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15 March 2019

Steve Moskal  
BP America  
380 Airport Rd.  
Durango, CO 81303  
RE: Table 910 - less PAH, metals

Enclosed are the results of analyses for samples received by the laboratory on 03/11/19 15:41. The data to follow was performed, in whole or in part, by a subcontract laboratory with an additional report attached.

If you any any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Debbie Zufelt". The signature is written in a cursive, flowing style.

Debbie Zufelt  
Reports Manager

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.



BP America  
380 Airport Rd.  
Durango CO, 81303

Project: Table 910 - less PAH, metals  
Project Name / Number: Thomas Jacquez E #1  
Project Manager: Steve Moskal

Reported:  
03/15/19 11:03

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
SS 27	1903130-01	Solid	03/11/19 10:15	03/11/19 15:41	
SS 28	1903130-02	Solid	03/11/19 10:25	03/11/19 15:41	
SS 29	1903130-03	Solid	03/11/19 10:55	03/11/19 15:41	
SS 30	1903130-04	Solid	03/11/19 11:05	03/11/19 15:41	
SS 31	1903130-05	Solid	03/11/19 11:30	03/11/19 15:41	
SS 32	1903130-06	Solid	03/11/19 11:40	03/11/19 15:41	
SS 33	1903130-07	Solid	03/11/19 12:15	03/11/19 15:41	
SS 34	1903130-08	Solid	03/11/19 12:20	03/11/19 15:41	
SS 35	1903130-09	Solid	03/11/19 12:50	03/11/19 15:41	
SS 36	1903130-10	Solid	03/11/19 12:55	03/11/19 15:41	
SS 37	1903130-11	Solid	03/11/19 13:35	03/11/19 15:41	
SS 38	1903130-12	Solid	03/11/19 13:45	03/11/19 15:41	
SS 39	1903130-13	Solid	03/11/19 14:25	03/11/19 15:41	
SS 40	1903130-14	Solid	03/11/19 14:35	03/11/19 15:41	
SS 41	1903130-15	Solid	03/11/19 14:50	03/11/19 15:41	
SS 42	1903130-16	Solid	03/11/19 14:55	03/11/19 15:41	

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BP America 380 Airport Rd. Durango CO, 81303	Project: Table 910 - less PAH, metals Project Name / Number: Thomas Jacquez E #1 Project Manager: Steve Moskal	Reported: 03/15/19 11:03
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SS 27

1903130-01 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**Saturated Paste Extraction**

Calcium	29.0	0.100	0.013	mg/L	1	03/15/19	EPA200.7		AES
Conductivity	394			umhos/cm	1	03/14/19	ASA#9 10-3.3		LLG
Magnesium	5.12	0.100	0.019	mg/L	1	03/15/19	EPA200.7		AES
pH	7.58			pH Units	1	03/14/19	ASA#9 12-2.6		JDA
SAR	2.16			No Unit	1	03/15/19	Calculation		AES
Sodium	48.1	1.00	0.367	mg/L	1	03/15/19	EPA200.7		AES

**Subcontracted -- Cardinal Laboratories**

**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Toluene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Ethylbenzene*	<0.050	0.050	0.004	mg/kg	50	03/13/19	8021B		MS
Total Xylenes*	<0.150	0.150	0.010	mg/kg	50	03/13/19	8021B		MS
Total BTEX	<0.300	0.300	0.018	mg/kg	50	03/13/19	8021B		MS

Surrogate: 4-Bromofluorobenzene (PID) 81.4 % 73.3-129 03/13/19 8021B MS

**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0	10.0	5.30	mg/kg	1	03/14/19	8015B		MS
DRO >C10-C28*	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS
EXT DRO >C28-C36	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS

Surrogate: 1-Chlorooctane 90.1 % 41-142 03/14/19 8015B MS

Surrogate: 1-Chlorooctadecane 87.9 % 37.6-147 03/14/19 8015B MS

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BP America 380 Airport Rd. Durango CO, 81303	Project: Table 910 - less PAH, metals Project Name / Number: Thomas Jacquez E #1 Project Manager: Steve Moskal	Reported: 03/15/19 11:03
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SS 28

1903130-02 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Saturated Paste Extraction

Calcium	146	0.100	0.013	mg/L	1	03/15/19	EPA200.7		AES
Conductivity	991			umhos/cm	1	03/14/19	ASA#9 10-3.3		LLG
Magnesium	19.8	0.100	0.019	mg/L	1	03/15/19	EPA200.7		AES
pH	7.50			pH Units	1	03/14/19	ASA#9 12-2.6		JDA
SAR	0.69			No Unit	1	03/15/19	Calculation		AES
Sodium	33.3	1.00	0.367	mg/L	1	03/15/19	EPA200.7		AES

