



Bolack 002  
30-045-23257  
Bradenhead Water Sample

75 Suttle Street  
Durango, CO 81303  
970.247.4220 Phone  
970.247.4227 Fax  
www.greenanalytical.com

31 August 2018

Sabre Beebe  
BP America  
380 Airport Rd.  
Durango, CO 81303  
RE: API

Enclosed are the results of analyses for samples received by the laboratory on 08/17/18 13:20.  
If you need any further assistance, please feel free to contact me.

Sincerely,

Jeremy D Allen For Debbie Zufelt  
Reports Manager

**NMOC**  
**FEB 13 2019**  
**DISTRICT III**

All accredited analytes contained in this report are denoted by an asterisk (\*). For a complete list of accredited analytes please do not hesitate to contact us via any of the contact information contained in this report. All of our certifications can be viewed at <http://greenanalytical.com/certifications/>

Green Analytical Laboratories is NELAP accredited through the Texas Commission on Environmental Quality. Accreditation applies to drinking water and non-potable water matrices for trace metals and a variety of inorganic parameters. Green Analytical Laboratories is also accredited through the Colorado Department of Public Health and Environment and EPA region 8 for trace metals, Cyanide, Fluoride, Nitrate, and Nitrite in drinking water.

Our affiliate laboratory, Cardinal Laboratories, is also NELAP accredited through the Texas Commission on Environmental Quality for a variety of organic constituents in drinking water, non-potable water and solid matrices. Cardinal is also accredited for regulated VOCs, TTHM, and HAA-5 in drinking water through the Colorado Department of Public Health and Environment and EPA region 8.



dzufelt@greenanalytical.com p: 970.247.4220 f: 970.247.4227 75 Suttle Street Durango, CO 81303

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BP America	Project: API	
380 Airport Rd.	Project Name / Number: Bradenhead	<b>Reported:</b>
Durango CO, 81303	Project Manager: Sabre Beebe	08/31/18 13:21

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
Bolack 2	1808222-01	Water	08/16/18 08:16	08/17/18 13:20	Q1

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380 Airport Rd.  
Durango CO, 81303

Project: API  
Project Name / Number: Bradenhead  
Project Manager: Sabre Beebe

Reported:  
08/31/18 13:21

**Bolack 2**

**1808222-01 (Water)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
<b>General Chemistry</b>									
Alkalinity, Bicarbonate as CaCO3*	<10.0	10.0		mg/L	10	08/29/18	2320 B		JDU
Alkalinity, Carbonate as CaCO3*	320	10.0		mg/L	10	08/29/18	2320 B		JDU
Alkalinity, Hydroxide as CaCO3*	570	10.0		mg/L	10	08/29/18	2320 B		JDU
Alkalinity, Total as CaCO3*	890	10.0		mg/L	10	08/29/18	2320 B		JDU
Chloride*	<200	200	38.6	mg/L	200	08/24/18	EPA300.0		AES
Conductivity*	12400	10.0		uS/cm	1	08/22/18	2510 B	Q1	JDU
pH*	10.9			pH Units	1	08/21/18	EPA150.1	H1, Q1	JDU
Resistivity	80.8			ohm/cm	1	08/23/18	2510 B		JDU
Total Dissolved Solids*	9750	20.0		mg/L	2	08/24/18	EPA160.1	H2	JDU
Specific Gravity	1.010	0.8000		No Unit	1	08/23/18	Hydrometer		JDU
Sulfate*	6440	200	59.1	mg/L	200	08/24/18	EPA300.0		AES
<b>Total Recoverable Metals by ICP (E200.7)</b>									
Iron*	18.6	0.500	0.174	mg/L	10	08/28/18	EPA200.7		JDA
<b>Dissolved Metals by ICP</b>									
Hardness	857	3.31	0.546	mg/L	5	08/27/18	2340 B		AES
Barium*	<0.100	0.100	0.010	mg/L	5	08/27/18	EPA200.7		AES
Calcium*	343	0.500	0.064	mg/L	5	08/27/18	EPA200.7		AES
Iron*	<0.250	0.250	0.138	mg/L	5	08/27/18	EPA200.7		AES
Magnesium*	<0.500	0.500	0.094	mg/L	5	08/27/18	EPA200.7		AES
Manganese*	<0.100	0.100	0.013	mg/L	5	08/27/18	EPA200.7		AES
Potassium*	6.46	5.00	0.478	mg/L	5	08/27/18	EPA200.7		AES
Sodium*	2570	10.0	3.67	mg/L	10	08/27/18	EPA200.7		AES
Strontium*	8.88	0.500	0.014	mg/L	5	08/27/18	EPA200.7		AES
Cation/Anion Balance	-5.39								

