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26 December 2018

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

Enclosed are the results of analyses for samples received by the laboratory on 12/07/18 12:05. 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 script is cursive and fluid, with the first name 'Debbie' and last name 'Zufelt' clearly legible.

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.



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BP America
380 Airport Rd.
Durango CO, 81303

Project: Table 910
Project Name / Number: Richardson G2
Project Manager: Steve Moskal

Reported:
12/26/18 11:39

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
SS01	1812060-01	Solid	12/07/18 11:10	12/07/18 12:05	
SS02	1812060-02	Solid	12/07/18 10:55	12/07/18 12:05	
SS03	1812060-03	Solid	12/07/18 10:30	12/07/18 12:05	

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Debbie Zufelt, Reports Manager

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BP America
380 Airport Rd.
Durango CO, 81303

Project: Table 910
Project Name / Number: Richardson G2
Project Manager: Steve Moskal

Reported:
12/26/18 11:39

SS01**1812060-01 (Solid)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

% Dry Solids	82.4			%	1	12/14/18	EPA160.3/1684		JDA
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Saturated Paste Extraction

Calcium	37.9	0.100	0.013	mg/L	1	12/18/18	EPA200.7		AES
Conductivity	570			umhos/cm	1	12/18/18	ASA#9 10-3.3		JDA
Magnesium	8.56	0.100	0.019	mg/L	1	12/18/18	EPA200.7		AES
pH	7.62			pH Units	1	12/18/18	ASA#9 12-2.6		JDA
SAR	3.60			No Unit	1	12/18/18	Calculation		AES
Sodium	94.2	1.00	0.367	mg/L	1	12/18/18	EPA200.7		AES

Total Metals by ICP

Barium	411	5.00	0.049	mg/kg dry	100	12/13/18	6010B		AES
Cadmium	<5.00	5.00	0.122	mg/kg dry	100	12/13/18	6010B		AES
Chromium	9.89	5.00	0.075	mg/kg dry	100	12/13/18	6010B		AES
Copper	<5.00	5.00	0.117	mg/kg dry	100	12/13/18	6010B		AES
Lead	12.5	10.0	0.576	mg/kg dry	100	12/13/18	6010B		AES
Nickel	9.15	5.00	0.213	mg/kg dry	100	12/13/18	6010B		AES
Selenium	<20.0	20.0	1.42	mg/kg dry	100	12/13/18	6010B		AES
Silver	<1.00	1.00	0.191	mg/kg dry	100	12/13/18	6010B		AES
Zinc	47.9	5.00	0.165	mg/kg dry	100	12/13/18	6010B		AES

Total Metals by ICPMS

Arsenic	2.58	1.00	0.214	mg/kg dry	1000	12/14/18	6020A		AES
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Total Mercury by CVAA

Mercury	<0.0485	0.0485	0.0202	mg/kg dry	200	12/13/18	EPA7471		AES
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Hot Water Extractable

Boron	<1.20	1.20	0.059	mg/L	4	12/18/18	EPA200.7		AES
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BP America
380 Airport Rd.
Durango CO, 81303Project: Table 910
Project Name / Number: Richardson G2
Project Manager: Steve MoskalReported:
12/26/18 11:39

SS01

1812060-01 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Subcontracted -- Cardinal Laboratories

Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	0.002	mg/kg	50	12/12/18	8021B		MS
Toluene*	<0.050	0.050	0.002	mg/kg	50	12/12/18	8021B		MS
Ethylbenzene*	<0.050	0.050	0.004	mg/kg	50	12/12/18	8021B		MS
Total Xylenes*	<0.150	0.150	0.010	mg/kg	50	12/12/18	8021B		MS
Total BTEX	<0.300	0.300	0.018	mg/kg	50	12/12/18	8021B		MS

Surrogate: 4-Bromofluorobenzene (PID) 96.4 % 73.3-129 12/12/18 8021B MS

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0	10.0	5.30	mg/kg	1	12/12/18	8015B		MS
DRO >C10-C28*	<10.0	10.0	1.56	mg/kg	1	12/12/18	8015B		MS
EXT DRO >C28-C36	<10.0	10.0	1.56	mg/kg	1	12/12/18	8015B		MS

