"	0.200		108	73-137			
o-Xylene	0.109	0.0050	"	0.0984		111	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0390		"	0.0396		98.6	23-173			
Surrogate: Toluene-d8	0.0384		"	0.0400		95.9	20-170			
Surrogate: 4-Bromofluorobenzene	0.0390		"	0.0400		97.4	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.



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

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 1506246 - EPA 5030 Soil MS

Matrix Spike (1506246-MS1)		Source: 1506159-01			Prepared & Analyzed: 06/18/15					
Benzene	0.112	0.0020	mg/kg	0.0975	ND	115	30-131			
Toluene	0.0989	0.0050	"	0.0975	ND	101	30-134			
Ethylbenzene	0.106	0.0050	"	0.0967	ND	110	22-153			
m,p-Xylene	0.213	0.010	"	0.195	ND	109	10-159			
o-Xylene	0.109	0.0050	"	0.0959	ND	114	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0389		"	0.0386		101	23-173			
Surrogate: Toluene-d8	0.0379		"	0.0390		97.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0387		"	0.0390		99.2	21-167			
Matrix Spike Dup (1506246-MSD1)		Source: 1506159-01			Prepared & Analyzed: 06/18/15					
Benzene	0.106	0.0020	mg/kg	0.0936	ND	113	30-131	5.98	34	
Toluene	0.0951	0.0050	"	0.0936	ND	102	30-134	3.98	30	
Ethylbenzene	0.0991	0.0050	"	0.0929	ND	107	22-153	6.78	24	
m,p-Xylene	0.199	0.010	"	0.187	ND	106	10-159	6.69	68	
o-Xylene	0.101	0.0050	"	0.0921	ND	110	31-151	8.04	38	
Surrogate: 1,2-Dichloroethane-d4	0.0379		"	0.0371		102	23-173			
Surrogate: Toluene-d8	0.0362		"	0.0375		96.7	20-170			
Surrogate: 4-Bromofluorobenzene	0.0360		"	0.0375		96.2	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.



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

Total Metals by EPA Method 6020 - Dry Weight Basis - Quality Control
Summit Scientific

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

Batch 1506248 - EPA 3050B

Blank (1506248-BLK1)

Prepared & Analyzed: 06/19/15

Arsenic	ND	0.100	mg/kg wet
Barium	ND	0.100	"
Boron	ND	1.00	"
Cadmium	ND	0.100	"
Chromium	ND	0.500	"
Copper	ND	0.500	"
Lead	ND	0.100	"
Nickel	ND	0.100	"
Selenium	ND	0.0500	"
Silver	ND	0.100	"
Zinc	ND	10.0	"

LCS (1506248-BS1)

Prepared & Analyzed: 06/19/15

Arsenic	109	0.250	mg/kg wet	99.6	110	78.4-140
Barium	302	0.250	"	310	97.5	83.2-117
Boron	172	2.50	"	144	119	73.6-126
Cadmium	178	0.250	"	182	97.9	81.9-118
Chromium	135	1.25	"	136	99.1	80.1-121
Copper	99.8	1.25	"	102	97.8	81.1-119
Lead	112	0.250	"	115	97.6	81.8-119
Nickel	156	0.250	"	153	102	82.4-118
Selenium	164	0.125	"	150	110	77.3-123
Silver	37.0	0.250	"	40.4	91.5	75-125
Zinc	156	25.0	"	133	117	80.7-132

Duplicate (1506248-DUP1)

Source: 1506171-01

Prepared & Analyzed: 06/19/15

Arsenic	9.66	0.122	mg/kg dry	6.89	33.5	20	QR-03
Barium	769	0.122	"	2960	117	20	QR-03
Boron	8.56	1.22	"	8.89	3.78	20	
Cadmium	1.60	0.122	"	4.75	99.1	20	QR-03
Chromium	17.1	0.609	"	6.47	89.9	20	QR-03
Copper	23.7	0.609	"	18.8	23.3	20	QR-03
Lead	11.4	0.122	"	3.27	111	20	QR-03
Nickel	24.5	0.122	"	24.5	0.126	20	
Selenium	2.98	0.0609	"	6.52	74.5	20	QR-03
Silver	0.140	0.122	"	0.151	7.85	20	
Zinc	81.2	12.2	"	81.1	0.102	20	

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.



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

Total Metals by EPA Method 6020 - Dry Weight Basis - Quality Control
Summit Scientific

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

Batch 1506248 - EPA 3050B

Matrix Spike (1506248-MS1)			Source: 1506171-01		Prepared & Analyzed: 06/19/15					
Arsenic	73.3	0.131	mg/kg dry	52.3	6.89	127	75-125			QM-07
Barium	1760	0.131	"	52.3	2960	NR	75-125			QM-07
Boron	12.1	1.31	"	52.3	8.89	6.13	75-125			QM-07
Cadmium	6.05	0.131	"	2.61	4.75	49.9	75-125			QM-07
Chromium	77.1	0.654	"	52.3	6.47	135	75-125			QM-07
Copper	88.5	0.654	"	52.3	18.8	133	75-125			QM-07
Lead	36.3	0.131	"	26.1	3.27	127	75-125			QM-07
Nickel	89.6	0.131	"	52.3	24.5	124	75-125			
Selenium	12.0	0.0654	"	5.23	6.52	104	75-125			
Silver	3.20	0.131	"	2.61	0.151	117	75-125			
Zinc	160	13.1	"	52.3	81.1	151	75-125			QM-07