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BP America 380 Airport Rd. Durango CO, 81303	Project: API Project Name / Number: Bradenhead Project Manager: Sabre Beebe	Reported: 08/31/18 13:21
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**General Chemistry - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B808201 - General Prep - Wet Chem</b>										
<b>Reference (B808201-SRM1)</b>					Prepared & Analyzed: 08/21/18					
Conductivity	500	10.0	uS/cm	491		102	90-110.1			
<b>Batch B808203 - General Prep - Wet Chem</b>										
<b>Reference (B808203-SRM1)</b>					Prepared & Analyzed: 08/21/18					
pH	8.85		pH Units	8.91		99.3	97.8-102.2			
<b>Batch B808238 - General Prep - Wet Chem</b>										
<b>Blank (B808238-BLK1)</b>					Prepared & Analyzed: 08/24/18					
Total Dissolved Solids	ND	10.0	mg/L							
<b>Reference (B808238-SRM1)</b>					Prepared & Analyzed: 08/24/18					
Total Dissolved Solids	365	10.0	mg/L	380		96.0	85-115			
<b>Batch B808241 - General Prep - Wet Chem</b>										
<b>Blank (B808241-BLK1)</b>					Prepared & Analyzed: 08/24/18					
Chloride	ND	1.00	mg/L							
Sulfate	ND	1.00	mg/L							
<b>LCS (B808241-BS1)</b>					Prepared & Analyzed: 08/24/18					
Chloride	24.9	1.00	mg/L	25.0		99.8	90-110			
Sulfate	25.1	1.00	mg/L	25.0		100	90-110			
<b>LCS Dup (B808241-BSD1)</b>					Prepared & Analyzed: 08/24/18					
Chloride	25.1	1.00	mg/L	25.0		100	90-110	0.516	20	
Sulfate	24.9	1.00	mg/L	25.0		99.8	90-110	0.484	20	
<b>Batch B808256 - General Prep - Wet Chem</b>										
<b>Blank (B808256-BLK1)</b>					Prepared: 08/27/18 Analyzed: 08/29/18					
Alkalinity, Total as CaCO3	ND	10.0	mg/L							
<b>LCS (B808256-BS1)</b>					Prepared: 08/27/18 Analyzed: 08/29/18					
Alkalinity, Total as CaCO3	109	10.0	mg/L	100		109	85-115			
<b>LCS Dup (B808256-BSD1)</b>					Prepared: 08/27/18 Analyzed: 08/29/18					
Alkalinity, Total as CaCO3	110	10.0	mg/L	100		110	85-115	0.913	20	

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BP America 380 Airport Rd. Durango CO, 81303	Project: API Project Name / Number: Bradenhead Project Manager: Sabre Beebe	Reported: 08/31/18 13:21
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**Total Recoverable Metals by ICP (E200.7) - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B808268 - Total Rec. 200.7/200.8/200.2</b>										
<b>Blank (B808268-BLK1)</b>										
Iron	ND	0.050	mg/L							Prepared: 08/27/18 Analyzed: 08/28/18
<b>LCS (B808268-BS1)</b>										
Iron	3.83	0.050	mg/L	4.00		95.8	85-115			Prepared: 08/27/18 Analyzed: 08/28/18
<b>LCS Dup (B808268-BSD1)</b>										
Iron	3.81	0.050	mg/L	4.00		95.3	85-115	0.511	20	Prepared: 08/27/18 Analyzed: 08/28/18

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**Dissolved Metals by ICP - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B808245 - Diss. 200.7/200.8**

**Blank (B808245-BLK1)**

Prepared: 08/24/18 Analyzed: 08/27/18

Barium	ND	0.020	mg/L							
Calcium	ND	0.100	mg/L							
Iron	ND	0.050	mg/L							
Magnesium	ND	0.100	mg/L							
Manganese	ND	0.020	mg/L							
Potassium	ND	1.00	mg/L							
Sodium	ND	1.00	mg/L							
Strontium	ND	0.100	mg/L							

**LCS (B808245-BS1)**

Prepared: 08/24/18 Analyzed: 08/27/18

Barium	2.34	0.020	mg/L	2.50		93.5	85-115			
Calcium	4.78	0.100	mg/L	5.00		95.6	85-115			
Iron	4.73	0.050	mg/L	5.00		94.6	85-115			
Magnesium	23.9	0.100	mg/L	25.0		95.6	85-115			
Manganese	2.37	0.020	mg/L	2.50		94.8	85-115			
Potassium	9.68	1.00	mg/L	10.0		96.8	85-115			
Sodium	3.84	1.00	mg/L	4.05		94.8	85-115			
Strontium	4.87	0.100	mg/L	5.00		97.4	85-115			

**LCS Dup (B808245-BSD1)**

Prepared: 08/24/18 Analyzed: 08/27/18

Barium	2.36	0.020	mg/L	2.50		94.5	85-115	1.08	20	
Calcium	4.75	0.100	mg/L	5.00		94.9	85-115	0.698	20	
Iron	4.73	0.050	mg/L	5.00		94.6	85-115	0.0191	20	
Magnesium	23.7	0.100	mg/L	25.0		94.9	85-115	0.731	20	
Manganese	2.35	0.020	mg/L	2.50		94.2	85-115	0.685	20	
Potassium	9.67	1.00	mg/L	10.0		96.7	85-115	0.0802	20	
Sodium	3.83	1.00	mg/L	4.05		94.6	85-115	0.229	20	
Strontium	4.86	0.100	mg/L	5.00		97.1	85-115	0.287	20	