Surrogate: 1-Chlorooctane 107 % 41-142 12/12/18 8015B MS

Surrogate: 1-Chlorooctadecane 115 % 37.6-147 12/12/18 8015B MS

Polynuclear Aromatic Compounds by GC/MS

Naphthalene*	<0.014	0.040	0.014	mg/kg	40	12/18/18	8270C		MS
2-Methylnaphthalene*	<0.008	0.040	0.008	mg/kg	40	12/18/18	8270C		MS
1-Methylnaphthalene	<0.007	0.040	0.007	mg/kg	40	12/18/18	8270C		MS
Acenaphthylene*	<0.006	0.040	0.006	mg/kg	40	12/18/18	8270C		MS
Acenaphthene*	<0.007	0.040	0.007	mg/kg	40	12/18/18	8270C		MS
Fluorene*	<0.006	0.040	0.006	mg/kg	40	12/18/18	8270C		MS
Phenanthrene*	<0.007	0.040	0.007	mg/kg	40	12/18/18	8270C		MS
Anthracene*	<0.008	0.040	0.008	mg/kg	40	12/18/18	8270C		MS
Carbazole*	<0.006	0.040	0.006	mg/kg	40	12/18/18	8270C		MS
Fluoranthene*	<0.006	0.040	0.006	mg/kg	40	12/18/18	8270C		MS
Pyrene*	<0.007	0.040	0.007	mg/kg	40	12/18/18	8270C		MS
Benzo[a]anthracene*	<0.008	0.040	0.008	mg/kg	40	12/18/18	8270C		MS
Chrysene*	<0.010	0.040	0.010	mg/kg	40	12/18/18	8270C		MS
Benzo[b]fluoranthene*	<0.009	0.040	0.009	mg/kg	40	12/18/18	8270C		MS
Benzo[k]fluoranthene*	<0.010	0.040	0.010	mg/kg	40	12/18/18	8270C		MS
Benzo[a]pyrene*	<0.007	0.040	0.007	mg/kg	40	12/18/18	8270C		MS
Indeno[1,2,3-cd]pyrene*	<0.010	0.040	0.010	mg/kg	40	12/18/18	8270C		MS
Dibenz[a,h]anthracene*	<0.006	0.040	0.006	mg/kg	40	12/18/18	8270C		MS

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Debbie Zufelt, Reports Manager

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BP America
380 Airport Rd.
Durango CO, 81303

Project: Table 910
Project Name / Number: Richardson G2
Project Manager: Steve Moskal

Reported:
12/26/18 11:39

SS01

1812060-01 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Subcontracted -- Cardinal Laboratories

Polynuclear Aromatic Compounds by GC/MS

Benzo[g,h,i]perylene*	<0.006	0.040	0.006	mg/kg	40	12/18/18	8270C		MS
Surrogate: Nitrobenzene-d5			70.7 %	10.8-154		12/18/18	8270C		MS
Surrogate: 2-Fluorobiphenyl			74.5 %	16.9-156		12/18/18	8270C		MS
Surrogate: Terphenyl-d14			85.5 %	27-170		12/18/18	8270C		MS

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BP America
380 Airport Rd.
Durango CO, 81303Project: Table 910
Project Name / Number: Richardson G2
Project Manager: Steve MoskalReported:
12/26/18 11:39

SS02

1812060-02 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

% Dry Solids	77.4			%	1	12/14/18	EPA160.3/1684		JDA
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Saturated Paste Extraction

Calcium	60.8	0.100	0.013	mg/L	1	12/18/18	EPA200.7		AES
Conductivity	486			umhos/cm	1	12/18/18	ASA#9 10-3.3		JDA
Magnesium	12.9	0.100	0.019	mg/L	1	12/18/18	EPA200.7		AES
pH	6.37			pH Units	1	12/18/18	ASA#9 12-2.6		JDA
SAR	0.60			No Unit	1	12/18/18	Calculation		AES
Sodium	19.7	1.00	0.367	mg/L	1	12/18/18	EPA200.7		AES

Total Metals by ICP

Barium	378	5.00	0.049	mg/kg dry	100	12/13/18	6010B		AES
Cadmium	<5.00	5.00	0.122	mg/kg dry	100	12/13/18	6010B		AES
Chromium	9.14	5.00	0.075	mg/kg dry	100	12/13/18	6010B		AES
Copper	6.37	5.00	0.117	mg/kg dry	100	12/13/18	6010B		AES
Lead	90.7	10.0	0.576	mg/kg dry	100	12/13/18	6010B		AES
Nickel	8.00	5.00	0.213	mg/kg dry	100	12/13/18	6010B		AES
Selenium	<20.0	20.0	1.42	mg/kg dry	100	12/13/18	6010B		AES
Silver	<1.00	1.00	0.191	mg/kg dry	100	12/13/18	6010B		AES
Zinc	54.3	5.00	0.165	mg/kg dry	100	12/13/18	6010B		AES

Total Metals by ICPMS

Arsenic	2.47	1.00	0.214	mg/kg dry	1000	12/14/18	6020A		AES
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Total Mercury by CVAA

Mercury	0.0550	0.0517	0.0216	mg/kg dry	200	12/13/18	EPA7471		AES
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Hot Water Extractable

Boron	<1.20	1.20	0.059	mg/L	4	12/18/18	EPA200.7		AES
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Debbie Zufelt, Reports Manager

