EMPACT ANALYTICAL SYSTEMS INC.
365 S. MAIN ST.
BRIGHTON, CO
80601

303-637-0150

EXTENDED NATURAL GAS LIQUID ANALYSIS (*DHA)

MAIN PAGE

PROJECT NO. :	201306025	ANALYSIS NO. :	01
COMPANY NAME :	CONOCO PHILLIPS	ANALYSIS DATE:	JUNE 6, 2013
ACCOUNT NO. :		SAMPLE DATE :	JUNE 4, 2013
PRODUCER :		CYLINDER NO. :	5896
LEASE NO. :		SAMPLED BY :	JOHN MOSER
NAME/DESCRIP :	OIL SEPARATOR @ 12:30 STATE OF COLORADO 36-1H		EMPACT
FIELD DATA		SAMPLE TEMP. :	90
SAMPLE PRES. :	34	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; NO PROBE		

COMPONENT	MOLE %	MASS %	VOL %
NITROGEN (AIR)	0.0000	0.0000	0.0000
CARBON DIOXIDE	0.0568	0.0244	0.0219
METHANE	0.2377	0.0372	0.0909
ETHANE	0.8878	0.2601	0.5349
PROPANE	3.1084	1.3358	1.9303
I-BUTANE	0.8043	0.4555	0.5928
N-BUTANE	3.4493	1.9536	2.4508
I-PENTANE	1.4508	1.0201	1.1968
N-PENTANE	2.1478	1.5101	1.7529
HEXANES PLUS	87.8571	93.4032	91.4287
TOTALS	100.0000	100.0000	100.0000

BTEX COMPONENTS	**MOLE%**	**MASS%**
BENZENE	1.7650	1.3434
TOLUENE	3.1164	2.7982
ETHYLBENZENE	0.7090	0.7335
XYLENE	2.4594	2.5445
TOTAL BTEX	8.0498	7.4196

(CALC: GPA STD 2145-94 & TP-17 @14.696 & 60 F)

	TOTAL SAMPLE	**C6+ FRACTION**	
Specific Gravity (H2O=1) =	0.7329	0.7481	60/60
API Gravity =	61.57	57.65	60/60
Molecular Weight =	102.62	109.726	
Absolute Density =	6.11	6.24	LBS/GAL
Heating Value Liq. Idl Gas=	124866	127052	BTU/GAL
Vapor/Liquid =	22.70	21.67	CUFT/GAL
Vapor Pressure =	29.52	1.89	PSIA @100 F

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

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EXTENDED NATURAL GAS LIQUID ANALYSIS (*DHA)

E & P TANK / GLYCALC INFORMATION

PROJECT NO. :	201306025	ANALYSIS NO. :	01
COMPANY NAME :	CONOCO PHILLIPS	ANALYSIS DATE:	JUNE 6, 2013
ACCOUNT NO. :		SAMPLE DATE :	JUNE 4, 2013
PRODUCER :		CYLINDER NO. :	5896
LEASE NO. :		SAMPLED BY :	JOHN MOSER
NAME/DESCRIP :	OIL SEPARATOR @ 12:30		EMPACT
	STATE OF COLORADO 36-1H		
FIELD DATA		SAMPLE TEMP. :	90
SAMPLE PRES. :	34	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; NO PROBE		

COMPONENT	Mole %		Wt %		LV %	
CARBON DIOXIDE	0.0568		0.0244		0.0219	
NITROGEN (AIR)	0.0000		0.0000		0.0000	
METHANE	0.2377		0.0372		0.0909	
ETHANE	0.8878		0.2601		0.5349	
PROPANE	3.1084		1.3358		1.9303	
I-BUTANE	0.8043		0.4555		0.5928	
N-BUTANE	3.4493		1.9536		2.4508	
I-PENTANE	1.4508		1.0201		1.1968	
N-PENTANE	2.1478		1.5101		1.7529	
CYCLOPENTANE (N-C5)	1.3943		0.9529		0.9183	
N-HEXANE	6.6463		5.5821		6.1615	
CYCLOHEXANE (OTHER C6)	2.8270		2.3185		2.1681	
OTHER HEXANES	10.9062		9.0686		9.5265	
OTHER HEPTANES	14.2521		13.8211		14.2477	
METHYLCYCLOHEXANE (OTHER C7)	4.6368		4.4366		4.1956	
2,2,4 TRIMETHYLPENTANE	0.8827		0.8446		0.8212	
BENZENE	1.7650		1.3434		1.1147	
TOLUENE	3.1164		2.7982		2.3449	
ETHYLBENZENE	0.7090		0.7335		0.6146	
XYLENES	2.4594		2.5445		2.1378	
OTHER OCTANES	11.8815		13.2514		13.1662	
OCTANES PLUS	----	42.3130	----	53.0818	----	50.7514
NONANES	10.4416		12.9088		12.4610	
DECANES PLUS	15.9388		22.7990		21.5506	
SUB TOTAL	100.0000		100.0000		100.0000	
TOTAL	100.0000		100.0000		100.0000	

API Gravity =	**61.57**	60/60
Vapor Pressure =	**29.52**	PSIA & 100 F
Average Molecular Weight of Decanes plus =	**146.79**	
Average Specific Gravity of Decanes plus =	**0.7750**	

