CRUDE OIL ASSAY

PROJECT NO. :	201308015	ANALYSIS NO. :	01
COMPANY NAME :	CONOCO PHILLIPS	ANALYSIS DATE:	AUGUST 6, 2013
ACCOUNT NO. :		SAMPLE DATE :	AUGUST 2, 2013
PRODUCER :		CYLINDER NO. :	1L GLASS JAR
LEASE NO. :	TK# 362641-2	SAMPLED BY :	GALE MCENDREE
NAME/DESCRIP :	TANK BATTERY @ 19:15 TEBO 1-1H		EMPACT
FIELD DATA		SAMPLE TEMP. :	83
SAMPLE PRES. :		AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT		

SPECIFICATION	TEST METHOD	UNITS	RESULTS
API GRAVITY		API 60/60	36.9
RVP @100 DEG F	D323	PSIG	9
TOTAL SULFUR	D2622	WT %	N/A
TOTAL CHLORIDE	D4929	ug/g	N/A
ORGANIC CHLORIDE	D4929	ug/g	N/A
FLASH POINT	D93	° F	N/A
HEATING VALUE	D4809	BTU/ LB	N/A
VISUAL APPEARANCE			DARK BROWN
BS&W	D96		
Crude Oil		VOL %	N/A
Water		VOL %	N/A
Emulsion		VOL %	N/A
Sediment		VOL %	N/A
DISTILLATION:	D86		
INITIAL POINT		DEG F	N/A
50%		DEG F	N/A
90%		DEG F	N/A
END POINT		DEG F	N/A
DISTILLATION: @TEMP	D445		
Average Centipoise	20°C		N/A
Average Centipoise	30°C		N/A
Average Centipoise	80°C		N/A
Kinetic Viscosity	20°C	cSt (mm2/s)	N/A
Kinetic Viscosity	30°C	cSt (mm2/s)	N/A
Kinetic Viscosity	80°C	cSt (mm2/s)	N/A

ND: NOT DETECTED

N/A: NO TEST PREFORMED FOR THIS PARAMETER

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

303-637-0150

EXTENDED NATURAL GAS LIQUID ANALYSIS (*DHA)

MAIN PAGE

PROJECT NO. :	201308015	ANALYSIS NO. :	02
COMPANY NAME :	CONOCO PHILLIPS	ANALYSIS DATE:	AUGUST 5, 2013
ACCOUNT NO. :		SAMPLE DATE :	AUGUST 2, 2013
PRODUCER :		CYLINDER NO. :	2778
LEASE NO. :		SAMPLED BY :	GALE MCENDREE
NAME/DESCRIP :	SEPARATOR @ 18:50 TEBO 1-1H		EMPACT
FIELD DATA		SAMPLE TEMP. :	90
SAMPLE PRES. :	30	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; NO PROBE		

COMPONENT	MOLE %	MASS %	VOL %
NITROGEN (AIR)	0.0084	0.0022	0.0020
CARBON DIOXIDE	0.0398	0.0164	0.0148
METHANE	0.0988	0.0148	0.0364
ETHANE	0.6033	0.1698	0.3511
PROPANE	2.5598	1.0563	1.5344
I-BUTANE	0.7113	0.3869	0.5062
N-BUTANE	3.1316	1.7032	2.1479
I-PENTANE	1.3267	0.8957	1.0563
N-PENTANE	2.0236	1.3662	1.5942
HEXANES PLUS	89.4967	94.3885	92.7567
TOTALS	100.0000	100.0000	100.0000

BTEX COMPONENTS	**MOLE%**	**MASS%**
BENZENE	1.4762	1.0790
TOLUENE	3.1858	2.7468
ETHYLBENZENE	0.6524	0.6482
XYLENE	2.5268	2.5103
TOTAL BTEX	7.8412	6.9843

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

	TOTAL SAMPLE	**C6+ FRACTION**	
Specific Gravity (H2O=1) =	0.7364	0.7491	60/60
API Gravity =	60.65	57.39	60/60
Molecular Weight =	106.87	113.27	
Absolute Density =	6.14	6.25	LBS/GAL
Heating Value Liq. Idl Gas=	124952	127139	BTU/GAL
Vapor/Liquid =	21.85	21.03	CUFT/GAL
Vapor Pressure =	18.94	1.80	PSIA @100 F