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BP America
380 Airport Rd.
Durango CO, 81303

Project: Table 910
Project Name / Number: Richardson G2
Project Manager: Steve Moskal

Reported:
12/26/18 11:39

SS02

1812060-02 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Subcontracted -- Cardinal Laboratories

Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	0.002	mg/kg	50	12/12/18	8021B		MS
Toluene*	<0.050	0.050	0.002	mg/kg	50	12/12/18	8021B		MS
Ethylbenzene*	<0.050	0.050	0.004	mg/kg	50	12/12/18	8021B		MS
Total Xylenes*	<0.150	0.150	0.010	mg/kg	50	12/12/18	8021B		MS
Total BTEX	<0.300	0.300	0.018	mg/kg	50	12/12/18	8021B		MS

Surrogate: 4-Bromofluorobenzene (PID) 97.1 % 73.3-129 12/12/18 8021B MS

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0	10.0	5.30	mg/kg	1	12/12/18	8015B		MS
DRO >C10-C28*	<10.0	10.0	1.56	mg/kg	1	12/12/18	8015B		MS
EXT DRO >C28-C36	<10.0	10.0	1.56	mg/kg	1	12/12/18	8015B		MS

Surrogate: 1-Chlorooctane 112 % 41-142 12/12/18 8015B MS

Surrogate: 1-Chlorooctadecane 116 % 37.6-147 12/12/18 8015B MS

Polynuclear Aromatic Compounds by GC/MS

Naphthalene*	<0.014	0.040	0.014	mg/kg	40	12/18/18	8270C		MS
2-Methylnaphthalene*	<0.008	0.040	0.008	mg/kg	40	12/18/18	8270C		MS
1-Methylnaphthalene	<0.007	0.040	0.007	mg/kg	40	12/18/18	8270C		MS
Acenaphthylene*	<0.006	0.040	0.006	mg/kg	40	12/18/18	8270C		MS
Acenaphthene*	<0.007	0.040	0.007	mg/kg	40	12/18/18	8270C		MS
Fluorene*	<0.006	0.040	0.006	mg/kg	40	12/18/18	8270C		MS
Phenanthrene*	<0.007	0.040	0.007	mg/kg	40	12/18/18	8270C		MS
Anthracene*	<0.008	0.040	0.008	mg/kg	40	12/18/18	8270C		MS
Carbazole*	<0.006	0.040	0.006	mg/kg	40	12/18/18	8270C		MS
Fluoranthene*	<0.006	0.040	0.006	mg/kg	40	12/18/18	8270C		MS
Pyrene*	<0.007	0.040	0.007	mg/kg	40	12/18/18	8270C		MS
Benzo[a]anthracene*	<0.008	0.040	0.008	mg/kg	40	12/18/18	8270C		MS
Chrysene*	<0.010	0.040	0.010	mg/kg	40	12/18/18	8270C		MS
Benzo[b]fluoranthene*	<0.009	0.040	0.009	mg/kg	40	12/18/18	8270C		MS
Benzo[k]fluoranthene*	<0.010	0.040	0.010	mg/kg	40	12/18/18	8270C		MS
Benzo[a]pyrene*	<0.007	0.040	0.007	mg/kg	40	12/18/18	8270C		MS
Indeno[1,2,3-cd]pyrene*	<0.010	0.040	0.010	mg/kg	40	12/18/18	8270C		MS
Dibenz[a,h]anthracene*	<0.006	0.040	0.006	mg/kg	40	12/18/18	8270C		MS

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Debbie Zufelt, Reports Manager

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BP America
380 Airport Rd.
Durango CO, 81303

Project: Table 910
Project Name / Number: Richardson G2
Project Manager: Steve Moskal

Reported:
12/26/18 11:39

SS02

1812060-02 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Subcontracted -- Cardinal Laboratories

Polynuclear Aromatic Compounds by GC/MS

Benzo[g,h,i]perylene*	<0.006	0.040	0.006	mg/kg	40	12/18/18	8270C		MS
Surrogate: Nitrobenzene-d5			76.8 %	10.8-154		12/18/18	8270C		MS
Surrogate: 2-Fluorobiphenyl			83.4 %	16.9-156		12/18/18	8270C		MS
Surrogate: Terphenyl-d14			93.8 %	27-170		12/18/18	8270C		MS

Green Analytical Laboratories

Debbie Zufelt

Debbie Zufelt, Reports Manager

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BP America
380 Airport Rd.
Durango CO, 81303Project: Table 910
Project Name / Number: Richardson G2
Project Manager: Steve MoskalReported:
12/26/18 11:39

SS03

1812060-03 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

% Dry Solids	82.6			%	1	12/14/18	EPA160.3/1684		JDA
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Saturated Paste Extraction

