EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

LEASE #:		NAME/DESCRIP :	**CHESTNUT 21Y-401 BRADEN HEAD GAS**
PROJECT NO. :	**201606065**	ANALYSIS NO. :	**04**
COMPANY NAME :	**PDC ENERGY, LLC**	ANALYSIS DATE:	JUNE 14, 2016 15:39
OFFICE / BRANCH:	EVANS, CO	SAMPLE DATE :	JUNE 13, 2016 16:20
CUSTOMER REF:		TO:	
PRODUCER :		EFFECTIVE DATE:	
FIELD DATA			
SAMPLE CYCLE:		SAMPLE TYPE:	SPOT
SAMPLE PRES. :	558.0 psig	CYLINDER NO. :	0700
LAB PRES:	psig	SAMPLED BY :	JOHN MOSER
SAMPLE TEMP. :	78.0 ºf	SAMPLING COMPANY:	EMPACT
AMBIENT TEMP.:	ºf	H2S BY STAIN TUBE:	- ppm
H2O BY STAIN TUBE:	- #/mmcf	CO2 BY STAIN TUBE:	- Mol %
FIELD COMMENTS:	NO PROBE		
LAB COMMENTS:			

COMPONENT	MOLE %	MASS %	GPM @ 14.730	GPM @ 14.650
HELIUM	0.01	0.00	---	---
HYDROGEN	1.36	0.14	---	---
OXYGEN/ARGON	0.02	0.03	---	---
NITROGEN	0.8600	1.2300	---	---
CARBON DIOXIDE	0.01	0.02	---	---
METHANE	79.50150	65.02930	---	---
ETHANE	12.3938	19.0015	3.3239	3.3058
PROPANE	4.2343	9.5201	1.1703	1.1639
I-BUTANE	0.4713	1.3967	0.1548	0.1540
N-BUTANE	0.8361	2.4778	0.2644	0.2630
I-PENTANE	0.1458	0.5362	0.0533	0.0530
N-PENTANE	0.1128	0.4149	0.0412	0.0410
HEXANES PLUS	0.0444	0.2035	0.0150	0.0150
TOTALS	100.00000	100.00000	5.0229	4.9957

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0003	0.0012
TOLUENE	0.0005	0.0024
ETHYLBENZENE	0.0000	0.0000
XYLENES	0.0001	0.0006
TOTAL BTEX	0.0009	0.0042

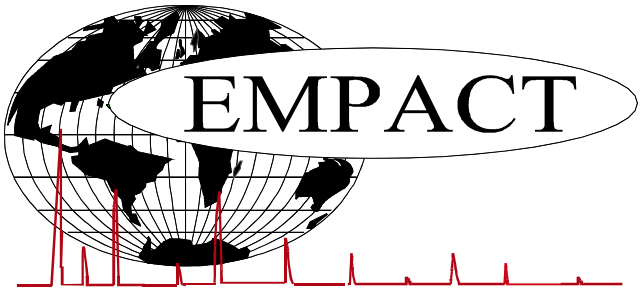
	BTU @	14.730	14.650
LOW	NET DRY REAL :	1081.8 /scf	1075.9 /scf
	NET WET REAL :	1063.0 /scf	1057.1 /scf
HIGH	GROSS DRY REAL :	1194.3 /scf	1187.8 /scf
	GROSS WET REAL :	1173.5 /scf	1167.1 /scf
	NET DRY REAL :	20937.0 /lb	20823.2 /lb
	GROSS DRY REAL :	23118.4 /lb	22992.8 /lb

(CALC: GPA STD 2145 & TP-17 @14.696 & 60 F)

**(DETAILED HYDROCARBON ANALYSIS/NJ 1993) ; ASTM D6730*

RELATIVE DENSITY (AIR=1): 0.6770

COMPRESSIBILITY FACTOR : 0.99693

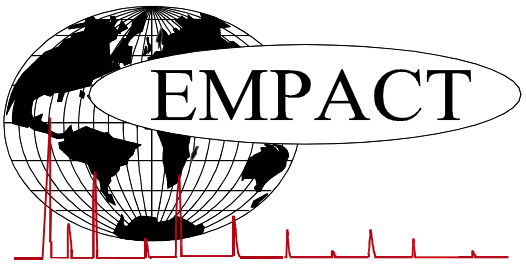


EXTENDED NATURAL GAS ANALYSIS (*DHA)

GLYCALC INFORMATION

PROJECT NO. :	201606065	ANALYSIS NO. :	04
COMPANY NAME :	PDC ENERGY, LLC	ANALYSIS DATE:	JUNE 14, 2016 15:39
ACCOUNT NO. :		SAMPLE DATE :	JUNE 13, 2016 16:20
PRODUCER :		CYLINDER NO. :	0700
LEASE NO. :		SAMPLED BY :	JOHN MOSER
NAME/DESCRIP :	CHESTNUT 21Y-401 BRADEN HEAD GAS		
FIELD DATA		SAMPLE TEMP. :	78.0
SAMPLE PRES. :	558.0	AMBIENT TEMP.:	
COMMENTS :	NO PROBE SPOT		