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BY CARBON NUMBER

PROJECT NO. :	201306025	ANALYSIS NO. :	01
COMPANY NAME :	CONOCO PHILLIPS	ANALYSIS DATE:	JUNE 6, 2013
ACCOUNT NO. :		SAMPLE DATE :	JUNE 4, 2013
PRODUCER :		CYLINDER NO. :	5896
LEASE NO. :		SAMPLED BY :	JOHN MOSER
NAME/DESCRIP :	OIL SEPARATOR @ 12:30		EMPACT
	STATE OF COLORADO 36-1H		
FIELD DATA		SAMPLE TEMP. :	90
SAMPLE PRES. :	34	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; NO PROBE		

COMPONENT / CARBON NUMBER		MOLE%	MASS %	VOLUME %
NITROGEN		0.0000	0.0000	0.0000
CARBON DIOXIDE		0.0568	0.0244	0.0219
	C1	0.2377	0.0372	0.0909
	C2	0.8878	0.2601	0.5349
	C3	3.1084	1.3358	1.9303
	C4	4.2536	2.4091	3.0436
	C5	4.9929	3.4831	3.8680
	C6	22.1445	18.3126	18.9708
	C7	22.0053	21.0559	20.7882
	C8	15.9326	17.3740	16.7398
	C9	10.4416	12.9088	12.4610
	C10	8.9301	11.8991	11.2291
	C11	3.8481	5.6410	5.3070
	C12	2.0865	3.2876	3.1269
	C13	0.6785	1.2018	1.1499
	C14	0.3613	0.6985	0.6704
	C15	0.0343	0.0710	0.0673
	C16	0.0000	0.0000	0.0000
	C17	0.0000	0.0000	0.0000
	C18	0.0000	0.0000	0.0000
	C19	0.0000	0.0000	0.0000
	C20	0.0000	0.0000	0.0000
	C21	0.0000	0.0000	0.0000
	C22	0.0000	0.0000	0.0000
	C23	0.0000	0.0000	0.0000
	C24	0.0000	0.0000	0.0000
	C25	0.0000	0.0000	0.0000
	C26	0.0000	0.0000	0.0000
	C27	0.0000	0.0000	0.0000
	C28	0.0000	0.0000	0.0000
	C29	0.0000	0.0000	0.0000
	C30+	0.0000	0.0000	0.0000
	Total	100.0000	100.0000	100.0000

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EXTENDED NATURAL GAS LIQUID ANALYSIS (*DHA)

DHA COMPONENT LIST

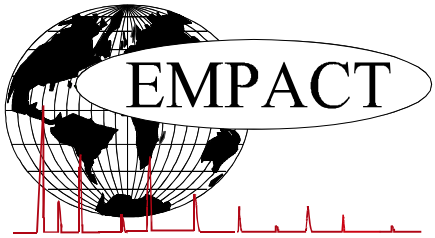
PROJECT NO. :	201306025	ANALYSIS NO. :	01
COMPANY NAME :	CONOCO PHILLIPS	ANALYSIS DATE:	JUNE 6, 2013
ACCOUNT NO. :		SAMPLE DATE :	JUNE 4, 2013
PRODUCER :		CYLINDER NO. :	5896
LEASE NO. :		SAMPLED BY :	JOHN MOSER
NAME/DESCRIP :	OIL SEPARATOR @ 12:30 STATE OF COLORADO 36-1H		EMPACT
FIELD DATA		SAMPLE TEMP. :	90
SAMPLE PRES. :	34	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; NO PROBE		

COMPONENT	PIANO #	MOLE %	MASS %	VOL %
Nitrogen	NHC	0.0000	0.0000	0.0000
Carbon Dioxide	NHC	0.0568	0.0244	0.0219
Methane	P1	0.2377	0.0372	0.0909
Ethane	P2	0.8878	0.2601	0.5349
Propane	P3	3.1084	1.3358	1.9303
i-Butane	I4	0.8043	0.4555	0.5928
n-Butane	P4	3.4493	1.9536	2.4508
2,2-Dimethylpropane	I5	0.0106	0.0075	0.0092
i-Pentane	I5	1.4402	1.0126	1.1876
n-Pentane	P5	2.1478	1.5101	1.7529
2,2-Dimethylbutane	I6	0.0601	0.0505	0.0566
Cyclopentane	N5	1.3943	0.9529	0.9183
2,3-Dimethylbutane	I6	0.3862	0.3243	0.3562
2-Methylpentane	I6	3.6791	3.0897	3.4413
3-Methylpentane	I6	2.1863	1.8361	2.0110
n-Hexane	P6	6.6463	5.5821	6.1615
2,2-Dimethylpentane	I7	0.0362	0.0353	0.0379
Methylcyclopentane	N6	4.5945	3.7680	3.6614
2,4-Dimethylpentane	I7	0.2797	0.2731	0.2958
2,2,3-Trimethylbutane	I7	0.0358	0.0350	0.0369
Benzene	A6	1.7650	1.3434	1.1147
3,3-Dimethylpentane	I7	0.0412	0.0402	0.0423
Cyclohexane	N6	2.8270	2.3185	2.1681
2-Methylhexane	I7	1.3996	1.3666	1.4673
2,3-Dimethylpentane	I7	0.7549	0.7371	0.7688
1,1-Dimethylcyclopentane	N7	0.3563	0.3409	0.3290
3-Methylhexane	I7	1.8676	1.8236	1.9285
1c,3-Dimethylcyclopentane	N7	0.9609	0.9194	0.8987
1t,3-Dimethylcyclopentane	N7	0.8827	0.8446	0.8212
3-Ethylpentane	I7	0.1518	0.1482	0.1542
1t,2-Dimethylcyclopentane	N7	1.8135	1.7352	1.6813
2,2,4-Trimethylpentane	I8	0.1136	0.1265	0.1326
n-Heptane	P7	4.8393	4.7252	5.0300
1c,2-Dimethylcyclopentane	N7	0.1585	0.1517	0.1430
Methylcyclohexane	N7	4.6368	4.4366	4.1956
2,2-Dimethylhexane	I8	0.4923	0.5480	0.5735
Ethylcyclopentane	N7	0.6741	0.6450	0.6128
2,5-Dimethylhexane	I8	0.1639	0.1824	0.1914
2,2,3-Trimethylpentane	I8	0.0136	0.0151	0.0154
2,4-Dimethylhexane	I8	0.2647	0.2947	0.3077
1c,2t,4-Trimethylcyclopentane	N8	0.4373	0.4782	0.4562

