

## Analytical Report

NMOCD REC'D  
10/12/20

### Report Summary

Client: BP America Production Co.

Samples Received: 7/21/2020

Job Number: 03143-0424

Work Order: P007054

Project Name/Location: BHD South

Report Reviewed By:



Date: 7/28/20

Walter Hinchman, Laboratory Director



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BP America Production Co.  
 PO Box 22024  
 Tulsa OK, 74121-2024

Project Name: BHD South  
 Project Number: 03143-0424  
 Project Manager: Sabre Beebe

**Reported:**  
 07/28/20 16:24

### Sample Summary

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
Neil LS 3	P007054-01A	Aqueous	07/21/20	07/21/20	Poly 500mL

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 PO Box 22024  
 Tulsa OK, 74121-2024

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 Project Manager: Sabre Beebe

**Reported:**  
 07/28/20 16:24

**Neil LS 3**  
**P007054-01 (Water)**

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
<b>Wet Chem/Gravimetric by SM2540C</b>	mg/L	mg/L				Batch: 2031006
Total Dissolved Solids	<b>10900</b>	50.0	1	07/27/20	07/28/20	
<b>Wet Chemistry by 9040C/4500H+B</b>	pH Units	pH Units				Batch: 2030027
pH @25°C	<b>10.0</b>		1	07/24/20 07:13	07/24/20 08:37	H5
<b>Wet Chemistry by SM2320B</b>	mg/L	mg/L				Batch: 2030031
Total Alkalinity (as CaCO <sub>3</sub> at pH 4.5)	<b>81.0</b>	10.0	1	07/24/20	07/24/20	
<b>Wet Chemistry by 9050A/2510B</b>	uS/cm	uS/cm				Batch: 2030028
Specific Conductance (@ 25 C)	<b>13900</b>	10.0	1	07/24/20	07/24/20	
<b>Dissolved Metals by EPA 6010C</b>	mg/L	mg/L				Batch: 2030011
Calcium	<b>194</b>	1.00	1	07/21/20	07/27/20	
Iron	ND	2.00	1	07/21/20	07/27/20	
Magnesium	ND	1.00	1	07/21/20	07/27/20	
Potassium	<b>12.1</b>	1.00	1	07/21/20	07/27/20	
Sodium	<b>3780</b>	200	100	07/21/20	07/27/20	
Sodium Absorption Ratio	<b>74.8</b>		1	07/27/20	07/27/20	
<b>Anions by EPA 300.0/9056A</b>	mg/L	mg/L				Batch: 2030018
Fluoride	ND	5.00	20	07/22/20	07/22/20	
Chloride	<b>1250</b>	40.0	20	07/22/20	07/22/20	
Nitrite-N	ND	5.00	20	07/22/20 10:53	07/22/20 14:02	
Nitrate-N	ND	5.00	20	07/22/20 10:53	07/22/20 14:02	
o-Phosphate-P	ND	5.00	20	07/22/20 10:53	07/22/20 14:02	
Sulfate	<b>6610</b>	40.0	20	07/22/20	07/22/20	

BP America Production Co.	Project Name:	BHD South	
PO Box 22024	Project Number:	03143-0424	<b>Reported:</b>
Tulsa OK, 74121-2024	Project Manager:	Sabre Beebe	07/28/20 16:24

### Wet Chem/Gravimetric by SM2540C - Quality Control

Analyte	Result	Reporting Limit	Spike Level	Source Result	REC	REC Limits	RPD	RPD Limit	Notes
	mg/L	mg/L	mg/L	mg/L	%	%	%	%	

#### Blank (2031006-BLK1)

Prepared: 07/27/20 0 Analyzed: 07/28/20 1

Total Dissolved Solids	ND	10.0							
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#### LCS (2031006-BS1)

Prepared: 07/27/20 0 Analyzed: 07/28/20 1

Total Dissolved Solids	117	10.0	100		117	55-134			
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#### LCS Dup (2031006-BSD1)

Prepared: 07/27/20 0 Analyzed: 07/28/20 1

Total Dissolved Solids	118	10.0	100		118	55-134	0.851	5	
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BP America Production Co.	Project Name:	BHD South	<b>Reported:</b> 07/28/20 16:24
PO Box 22024	Project Number:	03143-0424	
Tulsa OK, 74121-2024	Project Manager:	Sabre Beebe	