Matrix Spike Dup (1506248-MSD1)			Source: 1506171-01		Prepared & Analyzed: 06/19/15					
Arsenic	71.5	0.144	mg/kg dry	52.7	6.89	123	75-125	2.46	25	
Barium	1880	0.144	"	52.7	2960	NR	75-125	6.21	25	QM-07
Boron	12.3	1.44	"	52.7	8.89	6.41	75-125	1.39	25	QM-07
Cadmium	5.34	0.144	"	2.63	4.75	22.7	75-125	12.4	25	QM-07
Chromium	77.7	0.722	"	52.7	6.47	135	75-125	0.825	25	QM-07
Copper	88.1	0.722	"	52.7	18.8	132	75-125	0.384	25	QM-07
Lead	35.4	0.144	"	26.3	3.27	122	75-125	2.63	25	
Nickel	87.1	0.144	"	52.7	24.5	119	75-125	2.80	25	
Selenium	11.2	0.0722	"	5.27	6.52	89.3	75-125	6.42	25	
Silver	3.08	0.144	"	2.63	0.151	111	75-125	3.85	25	
Zinc	158	14.4	"	52.7	81.1	147	75-125	1.11	25	QM-07

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.



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

Total Metals by EPA Method 200.8 - Quality Control
Summit Scientific

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

Batch 1506271 - EPA 200.8

Blank (1506271-BLK1)

Prepared & Analyzed: 06/22/15

Calcium	ND	0.0500	mg/L
Iron	ND	0.0500	"
Magnesium	ND	0.0500	"
Manganese	ND	0.00100	"
Potassium	ND	0.0500	"
Sodium	ND	0.0500	"

LCS (1506271-BS1)

Prepared & Analyzed: 06/22/15

Calcium	5.35	0.0500	mg/L	5.00	107	85-115
Iron	5.27	0.0500	"	5.00	105	85-115
Magnesium	5.36	0.0500	"	5.00	107	85-115
Manganese	0.531	0.00100	"	0.500	106	85-115
Potassium	5.24	0.0500	"	5.00	105	85-115
Sodium	5.52	0.0500	"	5.00	110	85-115

Duplicate (1506271-DUP1)

Source: 1506164-01

Prepared & Analyzed: 06/22/15

Calcium	61.8	0.0500	mg/L	68.7	10.5	20
Iron	5.22	0.0500	"	5.66	8.01	20
Magnesium	19.4	0.0500	"	18.4	5.70	20
Manganese	0.694	0.00100	"	0.746	7.14	20
Potassium	8.45	0.0500	"	8.35	1.16	20
Sodium	214	0.0500	"	207	3.47	20

Matrix Spike (1506271-MS1)

Source: 1506164-01

Prepared & Analyzed: 06/22/15

Calcium	66.8	0.0500	mg/L	5.00	68.7	NR	75-125	QM-07
Iron	10.0	0.0500	"	5.00	5.66	87.6	75-125	
Magnesium	23.5	0.0500	"	5.00	18.4	103	75-125	
Manganese	1.19	0.00100	"	0.500	0.746	88.6	75-125	
Potassium	12.3	0.0500	"	5.00	8.35	79.7	75-125	
Sodium	203	0.0500	"	5.00	207	NR	75-125	QM-07

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.



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

Total Metals by EPA Method 200.8 - Quality Control
Summit Scientific

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

Batch 1506271 - EPA 200.8

Matrix Spike Dup (1506271-MSD1)				Source: 1506164-01			Prepared & Analyzed: 06/22/15				
Calcium	67.4	0.0500	mg/L	5.00	68.7	NR	75-125	0.854	25		QM-07
Iron	10.7	0.0500	"	5.00	5.66	102	75-125	6.83	25		
Magnesium	24.8	0.0500	"	5.00	18.4	128	75-125	5.16	25		QM-07
Manganese	1.26	0.00100	"	0.500	0.746	103	75-125	5.90	25		
Potassium	13.1	0.0500	"	5.00	8.35	94.3	75-125	5.72	25		
Sodium	217	0.0500	"	5.00	207	197	75-125	6.76	25		QM-07

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.