Calcium	31.0	0.100	0.013	mg/L	1	12/18/18	EPA200.7		AES
Conductivity	270			umhos/cm	1	12/18/18	ASA#9 10-3.3		JDA
Magnesium	10.7	0.100	0.019	mg/L	1	12/18/18	EPA200.7		AES
pH	6.20			pH Units	1	12/18/18	ASA#9 12-2.6		JDA
SAR	0.43			No Unit	1	12/18/18	Calculation		AES
Sodium	11.0	1.00	0.367	mg/L	1	12/18/18	EPA200.7		AES

Total Metals by ICP

Barium	265	5.00	0.049	mg/kg dry	100	12/13/18	6010B		AES
Cadmium	<5.00	5.00	0.122	mg/kg dry	100	12/13/18	6010B		AES
Chromium	9.48	5.00	0.075	mg/kg dry	100	12/13/18	6010B		AES
Copper	7.22	5.00	0.117	mg/kg dry	100	12/13/18	6010B		AES
Lead	14.7	10.0	0.576	mg/kg dry	100	12/13/18	6010B		AES
Nickel	8.84	5.00	0.213	mg/kg dry	100	12/13/18	6010B		AES
Selenium	<20.0	20.0	1.42	mg/kg dry	100	12/13/18	6010B		AES
Silver	<1.00	1.00	0.191	mg/kg dry	100	12/13/18	6010B		AES
Zinc	50.6	5.00	0.165	mg/kg dry	100	12/13/18	6010B		AES

Total Metals by ICPMS

Arsenic	1.92	1.00	0.214	mg/kg dry	1000	12/14/18	6020A		AES
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Total Mercury by CVAA

Mercury	<0.0484	0.0484	0.0202	mg/kg dry	200	12/13/18	EPA7471		AES
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Hot Water Extractable

Boron	<1.20	1.20	0.059	mg/L	4	12/18/18	EPA200.7		AES
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BP America
380 Airport Rd.
Durango CO, 81303Project: Table 910
Project Name / Number: Richardson G2
Project Manager: Steve MoskalReported:
12/26/18 11:39

SS03

1812060-03 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Subcontracted -- Cardinal Laboratories

Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	0.002	mg/kg	50	12/12/18	8021B		MS
Toluene*	<0.050	0.050	0.002	mg/kg	50	12/12/18	8021B		MS
Ethylbenzene*	<0.050	0.050	0.004	mg/kg	50	12/12/18	8021B		MS
Total Xylenes*	<0.150	0.150	0.010	mg/kg	50	12/12/18	8021B		MS
Total BTEX	<0.300	0.300	0.018	mg/kg	50	12/12/18	8021B		MS

Surrogate: 4-Bromofluorobenzene (PID) 98.5 % 73.3-129 12/12/18 8021B MS

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0	10.0	5.30	mg/kg	1	12/12/18	8015B		MS
DRO >C10-C28*	<10.0	10.0	1.56	mg/kg	1	12/12/18	8015B		MS
EXT DRO >C28-C36	<10.0	10.0	1.56	mg/kg	1	12/12/18	8015B		MS

Surrogate: 1-Chlorooctane 97.4 % 41-142 12/12/18 8015B MS

Surrogate: 1-Chlorooctadecane 105 % 37.6-147 12/12/18 8015B MS

Polynuclear Aromatic Compounds by GC/MS

Naphthalene*	<0.014	0.040	0.014	mg/kg	40	12/18/18	8270C		MS
2-Methylnaphthalene*	<0.008	0.040	0.008	mg/kg	40	12/18/18	8270C		MS
1-Methylnaphthalene	<0.007	0.040	0.007	mg/kg	40	12/18/18	8270C		MS
Acenaphthylene*	<0.006	0.040	0.006	mg/kg	40	12/18/18	8270C		MS
Acenaphthene*	<0.007	0.040	0.007	mg/kg	40	12/18/18	8270C		MS
Fluorene*	<0.006	0.040	0.006	mg/kg	40	12/18/18	8270C		MS
Phenanthrene*	<0.007	0.040	0.007	mg/kg	40	12/18/18	8270C		MS
Anthracene*	<0.008	0.040	0.008	mg/kg	40	12/18/18	8270C		MS
Carbazole*	<0.006	0.040	0.006	mg/kg	40	12/18/18	8270C		MS
Fluoranthene*	<0.006	0.040	0.006	mg/kg	40	12/18/18	8270C		MS
Pyrene*	<0.007	0.040	0.007	mg/kg	40	12/18/18	8270C		MS
Benzo[a]anthracene*	<0.008	0.040	0.008	mg/kg	40	12/18/18	8270C		MS
Chrysene*	<0.010	0.040	0.010	mg/kg	40	12/18/18	8270C		MS
Benzo[b]fluoranthene*	<0.009	0.040	0.009	mg/kg	40	12/18/18	8270C		MS
Benzo[k]fluoranthene*	<0.010	0.040	0.010	mg/kg	40	12/18/18	8270C		MS
Benzo[a]pyrene*	<0.007	0.040	0.007	mg/kg	40	12/18/18	8270C		MS
Indeno[1,2,3-cd]pyrene*	<0.010	0.040	0.010	mg/kg	40	12/18/18	8270C		MS
Dibenz[a,h]anthracene*	<0.006	0.040	0.006	mg/kg	40	12/18/18	8270C		MS