3,3-Dimethylhexane	I8	0.0530	0.0590	0.0605
2,3,4-Trimethylpentane	I8	0.1186	0.1320	0.1336
2,3,3-Trimethylpentane	I8	0.0092	0.0102	0.0102
Toluene	A7	3.1164	2.7982	2.3449
2,3-Dimethylhexane	I8	0.2643	0.2942	0.3010
2-Methyl-3-ethylpentane	I8	0.1606	0.1788	0.1809
1,1,2-Trimethylcyclopentane	N8	0.0089	0.0097	0.0091
2-Methylheptane	I8	1.4136	1.5735	1.6385
4-Methylheptane	I8	0.4522	0.5034	0.5115
3-Methyl-3-ethylpentane	I8	0.0645	0.0718	0.0719
3,4-Dimethylhexane	I8	0.0822	0.0915	0.0926
1c,2c,4-Trimethylcyclopentane	N8	0.0363	0.0397	0.0375
1c,3-Dimethylcyclohexane	N8	0.0364	0.0398	0.0378
3-Methylheptane	I8	0.6866	0.7643	0.7890
1c,2t,3-Trimethylcyclopentane	N8	1.0847	1.1861	1.1213
3-Ethylhexane	I8	0.1380	0.1536	0.1569
1t,4-Dimethylcyclohexane	N8	0.4806	0.5255	0.5019
1,1-Dimethylcyclohexane	N8	0.1366	0.1494	0.1394
3c-Ethylmethylcyclopentane	N8	0.0027	0.0030	0.0029
3t-Ethylmethylcyclopentane	N8	0.2194	0.2399	0.2279
2t-Ethylmethylcyclopentane	N8	0.1922	0.2102	0.1991
1,1-Methylethylcyclopentane	N8	0.6657	0.7279	0.6790
2,2,4-Trimethylhexane	I9	0.0585	0.0731	0.0744
1t,2-Dimethylcyclohexane	N8	0.6645	0.7266	0.6823
1t,3-Dimethylcyclohexane	N8	0.0040	0.0044	0.0041
n-Octane	P8	2.5471	2.8353	2.9383
1c,4-Dimethylcyclohexane	N8	0.5685	0.6216	0.5784
i-Propylcyclopentane	I8	0.0885	0.0968	0.0908
2,4,4-Trimethylhexane	I9	0.0253	0.0316	0.0319
2,2,3,4-Tetramethylpentane	I9	0.0208	0.0260	0.0263
2,3,4-Trimethylhexane	I9	0.0258	0.0322	0.0325
1c,2-Dimethylcyclohexane	N8	0.2494	0.2727	0.2495
2,3,5-Trimethylhexane	I9	0.0631	0.0789	0.0796
2,2-Dimethylheptane	I9	0.0162	0.0202	0.0207
1,1,4-Trimethylcyclohexane	N9	1.0349	1.2731	1.2016
2,2,3-Trimethylhexane	I9	0.4318	0.5397	0.5390
2,4-Dimethylheptane	I9	0.0416	0.0520	0.0529
4,4-Dimethylheptane	I9	0.0711	0.0889	0.0905
Ethylcyclohexane	N8	0.6158	0.6734	0.6228
n-Propylcyclopentane	N8	0.2260	0.2471	0.2318
1c,3c,5-Trimethylcyclohexane	N9	0.0500	0.0615	0.0580
2,5-Dimethylheptane	I9	0.0837	0.1046	0.1063
3,3-Dimethylheptane	I9	0.0907	0.1134	0.1152
3,5-Dimethylheptane	I9	0.0701	0.0876	0.0890
2,6-Dimethylheptane	I9	0.0627	0.0784	0.0805
1,1,3-Trimethylcyclohexane	N9	0.0908	0.1117	0.1054
Ethylbenzene	A8	0.7090	0.7335	0.6146
1c,2t,4t-Trimethylcyclohexane	N9	0.2786	0.3427	0.3173
2,3-Dimethylheptane	I9	0.0030	0.0038	0.0038
1,3-Dimethylbenzene (m-Xylene)	A8	0.7712	0.7979	0.6724
1,4-Dimethylbenzene (p-Xylene)	A8	1.0636	1.1004	0.9303
3,4-Dimethylheptane	I9	0.0866	0.1082	0.1078
3,4-Dimethylheptane (2)	I9	0.1739	0.2173	0.2164
4-Ethylheptane	I9	0.0338	0.0422	0.0430
4-Methyloctane	I9	0.2727	0.3408	0.3445
2-Methyloctane	I9	0.3409	0.4261	0.4349
1c,2t,4c-Trimethylcyclohexane	I9	0.0526	0.0657	0.0659
3-Ethylheptane	I9	0.0671	0.0839	0.0841
3-Methyloctane	I9	0.4285	0.5356	0.5413
3,3-Diethylpentane	I9	0.0636	0.0795	0.0768
1c,2t,3-Trimethylcyclohexane	N9	0.0990	0.1218	0.1128
1,1,2-Trimethylcyclohexane	N9	0.0252	0.0310	0.0287
1,2-Dimethylbenzene (o-Xylene)	A8	0.6246	0.6462	0.5351
i-Butylcyclopentane	N9	0.2758	0.3393	0.3166
UnknownC8s	U8	0.0087	0.0097	0.0101
n-Nonane	P9	1.5148	1.8933	1.9217
1,1-Methylethylcyclohexane	N9	0.4756	0.5944	0.6051
i-Propylbenzene	A9	0.3176	0.3720	0.3138
i-Propylcyclohexane	N9	0.1047	0.1288	0.1170
2,2-Dimethyloctane	I10	0.0765	0.1061	0.1045
2,4-Dimethyloctane	I10	0.0738	0.1023	0.1008
2,6-Dimethyloctane	I10	0.0092	0.0128	0.0130
2,5-Dimethyloctane	I10	0.0380	0.0527	0.0519