Subcontracted -- Cardinal Laboratories

Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Toluene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Ethylbenzene*	<0.050	0.050	0.004	mg/kg	50	03/13/19	8021B		MS
Total Xylenes*	<0.150	0.150	0.010	mg/kg	50	03/13/19	8021B		MS
Total BTEX	<0.300	0.300	0.018	mg/kg	50	03/13/19	8021B		MS

Surrogate: 4-Bromofluorobenzene (PID) 81.5 % 73.3-129 03/13/19 8021B MS

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0	10.0	5.30	mg/kg	1	03/14/19	8015B		MS
DRO >C10-C28*	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS
EXT DRO >C28-C36	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS

Surrogate: 1-Chlorooctane 90.6 % 41-142 03/14/19 8015B MS

Surrogate: 1-Chlorooctadecane 87.7 % 37.6-147 03/14/19 8015B MS

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SS 29

1903130-03 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Saturated Paste Extraction

Calcium	9.18	0.100	0.013	mg/L	1	03/15/19	EPA200.7		AES
Conductivity	467			umhos/cm	1	03/14/19	ASA#9 10-3.3		LLG
Magnesium	2.27	0.100	0.019	mg/L	1	03/15/19	EPA200.7		AES
pH	8.06			pH Units	1	03/14/19	ASA#9 12-2.6		JDA
SAR	7.04			No Unit	1	03/15/19	Calculation		AES
Sodium	91.9	1.00	0.367	mg/L	1	03/15/19	EPA200.7		AES

Subcontracted -- Cardinal Laboratories

Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Toluene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Ethylbenzene*	<0.050	0.050	0.004	mg/kg	50	03/13/19	8021B		MS
Total Xylenes*	<0.150	0.150	0.010	mg/kg	50	03/13/19	8021B		MS
Total BTEX	<0.300	0.300	0.018	mg/kg	50	03/13/19	8021B		MS

Surrogate: 4-Bromofluorobenzene (PID) 79.2 % 73.3-129 03/13/19 8021B MS

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0	10.0	5.30	mg/kg	1	03/14/19	8015B		MS
DRO >C10-C28*	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS
EXT DRO >C28-C36	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS

Surrogate: 1-Chlorooctane 92.5 % 41-142 03/14/19 8015B MS

Surrogate: 1-Chlorooctadecane 90.9 % 37.6-147 03/14/19 8015B MS

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**SS 30**

**1903130-04 (Solid)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**Saturated Paste Extraction**

Calcium	8.22	0.100	0.013	mg/L	1	03/15/19	EPA200.7		AES
Conductivity	484			umhos/cm	1	03/14/19	ASA#9 10-3.3		LLG
Magnesium	2.11	0.100	0.019	mg/L	1	03/15/19	EPA200.7		AES
pH	8.24			pH Units	1	03/14/19	ASA#9 12-2.6		JDA
SAR	8.37			No Unit	1	03/15/19	Calculation		AES
Sodium	104	1.00	0.367	mg/L	1	03/15/19	EPA200.7		AES

**Subcontracted -- Cardinal Laboratories**

**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Toluene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Ethylbenzene*	<0.050	0.050	0.004	mg/kg	50	03/13/19	8021B		MS
Total Xylenes*	<0.150	0.150	0.010	mg/kg	50	03/13/19	8021B		MS
Total BTEX	<0.300	0.300	0.018	mg/kg	50	03/13/19	8021B		MS

Surrogate: 4-Bromofluorobenzene (PID) 84.4 % 73.3-129 03/13/19 8021B MS

**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0	10.0	5.30	mg/kg	1	03/14/19	8015B		MS
DRO >C10-C28*	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS
EXT DRO >C28-C36	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS

Surrogate: 1-Chlorooctane 93.5 % 41-142 03/14/19 8015B MS

Surrogate: 1-Chlorooctadecane 90.7 % 37.6-147 03/14/19 8015B MS

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Debbie Zufelt, Reports Manager

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BP America 380 Airport Rd. Durango CO, 81303	Project: Table 910 - less PAH, metals Project Name / Number: Thomas Jacquez E #1 Project Manager: Steve Moskal	Reported: 03/15/19 11:03
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SS 31

1903130-05 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Saturated Paste Extraction