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Project Manager: Sabre Beebe

Reported:  
08/31/18 13:21

### Notes and Definitions

- Q1 Sample received outside of acceptable temperature range for analyses requiring cold storage.
- H2 Sample analysis performed past hold time specified by the method.
- H1 Sample was received several days after collected and subsequently analyzed past hold time.
- 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  
\*Results reported on as received basis unless designated as dry.
- RPD Relative Percent Difference
- LCS Laboratory Control Sample (Blank Spike)
- RL Report Limit
- MDL Method Detection Limit

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**CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**

FORM-006  
COC - Revision 5.0

(970) 247-4220  
Fax: (970) 247-4227

service@greenanalytical.com or dzufelt@greenanalytical.com  
75 Suttle St Durango, CO 81303

Company or Client: <b>BP America</b>				Bill to (if different):				<b>ANALYSIS REQUEST</b>															
Address:				P.O. #:																			
City:		State:		Zip:		Company:																	
Phone #: <b>(970) 779-9398</b>				Attn:																			
Contact Person: <b>SABRE BOEDE</b>				Address:																			
Email Report to:				City:																			
Project Name(optional): <b>BRADEN HEAD</b>				State:		Zip:														Phone #:			
Sampler Name (Print): <b>SCOTT WILLARD</b>				Email:																			
For Lab Use	Sample Name or Location	Collected		Matrix (check one)							# of containers												
		Date	Time	GROUNDWATER	SURFACEWATER	WASTEWATER	PRODUCEDWATER	SOIL	DRINKING WATER	OTHER :	No preservation (general)	HNO <sub>3</sub>	HCl	H <sub>2</sub> SO <sub>4</sub>	Other:	Other:							
1808-222-01	BoLack 2	8-16-18	8:16 AM															API					

PLEASE NOTE: GAL's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by GAL within 30 days after completion. In no event shall GAL be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by GAL, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Relinquished By: <b>Christin Clark</b> Relinquished By: <b>Kangaroo Express</b> Relinquished By:	Date: <b>8/17/18</b> Time: <b>7:30</b> Date: <b>8/20/18</b> Time: <b>10:55</b> Date: <b>08/21/18</b> Time: <b>0847</b> Date: Time:	Received By: <b>Christin Clark</b> Received By: <b>Kangaroo Express</b> Received By: Received By:	ADDITIONAL REMARKS: Report to State? (Circle) Yes    No  <b>36/34°C #1 anal</b> <b>see D670</b>  <b>30.2°C</b> <b>AP:16</b> Temperature at receipt: <b>CL</b> CHECKED BY
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† GAL cannot always accept verbal changes. Please fax or email written change requests.  
 \* Chain of Custody must be signed in "Relinquished By:" as an acceptance of services and all applicable charges.  
 Just Click Printing Form #17-0301



**NEW MEXICO ENERGY, MINERALS  
AND NATURAL RESOURCES DEPARTMENT**

OIL CONSERVATION DIVISION  
AZTEC DISTRICT OFFICE  
1000 RIO BRAZOS ROAD  
AZTEC, NM 87410  
(505 334-6178 FAX: (505) 334-6170  
<http://www.emnrd.state.nm.us/ocd/>

**BRADENHEAD TEST REPORT**

(Submit 2 copies to above address)

Date of Test 8-16-18 Operator BP America Production Company API # 3004523257

Property Name BOLACK 002-MV/DK Location: Unit G Section 19 Township 28 Range 8  
(Well Name and Number)

Pressure (Shut-in or Producing) Producing Tubing 124 Intermediate N/A Casing 127 Bradenhead 15

OPEN BRADENHEAD AND INTERMEDIATE TO ATMOSPHERE INDIVIDUALLY FOR 15 MINUTES EACH

Time	Bradenhead			Intermediate		Bradenhead Flowed	Intermediate Flowed
	BH Blowdown	Casing Monitor	Intermediate Monitor	Intermediate Blowdown	Casing Monitor		
5 minutes	0	128	N/A	N/A	N/A		N/A
10 minutes	0	124					
15 minutes	0	123					
20 minutes							
25 minutes							
30 minutes							
5 minute SI	14	123					

  

	Bradenhead Flowed	Intermediate Flowed
Steady Flow		N/A
Surges		
Down to Nothing	3 SEC	
No Flow		
Gas		
Gas and Water		
Water		

If bradenhead flowed water, check all of the descriptions that apply below:

Clear \_\_\_\_\_ Fresh \_\_\_\_\_ Salty \_\_\_\_\_ Sulfur \_\_\_\_\_ Black \_\_\_\_\_

**NMOCD**

5 Minute Shut-in Bradenhead 14 Intermediate N/A

**FEB 13 2019**

REMARKS:

**DISTRICT III**

WATER SAMPLE TAKEN FROM BH  
PLUNGER CAME UP

By SCOTT WILLARD Witness \_\_\_\_\_  
FIELD TECH  
(Position)