**Wet Chemistry by 9040C/4500H+B - Quality Control**

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

**LCS (2030027-BS1)**

Prepared &amp; Analyzed: 07/24/20 0

pH	8.00	8.00	100	98.75-101.25
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**Duplicate (2030027-DUP1)**
**Source: P007057-01**

Prepared &amp; Analyzed: 07/24/20 0

pH	8.37	8.07	3.65	20
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PO Box 22024	Project Number:	03143-0424	<b>Reported:</b>
Tulsa OK, 74121-2024	Project Manager:	Sabre Beebe	07/28/20 16:24

**Wet Chemistry by SM2320B - Quality Control**

Analyte	Result	Reporting Limit	Spike Level	Source Result	REC	REC Limits	RPD	RPD Limit	Notes
	mg/L	mg/L	mg/L	mg/L	%	%	%	%	

**LCS (2030031-BS1)**

Prepared &amp; Analyzed: 07/24/20 1

Total Alkalinity (as CaCO <sub>3</sub> at pH 4.5)	262	10.0	250	105	70-130
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**Duplicate (2030031-DUP1)**
**Source: P007041-01**

Prepared &amp; Analyzed: 07/24/20 1

Total Alkalinity (as CaCO <sub>3</sub> at pH 4.5)	446	10.0	454	1.78	20
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BP America Production Co.	Project Name:	BHD South	
PO Box 22024	Project Number:	03143-0424	<b>Reported:</b>
Tulsa OK, 74121-2024	Project Manager:	Sabre Beebe	07/28/20 16:24

**Wet Chemistry by 9050A/2510B - Quality Control**

Analyte	Result	Reporting Limit	Spike Level	Source Result	REC	REC Limits	RPD	RPD Limit	Notes
	uS/cm	uS/cm	uS/cm	uS/cm	%	%	%	%	

**Blank (2030028-BLK1)**

Prepared: 07/24/20 0 Analyzed: 07/24/20 1

Specific Conductance (@ 25 C)

ND

10.0

**LCS (2030028-BS1)**

Prepared: 07/24/20 0 Analyzed: 07/24/20 1

Specific Conductance (@ 25 C)

1430

10.0

1410

101

98-102

**Duplicate (2030028-DUP1)**
**Source: P007057-01**

Prepared: 07/24/20 0 Analyzed: 07/24/20 1

Specific Conductance (@ 25 C)

1270

10.0

1320

4.48

20

BP America Production Co.  
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 Tulsa OK, 74121-2024

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 Project Number: 03143-0424  
 Project Manager: Sabre Beebe

**Reported:**  
 07/28/20 16:24

**Dissolved Metals by EPA 6010C - Quality Control**

Analyte	Result	Reporting Limit	Spike Level	Source Result	REC	REC Limits	RPD	RPD Limit	Notes
	mg/L	mg/L	mg/L	mg/L	%	%	%	%	

**Blank (2030011-BLK1)**

Prepared &amp; Analyzed: 07/21/20 1

Calcium	ND	1.00							
Iron	ND	2.00							
Magnesium	ND	1.00							
Potassium	ND	1.00							
Sodium	ND	2.00							

**LCS (2030011-BS1)**

Prepared &amp; Analyzed: 07/21/20 1

Calcium	51.4	1.00	50.0		103	80-120			
Iron	103	2.00	100		103	80-120			
Magnesium	50.3	1.00	50.0		101	80-120			
Potassium	5.07	1.00	5.00		101	80-120			
Sodium	18.4	2.00	20.0		92.2	80-120			

**Matrix Spike (2030011-MS1)**

Source: P007050-02

Prepared &amp; Analyzed: 07/21/20 1

Calcium	338	1.00	50.0	283	109	75-125			
Iron	103	2.00	100	ND	103	75-125			
Magnesium	113	1.00	50.0	65.8	93.6	75-125			
Potassium	53.2	20.0	5.00	46.6	132	75-125			M2
Sodium	2770	40.0	20.0	2740	180	75-125			M2