Calcium	33.3	0.100	0.013	mg/L	1	03/15/19	EPA200.7		AES
Conductivity	255			umhos/cm	1	03/14/19	ASA#9 10-3.3		LLG
Magnesium	5.43	0.100	0.019	mg/L	1	03/15/19	EPA200.7		AES
pH	7.75			pH Units	1	03/14/19	ASA#9 12-2.6		JDA
SAR	0.51			No Unit	1	03/15/19	Calculation		AES
Sodium	12.0	1.00	0.367	mg/L	1	03/15/19	EPA200.7		AES

Subcontracted -- Cardinal Laboratories

Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Toluene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Ethylbenzene*	<0.050	0.050	0.004	mg/kg	50	03/13/19	8021B		MS
Total Xylenes*	<0.150	0.150	0.010	mg/kg	50	03/13/19	8021B		MS
Total BTEX	<0.300	0.300	0.018	mg/kg	50	03/13/19	8021B		MS

Surrogate: 4-Bromofluorobenzene (PID) 79.1 % 73.3-129 03/13/19 8021B MS

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0	10.0	5.30	mg/kg	1	03/14/19	8015B		MS
DRO >C10-C28*	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS
EXT DRO >C28-C36	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS

Surrogate: 1-Chlorooctane 91.1 % 41-142 03/14/19 8015B MS

Surrogate: 1-Chlorooctadecane 88.8 % 37.6-147 03/14/19 8015B MS

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SS 32

1903130-06 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Saturated Paste Extraction

Calcium	103	0.100	0.013	mg/L	1	03/15/19	EPA200.7		AES
Conductivity	749			umhos/cm	1	03/14/19	ASA#9 10-3.3		LLG
Magnesium	14.7	0.100	0.019	mg/L	1	03/15/19	EPA200.7		AES
pH	7.63			pH Units	1	03/14/19	ASA#9 12-2.6		JDA
SAR	0.83			No Unit	1	03/15/19	Calculation		AES
Sodium	34.0	1.00	0.367	mg/L	1	03/15/19	EPA200.7		AES

Subcontracted -- Cardinal Laboratories

Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Toluene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Ethylbenzene*	<0.050	0.050	0.004	mg/kg	50	03/13/19	8021B		MS
Total Xylenes*	<0.150	0.150	0.010	mg/kg	50	03/13/19	8021B		MS
Total BTEX	<0.300	0.300	0.018	mg/kg	50	03/13/19	8021B		MS

Surrogate: 4-Bromofluorobenzene (PID) 82.5 % 73.3-129 03/13/19 8021B MS

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0	10.0	5.30	mg/kg	1	03/14/19	8015B		MS
DRO >C10-C28*	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS
EXT DRO >C28-C36	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS

Surrogate: 1-Chlorooctane 92.6 % 41-142 03/14/19 8015B MS

Surrogate: 1-Chlorooctadecane 89.2 % 37.6-147 03/14/19 8015B MS

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Debbie Zufelt, Reports Manager

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SS 33

1903130-07 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Saturated Paste Extraction

Calcium	67.9	0.100	0.013	mg/L	1	03/15/19	EPA200.7		AES
Conductivity	495			umhos/cm	1	03/14/19	ASA#9 10-3.3		LLG
Magnesium	10.6	0.100	0.019	mg/L	1	03/15/19	EPA200.7		AES
pH	7.78			pH Units	1	03/14/19	ASA#9 12-2.6		JDA
SAR	0.55			No Unit	1	03/15/19	Calculation		AES
Sodium	18.6	1.00	0.367	mg/L	1	03/15/19	EPA200.7		AES

Subcontracted -- Cardinal Laboratories

Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Toluene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Ethylbenzene*	<0.050	0.050	0.004	mg/kg	50	03/13/19	8021B		MS
Total Xylenes*	<0.150	0.150	0.010	mg/kg	50	03/13/19	8021B		MS
Total BTEX	<0.300	0.300	0.018	mg/kg	50	03/13/19	8021B		MS

Surrogate: 4-Bromofluorobenzene (PID) 76.8 % 73.3-129 03/13/19 8021B MS

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0	10.0	5.30	mg/kg	1	03/14/19	8015B		MS
DRO >C10-C28*	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS
EXT DRO >C28-C36	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS

Surrogate: 1-Chlorooctane 92.6 % 41-142 03/14/19 8015B MS

Surrogate: 1-Chlorooctadecane 91.1 % 37.6-147 03/14/19 8015B MS

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SS 34

1903130-08 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Saturated Paste Extraction