n-Butylcyclopentane	N9	0.3544	0.4844	0.4417
3,3-Dimethyloctane	I10	0.1246	0.1728	0.1703
n-Propylbenzene	A9	0.3640	0.4263	0.3597
3,6-Dimethyloctane	I10	0.2589	0.3590	0.3537
3-Methyl-5-ethylheptane	I10	0.4830	0.6037	0.6060
1,3-Methylethylbenzene	A9	0.2864	0.3355	0.2807
1,4-Methylethylbenzene	A9	0.1375	0.1611	0.1348
1,3,5-Trimethylbenzene	A9	0.1780	0.2085	0.1757
2,3-Dimethyloctane	I10	0.0249	0.0345	0.0340
5-Methylnonane	I10	0.2201	0.3052	0.3035
1,2-Methylethylbenzene	A9	0.3498	0.4097	0.3410
2-Methylnonane	I10	0.0751	0.1041	0.1044
3-Ethyloctane	I10	0.0980	0.1359	0.1339
3-Methylnonane	I10	0.2007	0.2783	0.2764
1,2,4-Trimethylbenzene	A9	0.0259	0.0303	0.0252
t-Butylbenzene	A10	0.3701	0.4841	0.4074
i-Butylcyclohexane	N10	0.2104	0.2876	0.2582
1t-Methyl-2-n-propylcyclohexane	I10	0.0912	0.1140	0.1144
i-Butylbenzene	A10	0.0584	0.0764	0.0653
sec-Butylbenzene	A10	0.1262	0.1651	0.1397
UnknownC9s	U9	1.7144	2.1428	2.1749
n-Decane	P10	1.0163	1.4091	1.4061
1,2,3-Trimethylbenzene	A9	0.1801	0.2109	0.1720
1,3-Methyl-i-propylbenzene	A10	0.1128	0.1321	0.1100
1,4-Methyl-i-propylbenzene	A10	0.0635	0.0744	0.0619
Sec-Butylcyclohexane	N10	0.3104	0.4243	0.3804
1,2-Methyl-i-propylbenzene	A10	0.1473	0.1927	0.1602
3-Ethylnonane	I10	0.0554	0.0768	0.0770
1,3-Diethylbenzene	A10	0.1368	0.1789	0.1510
1,3-Methyl-n-propylbenzene	A10	0.0742	0.0970	0.0821
1,4-Diethylbenzene	A10	0.1542	0.2017	0.1706
1,4-Methyl-n-propylbenzene	A10	0.1258	0.1645	0.1397
n-Butylbenzene	A10	0.1230	0.1609	0.1361
1,3-Dimethyl-5-ethylbenzene	A10	0.0775	0.1014	0.0855
1,2-Diethylbenzene	A10	0.1368	0.1789	0.1483
1,2-Methyl-n-propylbenzene	A10	0.0696	0.0910	0.0759
1,4-Dimethyl-2-ethylbenzene	A10	0.1005	0.1314	0.1092
1,3-Dimethyl-4-ethylbenzene	A10	0.0482	0.0630	0.0524
1,2-Dimethyl-4-ethylbenzene	A10	0.2516	0.3291	0.2744
1,3-Dimethyl-2-ethylbenzene	A10	0.0312	0.0408	0.0334
1t,2c,4-Trimethylcyclopentane	A10	0.5399	0.5904	0.5753
1,2-Dimethyl-3-ethylbenzene	A10	0.1601	0.2094	0.1711
1,2-Ethyl-i-propylbenzene	A10	0.0528	0.0691	0.0575
1,4-Methyl-t-butylbenzene	A11	0.0455	0.0595	0.0495
UnknownC10s	U10	2.3865	3.3088	3.3018
n-Undecane	P11	0.7245	1.1036	1.0860
1,4-Ethyl-i-propylbenzene	A11	0.0836	0.1093	0.0909
1,2,4,5-Tetramethylbenzene	A11	0.0774	0.1012	0.0833
1,2-Methyl-n-butylbenzene	A11	0.0531	0.0695	0.0578
1,2,3,5-Tetramethylbenzene	A11	0.0920	0.1203	0.0985
1,2-Methyl-t-butylbenzene	A11	0.0671	0.0878	0.0730
5-Methylindan	A11	0.0288	0.0478	0.0465
4-Methylindan	A11	0.0105	0.0174	0.0169
1,2-Ethyl-n-propylbenzene	A11	0.0400	0.0523	0.0435
2-Methylindan	A11	0.0328	0.0544	0.0530
1,3-Methyl-n-butylbenzene	A11	0.0580	0.0759	0.0631
1,3-Di-i-propylbenzene	A11	0.0136	0.0178	0.0148
sec-Pentylbenzene	A11	0.1270	0.1661	0.1381
n-Pentylbenzene	A11	0.0417	0.0602	0.0511
1t-M-2-(4MP)cyclopentane	P12	0.0234	0.0388	0.0378
1,2-Di-n-propylbenzene	A11	0.0730	0.0955	0.0794
1,4-Di-i-propylbenzene	A11	0.1254	0.1640	0.1364
Tetrahydronaphthalene	A10	0.0160	0.0209	0.0174
t-Decahydronaphthalene	A10	0.1247	0.1631	0.1356
Naphthalene	A10	0.0759	0.0948	0.0788
1-t-Butyl-3,5-dimethylbenzene	A12	0.0319	0.0417	0.0347
1,4-Ethyl-t-butylbenzene	A11	0.1140	0.1491	0.1240
UnknownC11s	U11	1.9083	2.9067	2.8604
n-Dodecane	P12	0.4607	0.7647	0.7442
1,3-Di-n-propylbenzene	A12	0.0424	0.0555	0.0462
1,3,5-Triethylbenzene	A12	0.0362	0.0424	0.0357
1,2,4-Triethylbenzene	A12	0.2248	0.2633	0.2190
1,4-Methyl-n-pentylbenzene	A12	0.0561	0.0734	0.0610