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

EMPACT ANALYTICAL SYSTEMS INC.
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303-637-0150

EXTENDED NATURAL GAS LIQUID ANALYSIS (*DHA)

E & P TANK / GLYCALC INFORMATION

PROJECT NO. :	201308015	ANALYSIS NO. :	02
COMPANY NAME :	CONOCO PHILLIPS	ANALYSIS DATE:	AUGUST 5, 2013
ACCOUNT NO. :		SAMPLE DATE :	AUGUST 2, 2013
PRODUCER :		CYLINDER NO. :	2778
LEASE NO. :		SAMPLED BY :	GALE MCENDREE
NAME/DESCRIP :	SEPARATOR @ 18:50 TEBO 1-1H		EMPACT
FIELD DATA		SAMPLE TEMP. :	90
SAMPLE PRES. :	30	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; NO PROBE		

COMPONENT	Mole %		Wt %		LV %	
CARBON DIOXIDE	0.0398		0.0164		0.0148	
NITROGEN (AIR)	0.0084		0.0022		0.0020	
METHANE	0.0988		0.0148		0.0364	
ETHANE	0.6033		0.1698		0.3511	
PROPANE	2.5598		1.0563		1.5344	
I-BUTANE	0.7113		0.3869		0.5062	
N-BUTANE	3.1316		1.7032		2.1479	
I-PENTANE	1.3267		0.8957		1.0563	
N-PENTANE	2.0236		1.3662		1.5942	
CYCLOPENTANE (N-C5)	1.1638		0.7637		0.7399	
N-HEXANE	7.0567		5.6913		6.3152	
CYCLOHEXANE (OTHER C6)	2.9644		2.3346		2.1946	
OTHER HEXANES	10.1504		8.1040		8.5542	
OTHER HEPTANES	14.0506		13.0894		13.5915	
METHYLCYCLOHEXANE (OTHER C7)	4.2671		3.9207		3.7272	
2,2,4 TRIMETHYLPENTANE	0.8105		0.7447		0.7279	
BENZENE	1.4762		1.0790		0.9001	
TOLUENE	3.1858		2.7468		2.3139	
ETHYLBENZENE	0.6524		0.6482		0.5460	
XYLENES	2.5268		2.5103		2.1194	
OTHER OCTANES	11.2880		12.0889		12.0972	
OCTANES PLUS	----	45.1817	----	56.6590	----	54.4201
NONANES	10.0646		11.9428		11.5883	
DECANES PLUS	19.8394		28.7241		27.3413	
SUB TOTAL	100.0000		100.0000		100.0000	
TOTAL	100.0000		100.0000		100.0000	

API Gravity =	**60.65**	60/60
Vapor Pressure =	**18.94**	PSIA & 100 F
Average Molecular Weight of Decanes plus =	**154.72**	
Average Specific Gravity of Decanes plus =	**0.7660**	

EMPACT ANALYTICAL SYSTEMS INC.
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303-637-0150

EXTENDED NATURAL GAS LIQUID ANALYSIS (*DHA)

BY CARBON NUMBER

PROJECT NO. :	201308015	ANALYSIS NO. :	02
COMPANY NAME :	CONOCO PHILLIPS	ANALYSIS DATE:	AUGUST 5, 2013
ACCOUNT NO. :		SAMPLE DATE :	AUGUST 2, 2013
PRODUCER :		CYLINDER NO. :	2778
LEASE NO. :		SAMPLED BY :	GALE MCENDREE
NAME/DESCRIP :	SEPARATOR @ 18:50		EMPACT
	TEBO 1-1H		
FIELD DATA		SAMPLE TEMP. :	90
SAMPLE PRES. :	30	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; NO PROBE		

