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# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

November 09, 2015

Chris Roy  
Noble Energy  
804 Grand Avenue  
Platteville, CO 80651  
RE: Bacon 3

Enclosed are the results of analyses for samples received by Summit Scientific on 11/02/15 16:15. 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



Noble Energy  
804 Grand Avenue  
Platteville CO, 80651

Project: Bacon 3  
Project Number: 008315065  
Project Manager: Chris Roy

**Reported:**  
11/09/15 06:16

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS03@2'	1511002-01	Soil	11/02/15 14:15	11/02/15 16:15
GW01	1511002-02	Water	11/02/15 14:15	11/02/15 16:15

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A handwritten signature in black ink, appearing to be 'MSM'.

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Noble Energy  
804 Grand Avenue  
Platteville CO, 80651

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Project: Bacon 3

Project Number: 008315065

Project Manager: Chris Roy

**Reported:**

11/09/15 06:16

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15110.02

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303-277-9310 • 303-374-5933 Fax

Page 1 of 1

Client: Woble  
Address: LTE  
City/State/Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Sampler Name: Wilson

Project Manager: Roy  
E-Mail: Noble Remediation  
Project Name: Baron 3  
Project Number: 00635065

[illegible]

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804 Grand Avenue  
Platteville CO, 80651

Project: Bacon 3  
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**Reported:**  
11/09/15 06:16

**SS03@2'**  
**1511002-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: 11/02/15 14:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1511008	11/02/15	11/03/15	8015M	

Date Sampled: 11/02/15 14:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		105 %	30-150		"	"	"	"	

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

Date Sampled: 11/02/15 14:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1511003	11/02/15	11/03/15	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: 11/02/15 14:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		121 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		68.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis**

Date Sampled: 11/02/15 14:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Reported:  
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SS03@2'  
1511002-01 (Soil)

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**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	5840	11.9	mg/kg dry	1	1511021	11/03/15	11/08/15	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	946	5.96	"	"	"	"	"	"	
Sodium	106	5.96	"	"	"	"	"	"	

Date Sampled: 11/02/15 14:15

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.339		units	"	1511068	11/08/15	11/08/15	"	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: 11/02/15 14:15

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.720	0.0100	mmhos/cm	1	1511032	11/04/15	11/04/15	SM 2510B	

Date Sampled: 11/02/15 14:15

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.57	1.00	pH Units	"	1511031	11/04/15	11/04/15	EPA 9040	

Date Sampled: 11/02/15 14:15

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	83.9		%	"	1511034	11/04/15	11/05/15	% calculation	

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**GW01**  
**1511002-02 (Water)**

**Summit Scientific**

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

Date Sampled: 11/02/15 14:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>3.2</b>	1.0	ug/l	1	1511014	11/03/15	11/03/15	EPA 8260B	
<b>Toluene</b>	<b>7.1</b>	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>13</b>	1.0	"	"	"	"	"	"	

Date Sampled: 11/02/15 14:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		121 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		95.7 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.9 %	45-146		"	"	"	"	

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**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
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Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch 1511008 - EPA 3550A**

**Blank (1511008-BLK1)**

Prepared & Analyzed: 11/02/15

C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	11.9		"	12.2		97.4	30-150			

**LCS (1511008-BS1)**

Prepared & Analyzed: 11/02/15

C10-C28 (DRO)	470	50	mg/kg	499		94.3	73-134			
Surrogate: o-Terphenyl	12.4		"	12.2		101	30-150			

**Matrix Spike (1511008-MS1)**

Source: 1510244-01

Prepared & Analyzed: 11/02/15

C10-C28 (DRO)	437	50	mg/kg	468	28.9	87.2	50-148			
Surrogate: o-Terphenyl	11.0		"	11.4		95.9	30-150			

**Matrix Spike Dup (1511008-MSD1)**

Source: 1510244-01

Prepared & Analyzed: 11/02/15

C10-C28 (DRO)	442	50	mg/kg	476	28.9	86.8	50-148	1.12	13	
Surrogate: o-Terphenyl	11.3		"	11.6		97.1	30-150			

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Project Number: 008315065  
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Reported:  
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**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 1511003 - EPA 5030 Soil MS**

**Blank (1511003-BLK1)**

Prepared & Analyzed: 11/02/15

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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0407</i>		<i>"</i>	<i>0.0396</i>		<i>103</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0391</i>		<i>"</i>	<i>0.0400</i>		<i>97.7</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0376</i>		<i>"</i>	<i>0.0400</i>		<i>93.9</i>	<i>21-167</i>			