n-Hexylbenzene	A12	0.0298	0.0471	0.0400
1,2,3,4,5-Pentamethylbenzene	A13	0.0349	0.0456	0.0379
2-Methylnaphthalene	A11	0.0641	0.0888	0.0738
1-Methylnaphthalene	A11	0.0677	0.0938	0.0670
UnknownC12s	U12	1.1812	1.9607	1.9083
n-Tridecane	P13	0.0894	0.1606	0.1545
UnknownC13s	U13	0.5542	0.9956	0.9575
n-Tetradecane	P14	0.0060	0.0116	0.0111
UnknownC14s	U14	0.3553	0.6869	0.6593
n-Pentadecane	P15	0.0005	0.0010	0.0009
UnknownC15s	U15	0.0338	0.0700	0.0664
TOTAL		100.0000	100.0000	100.0000



CRUDE OIL ASSAY

PROJECT NO. :	201306025	ANALYSIS NO. :	02
COMPANY NAME :	CONOCO PHILLIPS	ANALYSIS DATE:	JUNE 6, 2013
ACCOUNT NO. :		SAMPLE DATE :	JUNE 4, 2013
PRODUCER :		CYLINDER NO. :	1L GLASS JAR
LEASE NO. :		SAMPLED BY :	JOHN MOSER
NAME/DESCRIP :	PRODUCTION TANK @ 12:40		EMPACT
	STATE OF COLORADO 36-1H		
FIELD DATA		SAMPLE TEMP. :	67
SAMPLE PRES. :		AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT		

SPECIFICATION	TEST METHOD	UNITS	RESULTS
API GRAVITY		API 60/60	38.3
RVP @100 DEG F	D323	PSIG	11.5
VISUAL APPEARANCE			BROWN

ND: NOT DETECTED

EMPACT ANALYTICAL SYSTEMS INC.
365 S. MAIN ST.
BRIGHTON, CO
80601

303-637-0150

EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

PROJECT NO. :	201306025	ANALYSIS NO. :	03
COMPANY NAME :	CONOCO PHILLIPS	ANALYSIS DATE:	JUNE 6, 2013
ACCOUNT NO. :		SAMPLE DATE :	JUNE 4, 2013
PRODUCER :		CYLINDER NO. :	1176
LEASE NO. :		SAMPLED BY :	JOHN MOSER - EMPACT
NAME/DESCRIP :	SALES GAS @ 12:55 STATE OF COLORADO 36-1H		
FIELD DATA		SAMPLE TEMP. :	90
SAMPLE PRES. :	64	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; LENGTH OF H2S STAIN @ 10.0PPM @ 13:00		

COMPONENT	MOLE %	MASS %	GPM @ 14.650	GPM @ 14.730
ALCOHOLS	0.0003	0.0007		
HELIUM	0.01	0.00	---	---
HYDROGEN	0.02	0.00	---	---
OXYGEN/ARGON	0.01	0.01	---	---
NITROGEN	1.11	1.26	---	---
CARBON DIOXIDE	2.74	4.87	---	---
METHANE	65.31170	42.34820	---	---
ETHANE	13.9675	16.9750	3.7320	3.7523
PROPANE	11.0836	19.7536	3.0509	3.0675
I-BUTANE	1.1081	2.6031	0.3626	0.3646
N-BUTANE	3.0509	7.1671	0.9605	0.9658
I-PENTANE	0.5408	1.5734	0.1953	0.1964
N-PENTANE	0.5525	1.6111	0.2003	0.2014
HEXANES PLUS	0.4946	1.8278	0.1932	0.1940
TOTALS	100.00000	100.00000	8.6948	8.7420