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

Total Mercury by EPA Method 7471 - Quality Control
Summit Scientific

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

Batch 1506279 - EPA 7471A

Blank (1506279-BLK1)

Prepared: 06/22/15 Analyzed: 06/23/15

Mercury ND 0.0500 mg/kg wet

LCS (1506279-BS1)

Prepared: 06/22/15 Analyzed: 06/23/15

Mercury 0.464 0.0500 mg/kg wet 0.500 92.9 80-120

Duplicate (1506279-DUP1)

Source: 1506171-01

Prepared: 06/22/15 Analyzed: 06/23/15

Mercury 0.0396 0.0722 mg/kg dry 0.0469 16.7 20

Matrix Spike (1506279-MS1)

Source: 1506171-01

Prepared: 06/22/15 Analyzed: 06/23/15

Mercury 0.612 0.0655 mg/kg dry 0.655 0.0469 86.2 80-120

Matrix Spike Dup (1506279-MSD1)

Source: 1506171-01

Prepared: 06/22/15 Analyzed: 06/23/15

Mercury 0.692 0.0722 mg/kg dry 0.714 0.0469 90.3 80-120 12.4 20

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.



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

Hexavalent Chromium by EPA 7196 - Quality Control
Summit Scientific

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

Batch 1506273 - 3060A_Mod

Blank (1506273-BLK1)

Prepared: 06/22/15 Analyzed: 06/23/15

Chromium, Hexavalent ND 1.00 mg/kg wet

LCS (1506273-BS1)

Prepared: 06/22/15 Analyzed: 06/23/15

Chromium, Hexavalent 21.6 1.00 mg/kg wet 19.9 108 80-120

Duplicate (1506273-DUP1)

Source: 1506162-01

Prepared: 06/22/15 Analyzed: 06/23/15

Chromium, Hexavalent ND 1.37 mg/kg dry ND 20

Matrix Spike (1506273-MS1)

Source: 1506162-01

Prepared: 06/22/15 Analyzed: 06/23/15

Chromium, Hexavalent 92.1 1.37 mg/kg dry 101 ND 91.3 80-120

Matrix Spike (1506273-MS2)

Source: 1506194-01

Prepared: 06/22/15 Analyzed: 06/23/15

Chromium, Hexavalent 65.2 1.19 mg/kg dry 94.6 0.537 68.3 80-120 QM-07

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.



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

Anions by EPA Method 300.0 - Quality Control
Summit Scientific

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

Batch 1506343 - General Preparation

Blank (1506343-BLK1)

Prepared: 06/26/15 Analyzed: 06/29/15

Sulfate	ND	0.100	mg/kg							
Chloride	ND	0.100	"							
Fluoride	ND	0.100	"							
Bromide	ND	0.100	"							

LCS (1506343-BS1)

Prepared & Analyzed: 06/26/15

Chloride	29.4	0.100	mg/kg	30.0		98.1	90-110			
Sulfate	140	0.100	"	150		93.2	90-110			

Duplicate (1506343-DUP1)

Source: 1506114-01

Prepared & Analyzed: 06/26/15

Bromide	ND	10.0	mg/kg		24.3				10	
Fluoride	ND	10.0	"		0.00				10	
Sulfate	5920	10.0	"		5890			0.493	10	
Chloride	31300	10.0	"		31000			1.01	10	

Matrix Spike (1506343-MS1)

Source: 1506114-01

Prepared & Analyzed: 06/26/15

Sulfate	79200	10.0	mg/kg	72800	5890	101	90-110			
Chloride	43500	10.0	"	14600	31000	85.7	90-110			QM-07

Batch 1506345 - General Preparation

Blank (1506345-BLK1)

Prepared & Analyzed: 06/26/15

Chloride	ND	50.0	mg/L							
Fluoride	ND	4.50	"							
Bromide	ND	0.500	"							
Sulfate	ND	50.0	"							

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.



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

Anions by EPA Method 300.0 - Quality Control
Summit Scientific

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

Batch 1506345 - General Preparation

LCS (1506345-BS1)

Prepared & Analyzed: 06/26/15

Chloride	141	50.0	mg/L	150	94.2	90-110
Fluoride	104	4.50	"	100	104	90-110
Bromide	475	0.500	"	500	95.1	90-110
Sulfate	720	50.0	"	750	96.0	90-110

Duplicate (1506345-DUP1)

Source: 1506162-02

Prepared: 06/26/15 Analyzed: 06/29/15

Bromide	2.50	0.500	mg/L	2.40	4.08	10
Chloride	628	50.0	"	630	0.223	10
Fluoride	24.0	4.50	"	24.8	3.28	10
Sulfate	921	50.0	"	906	1.64	10

Matrix Spike (1506345-MS1)

Source: 1506162-02

Prepared: 06/26/15 Analyzed: 06/29/15

Fluoride	16.6	4.50	mg/L	100	24.8	NR	90-110	QM-07
Chloride	161	50.0	"	150	630	NR	90-110	QM-07
Bromide	112	0.500	"	500	2.40	22.0	90-110	QM-07
Sulfate	275	50.0	"	750	906	NR	90-110	QM-07

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.



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control
Summit Scientific

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

Batch 1506252 - General Preparation

Duplicate (1506252-DUP1)		Source: 1506171-01		Prepared: 06/19/15 Analyzed: 06/22/15	
% Solids	70.4		%	69.3	1.57 20

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.



Kinetic Energy
PO Box 1625
Loveland CO, 80539

Project: Frontier 10
Project Number: Sherley G 4-9HN
Project Manager: Shad Martin

Reported:
06/29/15 17:00

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.

QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.

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