**LCS (1511003-BS1)**

Prepared & Analyzed: 11/02/15

Benzene	0.0967	0.0020	mg/kg	0.100		96.7	58-130			
Toluene	0.0955	0.0050	"	0.100		95.5	61-134			
Ethylbenzene	0.106	0.0050	"	0.0992		106	74-139			
m,p-Xylene	0.199	0.010	"	0.200		99.8	73-137			
o-Xylene	0.0964	0.0050	"	0.0984		98.0	73-141			
Xylenes (total)	0.296	0.0050	"				30-150			
Gasoline Range Hydrocarbons	2.23	0.50	"				30-150			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0431</i>		<i>"</i>	<i>0.0396</i>		<i>109</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0399</i>		<i>"</i>	<i>0.0400</i>		<i>99.7</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0391</i>		<i>"</i>	<i>0.0400</i>		<i>97.7</i>	<i>21-167</i>			

**Matrix Spike (1511003-MS1)**

Source: 1510209-02

Prepared & Analyzed: 11/02/15

Benzene	0.0936	0.0020	mg/kg	0.0942	ND	99.4	30-131			
Toluene	0.0923	0.0050	"	0.0942	ND	98.0	30-134			
Ethylbenzene	0.107	0.0050	"	0.0934	ND	114	22-153			
m,p-Xylene	0.202	0.010	"	0.188	ND	107	10-159			
o-Xylene	0.0976	0.0050	"	0.0927	ND	105	31-151			
Xylenes (total)	0.299	0.0050	"		ND		30-150			
Gasoline Range Hydrocarbons	2.26	0.50	"		ND		30-150			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0385</i>		<i>"</i>	<i>0.0373</i>		<i>103</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0371</i>		<i>"</i>	<i>0.0377</i>		<i>98.6</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0360</i>		<i>"</i>	<i>0.0377</i>		<i>95.7</i>	<i>21-167</i>			

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11/09/15 06:16

**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 1511003 - EPA 5030 Soil MS**

Matrix Spike Dup (1511003-MSD1)			Source: 1510209-02		Prepared & Analyzed: 11/02/15					
Benzene	0.0962	0.0020	mg/kg	0.0940	ND	102	30-131	2.76	34	
Toluene	0.0943	0.0050	"	0.0940	ND	100	30-134	2.11	30	
Ethylbenzene	0.108	0.0050	"	0.0932	ND	116	22-153	0.864	24	
m,p-Xylene	0.203	0.010	"	0.188	ND	108	10-159	0.579	68	
o-Xylene	0.0988	0.0050	"	0.0925	ND	107	31-151	1.22	38	
Xylenes (total)	0.302	0.0050	"		ND		30-150	0.788	20	
Gasoline Range Hydrocarbons	2.42	0.50	"		ND		30-150	7.13	20	
Surrogate: 1,2-Dichloroethane-d4	0.0408		"	0.0372		110	23-173			
Surrogate: Toluene-d8	0.0367		"	0.0376		97.7	20-170			
Surrogate: 4-Bromofluorobenzene	0.0356		"	0.0376		94.8	21-167			

**Batch 1511014 - EPA 5030 Water MS**

Blank (1511014-BLK1)			Prepared & Analyzed: 11/02/15							
Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	15.7		"	13.2		119	37-154			
Surrogate: Toluene-d8	13.0		"	13.3		97.4	45-149			
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		97.7	45-146			
LCS (1511014-BS1)			Prepared & Analyzed: 11/02/15							
Benzene	28.2	1.0	ug/l	33.3		84.5	51-132			
Toluene	30.0	1.0	"	33.3		89.9	51-138			
Ethylbenzene	34.5	1.0	"	33.1		104	58-146			
m,p-Xylene	67.2	2.0	"	66.5		101	57-144			
o-Xylene	34.0	1.0	"	32.8		104	53-146			
Surrogate: 1,2-Dichloroethane-d4	15.5		"	13.2		117	37-154			
Surrogate: Toluene-d8	13.1		"	13.3		98.1	45-149			
Surrogate: 4-Bromofluorobenzene	12.5		"	13.3		93.5	45-146			

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Project: Bacon 3  
Project Number: 008315065  
Project Manager: Chris Roy