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0226	0.0713
TOLUENE	0.0109	0.0406
ETHYLBENZENE	0.0012	0.0051
XYLENES	0.0019	0.0082
TOTAL BTEX	0.0366	0.1252

	BTU @	14.650	14.730
LOW	NET DRY REAL :	1266.2 **/scf**	1273.1 **/scf**
	NET WET REAL :	1244.1 **/scf**	1251.0 **/scf**
HIGH	GROSS DRY REAL :	1390.5 **/scf**	1398.1 **/scf**
	GROSS WET REAL :	1366.2 **/scf**	1373.8 **/scf**
	NET DRY REAL :	19437.0 **/lb**	19543.1 **/lb**
	GROSS DRY REAL :	21349.9 **/lb**	21466.4 **/lb**
	RELATIVE DENSITY (AIR=1):		0.8532
	COMPRESSIBILITY FACTOR :		0.99528

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

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

EMPACT ANALYTICAL SYSTEMS INC.
365 S. MAIN ST.
BRIGHTON, CO
80601

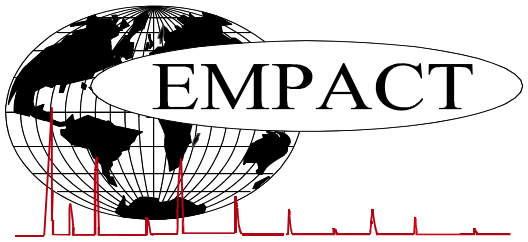
303-637-0150

EXTENDED NATURAL GAS ANALYSIS (*DHA)

GLYCALC INFORMATION

PROJECT NO. :	201306025	ANALYSIS NO. :	03
COMPANY NAME :	CONOCO PHILLIPS	ANALYSIS DATE:	JUNE 6, 2013
ACCOUNT NO. :		SAMPLE DATE :	JUNE 4, 2013
PRODUCER :		CYLINDER NO. :	1176
LEASE NO. :		SAMPLED BY :	JOHN MOSER - EMPACT
NAME/DESCRIP :	SALES GAS @ 12:55 STATE OF COLORADO 36-1H		
FIELD DATA		SAMPLE TEMP. :	90
SAMPLE PRES. :	64	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; LENGTH OF H2S STAIN @ 10.0PPM @ 13:00		

Componet	Mole %	Wt %
Helium	0.01	0.00
Hydrogen	0.02	0.00
Carbon Dioxide	2.74	4.87
Nitrogen	1.11	1.26
Methane	65.31170	42.34820
Ethane	13.9675	16.9750
Propane	11.0836	19.7536
Isobutane	1.1081	2.6031
n-Butane	3.0509	7.1671
Isopentane	0.4968	1.4487
n-Pentane	0.5525	1.6111
Cyclopentane	0.0440	0.1247
n-Hexane	0.0997	0.3473
Cyclohexane	0.0256	0.0871
Other Hexanes	0.1903	0.6579
Heptanes	0.0812	0.3264
Methycyclohexane	0.0191	0.0758
2,2,4 Trimethylpentane	0.0001	0.0004
Benzene	0.0226	0.0713
Toluene	0.0109	0.0406
Ethylbenzene	0.0012	0.0051
Xylenes	0.0019	0.0082
C8+ Heavies	0.0420	0.2077
Subtotal	99.98970	99.98930
Oxygen/Argon	0.01	0.01
Alcohols	0.0003	0.0007
Total	100.00000	100.00000



EXTENDED NATURAL GAS ANALYSIS (*DHA)

DHA COMPONENT LIST

PROJECT NO. :	201306025	ANALYSIS NO. :	03
COMPANY NAME :	CONOCO PHILLIPS	ANALYSIS DATE:	JUNE 6, 2013
ACCOUNT NO. :		SAMPLE DATE :	JUNE 4, 2013
PRODUCER :		CYLINDER NO. :	1176
LEASE NO. :		SAMPLED BY :	JOHN MOSER - EMPACT
NAME/DESCRIP :	SALES GAS @ 12:55 STATE OF COLORADO 36-1H		
FIELD DATA		SAMPLE TEMP. :	90
SAMPLE PRES. :	64	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; LENGTH OF H2S STAIN @ 10.0PPM @ 13:00		