**Matrix Spike Dup (2030011-MSD1)**

Source: P007050-02

Prepared &amp; Analyzed: 07/21/20 1

Calcium	334	1.00	50.0	283	102	75-125	1.01	20	
Iron	102	2.00	100	ND	102	75-125	1.18	20	
Magnesium	115	1.00	50.0	65.8	98.4	75-125	2.11	20	
Potassium	54.1	20.0	5.00	46.6	150	75-125	1.72	20	M2
Sodium	2830	40.0	20.0	2740	480	75-125	2.14	20	M2



BP America Production Co.	Project Name: BHD South	
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Tulsa OK, 74121-2024	Project Manager: Sabre Beebe	07/28/20 16:24

### Anions by EPA 300.0/9056A - Quality Control

Analyte	Result	Reporting Limit	Spike Level	Source Result	REC	REC Limits	RPD	RPD Limit	Notes
	mg/L	mg/L	mg/L	mg/L	%	%	%	%	

#### Blank (2030018-BLK1)

Prepared & Analyzed: 07/22/20 1

Fluoride	ND	0.250
Chloride	ND	2.00
Nitrite-N	ND	0.250
Nitrate-N	ND	0.250
o-Phosphate-P	ND	0.250
Sulfate	ND	2.00

#### LCS (2030018-BS1)

Prepared & Analyzed: 07/22/20 1

Fluoride	2.61	0.250	2.50	104	90-110
Chloride	25.3	2.00	25.0	101	90-110
Nitrite-N	2.57	0.250	2.50	103	90-110
Nitrate-N	2.62	0.250	2.50	105	90-110
o-Phosphate-P	12.8	0.250	12.5	102	90-110
Sulfate	24.8	2.00	25.0	99.1	90-110

#### LCS Dup (2030018-BSD1)

Prepared & Analyzed: 07/22/20 1

Fluoride	2.62	0.250	2.50	105	90-110	0.536	20
Chloride	25.1	2.00	25.0	100	90-110	0.850	20
Nitrite-N	2.60	0.250	2.50	104	90-110	1.43	20
Nitrate-N	2.63	0.250	2.50	105	90-110	0.648	20
o-Phosphate-P	12.8	0.250	12.5	103	90-110	0.571	20
Sulfate	24.9	2.00	25.0	99.8	90-110	0.708	20

#### QC Summary Report Comment:

Calculations are based off of the raw (non-rounded) data. However, for reporting purposes all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

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Tulsa OK, 74121-2024	Project Manager:	Sabre Beebe	07/28/20 16:24

### Notes and Definitions

- M2 Matrix spike recovery was outside quality control limits. The associated LCS spike recovery was acceptable.
- H5 pH is specified to be performed in the field within 15 minutes of sampling. The sample was performed as quickly as possible.
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- RPD Relative Percent Difference
- \*\* Methods marked with \*\* are non-accredited methods.

Soil data is reported on an "as received" weight basis, unless reported otherwise.

Client: <u>BP</u>		Bill To		Lab Use Only				TAT		EPA Program							
Project: <u>BHD South</u>		Attention: <u>Sabre Beebe</u>		Lab WO#		Job Number		1D	3D	RCRA	CWA	SDWA					
Project Manager: <u>Sabre Beebe</u>		Address:		P007054		0343-0424											
Address:		City, State, Zip		Analysis and Method								State					
City, State, Zip		Phone: <u>970-779-9398</u>		DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Metals 6010	Chloride 300.0				NM	CO	UT	A	
Email:		Email:											TX	OK			
Report due by:													Remarks				
Time Sampled	Date Sampled	Matrix	No Containers	Sample ID	Lab Number												
7:40am	7-21-20	A	1	Neil LS 3	1												
Additional Instructions:																	
I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabelling the sample location, date or time of collection is considered fraud and may be grounds for legal action. Sampled by: <u>Erik Scaw</u>												Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days.					
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Lab Use Only											
<u>[Signature]</u>	7-21-20	2:45pm	<u>[Signature]</u>	7/21/20	14:47	Received on ice: Y / <u>N</u>											
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	T1 <u>28.4</u> T2 <u>25.7</u> T3 <u>26.0</u>											
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	AVG Temp °C <u>26.7</u>											
Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other						Container Type: g - glass, p - poly/plastic, ag - amber glass, v - VOA											
Note: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at the client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for on the report.																	