EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

LEASE #:		NAME/DESCRIP :	**MOTIS 7A BRADENHEAD GAS**
PROJECT NO. :	**201609153**	ANALYSIS NO. :	**01**
COMPANY NAME :	**PDC ENERGY, INC**	ANALYSIS DATE:	OCTOBER 04, 2016 14:35
OFFICE / BRANCH:	EVANS, CO	SAMPLE DATE :	SEPTEMBER 29, 2016
CUSTOMER REF:		TO:	
PRODUCER :		EFFECTIVE DATE:	
*****FIELD DATA*****			
SAMPLE CYCLE:		SAMPLE TYPE:	SPOT
SAMPLE PRES. :	76.0 psig	CYLINDER NO. :	1983
LAB PRES:	psig	SAMPLED BY :	JOHN MOSER
SAMPLE TEMP. :	69.0 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	0.00	0.00	---	---
OXYGEN/ARGON	0.01	0.01	---	---
NITROGEN	0.3800	0.4500	---	---
CARBON DIOXIDE	0.02	0.04	---	---
METHANE	68.09040	46.54050	---	---
ETHANE	16.9725	21.7442	4.5582	4.5335
PROPANE	9.6362	18.1042	2.6663	2.6518
I-BUTANE	1.2571	3.1131	0.4128	0.4106
N-BUTANE	2.3935	5.9272	0.7582	0.7541
I-PENTANE	0.4408	1.3537	0.1611	0.1602
N-PENTANE	0.4465	1.3725	0.1621	0.1612
HEXANES PLUS	0.3430	1.3446	0.1316	0.1310
TOTALS	100.00000	100.00000	8.8503	8.8024

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0060	0.0200
TOLUENE	0.0072	0.0283
ETHYLBENZENE	0.0003	0.0014
XYLENES	0.0038	0.0172
TOTAL BTEX	0.0173	0.0669

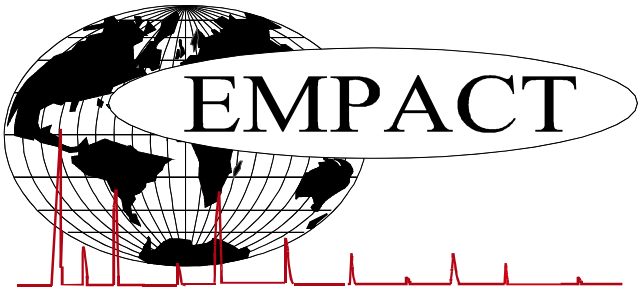
	BTU @	14.730	14.650
LOW	NET DRY REAL :	1283.1 **/scf**	1276.1 **/scf**
	NET WET REAL :	1260.8 **/scf**	1253.8 **/scf**
HIGH	GROSS DRY REAL :	1410.5 **/scf**	1402.8 **/scf**
	GROSS WET REAL :	1386.0 **/scf**	1378.3 **/scf**
	NET DRY REAL :	20768.1 **/lb**	20655.3 **/lb**
	GROSS DRY REAL :	22828.3 **/lb**	22704.3 **/lb**

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

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

RELATIVE DENSITY (AIR=1): 0.8094

COMPRESSIBILITY FACTOR : 0.99545



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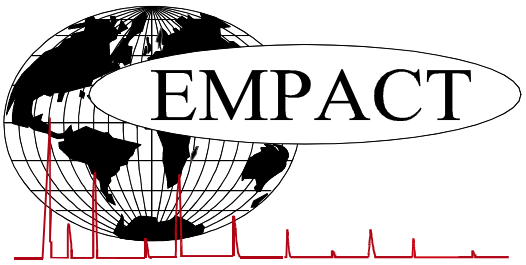
GLYCALC INFORMATION

PROJECT NO. :	201609153	ANALYSIS NO. :	01
COMPANY NAME :	PDC ENERGY, INC	ANALYSIS DATE:	OCTOBER 04, 2016 14:35
ACCOUNT NO. :		SAMPLE DATE :	SEPTEMBER 29, 2016
PRODUCER :		CYLINDER NO. :	1983
LEASE NO. :		SAMPLED BY :	JOHN MOSER
NAME/DESCRIP :	MOTIS 7A BRADENHEAD GAS		
FIELD DATA		SAMPLE TEMP. :	69.0
SAMPLE PRES. :	76.0	AMBIENT TEMP.:	
COMMENTS :	NO PROBE SPOT		