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BP America
380 Airport Rd.
Durango CO, 81303

Project: Table 910
Project Name / Number: Richardson G2
Project Manager: Steve Moskal

Reported:
12/26/18 11:39

SS03

1812060-03 (Solid)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Subcontracted -- Cardinal Laboratories

Polynuclear Aromatic Compounds by GC/MS

Benzo[g,h,i]perylene*	<0.006	0.040	0.006	mg/kg	40	12/18/18	8270C		MS
Surrogate: Nitrobenzene-d5			71.0 %	10.8-154		12/18/18	8270C		MS
Surrogate: 2-Fluorobiphenyl			81.3 %	16.9-156		12/18/18	8270C		MS
Surrogate: Terphenyl-d14			91.0 %	27-170		12/18/18	8270C		MS

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Project: Table 910
Project Name / Number: Richardson G2
Project Manager: Steve Moskal

Reported:
12/26/18 11:39

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B812077 - General Prep - Wet Chem

Duplicate (B812077-DUP2) Source: 1812060-03 Prepared: 12/12/18 Analyzed: 12/14/18

% Dry Solids	81.6		%		82.6			1.22	20	
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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 B812121 - Paste Extract

Duplicate (B812121-DUP1) Source: 1812060-03 Prepared: 12/17/18 Analyzed: 12/18/18

Calcium	30.2	0.100	mg/L		31.0			2.89	20	
Magnesium	7.87	0.100	mg/L		10.7			30.9	20	R1
SAR	0.40		No Unit		0.43			7.23	20	
Sodium	9.61	1.00	mg/L		11.0			13.8	20	

Batch B812122 - Paste Extract

Duplicate (B812122-DUP1) Source: 1812060-03 Prepared: 12/17/18 Analyzed: 12/18/18

Conductivity	230		umhos/cm		270			16.0	20	
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Batch B812123 - Paste Extract

Duplicate (B812123-DUP1) Source: 1812060-03 Prepared: 12/17/18 Analyzed: 12/18/18

pH	6.19		pH Units		6.20			0.161	20	
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Project: Table 910
Project Name / Number: Richardson G2
Project Manager: Steve Moskal

Reported:
12/26/18 11:39

Total 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 B812079 - EPA 3050

Blank (B812079-BLK1)

Prepared: 12/12/18 Analyzed: 12/13/18

Barium	ND	5.00	mg/kg dry
Cadmium	ND	5.00	mg/kg dry
Chromium	ND	5.00	mg/kg dry
Copper	ND	5.00	mg/kg dry
Lead	ND	10.0	mg/kg dry
Nickel	ND	5.00	mg/kg dry
Selenium	ND	20.0	mg/kg dry
Silver	ND	1.00	mg/kg dry
Zinc	ND	5.00	mg/kg dry

LCS (B812079-BS1)

Prepared: 12/12/18 Analyzed: 12/13/18

Barium	196	5.00	mg/kg dry	200	98.2	80-120
Cadmium	184	5.00	mg/kg dry	200	91.8	80-120
Chromium	200	5.00	mg/kg dry	200	100	80-120
Copper	405	5.00	mg/kg dry	400	101	80-120
Lead	188	10.0	mg/kg dry	200	94.2	80-120
Nickel	189	5.00	mg/kg dry	200	94.7	80-120
Selenium	678	20.0	mg/kg dry	800	84.8	80-120
Silver	9.29	1.00	mg/kg dry	10.0	92.9	80-120
Zinc	177	5.00	mg/kg dry	200	88.7	80-120

LCS Dup (B812079-BSD1)

Prepared: 12/12/18 Analyzed: 12/13/18

Barium	195	5.00	mg/kg dry	200	97.6	80-120	0.638	20
Cadmium	182	5.00	mg/kg dry	200	91.0	80-120	0.910	20
Chromium	199	5.00	mg/kg dry	200	99.5	80-120	0.661	20
Copper	403	5.00	mg/kg dry	400	101	80-120	0.419	20
Lead	187	10.0	mg/kg dry	200	93.6	80-120	0.572	20
Nickel	188	5.00	mg/kg dry	200	94.0	80-120	0.668	20
Selenium	674	20.0	mg/kg dry	800	84.3	80-120	0.536	20
Silver	9.28	1.00	mg/kg dry	10.0	92.8	80-120	0.140	20
Zinc	176	5.00	mg/kg dry	200	88.2	80-120	0.509	20

