

EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

LEASE #: NAME/DESCRIP : CHESTNUT 21Y-341
BRADEN HEAD GAS

PROJECT NO. : 201606065 ANALYSIS NO. : 03

COMPANY NAME : PDC ENERGY, LLC ANALYSIS DATE: JUNE 14, 2016 16:25

OFFICE / BRANCH: EVANS, CO SAMPLE DATE : JUNE 13, 2016 16:35

CUSTOMER REF: TO:

PRODUCER : EFFECTIVE DATE:

FIELD DATA

SAMPLE CYCLE: SAMPLE TYPE: SPOT

SAMPLE PRES. : 590.0 psig CYLINDER NO. : 1864

LAB PRES: psig SAMPLED BY : JOHN MOSER

SAMPLE TEMP. : 76.0 °f SAMPLING COMPANY: EMPACT

AMBIENT TEMP.: °f 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
ALCOHOLS	0.0006	0.0018		
HELIUM	0.00	0.00	---	---
HYDROGEN	2.38	0.24	---	---
OXYGEN/ARGON	0.01	0.02	---	---
NITROGEN	0.3800	0.5400	---	---
CARBON DIOXIDE	0.01	0.02	---	---
METHANE	79.33960	64.94210	---	---
ETHANE	11.7213	17.9832	3.1439	3.1268
PROPANE	3.8276	8.6118	1.0577	1.0519
I-BUTANE	0.4480	1.3286	0.1468	0.1460
N-BUTANE	1.0994	3.2604	0.3479	0.3460
I-PENTANE	0.2672	0.9824	0.0975	0.0970
N-PENTANE	0.3060	1.1265	0.1116	0.1110
HEXANES PLUS	0.2103	0.9432	0.0843	0.0840
TOTALS	100.00000	100.00000	4.9897	4.9627

BTEX COMPONENTS	MOLE%	WT%	BTU @	14.730	14.650
BENZENE	0.0003	0.0012	LOW NET DRY REAL :	1089.2 /scf	1083.3 /scf
TOLUENE	0.0003	0.0014	NET WET REAL :	1070.3 /scf	1064.3 /scf
ETHYLBENZENE	0.0000	0.0000	HIGH GROSS DRY REAL :	1202.8 /scf	1196.2 /scf
XYLENES	0.0001	0.0006	GROSS WET REAL :	1181.9 /scf	1175.3 /scf
TOTAL BTEX	0.0007	0.0032	NET DRY REAL :	21091.2 /lb	20976.6 /lb
			GROSS DRY REAL :	23286.6 /lb	23160.1 /lb

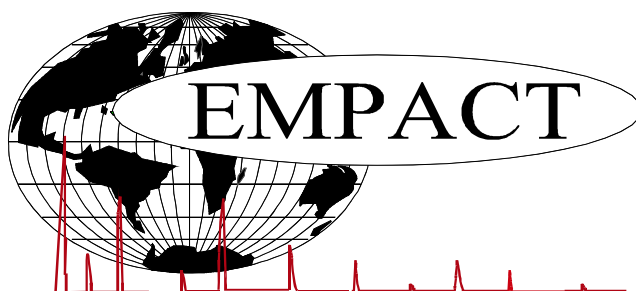
(CALC: GPA STD 2145 & TP-17 @14.696 & 60 F)

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

RELATIVE DENSITY (AIR=1): 0.6766

COMPRESSIBILITY FACTOR : 0.99692

The data presented herein has been acquired by means of current analytical techniques and represents the judicious conclusion EMPACT Analytical Systems, Inc. Results of the analysis can be affected by the sampling conditions, therefore, are only warranted through proper lab protocol. EMPACT assumes no responsibility for interpretation or any consequences from application of the reported information and is the sole liability of the user. The reproduction in any media of this reported information may not be made, in portion or as a whole, without the written permission of EMPACT Analytical Systems, Inc.



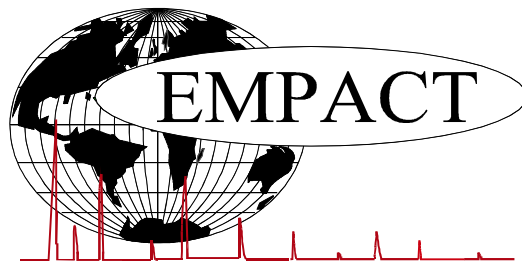
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GLYCALC INFORMATION

PROJECT NO. :	201606065	ANALYSIS NO. :	03
COMPANY NAME :	PDC ENERGY, LLC	ANALYSIS DATE:	JUNE 14, 2016 16:25
ACCOUNT NO. :		SAMPLE DATE :	JUNE 13, 2016 16:35
PRODUCER :		CYLINDER NO. :	1864
LEASE NO. :		SAMPLED BY :	JOHN MOSER
NAME/DESCRIP :	CHESTNUT 21Y-341 BRADEN HEAD GAS		
FIELD DATA		SAMPLE TEMP. :	76.0
SAMPLE PRES. :	590.0	AMBIENT TEMP.:	
COMMENTS :	NO PROBE SPOT		