COMPONENT	PIANO #	MOLE %	MASS %	GPM @ 14.650	GPM @ 14.730
Helium	---	0.01	0.00	---	---
Hydrogen	---	0.02	0.00	---	---
Oxygen/Argon	---	0.01	0.01	---	---
Nitrogen	---	1.11	1.26	---	---
Carbon Dioxide	---	2.74	4.87	---	---
Methane	P1	65.31170	42.34820	---	---
Ethane	P2	13.9675	16.9750	3.732	3.752
Propane	P3	11.0836	19.7536	3.051	3.068
i-Butane	I4	1.1081	2.6031	0.363	0.365
n-Butane	P4	3.0509	7.1671	0.961	0.966
2,2-Dimethylpropane	I5	0.0019	0.0055	0.001	0.001
Ethanol	X2	0.0001	0.0002	0.000	0.000
i-Pentane	I5	0.4949	1.4432	0.181	0.182
i-Propanol	X3	0.0001	0.0002	0.000	0.000
n-Pentane	P5	0.5525	1.6111	0.200	0.201
t-Butanol	X4	0.0001	0.0003	0.000	0.000
2,2-Dimethylbutane	I6	0.0012	0.0042	0.000	0.000
Cyclopentane	N5	0.0440	0.1247	0.013	0.013
2,3-Dimethylbutane	I6	0.0081	0.0282	0.003	0.003
2-Methylpentane	I6	0.0801	0.2790	0.033	0.033
3-Methylpentane	I6	0.0410	0.1428	0.017	0.017
n-Hexane	P6	0.0997	0.3473	0.041	0.041
2,2-Dimethylpentane	I7	0.0001	0.0004	0.000	0.000
Methylcyclopentane	N6	0.0599	0.2037	0.021	0.021
2,4-Dimethylpentane	I7	0.0024	0.0097	0.001	0.001
Benzene	A6	0.0226	0.0713	0.006	0.006
3,3-Dimethylpentane	I7	0.0002	0.0008	0.000	0.000
Cyclohexane	N6	0.0256	0.0871	0.009	0.009
2-Methylhexane	I7	0.0094	0.0381	0.004	0.004
2,3-Dimethylpentane	I7	0.0052	0.0211	0.002	0.002
1,1-Dimethylcyclopentane	N7	0.0023	0.0091	0.001	0.001
3-Methylhexane	I7	0.0114	0.0462	0.005	0.005
1c,3-Dimethylcyclopentane	N7	0.0062	0.0246	0.003	0.003
1t,3-Dimethylcyclopentane	N7	0.0056	0.0222	0.003	0.003
3-Ethylpentane	I7	0.0005	0.0020	0.000	0.000
1t,2-Dimethylcyclopentane	N7	0.0118	0.0468	0.005	0.005

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2,2,4-Trimethylpentane	I8	0.0001	0.0004	0.000	0.000
n-Heptane	P7	0.0223	0.0903	0.010	0.010
1c,2-Dimethylcyclopentane	N7	0.0008	0.0032	0.000	0.000
Methylcyclohexane	N7	0.0191	0.0758	0.008	0.008
2,2-Dimethylhexane	I8	0.0012	0.0055	0.001	0.001
Ethylcyclopentane	N7	0.0030	0.0119	0.001	0.001
2,5-Dimethylhexane	I8	0.0004	0.0019	0.000	0.000
2,2,3-Trimethylpentane	I8	0.0001	0.0004	0.000	0.000
2,4-Dimethylhexane	I8	0.0008	0.0037	0.000	0.000
1c,2t,4-Trimethylcyclopentane	N8	0.0015	0.0068	0.001	0.001
3,3-Dimethylhexane	I8	0.0001	0.0004	0.000	0.000
1t,2c,4-Trimethylcyclopentane	N8	0.0018	0.0082	0.001	0.001
2,3,4-Trimethylpentane	I8	0.0004	0.0019	0.000	0.000
Toluene	A7	0.0109	0.0406	0.004	0.004
2,3-Dimethylhexane	I8	0.0007	0.0032	0.000	0.000
2-Methyl-3-ethylpentane	I8	0.0004	0.0019	0.000	0.000
2-Methylheptane	I8	0.0036	0.0166	0.002	0.002
4-Methylheptane	I8	0.0010	0.0046	0.001	0.001
3-Methyl-3-ethylpentane	I8	0.0001	0.0004	0.000	0.000
3,4-Dimethylhexane	I8	0.0001	0.0004	0.000	0.000
1c,2c,4-Trimethylcyclopentane	N8	0.0001	0.0004	0.000	0.000
1c,3-Dimethylcyclohexane	N8	0.0001	0.0004	0.000	0.000
3-Methylheptane	I8	0.0010	0.0046	0.001	0.001
1c,2t,3-Trimethylcyclopentane	N8	0.0027	0.0123	0.001	0.001
3-Ethylhexane	I8	0.0005	0.0023	0.000	0.000
1t,4-Dimethylcyclohexane	N8	0.0008	0.0036	0.000	0.000
1,1-Dimethylcyclohexane	N8	0.0003	0.0014	0.000	0.000
3t-Ethylmethylcyclopentane	N8	0.0006	0.0027	0.000	0.000
2t-Ethylmethylcyclopentane	N8	0.0005	0.0023	0.000	0.000
1,1-Methylethylcyclopentane	N8	0.0016	0.0073	0.001	0.001
2,2,4-Trimethylhexane	I9	0.0001	0.0005	0.000	0.000
1t,2-Dimethylcyclohexane	N8	0.0013	0.0059	0.001	0.001
n-Octane	P8	0.0047	0.0217	0.002	0.002
1c,4-Dimethylcyclohexane	N8	0.0008	0.0036	0.000	0.000
i-Propylcyclopentane	I8	0.0001	0.0004	0.000	0.000
1c,2-Dimethylcyclohexane	N8	0.0003	0.0014	0.000	0.000
1,1,4-Trimethylcyclohexane	N9	0.0017	0.0087	0.001	0.001
2,2,3-Trimethylhexane	I9	0.0005	0.0026	0.000	0.000
Ethylcyclohexane	N8	0.0008	0.0036	0.000	0.000
n-Propylcyclopentane	N8	0.0002	0.0009	0.000	0.000
2,5-Dimethylheptane	I9	0.0001	0.0005	0.000	0.000
3,3-Dimethylheptane	I9	0.0001	0.0005	0.000	0.000
3,5-Dimethylheptane	I9	0.0001	0.0005	0.000	0.000
2,6-Dimethylheptane	I9	0.0001	0.0005	0.000	0.000
Ethylbenzene	I8	0.0012	0.0051	0.000	0.000
1c,2t,4t-Trimethylcyclohexane	N9	0.0003	0.0015	0.000	0.000
1,3-Dimethylbenzene (m-Xylene)	A8	0.0010	0.0043	0.000	0.000
1,4-Dimethylbenzene (p-Xylene)	A8	0.0002	0.0009	0.000	0.000
3,4-Dimethylheptane	I9	0.0008	0.0042	0.000	0.000
3,4-Dimethylheptane (2)	I9	0.0002	0.0011	0.000	0.000
4-Ethylheptane	I9	0.0001	0.0005	0.000	0.000
4-Methyloctane	I9	0.0003	0.0015	0.000	0.000
2-Methyloctane	I9	0.0004	0.0021	0.000	0.000
1c,2t,3-Trimethylcyclohexane	N9	0.0001	0.0005	0.000	0.000
3-Ethylheptane	I9	0.0001	0.0005	0.000	0.000
3-Methyloctane	I9	0.0004	0.0021	0.000	0.000
1,2-Dimethylbenzene (o-Xylene)	A8	0.0007	0.0030	0.000	0.000
i-Butylcyclopentane	N9	0.0003	0.0015	0.000	0.000
n-Nonane	P9	0.0012	0.0062	0.001	0.001
1,1-Methylethylcyclohexane	N9	0.0002	0.0010	0.000	0.000