COMPONENT / CARBON NUMBER		MOLE%	MASS %	VOLUME %
NITROGEN		0.0084	0.0022	0.0020
CARBON DIOXIDE		0.0398	0.0164	0.0148
	C1	0.0988	0.0148	0.0364
	C2	0.6033	0.1698	0.3511
	C3	2.5598	1.0563	1.5344
	C4	3.8429	2.0901	2.6541
	C5	4.5141	3.0256	3.3904
	C6	21.6477	17.2089	17.9641
	C7	21.5035	19.7569	19.6326
	C8	15.2777	15.9921	15.4905
	C9	10.0646	11.9428	11.5883
	C10	9.3411	12.0245	11.4660
	C11	4.3283	6.0769	5.7001
	C12	2.3488	3.5623	3.4085
	C13	1.7015	2.8872	2.7744
	C14	0.9582	1.7789	1.7164
	C15	0.6859	1.3634	1.3003
	C16	0.3325	0.7045	0.6676
	C17	0.1176	0.2646	0.2500
	C18	0.0202	0.0481	0.0453
	C19	0.0034	0.0085	0.0079
	C20	0.0009	0.0024	0.0022
	C21	0.0010	0.0028	0.0026
	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

EMPACT ANALYTICAL SYSTEMS INC.
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303-637-0150

EXTENDED NATURAL GAS LIQUID ANALYSIS (*DHA)

DHA COMPONENT LIST

PROJECT NO. :	201308015	ANALYSIS NO. :	02
COMPANY NAME :	CONOCO PHILLIPS	ANALYSIS DATE:	AUGUST 5, 2013
ACCOUNT NO. :		SAMPLE DATE :	AUGUST 2, 2013
PRODUCER :		CYLINDER NO. :	2778
LEASE NO. :		SAMPLED BY :	GALE MCENDREE
NAME/DESCRIP :	SEPARATOR @ 18:50 TEBO 1-1H		EMPACT
FIELD DATA		SAMPLE TEMP. :	90
SAMPLE PRES. :	30	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; NO PROBE		

COMPONENT	PIANO #	MOLE %	MASS %	VOL %
Nitrogen	NHC	0.0084	0.0022	0.0020
Carbon Dioxide	NHC	0.0398	0.0164	0.0148
Methane	P1	0.0988	0.0148	0.0364
Ethane	P2	0.6033	0.1698	0.3511
Propane	P3	2.5598	1.0563	1.5344
i-Butane	I4	0.7113	0.3869	0.5062
n-Butane	P4	3.1316	1.7032	2.1479
2,2-Dimethylpropane	I5	0.0062	0.0042	0.0052
i-Pentane	I5	1.3205	0.8915	1.0511
n-Pentane	P5	2.0236	1.3662	1.5942
2,2-Dimethylbutane	I6	0.0758	0.0611	0.0688
Cyclopentane	N5	1.1638	0.7637	0.7399
2,3-Dimethylbutane	I6	0.3235	0.2609	0.2881
2-Methylpentane	I6	3.4127	2.7521	3.0814
3-Methylpentane	I6	2.0234	1.6317	1.7965
n-Hexane	P6	7.0567	5.6913	6.3152
2,2-Dimethylpentane	I7	0.0042	0.0039	0.0042
Methylcyclopentane	N6	4.3150	3.3982	3.3194
2,4-Dimethylpentane	I7	0.3136	0.2940	0.3201
2,2,3-Trimethylbutane	I7	0.0409	0.0383	0.0406
Benzene	A6	1.4762	1.0790	0.9001
3,3-Dimethylpentane	I7	0.0288	0.0270	0.0286
Cyclohexane	N6	2.9644	2.3346	2.1946
2-Methylhexane	I7	1.2802	1.2003	1.2955
2,3-Dimethylpentane	I7	0.8006	0.7507	0.7871
1,1-Dimethylcyclopentane	N7	0.4480	0.4116	0.3993
3-Methylhexane	I7	1.8831	1.7656	1.8769
1c,3-Dimethylcyclopentane	N7	0.8741	0.8031	0.7891
1t,3-Dimethylcyclopentane	N7	0.8105	0.7447	0.7279
3-Ethylpentane	I7	0.0439	0.0412	0.0431
1t,2-Dimethylcyclopentane	N7	1.6949	1.5573	1.5169
2,2,4-Trimethylpentane	I8	0.1400	0.1496	0.1576
n-Heptane	P7	5.1545	4.8330	5.1718
1c,2-Dimethylcyclopentane	N7	0.0720	0.0662	0.0627
Methylcyclohexane	N7	4.2671	3.9207	3.7272
2,2-Dimethylhexane	I8	0.4442	0.4748	0.4995
Ethylcyclopentane	N7	0.6013	0.5525	0.5277
2,5-Dimethylhexane	I8	0.1334	0.1426	0.1504
2,2,3-Trimethylpentane	I8	0.0201	0.0215	0.0220
2,4-Dimethylhexane	I8	0.2483	0.2654	0.2786
1c,2t,4-Trimethylcyclopentane	N8	0.3775	0.3964	0.3801