Componet	Mole %	Wt %
Helium	0.00	0.00
Hydrogen	2.38	0.24
Carbon Dioxide	0.01	0.02
Nitrogen	0.38	0.54
Methane	79.33960	64.94210
Ethane	11.7213	17.9832
Propane	3.8276	8.6118
Isobutane	0.4480	1.3286
n-Butane	1.0994	3.2604
Isopentane	0.2562	0.9431
n-Pentane	0.3060	1.1265
Cyclopentane	0.0110	0.0393
n-Hexane	0.0670	0.2946
Cyclohexane	0.0080	0.0343
Other Hexanes	0.1063	0.4659
Heptanes	0.0240	0.1222
Methycyclohexane	0.0027	0.0135
2,2,4 Trimethylpentane	0.0001	0.0006
Benzene	0.0003	0.0012
Toluene	0.0003	0.0014
Ethylbenzene	0.0000	0.0000
Xylenes	0.0001	0.0006
C8+ Heavies	0.0015	0.0089
Subtotal	99.98940	99.97820
Oxygen/Argon	0.01	0.02
Alcohols	0.0006	0.0018
Total	100.00000	100.00000

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DHA COMPONENT LIST

PROJECT NO. : 201606065	ANALYSIS NO. : 03
COMPANY NAME : PDC ENERGY, LLC	ANALYSIS DATE: JUNE 14, 2016 16:25
ACCOUNT NO. :	SAMPLE DATE : JUNE 13, 2016 16:35
PRODUCER :	CYLINDER NO. : 1864
LEASE NO. :	SAMPLED BY : JOHN MOSER
NAME/DESCRIP : CHESTNUT 21Y-341 BRADEN HEAD GAS	
FIELD DATA	SAMPLE TEMP. : 76.0
SAMPLE PRES. : 590.0	AMBIENT TEMP.:
COMMENTS : NO PROBE SPOT	

COMPONENT	PIANO #	MOLE %	MASS %	GPM @ 14.730	GPM @ 14.650
Hydrogen	---	2.38	0.24	---	---
Oxygen/Argon	---	0.01	0.02	---	---
Nitrogen	---	0.38	0.54	---	---
Carbon Dioxide	---	0.01	0.02	---	---
Methane	P1	79.33960	64.94210	---	---
Ethane	P2	11.7213	17.9832	3.144	3.127
Propane	P3	3.8276	8.6118	1.058	1.052
i-Butane	I4	0.4480	1.3286	0.147	0.146
n-Butane	P4	1.0993	3.2601	0.348	0.346
2,2-Dimethylpropane	I5	0.0025	0.0092	0.001	0.001
i-Pentane	I5	0.2537	0.9339	0.094	0.093
Acetone	X3	0.0004	0.0012	0.000	0.000
i-Propanol	X3	0.0002	0.0006	0.000	0.000
UnknownC4s	U4	0.0001	0.0003	0.000	0.000
n-Pentane	P5	0.3060	1.1265	0.112	0.111
2,2-Dimethylbutane	I6	0.0029	0.0128	0.001	0.001
Cyclopentane	N5	0.0110	0.0393	0.003	0.003
2,3-Dimethylbutane	I6	0.0069	0.0304	0.003	0.003
2-Methylpentane	I6	0.0548	0.2409	0.023	0.023
3-Methylpentane	I6	0.0264	0.1161	0.011	0.011
n-Hexane	P6	0.0670	0.2946	0.027	0.027
2,2-Dimethylpentane	I7	0.0001	0.0005	0.000	0.000
Methylcyclopentane	N6	0.0153	0.0657	0.005	0.005
2,4-Dimethylpentane	I7	0.0020	0.0102	0.001	0.001
2,2,3-Trimethylbutane	I7	0.0001	0.0005	0.000	0.000
Benzene	A6	0.0003	0.0012	0.000	0.000
Cyclohexane	N6	0.0080	0.0343	0.003	0.003
2-Methylhexane	I7	0.0049	0.0251	0.002	0.002
2,3-Dimethylpentane	I7	0.0011	0.0056	0.000	0.000
1,1-Dimethylcyclopentane	N7	0.0014	0.0070	0.001	0.001
3-Methylhexane	I7	0.0043	0.0220	0.002	0.002
1c,3-Dimethylcyclopentane	N7	0.0010	0.0050	0.000	0.000
1t,3-Dimethylcyclopentane	N7	0.0009	0.0045	0.000	0.000
3-Ethylpentane	I7	0.0001	0.0005	0.000	0.000
1t,2-Dimethylcyclopentane	N7	0.0013	0.0065	0.001	0.001

2,2,4-Trimethylpentane	I8	0.0001	0.0006	0.000	0.000
n-Heptane	P7	0.0065	0.0332	0.003	0.003
Methylcyclohexane	N7	0.0027	0.0135	0.001	0.001
1,1,3-Trimethylcyclopentane	N7	0.0002	0.0011	0.000	0.000
Ethylcyclopentane	N7	0.0001	0.0005	0.000	0.000
2,5-Dimethylhexane	I8	0.0001	0.0006	0.000	0.000
2,4-Dimethylhexane	I8	0.0002	0.0012	0.000	0.000
1c,2t,4-Trimethylcyclopentane	N8	0.0001	0.0006	0.000	0.000
1t,2c,4-Trimethylcyclopentane	N8	0.0001	0.0006	0.000	0.000
Toluene	A7	0.0003	0.0014	0.000	0.000
2,3-Dimethylhexane	I8	0.0001	0.0006	0.000	0.000
2-Methylheptane	I8	0.0003	0.0017	0.000	0.000
4-Methylheptane	I8	0.0001	0.0006	0.000	0.000
3-Methylheptane	I8	0.0002	0.0012	0.000	0.000
1c,2t,3-Trimethylcyclopentane	N8	0.0001	0.0006	0.000	0.000
n-Octane	P8	0.0002	0.0012	0.000	0.000
1,3-Dimethylbenzene (m-Xylene)	A8	0.0001	0.0006	0.000	0.000
TOTAL		100.00000	100.00000	4.9897	4.9627

BTEX COMPONENTS	MOLE%	WT%	BTU @	14.730	14.650
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