

# Test Report



November 18, 2016

Client: Peterson Energy Operating, Inc.

Project: Mapelli Flowline

Lab ID: 6076

Date Samples Received: 11/9/2016

Number of Samples: 6

Sample Condition: Samples arrived intact and in appropriate sample containers

Sample Temperature: Samples arrived within the acceptable temperature range as specified in the test method

Comments:

Thank you for allowing eAnalytics Laboratory to provide laboratory services for you.

A handwritten signature in black ink, appearing to read "Chris Dieken".

Christopher Dieken  
Quality Assurance Manager

A handwritten signature in black ink, appearing to read "Todd Rhea".

Todd Rhea  
Laboratory Manager

**eAnalytics Laboratory**

4130 Clydesdale Parkway Loveland CO 80538

## Chain of Custody

**eANALYTICS**  
LABORATORY

Chain of Custody For

[illegible]

Turnaround Time (Business Days)		Record of Custody	
TAT begins when sample is received by eANALYTICS			
<input checked="" type="radio"/> Normal (5-10 Days) <input type="radio"/> 3 Day (25%) <input type="radio"/> 2 Day (50%) <input type="radio"/> 1 Day (100%) <input type="radio"/> Same Day (300%)	Rush analysis requires an extra charge. If possible please inform eANALYTICS in advance for rush analysis.	Relinquished by: <u>Andy Peterson</u> Company: <u>Peterson Energy</u>	Date: <u>11-9-16</u> Time: <u>4:00</u> AM/PM
Colorado OPS Project : Yes / No		Received by:	Date
		Company:	Time
For eANALYTICS Use		Relinquished by:	Date
Samples Received Intact:	<input checked="" type="radio"/> Yes <input type="radio"/> No	Company:	Time
Received Within Temperature Range (2-6°C):	<input checked="" type="radio"/> Yes <input type="radio"/> No	Received by:	Date
Sample Preservative:	Ice None	Company:	Time
	Acid Other	eANALYTICS	

Lab ID # 6076

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The results contained within this report relate only to the items analyzed

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**e**ANALYTICS  
LABORATORY

Client: Peterson Energy Operating, Inc.

Lab ID: 6076

Project: Mapelli Flowline

Analysis: Volatile Organics  
TPH-GRO/DROMethod: EPA8260  
EPA8260/8015

Sample Name	Benzene	Toluene	Ethyl- benzene	Total Xylenes	TPH- GRO	TPH- DRO	Date Sampled	Date Analyzed	Lab ID	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg				
Confirmation Sample North Wall	<0.010	<0.010	<0.010	<0.010	<50.0	<50.0	11/09/16	11/10/16	6076	3
Confirmation Sample South Wall	<0.010	<0.010	<0.010	<0.010	<50.0	<50.0	11/09/16	11/10/16	6076	4
Confirmation Sample East Wall	<0.010	<0.010	<0.010	<0.010	<50.0	<50.0	11/09/16	11/10/16	6076	5
Confirmation Sample West Wall	<0.010	<0.010	<0.010	0.011	<50.0	<50.0	11/09/16	11/10/16	6076	6

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**e**ANALYTICS  
LABORATORY

Client: Peterson Energy Operating, Inc.

Lab ID: 6076

Project: Mapelli Flowline

Analysis: pH-Soil  
Electrical Conductivity-Soil  
SARMethod: EPA9045D  
USDA 60 (3)m  
USDA 60 (20B)m

Sample Name	pH	EC	SAR	Date Sampled	Date Analyzed	Lab ID	
	su	mmhos/cm	ratio				
Background	7.0	15.3	0.76	11/07/16	11/10/16	6076	1
Fill Dirt	7.5	1.22	0.86	11/09/16	11/10/16	6076	2
Confirmation Sample North Wall	7.2	13.1	0.22	11/09/16	11/10/16	6076	3
Confirmation Sample South Wall	7.6	8.94	3.86	11/09/16	11/10/16	6076	4
Confirmation Sample East Wall	7.3	14.7	0.26	11/09/16	11/10/16	6076	5
Confirmation Sample West Wall	7.1	7.32	1.60	11/09/16	11/10/16	6076	6

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# eANALYTICS

## LABORATORY

Client: Peterson Energy Operating, Inc.

Lab ID: 6076

Project: Mapelli Flowline

Analysis: Table 910 Metals

Method: EPA6010/7471

Sample Name	B (Hot Water Soluble)								Date Sampled	Date Analyzed	Lab ID	
	Ba		Cd	Cr (III)	Cr (VI)	Cu	Pb	Ni				
	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg				
Background	3.73	<1.20	<0.500	<0.500	<15.0	1.30	1.36	2.24	11/07/16	11/16/16	6076	1
Fill Dirt	39.5	<1.20	<0.500	1.03	<15.0	2.79	3.29	3.27	11/09/16	11/16/16	6076	2
Confirmation Sample North Wall	3.08	<1.20	<0.500	0.850	<15.0	2.59	4.39	4.11	11/09/16	11/16/16	6076	3
Confirmation Sample South Wall	8.61	<1.20	<0.500	<0.500	<15.0	1.12	1.09	2.42	11/09/16	11/16/16	6076	4
Confirmation Sample East Wall	2.52	<1.20	<0.500	1.75	<15.0	5.26	4.79	3.19	11/09/16	11/16/16	6076	5
Confirmation Sample West Wall	8.83	<1.20	<0.500	<0.500	<15.0	<0.500	0.428	1.84	11/09/16	11/16/16	6076	6

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**e**ANALYTICS  
LABORATORY

Client: Peterson Energy Operating, Inc.