3,3-Dimethylhexane	I8	0.0525	0.0561	0.0579
2,3,4-Trimethylpentane	I8	0.1091	0.1166	0.1186
2,3,3-Trimethylpentane	I8	0.0012	0.0013	0.0013
Toluene	A7	3.1858	2.7468	2.3139
2,3-Dimethylhexane	I8	0.2405	0.2571	0.2644
2-Methyl-3-ethylpentane	I8	0.1536	0.1642	0.1670
1,1,2-Trimethylcyclopentane	N8	0.0103	0.0108	0.0102
2-Methylheptane	I8	1.3912	1.4871	1.5566
4-Methylheptane	I8	0.4705	0.5029	0.5137
3-Methyl-3-ethylpentane	I8	0.0676	0.0723	0.0728
3,4-Dimethylhexane	I8	0.0859	0.0918	0.0934
1c,2c,4-Trimethylcyclopentane	N8	0.0377	0.0396	0.0376
1c,3-Dimethylcyclohexane	N8	0.0449	0.0471	0.0450
3-Methylheptane	I8	0.2813	0.3007	0.3120
1c,2t,3-Trimethylcyclopentane	N8	1.1527	1.2103	1.1502
3-Ethylhexane	I8	0.2383	0.2547	0.2615
1t,4-Dimethylcyclohexane	N8	0.4939	0.5186	0.4979
1,1-Dimethylcyclohexane	N8	0.1354	0.1422	0.1333
3c-Ethylmethylcyclopentane	N8	0.0015	0.0016	0.0015
3t-Ethylmethylcyclopentane	N8	0.2054	0.2157	0.2060
2t-Ethylmethylcyclopentane	N8	0.1676	0.1760	0.1676
1,1-Methylethylcyclopentane	N8	0.5848	0.6140	0.5758
2,2,4-Trimethylhexane	I9	0.0599	0.0719	0.0736
1t,2-Dimethylcyclohexane	N8	0.5818	0.6109	0.5766
1t,3-Dimethylcyclohexane	N8	0.0055	0.0058	0.0054
n-Octane	P8	2.7868	2.9788	3.1033
1c,4-Dimethylcyclohexane	N8	0.4334	0.4551	0.4257
i-Propylcyclopentane	I8	0.0337	0.0354	0.0334
2,4,4-Trimethylhexane	I9	0.0249	0.0299	0.0303
2,2,3,4-Tetramethylpentane	I9	0.0155	0.0186	0.0189
2,3,4-Trimethylhexane	I9	0.0181	0.0217	0.0220
1c,2-Dimethylcyclohexane	N8	0.1995	0.2095	0.1927
2,3,5-Trimethylhexane	I9	0.0175	0.0210	0.0213
2,2-Dimethylheptane	I9	0.0173	0.0208	0.0214
1,1,4-Trimethylcyclohexane	N9	1.0346	1.2222	1.1596
2,2,3-Trimethylhexane	I9	0.3975	0.4771	0.4790
2,4-Dimethylheptane	I9	0.0482	0.0578	0.0591
4,4-Dimethylheptane	I9	0.0587	0.0705	0.0721
Ethylcyclohexane	N8	0.5504	0.5779	0.5373
n-Propylcyclopentane	N8	0.1986	0.2085	0.1966
1c,3c,5-Trimethylcyclohexane	N9	0.0302	0.0357	0.0339
2,5-Dimethylheptane	I9	0.0878	0.1054	0.1077
3,3-Dimethylheptane	I9	0.0976	0.1171	0.1196
3,5-Dimethylheptane	I9	0.0663	0.0796	0.0813
2,6-Dimethylheptane	I9	0.0469	0.0563	0.0581
1,1,3-Trimethylcyclohexane	N9	0.0397	0.0469	0.0445
Ethylbenzene	A8	0.6524	0.6482	0.5460
1c,2t,4t-Trimethylcyclohexane	N9	0.3122	0.3688	0.3432
2,3-Dimethylheptane	I9	0.0052	0.0062	0.0063
1,3-Dimethylbenzene (m-Xylene)	A8	0.8390	0.8335	0.7061
1,4-Dimethylbenzene (p-Xylene)	A8	1.0155	1.0089	0.8574
3,4-Dimethylheptane	I9	0.1278	0.1534	0.1536
3,4-Dimethylheptane (2)	I9	0.1784	0.2141	0.2144
4-Ethylheptane	I9	0.0695	0.0834	0.0853
4-Methyloctane	I9	0.2629	0.3155	0.3206
2-Methyloctane	I9	0.3479	0.4176	0.4285
1c,2t,4c-Trimethylcyclohexane	I9	0.0469	0.0563	0.0568
3-Ethylheptane	I9	0.0530	0.0636	0.0641
3-Methyloctane	I9	0.4074	0.4890	0.4968
3,3-Diethylpentane	I9	0.0432	0.0519	0.0504
1c,2t,3-Trimethylcyclohexane	N9	0.0712	0.0841	0.0783
1,1,2-Trimethylcyclohexane	N9	0.0341	0.0403	0.0375
1,2-Dimethylbenzene (o-Xylene)	A8	0.6723	0.6679	0.5559
i-Butylcyclopentane	N9	0.2843	0.3358	0.3149
UnknownC8s	U8	0.0194	0.0207	0.0216
n-Nonane	P9	1.7643	2.1175	2.1605
1,1-Methylethylcyclohexane	N9	0.2286	0.2744	0.2808
i-Propylbenzene	A9	0.3328	0.3743	0.3174
i-Propylcyclohexane	N9	0.0990	0.1170	0.1069
2,2-Dimethyloctane	I10	0.0703	0.0936	0.0927
2,4-Dimethyloctane	I10	0.0590	0.0786	0.0778
2,6-Dimethyloctane	I10	0.0080	0.0106	0.0108
2,5-Dimethyloctane	I10	0.0438	0.0583	0.0577

