

FESCO, Ltd.
1100 Fesco Avenue - Alice, Texas 78332

For: PDC Energy
120 Genesis Boulevard
Bridgeport, West Virginia 26330

Date Sampled: 05/07/15

Date Analyzed: 05/20/15

Job Number: J52770

Sample: Peterson 14Y-414

FLASH LIBERATION OF SEPARATOR WATER		
	Separator	Stock Tank
Pressure, psig	30	0
Temperature, °F	135	70
Gas Water Ratio (1)	-----	0.15
Gas Specific Gravity (2)	-----	1.479

(1) - Scf of water saturated vapor per barrel of stock tank water

(2) - Air = 1.000

(3) - Separator volume / Stock tank volume

Analyst: T.G.

Piston No. : W2085/W2123

Base Conditions: 14.65 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas


David Dannhaus 361-661-7015

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

For: PDC Energy
 120 Genesis Boulevard
 Bridgeport, West Virginia 26330

Sample: Peterson 14Y-414
 Gas Liberated from Separator Water
 From 30 psig & 135 °F to 0 psig & 70 °F

Date Sampled: 05/07/15

Job Number: 52770.011

CHROMATOGRAPH EXTENDED ANALYSIS - SUMMATION REPORT

COMPONENT	MOL%	GPM
Hydrogen Sulfide*	< 0.001	
Nitrogen	0.000	
Carbon Dioxide	35.419	
Methane	13.501	
Ethane	17.668	4.698
Propane	16.469	4.511
Isobutane	2.202	0.716
n-Butane	6.454	2.023
2-2 Dimethylpropane	0.240	0.091
Isopentane	1.306	0.475
n-Pentane	1.321	0.476
Hexanes	1.024	0.419
Heptanes Plus	<u>4.396</u>	<u>1.503</u>
Totals	100.000	14.914

Computed Real Characteristics Of Heptanes Plus:

Specific Gravity ----- 3.156 (Air=1)
 Molecular Weight ----- 90.24
 Gross Heating Value ----- 4455 BTU/CF

Computed Real Characteristics Of Total Sample:

Specific Gravity ----- 1.479 (Air=1)
 Compressibility (Z) ----- 0.9872
 Molecular Weight ----- 42.28
 Gross Heating Value
 Dry Basis ----- 1520 BTU/CF
 Saturated Basis ----- 1494 BTU/CF

*Hydrogen Sulfide tested in laboratory by: Stain Tube Method (GPA 2377)

Results: <0.013 Gr/100 CF, <0.2 PPMV or <0.001 Mol %

Base Conditions: 14.650 PSI & 60 Deg F

Analyst: HB
 Processor: HB
 Cylinder ID: WF-125

Certified: FESCO, Ltd. - Alice, Texas

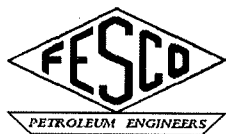

 David Dannhaus 361-661-7015

**CHROMATOGRAPH EXTENDED ANALYSIS
TOTAL REPORT**

COMPONENT	MOL %	GPM	WT %
Hydrogen Sulfide*	< 0.001		< 0.001
Nitrogen	0.000		0.000
Carbon Dioxide	35.419		36.871
Methane	13.501		5.123
Ethane	17.668	4.698	12.566
Propane	16.469	4.511	17.178
Isobutane	2.202	0.716	3.027
n-Butane	6.454	2.023	8.873
2,2 Dimethylpropane	0.240	0.091	0.410
Isopentane	1.306	0.475	2.229
n-Pentane	1.321	0.476	2.254
2,2 Dimethylbutane	0.012	0.005	0.024
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.209	0.085	0.426
2 Methylpentane	0.259	0.107	0.528
3 Methylpentane	0.154	0.063	0.314
n-Hexane	0.390	0.159	0.795
Methylcyclopentane	0.247	0.085	0.492
Benzene	1.396	0.388	2.579
Cyclohexane	0.252	0.085	0.501
2-Methylhexane	0.053	0.024	0.126
3-Methylhexane	0.053	0.024	0.126
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.143	0.062	0.336
n-Heptane	0.120	0.055	0.284
Methylcyclohexane	0.203	0.081	0.471
Toluene	1.294	0.431	2.820
Other C8's	0.122	0.056	0.318
n-Octane	0.047	0.024	0.127
Ethylbenzene	0.041	0.016	0.103
M & P Xylenes	0.296	0.113	0.743
O-Xylene	0.077	0.029	0.193
Other C9's	0.024	0.012	0.072
n-Nonane	0.015	0.008	0.046
Other C10's	0.000	0.000	0.000
n-Decane	0.006	0.004	0.020
Undecanes (11)	<u>0.007</u>	<u>0.004</u>	<u>0.025</u>
Totals	100.000	14.914	100.000

Computed Real Characteristics Of Total Sample:

Specific Gravity -----	1.479	(Air=1)
Compressibility (Z) -----	0.9872	
Molecular Weight -----	42.28	
Gross Heating Value		
Dry Basis -----	1520	BTU/CF
Saturated Basis -----	1494	BTU/CF



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For: PDC Energy
120 Genesis Boulevard
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Date Sampled: 05/07/15

Date Analyzed: 05/20/15

Job Number: J52771

Sample: Peterson 14X-304

FLASH LIBERATION OF SEPARATOR WATER		
	Separator	Stock Tank
Pressure, psig	32	0
Temperature, °F	110	70
Gas Water Ratio (1)	-----	0.13
Gas Specific Gravity (2)	-----	1.498

(1) - Scf of water saturated vapor per barrel of stock tank water

(2) - Air = 1.000


(3) - Separator volume / Stock tank volume

Analyst: T.G.

Piston No. : W1878/W2785

Base Conditions: 14.65 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas


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For: PDC Energy
120 Genesis Boulevard
Bridgeport, West Virginia 26330

Sample: Peterson 14X-304
Gas Liberated from Separator Water
From 32 psig & 110 °F to 0 psig & 70 °F

Date Sampled: 05/07/15

Job Number: 52771.001

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286

COMPONENT	MOL%	GPM
Hydrogen Sulfide*	< 0.001	
Nitrogen	0.000	
Carbon Dioxide	25.768	
Methane	14.201	
Ethane	19.787	5.396
Propane	19.714	5.539
Isobutane	2.520	0.841
n-Butane	7.680	2.469
2-2 Dimethylpropane	0.234	0.091
Isopentane	1.741	0.649
n-Pentane	2.073	0.766
Hexanes	1.191	0.500
Heptanes Plus	<u>5.091</u>	<u>1.789</u>
Totals	100.000	18.040

Computed Real Characteristics Of Heptanes Plus:

Specific Gravity ----- 3.174 (Air=1)
Molecular Weight ----- 90.54
Gross Heating Value ----- 4584 BTU/CF

Computed Real Characteristics Of Total Sample:

Specific Gravity ----- 1.498 (Air=1)
Compressibility (Z) ----- 0.9849
Molecular Weight ----- 42.75
Gross Heating Value
Dry Basis ----- 1836 BTU/CF
Saturated Basis ----- 1805 BTU/CF


*Hydrogen Sulfide tested in laboratory by: Stain Tube Method (GPA 2377)

Results: <0.013 Gr/100 CF, <0.2 PPMV or <0.001 Mol %

Base Conditions: 15.025 PSI & 60 Deg F

Analyst: MR
Processor: AL
Cylinder ID: WF# 2 S

Certified: FESCO, Ltd. - Alice, Texas


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CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286
TOTAL REPORT

COMPONENT	MOL %	GPM	WT %
Hydrogen Sulfide*	< 0.001		< 0.001
Nitrogen	0.000		0.000
Carbon Dioxide	25.768		26.530
Methane	14.201		5.329
Ethane	19.787	5.396	13.919
Propane	19.714	5.539	20.336
Isobutane	2.520	0.841	3.426
n-Butane	7.680	2.469	10.443
2,2 Dimethylpropane	0.234	0.091	0.395
Isopentane	1.741	0.649	2.939
n-Pentane	2.073	0.766	3.499
2,2 Dimethylbutane	0.013	0.006	0.026
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.253	0.106	0.510
2 Methylpentane	0.301	0.127	0.607
3 Methylpentane	0.167	0.070	0.337
n-Hexane	0.457	0.192	0.921
Methylcyclopentane	0.284	0.100	0.559
Benzene	1.704	0.486	3.114
Cyclohexane	0.281	0.098	0.553
2-Methylhexane	0.056	0.027	0.131
3-Methylhexane	0.060	0.028	0.141
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.158	0.070	0.367
n-Heptane	0.133	0.063	0.312
Methylcyclohexane	0.184	0.075	0.423
Toluene	1.477	0.504	3.184
Other C8's	0.121	0.057	0.312
n-Octane	0.047	0.025	0.126
Ethylbenzene	0.044	0.017	0.109
M & P Xylenes	0.306	0.120	0.760
O-Xylene	0.094	0.037	0.233
Other C9's	0.040	0.021	0.118
n-Nonane	0.014	0.008	0.042
Other C10's	0.060	0.036	0.198
n-Decane	0.007	0.004	0.023
Undecanes (11)	<u>0.021</u>	<u>0.013</u>	<u>0.078</u>
Totals	100.000	18.040	100.000

Computed Real Characteristics Of Total Sample:

Specific Gravity -----	1.498	(Air=1)
Compressibility (Z) -----	0.9849	
Molecular Weight -----	42.75	
Gross Heating Value		
Dry Basis -----	1836	BTU/CF
Saturated Basis -----	1805	BTU/CF