Lab ID: 6076

Project: Mapelli Flowline

Analysis: Table 910 Metals

Method: EPA6010/7471

Sample Name	Se	Ag	Zn	As	Hg	Date	Date	Lab ID
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Sampled	Analyzed	
Background	<5.00	<0.500	2.55	3.26	<5.00	11/07/16	11/16/16	6076 1
Fill Dirt	<5.00	<0.500	9.62	1.29	<5.00	11/09/16	11/16/16	6076 2
Confirmation Sample North Wall	<5.00	<0.500	8.16	2.13	<5.00	11/09/16	11/16/16	6076 3
Confirmation Sample South Wall	<5.00	<0.500	3.08	1.96	<5.00	11/09/16	11/16/16	6076 4
Confirmation Sample East Wall	<5.00	<0.500	7.38	0.483	<5.00	11/09/16	11/16/16	6076 5
Confirmation Sample West Wall	<5.00	<0.500	2.42	0.833	<5.00	11/09/16	11/16/16	6076 6

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# eANALYTICS

## L A B O R A T O R Y

Client:	Peterson Energy Operating, Inc.	Sample Name:	Confirmation Sample North Wall
Project:	Mapelli Flowline	Lab ID:	6076 3
Analysis:	PAH	Date Sampled:	11/9/2016
		Date Analyzed:	11/16/2016
		Method:	EPA8270 SIM

### Surrogate Recoveries

Surrogate	% Recovery	Surrogate	% Recovery
Phenol-d5 (70%-130%)	102	2,4,6-Tribromophenol (70%-130%)	90
Nitrobenzene-d5 (70%-130%)	93	2-Fluorophenol (70%-130%)	104

Compound	CAS #	Result (mg/kg)	Compound	CAS #	Result (mg/kg)
Acenaphthene	83-32-9	< 1.0	Chrysene	218-01-9	< 0.15
Acenaphthylene	208-96-8	< 1.0	Dibenzo(a,h)-anthracene	53-70-3	< 0.015
Anthracene	120-12-7	< 1.0	Fluoranthene	206-44-0	< 1.0
Benzo(a)-anthracene	56-55-3	< 0.15	Fluorene	86-73-7	< 1.0
Benzo(a)-pyrene	50-32-8	< 0.015	Indeno(1,2,3-C,D)-pyrene	193-39-5	< 0.15
Benzo(b)fluoranthene	205-99-2	< 0.15	Naphthalene	91-20-3	< 1.0
Benzo(g,h,i)-perylene	191-24-2	< 1.0	Phenanthrene	85-01-8	< 1.0
Benzo(k)-fluoranthene	207-08-9	< 1.5	Pyrene	129-00-0	< 1.0

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# eANALYTICS

## L A B O R A T O R Y

Client:	Peterson Energy Operating, Inc.	Sample Name:	Confirmation Sample South Wall
		Lab ID:	6076 4
Project:	Mapelli Flowline	Date Sampled:	11/9/2016
		Date Analyzed:	11/16/2016
Analysis:	PAH	Method:	EPA8270 SIM

**Surrogate Recoveries**

Surrogate	% Recovery	Surrogate	% Recovery
Phenol-d5 (70%-130%)	97	2,4,6-Tribromophenol (70%-130%)	96
Nitrobenzene-d5 (70%-130%)	93	2-Fluorophenol (70%-130%)	103

Compound	CAS #	Result (mg/kg)	Compound	CAS #	Result (mg/kg)
Acenaphthene	83-32-9	< 1.0	Chrysene	218-01-9	< 0.15
Acenaphthylene	208-96-8	< 1.0	Dibenzo(a,h)-anthracene	53-70-3	< 0.015
Anthracene	120-12-7	< 1.0	Fluoranthene	206-44-0	< 1.0
Benzo(a)-anthracene	56-55-3	< 0.15	Fluorene	86-73-7	< 1.0
Benzo(a)-pyrene	50-32-8	< 0.015	Indeno(1,2,3-C,D)-pyrene	193-39-5	< 0.15
Benzo(b)fluoranthene	205-99-2	< 0.15	Naphthalene	91-20-3	< 1.0
Benzo(g,h,i)-perylene	191-24-2	< 1.0	Phenanthrene	85-01-8	< 1.0
Benzo(k)-fluoranthene	207-08-9	< 1.5	Pyrene	129-00-0	< 1.0