Componet	Mole %	Wt %
Helium	0.01	0.00
Hydrogen	0.00	0.00
Carbon Dioxide	0.02	0.04
Nitrogen	0.38	0.45
Methane	68.09040	46.54050
Ethane	16.9725	21.7442
Propane	9.6362	18.1042
Isobutane	1.2571	3.1131
n-Butane	2.3935	5.9272
Isopentane	0.4253	1.3074
n-Pentane	0.4465	1.3725
Cyclopentane	0.0155	0.0463
n-Hexane	0.0802	0.2945
Cyclohexane	0.0194	0.0696
Other Hexanes	0.1308	0.4781
Heptanes	0.0467	0.1986
Methycyclohexane	0.0138	0.0577
2,2,4 Trimethylpentane	0.0004	0.0020
Benzene	0.0060	0.0200
Toluene	0.0072	0.0283
Ethylbenzene	0.0003	0.0014
Xylenes	0.0038	0.0172
C8+ Heavies	0.0344	0.1772
Subtotal	99.99000	99.99000
Oxygen/Argon	0.01	0.01
Total	100.00000	100.00000



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DHA COMPONENT LIST

PROJECT NO. :	201609153	ANALYSIS NO. :	01
COMPANY NAME :	PDC ENERGY, INC	ANALYSIS DATE:	OCTOBER 04, 2016 14:35
ACCOUNT NO. :		SAMPLE DATE :	SEPTEMBER 29, 2016
PRODUCER :		CYLINDER NO. :	1983
LEASE NO. :		SAMPLED BY :	JOHN MOSER
NAME/DESCRIP :	MOTIS 7A BRADENHEAD GAS		
FIELD DATA		SAMPLE TEMP. :	69.0
SAMPLE PRES. :	76.0	AMBIENT TEMP.:	
COMMENTS :	NO PROBE SPOT		

COMPONENT	PIANO #	MOLE %	MASS %	GPM @ 14.730	GPM @ 14.650
Helium	---	0.01	0.00	---	---
Oxygen/Argon	---	0.01	0.01	---	---
Nitrogen	---	0.38	0.45	---	---
Carbon Dioxide	---	0.02	0.04	---	---
Methane	P1	68.09040	46.54050	---	---
Ethane	P2	16.9725	21.7442	4.558	4.534
Propane	P3	9.6362	18.1042	2.666	2.652
i-Butane	I4	1.2571	3.1131	0.413	0.411
n-Butane	P4	2.3935	5.9272	0.758	0.754
2,2-Dimethylpropane	I5	0.0059	0.0182	0.002	0.002
i-Pentane	I5	0.4194	1.2892	0.154	0.153
n-Pentane	P5	0.4465	1.3725	0.162	0.161
2,2-Dimethylbutane	I6	0.0028	0.0103	0.001	0.001
Cyclopentane	N5	0.0155	0.0463	0.005	0.005
2,3-Dimethylbutane	I6	0.0067	0.0246	0.003	0.003
2-Methylpentane	I6	0.0653	0.2397	0.027	0.027
3-Methylpentane	I6	0.0307	0.1127	0.012	0.012
n-Hexane	P6	0.0802	0.2945	0.033	0.033
Methylcyclopentane	N6	0.0245	0.0879	0.009	0.009
2,4-Dimethylpentane	I7	0.0022	0.0094	0.001	0.001
Benzene	A6	0.0060	0.0200	0.002	0.002
3,3-Dimethylpentane	I7	0.0001	0.0004	0.000	0.000
Cyclohexane	N6	0.0194	0.0696	0.007	0.007
2-Methylhexane	I7	0.0032	0.0137	0.001	0.001
2,3-Dimethylpentane	I7	0.0039	0.0167	0.002	0.002
1,1-Dimethylcyclopentane	N7	0.0049	0.0205	0.002	0.002
3-Methylhexane	I7	0.0075	0.0320	0.003	0.003
1c,3-Dimethylcyclopentane	N7	0.0021	0.0088	0.001	0.001
1t,3-Dimethylcyclopentane	N7	0.0017	0.0071	0.001	0.001
3-Ethylpentane	I7	0.0003	0.0013	0.000	0.000
1t,2-Dimethylcyclopentane	N7	0.0034	0.0142	0.002	0.002
2,2,4-Trimethylpentane	I8	0.0004	0.0020	0.000	0.000
UnknownC6s	U6	0.0008	0.0029	0.000	0.000
n-Heptane	P7	0.0157	0.0670	0.007	0.007
1c,2-Dimethylcyclopentane	N7	0.0002	0.0009	0.000	0.000