Calcium	89.9	0.100	0.013	mg/L	1	03/15/19	EPA200.7		AES
Conductivity	583			umhos/cm	1	03/14/19	ASA#9 10-3.3		LLG
Magnesium	13.3	0.100	0.019	mg/L	1	03/15/19	EPA200.7		AES
pH	7.86			pH Units	1	03/14/19	ASA#9 12-2.6		JDA
SAR	0.38			No Unit	1	03/15/19	Calculation		AES
Sodium	14.4	1.00	0.367	mg/L	1	03/15/19	EPA200.7		AES

Subcontracted -- Cardinal Laboratories

Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Toluene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Ethylbenzene*	<0.050	0.050	0.004	mg/kg	50	03/13/19	8021B		MS
Total Xylenes*	<0.150	0.150	0.010	mg/kg	50	03/13/19	8021B		MS
Total BTEX	<0.300	0.300	0.018	mg/kg	50	03/13/19	8021B		MS

Surrogate: 4-Bromofluorobenzene (PID) 80.2 % 73.3-129 03/13/19 8021B MS

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0	10.0	5.30	mg/kg	1	03/14/19	8015B		MS
DRO >C10-C28*	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS
EXT DRO >C28-C36	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS

Surrogate: 1-Chlorooctane 92.9 % 41-142 03/14/19 8015B MS

Surrogate: 1-Chlorooctadecane 91.8 % 37.6-147 03/14/19 8015B MS

Green Analytical Laboratories

*Debbie Zufelt*

Debbie Zufelt, Reports Manager

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BP America 380 Airport Rd. Durango CO, 81303	Project: Table 910 - less PAH, metals Project Name / Number: Thomas Jacquez E #1 Project Manager: Steve Moskal	Reported: 03/15/19 11:03
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SS 35

1903130-09 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**Saturated Paste Extraction**

Calcium	48.1	0.100	0.013	mg/L	1	03/15/19	EPA200.7		AES
Conductivity	379			umhos/cm	1	03/14/19	ASA#9 10-3.3		LLG
Magnesium	8.57	0.100	0.019	mg/L	1	03/15/19	EPA200.7		AES
pH	7.83			pH Units	1	03/14/19	ASA#9 12-2.6		JDA
SAR	0.52			No Unit	1	03/15/19	Calculation		AES
Sodium	14.8	1.00	0.367	mg/L	1	03/15/19	EPA200.7		AES

**Subcontracted -- Cardinal Laboratories**

**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Toluene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Ethylbenzene*	<0.050	0.050	0.004	mg/kg	50	03/13/19	8021B		MS
Total Xylenes*	<0.150	0.150	0.010	mg/kg	50	03/13/19	8021B		MS
Total BTEX	<0.300	0.300	0.018	mg/kg	50	03/13/19	8021B		MS

Surrogate: 4-Bromofluorobenzene (PID) 79.2 % 73.3-129 03/13/19 8021B MS

**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0	10.0	5.30	mg/kg	1	03/14/19	8015B		MS
DRO >C10-C28*	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS
EXT DRO >C28-C36	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS

Surrogate: 1-Chlorooctane 93.5 % 41-142 03/14/19 8015B MS

Surrogate: 1-Chlorooctadecane 92.0 % 37.6-147 03/14/19 8015B MS

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BP America 380 Airport Rd. Durango CO, 81303	Project: Table 910 - less PAH, metals Project Name / Number: Thomas Jacquez E #1 Project Manager: Steve Moskal	Reported: 03/15/19 11:03
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SS 36

1903130-10 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Saturated Paste Extraction

Calcium	149	0.100	0.013	mg/L	1	03/15/19	EPA200.7		AES
Conductivity	949			umhos/cm	1	03/14/19	ASA#9 10-3.3		LLG
Magnesium	19.0	0.100	0.019	mg/L	1	03/15/19	EPA200.7		AES
pH	7.88			pH Units	1	03/14/19	ASA#9 12-2.6		JDA
SAR	0.53			No Unit	1	03/15/19	Calculation		AES
Sodium	25.7	1.00	0.367	mg/L	1	03/15/19	EPA200.7		AES

Subcontracted -- Cardinal Laboratories

Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Toluene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Ethylbenzene*	<0.050	0.050	0.004	mg/kg	50	03/13/19	8021B		MS
Total Xylenes*	<0.150	0.150	0.010	mg/kg	50	03/13/19	8021B		MS
Total BTEX	<0.300	0.300	0.018	mg/kg	50	03/13/19	8021B		MS

Surrogate: 4-Bromofluorobenzene (PID) 78.5 % 73.3-129 03/13/19 8021B MS

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0	10.0	5.30	mg/kg	1	03/14/19	8015B		MS
DRO >C10-C28*	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS
EXT DRO >C28-C36	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS

Surrogate: 1-Chlorooctane 93.7 % 41-142 03/14/19 8015B MS

Surrogate: 1-Chlorooctadecane 91.9 % 37.6-147 03/14/19 8015B MS

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BP America 380 Airport Rd. Durango CO, 81303	Project: Table 910 - less PAH, metals Project Name / Number: Thomas Jacquez E #1 Project Manager: Steve Moskal	Reported: 03/15/19 11:03
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SS 37

1903130-11 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Saturated Paste Extraction

Calcium	81.7	0.100	0.013	mg/L	1	03/15/19	EPA200.7		AES
Conductivity	564			umhos/cm	1	03/14/19	ASA#9 10-3.3		LLG
Magnesium	13.1	0.100	0.019	mg/L	1	03/15/19	EPA200.7		AES
pH	7.92			pH Units	1	03/14/19	ASA#9 12-2.6		JDA
SAR	0.53			No Unit	1	03/15/19	Calculation		AES
Sodium	19.7	1.00	0.367	mg/L	1	03/15/19	EPA200.7		AES

Subcontracted -- Cardinal Laboratories

Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Toluene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Ethylbenzene*	<0.050	0.050	0.004	mg/kg	50	03/13/19	8021B		MS
Total Xylenes*	<0.150	0.150	0.010	mg/kg	50	03/13/19	8021B		MS
Total BTEX	<0.300	0.300	0.018	mg/kg	50	03/13/19	8021B		MS

Surrogate: 4-Bromofluorobenzene (PID) 78.4 % 73.3-129 03/13/19 8021B MS

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0	10.0	5.30	mg/kg	1	03/14/19	8015B		MS
DRO >C10-C28*	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS
EXT DRO >C28-C36	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS

Surrogate: 1-Chlorooctane 83.0 % 41-142 03/14/19 8015B MS

Surrogate: 1-Chlorooctadecane 82.4 % 37.6-147 03/14/19 8015B MS

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BP America 380 Airport Rd. Durango CO, 81303	Project: Table 910 - less PAH, metals Project Name / Number: Thomas Jacquez E #1 Project Manager: Steve Moskal	Reported: 03/15/19 11:03
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**SS 38**

**1903130-12 (Solid)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**Saturated Paste Extraction**

Calcium	221	0.100	0.013	mg/L	1	03/15/19	EPA200.7		AES
Conductivity	1230			umhos/cm	1	03/14/19	ASA#9 10-3.3		LLG
Magnesium	27.6	0.100	0.019	mg/L	1	03/15/19	EPA200.7		AES
pH	7.97			pH Units	1	03/14/19	ASA#9 12-2.6		JDA
SAR	0.51			No Unit	1	03/15/19	Calculation		AES
Sodium	30.0	1.00	0.367	mg/L	1	03/15/19	EPA200.7		AES

**Subcontracted -- Cardinal Laboratories**

**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Toluene*	<0.050	0.050	0.002	mg/kg	50	03/13/19	8021B		MS
Ethylbenzene*	<0.050	0.050	0.004	mg/kg	50	03/13/19	8021B		MS
Total Xylenes*	<0.150	0.150	0.010	mg/kg	50	03/13/19	8021B		MS
Total BTEX	<0.300	0.300	0.018	mg/kg	50	03/13/19	8021B		MS

Surrogate: 4-Bromofluorobenzene (PID) 80.3 % 73.3-129 03/13/19 8021B MS

**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0	10.0	5.30	mg/kg	1	03/14/19	8015B		MS
DRO >C10-C28*	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS
EXT DRO >C28-C36	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS

Surrogate: 1-Chlorooctane 89.4 % 41-142 03/14/19 8015B MS

Surrogate: 1-Chlorooctadecane 87.0 % 37.6-147 03/14/19 8015B MS

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BP America 380 Airport Rd. Durango CO, 81303	Project: Table 910 - less PAH, metals Project Name / Number: Thomas Jacquez E #1 Project Manager: Steve Moskal	Reported: 03/15/19 11:03
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**SS 39**

**1903130-13 (Solid)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**Saturated Paste Extraction**

Calcium	86.4	0.200	0.026	mg/L	2	03/15/19	EPA200.7		AES
Conductivity	538			umhos/cm	1	03/14/19	ASA#9 10-3.3		LLG
Magnesium	13.7	0.200	0.038	mg/L	2	03/15/19	EPA200.7		AES
pH	8.00			pH Units	1	03/14/19	ASA#9 12-2.6		JDA
SAR	0.55			No Unit	1	03/15/19	Calculation		AES
Sodium	20.7	2.00	0.734	mg/L	2	03/15/19	EPA200.7		AES