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BP America
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Project: Table 910
Project Name / Number: Richardson G2
Project Manager: Steve Moskal

Reported:
12/26/18 11:39

Total Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B812080 - EPA 3050M

Blank (B812080-BLK1)

Prepared: 12/12/18 Analyzed: 12/14/18

Arsenic	ND	0.100	mg/kg dry							
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LCS (B812080-BS1)

Prepared: 12/12/18 Analyzed: 12/14/18

Arsenic	4.78	0.100	mg/kg dry	5.00		95.6	80-120			
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LCS Dup (B812080-BSD1)

Prepared: 12/12/18 Analyzed: 12/14/18

Arsenic	4.99	0.100	mg/kg dry	5.00		99.7	80-120	4.19	20	
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Total Mercury by CVAA - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B812081 - EPA 7471

Blank (B812081-BLK1)

Prepared: 12/12/18 Analyzed: 12/13/18

Mercury	ND	0.0400	mg/kg wet							
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LCS (B812081-BS1)

Prepared: 12/12/18 Analyzed: 12/13/18

Mercury	0.994	0.0400	mg/kg wet	1.00		99.4	85-115			
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LCS Dup (B812081-BSD1)

Prepared: 12/12/18 Analyzed: 12/13/18

Mercury	0.957	0.0400	mg/kg wet	1.00		95.7	85-115	3.85	20	
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Hot Water Extractable - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B812124 - Hot Water Soluble Metals Extract

Blank (B812124-BLK1)

Prepared: 12/17/18 Analyzed: 12/18/18

Boron	ND	1.20	mg/L							
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Duplicate (B812124-DUP1)

Source: 1812049-01 Prepared: 12/17/18 Analyzed: 12/18/18

Boron	0.403	1.20	mg/L		0.428			5.90	200	
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BP America
380 Airport Rd.
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Project: Table 910
Project Name / Number: Richardson G2
Project Manager: Steve Moskal

Reported:
12/26/18 11:39

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 8121202 - Volatiles

Blank (8121202-BLK1)

Prepared & Analyzed: 12/12/18

Surrogate: 4-Bromofluorobenzene (PID)	0.0947		mg/kg	0.100		94.7	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 (8121202-BS1)

Prepared & Analyzed: 12/12/18

Surrogate: 4-Bromofluorobenzene (PID)	0.0930		mg/kg	0.100		93.0	73.3-129			
Benzene	2.08	0.050	mg/kg	2.00		104	72.2-131			
Ethylbenzene	1.88	0.050	mg/kg	2.00		94.1	68.9-126			
Toluene	1.97	0.050	mg/kg	2.00		98.4	71.7-126			
Total Xylenes	5.58	0.150	mg/kg	6.00		92.9	71.4-125			

LCS Dup (8121202-BSD1)

Prepared & Analyzed: 12/12/18

Surrogate: 4-Bromofluorobenzene (PID)	0.0931		mg/kg	0.100		93.1	73.3-129			
Benzene	1.84	0.050	mg/kg	2.00		92.2	72.2-131	12.3	6.91	QR-02
Ethylbenzene	1.65	0.050	mg/kg	2.00		82.7	68.9-126	12.9	7.88	QR-02
Toluene	1.74	0.050	mg/kg	2.00		87.0	71.7-126	12.3	7.12	QR-02
Total Xylenes	4.89	0.150	mg/kg	6.00		81.4	71.4-125	13.2	7.46	QR-02

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BP America
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Project: Table 910
Project Name / Number: Richardson G2
Project Manager: Steve Moskal

Reported:
12/26/18 11:39

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 8121201 - General Prep - Organics

Blank (8121201-BLK1)

Prepared & Analyzed: 12/12/18

Surrogate: 1-Chlorooctadecane	53.6		mg/kg	50.0		107	37.6-147		
Surrogate: 1-Chlorooctane	50.4		mg/kg	50.0		101	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						
Total TPH C6-C28	ND	10.0	mg/kg						

LCS (8121201-BS1)

Prepared & Analyzed: 12/12/18

Surrogate: 1-Chlorooctadecane	55.1		mg/kg	50.0		110	37.6-147		
Surrogate: 1-Chlorooctane	51.9		mg/kg	50.0		104	41-142		
DRO >C10-C28	212	10.0	mg/kg	200		106	72.9-138		
GRO C6-C10	205	10.0	mg/kg	200		102	76.5-133		
Total TPH C6-C28	417	10.0	mg/kg	400		104	78-132		