n-Butylcyclopentane	N9	0.3039	0.3989	0.3657
3,3-Dimethyloctane	I10	0.0656	0.0873	0.0865
n-Propylbenzene	A9	0.3748	0.4215	0.3575
3,6-Dimethyloctane	I10	0.2043	0.2720	0.2694
3-Methyl-5-ethylheptane	I10	0.4553	0.5464	0.5514
1,3-Methylethylbenzene	A9	0.4784	0.5381	0.4526
1,4-Methylethylbenzene	A9	0.1490	0.1676	0.1410
1,3,5-Trimethylbenzene	A9	0.1657	0.1864	0.1579
2,3-Dimethyloctane	I10	0.0653	0.0869	0.0861
5-Methylnonane	I10	0.1648	0.2194	0.2193
2-Methylnonane	I10	0.0313	0.0417	0.0420
3-Ethyloctane	I10	0.0637	0.0848	0.0840
3-Methylnonane	I10	0.1890	0.2516	0.2512
1,2,4-Trimethylbenzene	A9	0.0461	0.0519	0.0434
t-Butylbenzene	A10	0.3929	0.4935	0.4174
i-Butylcyclohexane	N10	0.2171	0.2850	0.2572
1t-Methyl-2-n-propylcyclohexane	I10	0.0642	0.0771	0.0778
i-Butylbenzene	A10	0.0689	0.0865	0.0743
sec-Butylbenzene	A10	0.1010	0.1269	0.1079
UnknownC9s	U9	1.5729	1.8878	1.9262
n-Decane	P10	1.1700	1.5577	1.5626
1,2,3-Trimethylbenzene	A9	0.2444	0.2749	0.2253
1,3-Methyl-i-propylbenzene	A10	0.1072	0.1206	0.1009
1,4-Methyl-i-propylbenzene	A10	0.0345	0.0388	0.0325
Sec-Butylcyclohexane	N10	0.2997	0.3934	0.3546
1,2-Methyl-i-propylbenzene	A10	0.1956	0.2457	0.2054
3-Ethylnonane	I10	0.0429	0.0571	0.0576
1,3-Diethylbenzene	A10	0.1365	0.1714	0.1454
1,3-Methyl-n-propylbenzene	A10	0.0656	0.0824	0.0701
1,4-Diethylbenzene	A10	0.1555	0.1953	0.1660
1,4-Methyl-n-propylbenzene	A10	0.0641	0.0805	0.0687
n-Butylbenzene	A10	0.0734	0.0922	0.0784
1,3-Dimethyl-5-ethylbenzene	A10	0.0271	0.0340	0.0288
1,2-Diethylbenzene	A10	0.1301	0.1634	0.1362
1,2-Methyl-n-propylbenzene	A10	0.0939	0.1179	0.0989
1,4-Dimethyl-2-ethylbenzene	A10	0.1151	0.1446	0.1208
1,3-Dimethyl-4-ethylbenzene	A10	0.0586	0.0736	0.0615
1,2-Dimethyl-4-ethylbenzene	A10	0.1729	0.2172	0.1820
1,3-Dimethyl-2-ethylbenzene	A10	0.0320	0.0402	0.0331
1t,2c,4-Trimethylcyclopentane	A10	0.4264	0.4477	0.4386
1,2-Dimethyl-3-ethylbenzene	A10	0.1624	0.2040	0.1676
1,2-Ethyl-i-propylbenzene	A10	0.0761	0.0956	0.0799
1,4-Methyl-t-butylbenzene	A11	0.0574	0.0721	0.0603
UnknownC10s	U10	3.1830	4.2378	4.2511
n-Undecane	P11	0.8214	1.2014	1.1885
1,4-Ethyl-i-propylbenzene	A11	0.1322	0.1660	0.1388
1,2,4,5-Tetramethylbenzene	A11	0.0691	0.0868	0.0718
1,2-Methyl-n-butylbenzene	A11	0.1150	0.1444	0.1207
1,2,3,5-Tetramethylbenzene	A11	0.0307	0.0386	0.0318
1,2-Methyl-t-butylbenzene	A11	0.0700	0.0879	0.0735
5-Methylindan	A11	0.0093	0.0148	0.0145
4-Methylindan	A11	0.0114	0.0182	0.0178
1,2-Ethyl-n-propylbenzene	A11	0.0912	0.1145	0.0957
2-Methylindan	A11	0.0504	0.0803	0.0786
1,3-Methyl-n-butylbenzene	A11	0.0592	0.0744	0.0622
1,3-Di-i-propylbenzene	A11	0.0816	0.1025	0.0857
sec-Pentylbenzene	A11	0.0723	0.0908	0.0759
n-Pentylbenzene	A11	0.0757	0.1050	0.0896
1t-M-2-(4MP)cyclopentane	P12	0.0125	0.0199	0.0195
1,2-Di-n-propylbenzene	A11	0.0659	0.0828	0.0692
1,4-Di-i-propylbenzene	A11	0.1252	0.1572	0.1314
Tetrahydronaphthalene	A10	0.0241	0.0303	0.0253
t-Decahydronaphthalene	A10	0.1271	0.1596	0.1334
Naphthalene	A10	0.1028	0.1233	0.1031
1-t-Butyl-3,5-dimethylbenzene	A12	0.0441	0.0554	0.0463
1,4-Ethyl-t-butylbenzene	A11	0.0731	0.0918	0.0767
UnknownC11s	U11	1.9998	2.9251	2.8936
n-Dodecane	P12	0.5695	0.9078	0.8882
1,3-Di-n-propylbenzene	A12	0.0409	0.0514	0.0430
1,3,5-Triethylbenzene	A12	0.0320	0.0360	0.0305
1,2,4-Triethylbenzene	A12	0.2563	0.2883	0.2411
1,4-Methyl-n-pentylbenzene	A12	0.0422	0.0530	0.0443
n-Hexylbenzene	A12	0.0448	0.0680	0.0581