**Subcontracted -- Cardinal Laboratories**

**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050	0.050	0.002	mg/kg	50	03/14/19	8021B		MS
Toluene*	<0.050	0.050	0.002	mg/kg	50	03/14/19	8021B		MS
Ethylbenzene*	<0.050	0.050	0.004	mg/kg	50	03/14/19	8021B		MS
Total Xylenes*	<0.150	0.150	0.010	mg/kg	50	03/14/19	8021B		MS
Total BTEX	<0.300	0.300	0.018	mg/kg	50	03/14/19	8021B		MS

Surrogate: 4-Bromofluorobenzene (PID) 79.0 % 73.3-129 03/14/19 8021B MS

**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0	10.0	5.30	mg/kg	1	03/14/19	8015B		MS
DRO >C10-C28*	27.1	10.0	1.56	mg/kg	1	03/14/19	8015B		MS
EXT DRO >C28-C36	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS

Surrogate: 1-Chlorooctane 92.0 % 41-142 03/14/19 8015B MS

Surrogate: 1-Chlorooctadecane 92.4 % 37.6-147 03/14/19 8015B MS

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BP America 380 Airport Rd. Durango CO, 81303	Project: Table 910 - less PAH, metals Project Name / Number: Thomas Jacquez E #1 Project Manager: Steve Moskal	Reported: 03/15/19 11:03
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**SS 40**

**1903130-14 (Solid)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**Saturated Paste Extraction**

Calcium	112	0.100	0.013	mg/L	1	03/15/19	EPA200.7		AES
Conductivity	605			umhos/cm	1	03/14/19	ASA#9 10-3.3		LLG
Magnesium	15.5	0.100	0.019	mg/L	1	03/15/19	EPA200.7		AES
pH	7.96			pH Units	1	03/14/19	ASA#9 12-2.6		JDA
SAR	0.54			No Unit	1	03/15/19	Calculation		AES
Sodium	22.8	1.00	0.367	mg/L	1	03/15/19	EPA200.7		AES

**Subcontracted -- Cardinal Laboratories**

**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050	0.050	0.002	mg/kg	50	03/14/19	8021B		MS
Toluene*	<0.050	0.050	0.002	mg/kg	50	03/14/19	8021B		MS
Ethylbenzene*	<0.050	0.050	0.004	mg/kg	50	03/14/19	8021B		MS
Total Xylenes*	<0.150	0.150	0.010	mg/kg	50	03/14/19	8021B		MS
Total BTEX	<0.300	0.300	0.018	mg/kg	50	03/14/19	8021B		MS

Surrogate: 4-Bromofluorobenzene (PID) 84.9 % 73.3-129 03/14/19 8021B MS

**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0	10.0	5.30	mg/kg	1	03/14/19	8015B		MS
DRO >C10-C28*	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS
EXT DRO >C28-C36	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS

Surrogate: 1-Chlorooctane 93.3 % 41-142 03/14/19 8015B MS

Surrogate: 1-Chlorooctadecane 91.3 % 37.6-147 03/14/19 8015B MS

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*Debbie Zufelt*

Debbie Zufelt, Reports Manager

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BP America 380 Airport Rd. Durango CO, 81303	Project: Table 910 - less PAH, metals Project Name / Number: Thomas Jacquez E #1 Project Manager: Steve Moskal	Reported: 03/15/19 11:03
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SS 41

1903130-15 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Saturated Paste Extraction

Calcium	126	0.100	0.013	mg/L	1	03/15/19	EPA200.7		AES
Conductivity	776			umhos/cm	1	03/14/19	ASA#9 10-3.3		LLG
Magnesium	17.3	0.100	0.019	mg/L	1	03/15/19	EPA200.7		AES
pH	8.00			pH Units	1	03/14/19	ASA#9 12-2.6		JDA
SAR	0.42			No Unit	1	03/15/19	Calculation		AES
Sodium	19.0	1.00	0.367	mg/L	1	03/15/19	EPA200.7		AES

Subcontracted -- Cardinal Laboratories

Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	0.002	mg/kg	50	03/14/19	8021B		MS
Toluene*	<0.050	0.050	0.002	mg/kg	50	03/14/19	8021B		MS
Ethylbenzene*	<0.050	0.050	0.004	mg/kg	50	03/14/19	8021B		MS
Total Xylenes*	<0.150	0.150	0.010	mg/kg	50	03/14/19	8021B		MS
Total BTEX	<0.300	0.300	0.018	mg/kg	50	03/14/19	8021B		MS