Componet	Mole %	Wt %
Helium	0.01	0.00
Hydrogen	1.36	0.14
Carbon Dioxide	0.01	0.02
Nitrogen	0.86	1.23
Methane	79.50150	65.02930
Ethane	12.3938	19.0015
Propane	4.2343	9.5201
Isobutane	0.4713	1.3967
n-Butane	0.8361	2.4778
Isopentane	0.1447	0.5323
n-Pentane	0.1128	0.4149
Cyclopentane	0.0011	0.0039
n-Hexane	0.0114	0.0501
Cyclohexane	0.0011	0.0047
Other Hexanes	0.0227	0.0995
Heptanes	0.0051	0.0258
Methycyclohexane	0.0011	0.0055
2,2,4 Trimethylpentane	0.0000	0.0000
Benzene	0.0003	0.0012
Toluene	0.0005	0.0024
Ethylbenzene	0.0000	0.0000
Xylenes	0.0001	0.0006
C8+ Heavies	0.0021	0.0137
Subtotal	99.98000	99.97000
Oxygen/Argon	0.02	0.03
Total	100.00000	100.00000



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DHA COMPONENT LIST

PROJECT NO. :	201606065	ANALYSIS NO. :	04
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LEASE NO. :		SAMPLED BY :	JOHN MOSER
NAME/DESCRIP :	CHESTNUT 21Y-401 BRADEN HEAD GAS		
FIELD DATA		SAMPLE TEMP. :	78.0
SAMPLE PRES. :	558.0	AMBIENT TEMP.:	
COMMENTS :	NO PROBE SPOT		

COMPONENT	PIANO #	MOLE %	MASS %	GPM @ 14.730	GPM @ 14.650
Helium	---	0.01	0.00	---	---
Hydrogen	---	1.36	0.14	---	---
Oxygen/Argon	---	0.02	0.03	---	---
Nitrogen	---	0.86	1.23	---	---
Carbon Dioxide	---	0.01	0.02	---	---
Methane	P1	79.50150	65.02930	---	---
Ethane	P2	12.3938	19.0015	3.324	3.306
Propane	P3	4.2343	9.5201	1.170	1.164
i-Butane	I4	0.4713	1.3967	0.155	0.154
n-Butane	P4	0.8358	2.4769	0.264	0.263
2,2-Dimethylpropane	I5	0.0017	0.0063	0.001	0.001
i-Pentane	I5	0.1430	0.5260	0.052	0.052
UnknownC4s	U4	0.0003	0.0009	0.000	0.000
n-Pentane	P5	0.1128	0.4149	0.041	0.041
2,2-Dimethylbutane	I6	0.0007	0.0031	0.000	0.000
Cyclopentane	N5	0.0011	0.0039	0.000	0.000
2,3-Dimethylbutane	I6	0.0020	0.0088	0.001	0.001
2-Methylpentane	I6	0.0125	0.0549	0.005	0.005
3-Methylpentane	I6	0.0057	0.0250	0.002	0.002
n-Hexane	P6	0.0114	0.0501	0.005	0.005
Methylcyclopentane	N6	0.0018	0.0077	0.001	0.001
2,4-Dimethylpentane	I7	0.0004	0.0020	0.000	0.000
Benzene	A6	0.0003	0.0012	0.000	0.000
3,3-Dimethylpentane	I7	0.0001	0.0005	0.000	0.000
Cyclohexane	N6	0.0011	0.0047	0.000	0.000
2-Methylhexane	I7	0.0009	0.0046	0.000	0.000
2,3-Dimethylpentane	I7	0.0004	0.0020	0.000	0.000
1,1-Dimethylcyclopentane	N7	0.0003	0.0015	0.000	0.000
3-Methylhexane	I7	0.0008	0.0041	0.000	0.000
1c,3-Dimethylcyclopentane	N7	0.0002	0.0010	0.000	0.000
1t,3-Dimethylcyclopentane	N7	0.0002	0.0010	0.000	0.000
1t,2-Dimethylcyclopentane	N7	0.0002	0.0010	0.000	0.000
n-Heptane	P7	0.0014	0.0071	0.001	0.001
Methylcyclohexane	N7	0.0011	0.0055	0.000	0.000
2,4-Dimethylhexane	I8	0.0001	0.0006	0.000	0.000

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1c,2t,4-Trimethylcyclopentane	N8	0.0001	0.0006	0.000	0.000
Toluene	A7	0.0005	0.0024	0.000	0.000
2-Methylheptane	I8	0.0002	0.0012	0.000	0.000
3-Methylheptane	I8	0.0001	0.0006	0.000	0.000
1c,2t,3-Trimethylcyclopentane	N8	0.0002	0.0011	0.000	0.000
1t,4-Dimethylcyclohexane	N8	0.0001	0.0006	0.000	0.000
1t,2-Dimethylcyclohexane	N8	0.0001	0.0006	0.000	0.000
UnknownC7s	U7	0.0002	0.0010	0.000	0.000
n-Octane	P8	0.0003	0.0017	0.000	0.000
1c,2-Dimethylcyclohexane	N8	0.0001	0.0006	0.000	0.000
1,3-Dimethylbenzene (m-Xylene)	A8	0.0001	0.0006	0.000	0.000
2-Methyloctane	I9	0.0001	0.0007	0.000	0.000
n-Nonane	P9	0.0002	0.0013	0.000	0.000
n-Decane	P10	0.0001	0.0007	0.000	0.000
1,2-Di-n-propylbenzene	A11	0.0001	0.0008	0.000	0.000
1,4-Di-i-propylbenzene	A11	0.0001	0.0008	0.000	0.000
n-Dodecane	P12	0.0001	0.0009	0.000	0.000
UnknownC13s	U13	0.0001	0.0009	0.000	0.000
TOTAL		100.00000	100.00000	5.0229	4.9957

BTEX COMPONENTS	**MOLE%**	**WT%**
BENZENE	0.0003	0.0012
TOLUENE	0.0005	0.0024
ETHYLBENZENE	0.0000	0.0000
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