1,2,3,4,5-Pentamethylbenzene	A13	0.1027	0.1290	0.1078
2-Methylnaphthalene	A11	0.1305	0.1736	0.1451
1-Methylnaphthalene	A11	0.1869	0.2487	0.1787
UnknownC12s	U12	1.3065	2.0825	2.0375
n-Tridecane	P13	0.5128	0.8847	0.8553
UnknownC13s	U13	1.0860	1.8735	1.8113
n-Tetradecane	P14	0.1884	0.3498	0.3375
UnknownC14s	U14	0.7698	1.4291	1.3789
n-Pentadecane	P15	0.1197	0.2379	0.2269
UnknownC15s	U15	0.5662	1.1255	1.0734
n-Hexadecane	P16	0.0892	0.1890	0.1791
UnknownC16s	U16	0.2433	0.5155	0.4885
n-Heptadecane	P17	0.0114	0.0256	0.0242
UnknownC17s	U17	0.1062	0.2390	0.2258
n-Octadecane	P18	0.0037	0.0088	0.0083
UnknownC18s	U18	0.0165	0.0393	0.0370
n-Nonadecane	P19	0.0022	0.0055	0.0051
UnknownC19s	U19	0.0012	0.0030	0.0028
n-Eicosane	P20	0.0009	0.0024	0.0022
n-Heneicosane	P21	0.0010	0.0028	0.0026
TOTAL		100.0000	100.0000	100.0000