Surrogate: 4-Bromofluorobenzene (PID) 82.0 % 73.3-129 03/14/19 8021B MS

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0	10.0	5.30	mg/kg	1	03/14/19	8015B		MS
DRO >C10-C28*	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS
EXT DRO >C28-C36	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS

Surrogate: 1-Chlorooctane 91.8 % 41-142 03/14/19 8015B MS

Surrogate: 1-Chlorooctadecane 92.5 % 37.6-147 03/14/19 8015B MS

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BP America 380 Airport Rd. Durango CO, 81303	Project: Table 910 - less PAH, metals Project Name / Number: Thomas Jacquez E #1 Project Manager: Steve Moskal	Reported: 03/15/19 11:03
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SS 42

1903130-16 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Saturated Paste Extraction

Calcium	89.6	0.100	0.013	mg/L	1	03/15/19	EPA200.7		AES
Conductivity	574			umhos/cm	1	03/14/19	ASA#9 10-3.3		LLG
Magnesium	12.9	0.100	0.019	mg/L	1	03/15/19	EPA200.7		AES
pH	7.95			pH Units	1	03/14/19	ASA#9 12-2.6		JDA
SAR	0.44			No Unit	1	03/15/19	Calculation		AES
Sodium	16.9	1.00	0.367	mg/L	1	03/15/19	EPA200.7		AES

Subcontracted -- Cardinal Laboratories

Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	0.002	mg/kg	50	03/14/19	8021B		MS
Toluene*	<0.050	0.050	0.002	mg/kg	50	03/14/19	8021B		MS
Ethylbenzene*	<0.050	0.050	0.004	mg/kg	50	03/14/19	8021B		MS
Total Xylenes*	<0.150	0.150	0.010	mg/kg	50	03/14/19	8021B		MS
Total BTEX	<0.300	0.300	0.018	mg/kg	50	03/14/19	8021B		MS

Surrogate: 4-Bromofluorobenzene (PID) 76.7 % 73.3-129 03/14/19 8021B MS

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0	10.0	5.30	mg/kg	1	03/14/19	8015B		MS
DRO >C10-C28*	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS
EXT DRO >C28-C36	<10.0	10.0	1.56	mg/kg	1	03/14/19	8015B		MS

Surrogate: 1-Chlorooctane 93.4 % 41-142 03/14/19 8015B MS

Surrogate: 1-Chlorooctadecane 93.5 % 37.6-147 03/14/19 8015B MS

Green Analytical Laboratories

*Debbie Zufelt*

Debbie Zufelt, Reports Manager

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BP America 380 Airport Rd. Durango CO, 81303	Project: Table 910 - less PAH, metals Project Name / Number: Thomas Jacquez E #1 Project Manager: Steve Moskal	Reported: 03/15/19 11:03
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**Saturated Paste Extraction - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B903132 - Paste Extract**

**Duplicate (B903132-DUP1)**

Source: 1903130-10 Prepared & Analyzed: 03/14/19

Conductivity	957		umhos/cm		949			0.839	20	
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**Batch B903133 - Paste Extract**

**Duplicate (B903133-DUP1)**

Source: 1903130-10 Prepared & Analyzed: 03/14/19

pH	7.94		pH Units		7.88			0.759	20	
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**Batch B903134 - Paste Extract**

**Blank (B903134-BLK1)**

Prepared: 03/14/19 Analyzed: 03/15/19

Calcium	ND	0.100	mg/L							
Magnesium	ND	0.100	mg/L							
SAR	0.00		No Unit							
Sodium	ND	1.00	mg/L							

**Duplicate (B903134-DUP1)**

Source: 1903130-10 Prepared: 03/14/19 Analyzed: 03/15/19

Calcium	155	0.100	mg/L		149			3.88	20	
Magnesium	19.7	0.100	mg/L		19.0			3.41	20	
Sodium	27.0	1.00	mg/L		25.7			5.00	20	

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Debbie Zufelt, Reports Manager

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BP America 380 Airport Rd. Durango CO, 81303	Project: Table 910 - less PAH, metals Project Name / Number: Thomas Jacquez E #1 Project Manager: Steve Moskal	Reported: 03/15/19 11:03
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**Volatile Organic Compounds by EPA Method 8021 - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 9031316 - Volatiles**

**Blank (9031316-BLK1)**

Prepared & Analyzed: 03/13/19

Surrogate: 4-Bromofluorobenzene (PID)	0.0805		mg/kg	0.100		80.5	73.3-129			
Benzene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Total Xylenes	ND	0.150	mg/kg							