EMPACT Analytical Systems, Inc 365 S. Main Street, Brighton, CO 80601 303-637-0150

Methylcyclohexane	N7	0.0138	0.0577	0.006	0.006
2,2-Dimethylhexane	I8	0.0007	0.0034	0.000	0.000
1,1,3-Trimethylcyclopentane	N7	0.0003	0.0015	0.000	0.000
Ethylcyclopentane	N7	0.0004	0.0017	0.000	0.000
2,5-Dimethylhexane	I8	0.0003	0.0015	0.000	0.000
2,2,3-Trimethylpentane	I8	0.0001	0.0005	0.000	0.000
2,4-Dimethylhexane	I8	0.0005	0.0024	0.000	0.000
1c,2t,4-Trimethylcyclopentane	N8	0.0006	0.0029	0.000	0.000
3,3-Dimethylhexane	I8	0.0002	0.0010	0.000	0.000
1t,2c,4-Trimethylcyclopentane	N8	0.0004	0.0019	0.000	0.000
Toluene	A7	0.0072	0.0283	0.002	0.002
2,3-Dimethylhexane	I8	0.0004	0.0020	0.000	0.000
2-Methyl-3-ethylpentane	I8	0.0001	0.0005	0.000	0.000
1,1,2-Trimethylcyclopentane	N8	0.0001	0.0005	0.000	0.000
2-Methylheptane	I8	0.0028	0.0136	0.001	0.001
4-Methylheptane	I8	0.0008	0.0039	0.000	0.000
3-Methyl-3-ethylpentane	I8	0.0002	0.0010	0.000	0.000
3,4-Dimethylhexane	I8	0.0001	0.0005	0.000	0.000
1c,2c,4-Trimethylcyclopentane	N8	0.0001	0.0005	0.000	0.000
3-Methylheptane	I8	0.0006	0.0029	0.000	0.000
1c,2t,3-Trimethylcyclopentane	N8	0.0025	0.0120	0.001	0.001
3-Ethylhexane	I8	0.0005	0.0024	0.000	0.000
1t,4-Dimethylcyclohexane	N8	0.0007	0.0034	0.000	0.000
1,1-Dimethylcyclohexane	N8	0.0003	0.0015	0.000	0.000
3t-Ethylmethylcyclopentane	N8	0.0001	0.0005	0.000	0.000
2t-Ethylmethylcyclopentane	N8	0.0001	0.0005	0.000	0.000
1,1-Methylethylcyclopentane	N8	0.0002	0.0009	0.000	0.000
1t,2-Dimethylcyclohexane	N8	0.0006	0.0029	0.000	0.000
UnknownC7s	U7	0.0008	0.0034	0.000	0.000
n-Octane	P8	0.0051	0.0248	0.003	0.003
1c,4-Dimethylcyclohexane	N8	0.0003	0.0015	0.000	0.000
2,3,5-Trimethylhexane	I9	0.0001	0.0006	0.000	0.000
2,3,4-Trimethylhexane	I9	0.0002	0.0011	0.000	0.000
1c,2-Dimethylcyclohexane	N8	0.0003	0.0015	0.000	0.000
2,2-Dimethylheptane	I9	0.0001	0.0006	0.000	0.000
1,1,4-Trimethylcyclohexane	N9	0.0011	0.0059	0.001	0.001
2,2,3-Trimethylhexane	I9	0.0004	0.0022	0.000	0.000
2,4-Dimethylheptane	I9	0.0001	0.0006	0.000	0.000
4,4-Dimethylheptane	I9	0.0002	0.0011	0.000	0.000
Ethylcyclohexane	N8	0.0005	0.0024	0.000	0.000
n-Propylcyclopentane	N8	0.0003	0.0015	0.000	0.000
1c,3c,5-Trimethylcyclohexane	N9	0.0002	0.0011	0.000	0.000
2,5-Dimethylheptane	I9	0.0001	0.0006	0.000	0.000
3,3-Dimethylheptane	I9	0.0001	0.0006	0.000	0.000
3,5-Dimethylheptane	I9	0.0001	0.0006	0.000	0.000
Ethylbenzene	I8	0.0003	0.0014	0.000	0.000
1c,2t,4t-Trimethylcyclohexane	N9	0.0001	0.0006	0.000	0.000
2,3-Dimethylheptane	I9	0.0006	0.0033	0.000	0.000
1,3-Dimethylbenzene (m-Xylene)	A8	0.0018	0.0081	0.001	0.001
1,4-Dimethylbenzene (p-Xylene)	A8	0.0009	0.0041	0.000	0.000
3,4-Dimethylheptane	I9	0.0007	0.0038	0.000	0.000
3,4-Dimethylheptane (2)	I9	0.0003	0.0016	0.000	0.000
4-Methyloctane	I9	0.0004	0.0022	0.000	0.000
2-Methyloctane	I9	0.0005	0.0027	0.000	0.000
1c,2t,3-Trimethylcyclohexane	N9	0.0001	0.0006	0.000	0.000
3-Ethylheptane	I9	0.0001	0.0006	0.000	0.000
3-Methyloctane	I9	0.0004	0.0022	0.000	0.000
1c,2t,4c-Trimethylcyclohexane	I9	0.0002	0.0011	0.000	0.000
1,1,2-Trimethylcyclohexane	N9	0.0001	0.0006	0.000	0.000