Reported:  
11/09/15 06:16

**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 1511014 - EPA 5030 Water MS**

Matrix Spike (1511014-MS1)		Source: 1510242-01			Prepared & Analyzed: 11/02/15					
Benzene	28.0	1.0	ug/l	33.3	ND	84.1	34-141			
Toluene	30.0	1.0	"	33.3	ND	89.9	27-151			
Ethylbenzene	34.2	1.0	"	33.1	ND	104	29-160			
m,p-Xylene	67.1	2.0	"	66.5	ND	101	20-166			
o-Xylene	34.1	1.0	"	32.8	ND	104	33-159			
Surrogate: 1,2-Dichloroethane-d4	16.2		"	13.2		123	37-154			
Surrogate: Toluene-d8	13.0		"	13.3		97.4	45-149			
Surrogate: 4-Bromofluorobenzene	12.4		"	13.3		92.8	45-146			
Matrix Spike Dup (1511014-MSD1)		Source: 1510242-01			Prepared & Analyzed: 11/02/15					
Benzene	28.0	1.0	ug/l	33.3	ND	84.0	34-141	0.178	32	
Toluene	29.8	1.0	"	33.3	ND	89.6	27-151	0.334	25	
Ethylbenzene	34.4	1.0	"	33.1	ND	104	29-160	0.437	50	
m,p-Xylene	67.7	2.0	"	66.5	ND	102	20-166	0.890	36	
o-Xylene	33.9	1.0	"	32.8	ND	103	33-159	0.470	26	
Surrogate: 1,2-Dichloroethane-d4	17.7		"	13.2		134	37-154			
Surrogate: Toluene-d8	12.9		"	13.3		96.5	45-149			
Surrogate: 4-Bromofluorobenzene	12.7		"	13.3		95.3	45-146			

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11/09/15 06:16

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis - Quality Control**  
**Summit Scientific**

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

**Batch 1511021 - General Preparation**

**Blank (1511021-BLK1)**

Prepared: 11/03/15 Analyzed: 11/08/15

Calcium	ND	10.0	mg/kg wet							
Magnesium	ND	5.00	"							
Sodium	ND	5.00	"							

**LCS (1511021-BS1)**

Prepared: 11/03/15 Analyzed: 11/08/15

Calcium	541	10.0	mg/kg wet	500	108	82.9-118				
Magnesium	521	5.00	"	500	104	77.1-123				
Sodium	513	5.00	"	500	103	71-129				

**Duplicate (1511021-DUP1)**

Source: 1510178-01

Prepared: 11/03/15 Analyzed: 11/08/15

Calcium	1850	12.0	mg/kg dry		1660			10.9	200	
Magnesium	117	6.00	"		108			8.45	200	
Sodium	3210	6.00	"		2980			7.43	200	

**Matrix Spike (1511021-MS1)**

Source: 1510178-01

Prepared: 11/03/15 Analyzed: 11/08/15

Calcium	2250	12.0	mg/kg dry	555	1660	107	75-125			
Magnesium	681	6.00	"	555	108	103	75-125			
Sodium	3510	6.00	"	555	2980	95.6	75-125			

**Matrix Spike Dup (1511021-MSD1)**

Source: 1510178-01

Prepared: 11/03/15 Analyzed: 11/08/15

Calcium	2210	12.0	mg/kg dry	555	1660	98.2	75-125	2.14	25	
Magnesium	671	6.00	"	555	108	101	75-125	1.36	25	
Sodium	3490	6.00	"	555	2980	90.6	75-125	0.800	25	

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Physical Parameters by APHA/ASTM/EPA Methods - Quality Control  
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Analyte	Reporting			Spike	Source	%REC		RPD		
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1511031 - General Preparation

LCS (1511031-BS1)

Prepared & Analyzed: 11/04/15

pH	8.01	1.00	pH Units	8.00	100	95-105
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Duplicate (1511031-DUP1)

Source: 1511002-01

Prepared & Analyzed: 11/04/15

pH	8.44	1.00	pH Units	8.57	1.53	13.7
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Batch 1511032 - General Preparation

Blank (1511032-BLK1)

Prepared & Analyzed: 11/04/15

Specific Conductance (EC)	ND	0.0100	mmhos/cm
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LCS (1511032-BS1)

Prepared & Analyzed: 11/04/15

Specific Conductance (EC)	0.510	0.0100	mmhos/cm	0.500	102	90-110
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Duplicate (1511032-DUP1)

Source: 1511002-01

Prepared & Analyzed: 11/04/15

Specific Conductance (EC)	0.790	0.0100	mmhos/cm	0.720	9.27	20
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Batch 1511034 - General Preparation

Duplicate (1511034-DUP1)

Source: 1510204-01

Prepared: 11/04/15 Analyzed: 11/05/15

% Solids	95.1	%	95.6	0.514	20
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Project: Bacon 3  
Project Number: 008315065  
Project Manager: Chris Roy

**Reported:**  
11/09/15 06:16

### 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

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