LCS Dup (8121201-BSD1)

Prepared & Analyzed: 12/12/18

Surrogate: 1-Chlorooctadecane	58.5		mg/kg	50.0		117	37.6-147		
Surrogate: 1-Chlorooctane	54.9		mg/kg	50.0		110	41-142		
DRO >C10-C28	221	10.0	mg/kg	200		111	72.9-138	4.26	20.6
GRO C6-C10	213	10.0	mg/kg	200		106	76.5-133	3.70	20.6
Total TPH C6-C28	434	10.0	mg/kg	400		108	78-132	3.98	18

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Project: Table 910
Project Name / Number: Richardson G2
Project Manager: Steve Moskal

Reported:
12/26/18 11:39

Polynuclear Aromatic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 8121005 - SW846-3510

Blank (8121005-BLK1)

Prepared: 12/10/18 Analyzed: 12/18/18

1-Methylnaphthalene	ND	0.040	mg/kg							
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>1.66</i>		mg/kg	<i>2.00</i>		<i>83.1</i>	<i>16.9-156</i>			
2-Methylnaphthalene	ND	0.040	mg/kg							
Acenaphthene	ND	0.040	mg/kg							
Acenaphthylene	ND	0.040	mg/kg							
Anthracene	ND	0.040	mg/kg							
Benzo[a]anthracene	ND	0.040	mg/kg							
Benzo[a]pyrene	ND	0.040	mg/kg							
Benzo[b]fluoranthene	ND	0.040	mg/kg							
Benzo[g,h,i]perylene	ND	0.040	mg/kg							
Benzo[k]fluoranthene	ND	0.040	mg/kg							
Carbazole	ND	0.040	mg/kg							
Chrysene	ND	0.040	mg/kg							
Dibenz[a,h]anthracene	ND	0.040	mg/kg							
Fluoranthene	ND	0.040	mg/kg							
Fluorene	ND	0.040	mg/kg							
Indeno[1,2,3-cd]pyrene	ND	0.040	mg/kg							
Naphthalene	ND	0.040	mg/kg							
<i>Surrogate: Nitrobenzene-d5</i>	<i>1.65</i>		mg/kg	<i>2.00</i>		<i>82.6</i>	<i>10.8-154</i>			
Phenanthrene	ND	0.040	mg/kg							
Pyrene	ND	0.040	mg/kg							
<i>Surrogate: Terphenyl-d14</i>	<i>1.69</i>		mg/kg	<i>2.00</i>		<i>84.4</i>	<i>27-170</i>			

LCS (8121005-BS1)

Prepared: 12/10/18 Analyzed: 12/18/18

1-Methylnaphthalene	0.369	0.040	mg/kg	0.400		92.4	60-140			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>1.58</i>		mg/kg	<i>2.00</i>		<i>78.9</i>	<i>16.9-156</i>			
2-Methylnaphthalene	0.363	0.040	mg/kg	0.400		90.8	36.1-121			
Acenaphthene	0.381	0.040	mg/kg	0.400		95.2	33.9-127			
Acenaphthylene	0.366	0.040	mg/kg	0.400		91.4	34-126			
Anthracene	0.374	0.040	mg/kg	0.400		93.4	39.4-124			
Benzo[a]anthracene	0.407	0.040	mg/kg	0.400		102	40.6-124			
Benzo[a]pyrene	0.417	0.040	mg/kg	0.400		104	38.3-127			
Benzo[b]fluoranthene	0.432	0.040	mg/kg	0.400		108	34.4-130			
Benzo[g,h,i]perylene	0.369	0.040	mg/kg	0.400		92.3	29.9-134			
Benzo[k]fluoranthene	0.429	0.040	mg/kg	0.400		107	35.5-135			
Carbazole	0.362	0.040	mg/kg	0.400		90.4	31.9-133			
Chrysene	0.402	0.040	mg/kg	0.400		100	41.3-126			
Dibenz[a,h]anthracene	0.402	0.040	mg/kg	0.400		100	35-132			
Fluoranthene	0.356	0.040	mg/kg	0.400		89.1	37.2-123			

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BP America
380 Airport Rd.
Durango CO, 81303Project: Table 910
Project Name / Number: Richardson G2
Project Manager: Steve MoskalReported:
12/26/18 11:39Polynuclear Aromatic Compounds by GC/MS - Quality Control
(Continued)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 8121005 - SW846-3510 (Continued)

LCS (8121005-BS1) (Continued)