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

303-637-0150

EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

PROJECT NO. :	201308015	ANALYSIS NO. :	03
COMPANY NAME :	CONOCO PHILLIPS	ANALYSIS DATE:	AUGUST 8, 2013
ACCOUNT NO. :		SAMPLE DATE :	AUGUST 2, 2013
PRODUCER :		CYLINDER NO. :	0616
LEASE NO. :		SAMPLED BY :	GALE MCENDREE - EMPACT
NAME/DESCRIP :	SALES GAS @ 19:00 TEBO 1-1H		
FIELD DATA		SAMPLE TEMP. :	87
SAMPLE PRES. :	86	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; PROBE; LENGTH OF H2S STAIN @ 5PPM @ 19:05		

COMPONENT	MOLE %	MASS %	GPM @ 14.650	GPM @ 14.730
ALCOHOLS	0.0019	0.0043		
HELIUM	0.01	0.00	---	---
HYDROGEN	0.04	0.00	---	---
OXYGEN/ARGON	0.07	0.09	---	---
NITROGEN	1.44	1.56	---	---
CARBON DIOXIDE	2.80	4.78	---	---
METHANE	62.36480	38.80770	---	---
ETHANE	13.9687	16.2923	3.7334	3.7538
PROPANE	12.1633	20.8043	3.3487	3.3669
I-BUTANE	1.3265	2.9906	0.4339	0.4362
N-BUTANE	3.7733	8.5069	1.1894	1.1959
I-PENTANE	0.6929	1.9348	0.2485	0.2498
N-PENTANE	0.7190	2.0122	0.2605	0.2619
HEXANES PLUS	0.6296	2.2169	0.2483	0.2497
TOTALS	100.00000	100.00000	9.4627	9.5142

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0291	0.0882
TOLUENE	0.0125	0.0447
ETHYLBENZENE	0.0011	0.0045
XYLENES	0.0017	0.0070
TOTAL BTEX	0.0444	0.1444

	BTU @	14.650	14.730
LOW	NET DRY REAL :	1311.7 **/scf**	1318.9 **/scf**
	NET WET REAL :	1288.8 **/scf**	1295.9 **/scf**
HIGH	GROSS DRY REAL :	1439.1 **/scf**	1446.9 **/scf**
	GROSS WET REAL :	1413.9 **/scf**	1421.8 **/scf**
	NET DRY REAL :	19316.5 **/lb**	19421.9 **/lb**
	GROSS DRY REAL :	21197.0 **/lb**	21312.8 **/lb**
	RELATIVE DENSITY (AIR=1):		0.8893
	COMPRESSIBILITY FACTOR :		0.99489

(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

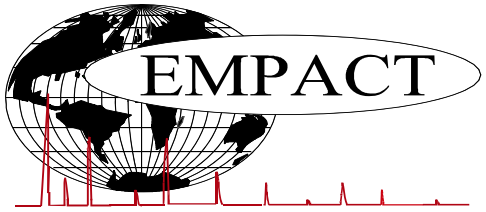
303-637-0150

EXTENDED NATURAL GAS ANALYSIS (*DHA)