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# eANALYTICS

## L A B O R A T O R Y

Client:	Peterson Energy Operating, Inc.	Sample Name:	Confirmation Sample East Wall
		Lab ID:	6076 5
Project:	Mapelli Flowline	Date Sampled:	11/9/2016
		Date Analyzed:	11/16/2016
Analysis:	PAH	Method:	EPA8270 SIM

**Surrogate Recoveries**

Surrogate	% Recovery	Surrogate	% Recovery
Phenol-d5 (70%-130%)	81	2,4,6-Tribromophenol (70%-130%)	85
Nitrobenzene-d5 (70%-130%)	86	2-Fluorophenol (70%-130%)	105

Compound	CAS #	Result (mg/kg)	Compound	CAS #	Result (mg/kg)
Acenaphthene	83-32-9	< 1.0	Chrysene	218-01-9	< 0.15
Acenaphthylene	208-96-8	< 1.0	Dibenzo(a,h)-anthracene	53-70-3	< 0.015
Anthracene	120-12-7	< 1.0	Fluoranthene	206-44-0	< 1.0
Benzo(a)-anthracene	56-55-3	< 0.15	Fluorene	86-73-7	< 1.0
Benzo(a)-pyrene	50-32-8	< 0.015	Indeno(1,2,3-C,D)-pyrene	193-39-5	< 0.15
Benzo(b)fluoranthene	205-99-2	< 0.15	Naphthalene	91-20-3	< 1.0
Benzo(g,h,i)-perylene	191-24-2	< 1.0	Phenanthrene	85-01-8	< 1.0
Benzo(k)-fluoranthene	207-08-9	< 1.5	Pyrene	129-00-0	< 1.0

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# eANALYTICS

## LABORATORY

Client:	Peterson Energy Operating, Inc.	Sample Name:	Confirmation Sample West Wall
		Lab ID:	6076 6
Project:	Mapelli Flowline	Date Sampled:	11/9/2016
		Date Analyzed:	11/16/2016
Analysis:	PAH	Method:	EPA8270 SIM

**Surrogate Recoveries**

Surrogate	% Recovery	Surrogate	% Recovery
Phenol-d5 (70%-130%)	82	2,4,6-Tribromophenol (70%-130%)	104
Nitrobenzene-d5 (70%-130%)	92	2-Fluorophenol (70%-130%)	104

Compound	CAS #	Result (mg/kg)	Compound	CAS #	Result (mg/kg)
Acenaphthene	83-32-9	< 1.0	Chrysene	218-01-9	< 0.15
Acenaphthylene	208-96-8	< 1.0	Dibenzo(a,h)-anthracene	53-70-3	< 0.015
Anthracene	120-12-7	< 1.0	Fluoranthene	206-44-0	< 1.0
Benzo(a)-anthracene	56-55-3	< 0.15	Fluorene	86-73-7	< 1.0
Benzo(a)-pyrene	50-32-8	< 0.015	Indeno(1,2,3-C,D)-pyrene	193-39-5	< 0.15
Benzo(b)fluoranthene	205-99-2	< 0.15	Naphthalene	91-20-3	< 1.0
Benzo(g,h,i)-perylene	191-24-2	< 1.0	Phenanthrene	85-01-8	< 1.0
Benzo(k)-fluoranthene	207-08-9	< 1.5	Pyrene	129-00-0	< 1.0

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**e**ANALYTICS  
L A B O R A T O R Y

Client: Peterson Energy Operating, Inc.

Lab ID: 6076

Project: Mapelli Flowline

Method: EPA8260

Sample Name	Dibromo- fluoromethane % Recovery	1,2 Dichloro- ethane-D4 % Recovery	Toluene-D8 % Recovery	Bromo- fluorobenzene % Recovery	Date Sampled	Date Analyzed	Lab ID
Confirmation Sample North Wall	86	85	101	89	11/09/16	11/10/16	6076 3
Confirmation Sample South Wall	86	87	99	91	11/09/16	11/10/16	6076 4
Confirmation Sample East Wall	89	88	101	90	11/09/16	11/10/16	6076 5
Confirmation Sample West Wall	92	94	99	91	11/09/16	11/10/16	6076 6

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# eANALYTICS

## L A B O R A T O R Y

Client: Peterson Energy Operating, Inc.

Lab ID: 6076

Project: Mapelli Flowline

Analysis: Volatile Organics  
TPH-GRO/DROMethod: EPA8260  
EPA8260/8015

Sample Name	Benzene % Rec	Toluene % Rec	Ethyl- benzene % Rec	Total Xylenes % Rec	TPH- GRO % Rec	TPH- DRO % Rec	Date Analyzed	Lab ID
Laboratory Control Sample	107	111	106	104	102	116	11/10/16	LCS 6076 1
(70-130%)								
Method Blank	<0.010	<0.010	<0.010	<0.010	<50.0	<50.0	11/10/16	MB 6076 1
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		

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