Prepared: 12/10/18 Analyzed: 12/18/18

Fluorene	0.370	0.040	mg/kg	0.400		92.5	35.4-127			
Indeno[1,2,3-cd]pyrene	0.400	0.040	mg/kg	0.400		99.9	33.7-132			
Naphthalene	0.377	0.040	mg/kg	0.400		94.2	28.3-127			
Surrogate: Nitrobenzene-d5	1.32		mg/kg	2.00		65.9	10.8-154			
Phenanthrene	0.379	0.040	mg/kg	0.400		94.7	40.2-125			
Pyrene	0.414	0.040	mg/kg	0.400		103	34.3-133			
Surrogate: Terphenyl-d14	1.87		mg/kg	2.00		93.7	27-170			

LCS Dup (8121005-BS1)

Prepared: 12/10/18 Analyzed: 12/18/18

1-Methylnaphthalene	0.379	0.040	mg/kg	0.400		94.6	60-140	2.43	30	
Surrogate: 2-Fluorobiphenyl	1.55		mg/kg	2.00		77.6	16.9-156			
2-Methylnaphthalene	0.380	0.040	mg/kg	0.400		95.1	36.1-121	4.57	15.9	
Acenaphthene	0.372	0.040	mg/kg	0.400		93.1	33.9-127	2.28	13.1	
Acenaphthylene	0.363	0.040	mg/kg	0.400		90.7	34-126	0.788	14.2	
Anthracene	0.376	0.040	mg/kg	0.400		93.9	39.4-124	0.523	16.3	
Benzo[a]anthracene	0.405	0.040	mg/kg	0.400		101	40.6-124	0.571	9.66	
Benzo[a]pyrene	0.421	0.040	mg/kg	0.400		105	38.3-127	0.952	11.8	
Benzo[b]fluoranthene	0.437	0.040	mg/kg	0.400		109	34.4-130	1.22	25.2	
Benzo[g,h,i]perylene	0.379	0.040	mg/kg	0.400		94.6	29.9-134	2.51	19	
Benzo[k]fluoranthene	0.425	0.040	mg/kg	0.400		106	35.5-135	0.962	27.3	
Carbazole	0.371	0.040	mg/kg	0.400		92.8	31.9-133	2.55	20.8	
Chrysene	0.402	0.040	mg/kg	0.400		101	41.3-126	0.0373	10.6	
Dibenz[a,h]anthracene	0.413	0.040	mg/kg	0.400		103	35-132	2.72	15	
Fluoranthene	0.364	0.040	mg/kg	0.400		91.0	37.2-123	2.22	18.3	
Fluorene	0.365	0.040	mg/kg	0.400		91.2	35.4-127	1.40	14.5	
Indeno[1,2,3-cd]pyrene	0.411	0.040	mg/kg	0.400		103	33.7-132	2.75	14.9	
Naphthalene	0.391	0.040	mg/kg	0.400		97.7	28.3-127	3.68	11.3	
Surrogate: Nitrobenzene-d5	1.34		mg/kg	2.00		66.9	10.8-154			
Phenanthrene	0.385	0.040	mg/kg	0.400		96.2	40.2-125	1.51	13.7	
Pyrene	0.400	0.040	mg/kg	0.400		100	34.3-133	3.45	22.4	
Surrogate: Terphenyl-d14	1.75		mg/kg	2.00		87.5	27-170			

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Debbie Zufelt, Reports Manager

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BP America
380 Airport Rd.
Durango CO, 81303

Project: Table 910
Project Name / Number: Richardson G2
Project Manager: Steve Moskal

Reported:
12/26/18 11:39

Notes and Definitions

R1	Duplicate sample RPD exceeded laboratory acceptance criteria. Sample(s) may be difficult to homogenize.
QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
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, Reports Manager

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Fax: (970) 247-4227

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: BP		Bill to (if different):		ANALYSIS REQUEST	
Project Manager: Steve Moskal		P.O. #:			
Address: 380 Airport Rd.		Company:			
City: Durango		Attn:			
State: CO Zip: 81303		Address:			
Phone #: (505) 330 9179 Email: steven.moskal@bp.com		City:			
Additional Report To:		State:			
Project Name: Richardson G2		Zip:			
Project Number:		Phone #:			
Sampler Name (Print): Kyle Sesser		Fax or Email:			
FOR LAB USE ONLY		Matrix (check one)		# of containers	
		<input type="checkbox"/> GROUNDWATER			
		<input type="checkbox"/> SURFACEWATER			
		<input type="checkbox"/> WASTEWATER			
		<input type="checkbox"/> PRODUCEDWATER			
		<input type="checkbox"/> SOIL			
		<input type="checkbox"/> OTHER:			
		<input type="checkbox"/> No preservation (general)			
		<input type="checkbox"/> HNO ₃			
		<input type="checkbox"/> HCl			
		<input type="checkbox"/> H ₂ SO ₄			
		<input type="checkbox"/> Other:			
		<input type="checkbox"/> Other:			
Lab I.D.		COGCC Table 910-1			
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