i-Propylbenzene	A9	0.0003	0.0015	0.000	0.000
i-Propylcyclohexane	N9	0.0001	0.0005	0.000	0.000
n-Butylcyclopentane	N9	0.0002	0.0010	0.000	0.000
n-Propylbenzene	A9	0.0002	0.0010	0.000	0.000
3,6-Dimethyloctane	I10	0.0001	0.0006	0.000	0.000
3-Methyl-5-ethylheptane	I10	0.0002	0.0011	0.000	0.000
1,3-Methylethylbenzene	A9	0.0001	0.0005	0.000	0.000
1,4-Methylethylbenzene	A9	0.0001	0.0005	0.000	0.000
1,3,5-Trimethylbenzene	A9	0.0001	0.0005	0.000	0.000
5-Methylnonane	I10	0.0001	0.0006	0.000	0.000
1,2-Methylethylbenzene	A9	0.0001	0.0005	0.000	0.000
t-Butylbenzene	A10	0.0001	0.0005	0.000	0.000
i-Butylcyclohexane	N10	0.0001	0.0006	0.000	0.000
UnknownC9s	U9	0.0014	0.0073	0.001	0.001
n-Decane	P10	0.0002	0.0011	0.000	0.000
Sec-Butylcyclohexane	A10	0.0001	0.0006	0.000	0.000
UnknownC10s	U10	0.0013	0.0075	0.001	0.001
n-Undecane	P11	0.0001	0.0007	0.000	0.000
UnknownC11s	U11	0.0001	0.0007	0.000	0.000
n-Pentadecane	P15	0.0001	0.0009	0.000	0.000
n-Hexadecane	P16	0.0002	0.0018	0.000	0.000
n-Heptadecane	P17	0.0002	0.0019	0.000	0.000
UnknownC17s	U17	0.0001	0.0010	0.000	0.000
n-Octadecane	P18	0.0001	0.0010	0.000	0.000
UnknownC18s	U18	0.0002	0.0021	0.000	0.000
n-Nonadecane	P19	0.0001	0.0011	0.000	0.000
UnknownC19s	U19	0.0002	0.0022	0.000	0.000
UnknownC21s	U21	0.0001	0.0012	0.000	0.000
TOTAL		100.00000	100.00000	8.6948	8.7420

BTEX COMPONENTS	**MOLE%**	**WT%**
BENZENE	0.0226	0.0713
TOLUENE	0.0109	0.0406
ETHYLBENZENE	0.0012	0.0051
XYLENES	0.0019	0.0082
TOTAL BTEX	0.0366	0.1252

	BTU @	14.650		14.730	
LOW	NET DRY REAL :	1266.2	**/scf**	1273.1	**/scf**
	NET WET REAL :	1244.1	**/scf**	1251.0	**/scf**
HIGH	GROSS DRY REAL :	1390.5	**/scf**	1398.1	**/scf**
	GROSS WET REAL :	1366.2	**/scf**	1373.8	**/scf**
	NET DRY REAL :	19437.0	**/lb**	19543.1	**/lb**
	GROSS DRY REAL :	21349.9	**/lb**	21466.4	**/lb**
	RELATIVE DENSITY (AIR=1):			0.8532	
	COMPRESSIBILITY FACTOR :			0.99528	

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

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

THIS DATA HAS BEEN ACQUIRED THROUGH APPLICATION OF CURRENT STATE-OF-THE-ART ANALYTICAL TECHNIQUES. THE USE OF THIS INFORMATION IS THE RESPONSIBLITY OF THE USER. EMPACT ANALYTICAL SYSTEMS, ASSUMES NO RESPONSIBLITY FOR ACCURACY OF THE REPORTED INFORMATION NOR ANY CONSEQUENCES OF IT'S APPLICATION.

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