**LCS (9031316-BS1)**

Prepared & Analyzed: 03/13/19

Surrogate: 4-Bromofluorobenzene (PID)	0.0835		mg/kg	0.100		83.5	73.3-129			
Benzene	1.86	0.050	mg/kg	2.00		93.2	72.2-131			
Ethylbenzene	1.78	0.050	mg/kg	2.00		88.8	68.9-126			
Toluene	1.94	0.050	mg/kg	2.00		96.9	71.7-126			
Total Xylenes	5.10	0.150	mg/kg	6.00		85.0	71.4-125			

**LCS Dup (9031316-BSD1)**

Prepared & Analyzed: 03/13/19

Surrogate: 4-Bromofluorobenzene (PID)	0.0882		mg/kg	0.100		88.2	73.3-129			
Benzene	1.88	0.050	mg/kg	2.00		93.9	72.2-131	0.802	6.91	
Ethylbenzene	1.79	0.050	mg/kg	2.00		89.3	68.9-126	0.618	7.88	
Toluene	1.94	0.050	mg/kg	2.00		97.1	71.7-126	0.194	7.12	
Total Xylenes	5.07	0.150	mg/kg	6.00		84.5	71.4-125	0.552	7.46	

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BP America 380 Airport Rd. Durango CO, 81303	Project: Table 910 - less PAH, metals Project Name / Number: Thomas Jacquez E #1 Project Manager: Steve Moskal	Reported: 03/15/19 11:03
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**Petroleum Hydrocarbons by GC FID - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 9031315 - General Prep - Organics**

**Blank (9031315-BLK1)**

Prepared: 03/13/19 Analyzed: 03/14/19

Surrogate: 1-Chlorooctadecane	45.4		mg/kg	50.0		90.7	37.6-147			
Surrogate: 1-Chlorooctane	46.1		mg/kg	50.0		92.3	41-142			
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
GRO C6-C10	ND	10.0	mg/kg							

**LCS (9031315-BS1)**

Prepared: 03/13/19 Analyzed: 03/14/19

Surrogate: 1-Chlorooctadecane	46.1		mg/kg	50.0		92.3	37.6-147			
Surrogate: 1-Chlorooctane	52.2		mg/kg	50.0		104	41-142			
DRO >C10-C28	196	10.0	mg/kg	200		97.8	72.9-138			
GRO C6-C10	218	10.0	mg/kg	200		109	76.5-133			
Total TPH C6-C28	414	10.0	mg/kg	400		103	78-132			

**LCS Dup (9031315-BSD1)**

Prepared: 03/13/19 Analyzed: 03/14/19

Surrogate: 1-Chlorooctadecane	47.1		mg/kg	50.0		94.2	37.6-147			
Surrogate: 1-Chlorooctane	53.1		mg/kg	50.0		106	41-142			
DRO >C10-C28	227	10.0	mg/kg	200		114	72.9-138	14.9	20.6	
GRO C6-C10	229	10.0	mg/kg	200		115	76.5-133	4.97	20.6	
Total TPH C6-C28	456	10.0	mg/kg	400		114	78-132	9.78	18	

**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  
\*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

Green Analytical Laboratories

*Debbie Zufelt*

Debbie Zufelt, Reports Manager

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## Deb Zufelt

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**From:** Steven Moskal [Steven.Moskal@BPX.COM]  
**Sent:** Thursday, March 07, 2019 11:54 AM  
**To:** ksiesser@cottonwoodconsulting.com; 'Jake Harter' (jharter@cottonwoodconsulting.com) (jharter@cottonwoodconsulting.com)  
**Cc:** Andrew Hawk; Deb Zufelt (dzufelt@greenanalytical.com)  
**Subject:** Citizens Animas Ditch Sampling Parameters

Kyle – I spoke with Jim Hughes and have verified what the COGCC is looking to be analyzed:

Inorganics – SAR, pH, EC  
BTEX  
TPH

We will not need PAHs or metals for all of the sampling points.

Also include a few backgrounds for arsenic in effort to demonstrate how wide the naturally occurring levels can be in this area. I suggest 3 background arsenic samples along the sampling area.

**Steve Moskal**  
*Environmental Coordinator*  
*BP America Production Co.*  
*bpx energy - WBU*  
1199 Main Ave. | Suite 101  
Durango | CO | 81301

Direct: 505.330.9179  
[steven.moskal@bpx.com](mailto:steven.moskal@bpx.com)

**bpx energy**

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