1,2-Dimethylbenzene (o-Xylene)	A8	0.0011	0.0050	0.000	0.000
i-Butylcyclopentane	N9	0.0003	0.0016	0.000	0.000
UnknownC8s	U8	0.0005	0.0024	0.000	0.000
n-Nonane	P9	0.0020	0.0110	0.001	0.001
1,1-Methylethylcyclohexane	N9	0.0003	0.0016	0.000	0.000
i-Propylbenzene	A9	0.0001	0.0005	0.000	0.000
i-Propylcyclohexane	N9	0.0001	0.0006	0.000	0.000
2,2-Dimethyloctane	I10	0.0001	0.0006	0.000	0.000
2,6-Dimethyloctane	I10	0.0001	0.0006	0.000	0.000
n-Butylcyclopentane	N9	0.0003	0.0016	0.000	0.000
3,3-Dimethyloctane	I10	0.0001	0.0006	0.000	0.000
n-Propylbenzene	A9	0.0003	0.0015	0.000	0.000
3,6-Dimethyloctane	I10	0.0001	0.0006	0.000	0.000
3-Methyl-5-ethylheptane	I10	0.0001	0.0006	0.000	0.000
1,3-Methylethylbenzene	A9	0.0003	0.0015	0.000	0.000
1,3,5-Trimethylbenzene	A9	0.0003	0.0015	0.000	0.000
2,3-Dimethyloctane	I10	0.0001	0.0006	0.000	0.000
5-Methylnonane	I10	0.0003	0.0018	0.000	0.000
1,2-Methylethylbenzene	A9	0.0002	0.0010	0.000	0.000
3-Methylnonane	I10	0.0001	0.0006	0.000	0.000
t-Butylbenzene	A10	0.0004	0.0023	0.000	0.000
UnknownC9s	U9	0.0013	0.0071	0.001	0.001
n-Decane	P10	0.0004	0.0024	0.000	0.000
1,2,3-Trimethylbenzene	A9	0.0001	0.0005	0.000	0.000
Sec-Butylcyclohexane	A10	0.0001	0.0006	0.000	0.000
3-Ethylnonane	I10	0.0001	0.0007	0.000	0.000
UnknownC10s	U10	0.0005	0.0030	0.000	0.000
n-Undecane	P11	0.0001	0.0007	0.000	0.000
TOTAL		100.00000	100.00000	8.8503	8.8024

BTEX COMPONENTS	**MOLE%**	**WT%**
BENZENE	0.0060	0.0200
TOLUENE	0.0072	0.0283
ETHYLBENZENE	0.0003	0.0014
XYLENES	0.0038	0.0172
TOTAL BTEX	0.0173	0.0669

		14.730	14.650
	BTU @		
LOW	NET DRY REAL :	1283.1 **/scf**	1276.1 **/scf**
	NET WET REAL :	1260.8 **/scf**	1253.8 **/scf**
HIGH	GROSS DRY REAL :	1410.5 **/scf**	1402.8 **/scf**
	GROSS WET REAL :	1386.0 **/scf**	1378.3 **/scf**
	NET DRY REAL :	20768.1 **/lb**	20655.3 **/lb**
	GROSS DRY REAL :	22828.3 **/lb**	22704.3 **/lb**
	RELATIVE DENSITY (AIR=1):		0.8094
	COMPRESSIBILITY FACTOR :		0.99545

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

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