GLYCALC INFORMATION

PROJECT NO. :	201308015	ANALYSIS NO. :	03
COMPANY NAME :	CONOCO PHILLIPS	ANALYSIS DATE:	AUGUST 8, 2013
ACCOUNT NO. :		SAMPLE DATE :	AUGUST 2, 2013
PRODUCER :		CYLINDER NO. :	0616
LEASE NO. :		SAMPLED BY :	GALE MCENDREE - EMPACT
NAME/DESCRIP :	SALES GAS @ 19:00 TEBO 1-1H		
FIELD DATA		SAMPLE TEMP. :	87
SAMPLE PRES. :	86	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; PROBE; LENGTH OF H2S STAIN @ 5PPM @ 19:05		

Componet	Mole %	Wt %
Helium	0.01	0.00
Hydrogen	0.04	0.00
Carbon Dioxide	2.80	4.78
Nitrogen	1.44	1.56
Methane	62.36480	38.80770
Ethane	13.9687	16.2923
Propane	12.1633	20.8043
Isobutane	1.3265	2.9906
n-Butane	3.7733	8.5069
Isopentane	0.6371	1.7830
n-Pentane	0.7190	2.0122
Cyclopentane	0.0558	0.1518
n-Hexane	0.1306	0.4366
Cyclohexane	0.0321	0.1048
Other Hexanes	0.2449	0.8126
Heptanes	0.1073	0.4143
Methycyclohexane	0.0235	0.0895
2,2,4 Trimethylpentane	0.0001	0.0004
Benzene	0.0291	0.0882
Toluene	0.0125	0.0447
Ethylbenzene	0.0011	0.0045
Xylenes	0.0017	0.0070
C8+ Heavies	0.0467	0.2143
Subtotal	99.92810	99.90570
Oxygen/Argon	0.07	0.09
Alcohols	0.0019	0.0043
Total	100.00000	100.00000



EXTENDED NATURAL GAS ANALYSIS (*DHA)

DHA COMPONENT LIST

PROJECT NO. :	201308015	ANALYSIS NO. :	03
COMPANY NAME :	CONOCO PHILLIPS	ANALYSIS DATE:	AUGUST 8, 2013
ACCOUNT NO. :		SAMPLE DATE :	AUGUST 2, 2013
PRODUCER :		CYLINDER NO. :	0616
LEASE NO. :		SAMPLED BY :	GALE MCENDREE - EMPACT
NAME/DESCRIP :	SALES GAS @ 19:00 TEBO 1-1H		
FIELD DATA		SAMPLE TEMP. :	87
SAMPLE PRES. :	86	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; PROBE; LENGTH OF H2S STAIN @ 5PPM @ 19:05		

COMPONENT	PIANO #	MOLE %	MASS %	GPM @ 14.650	GPM @ 14.730
Helium	---	0.01	0.00	---	---
Hydrogen	---	0.04	0.00	---	---
Oxygen/Argon	---	0.07	0.09	---	---
Nitrogen	---	1.44	1.56	---	---
Carbon Dioxide	---	2.80	4.78	---	---
Methane	P1	62.36480	38.80770	---	---
Ethane	P2	13.9687	16.2923	3.733	3.754
Propane	P3	12.1633	20.8043	3.349	3.367
i-Butane	I4	1.3265	2.9906	0.434	0.436
n-Butane	P4	3.7733	8.5069	1.189	1.196
2,2-Dimethylpropane	I5	0.0027	0.0076	0.001	0.001
Ethanol	X2	0.0001	0.0002	0.000	0.000
i-Pentane	I5	0.6344	1.7754	0.232	0.233
Acetone	X3	0.0014	0.0031	0.001	0.001
i-Propanol	X3	0.0001	0.0002	0.000	0.000
n-Pentane	P5	0.7190	2.0122	0.261	0.262
t-Butanol	X4	0.0001	0.0003	0.000	0.000
2,2-Dimethylbutane	I6	0.0015	0.0050	0.001	0.001
n-Propanol	X3	0.0002	0.0005	0.000	0.000
Cyclopentane	N5	0.0558	0.1518	0.016	0.016
2,3-Dimethylbutane	I6	0.0101	0.0337	0.004	0.004
2-Methylpentane	I6	0.1049	0.3507	0.043	0.043
3-Methylpentane	I6	0.0526	0.1758	0.021	0.021
n-Hexane	P6	0.1306	0.4366	0.054	0.054
2,2-Dimethylpentane	I7	0.0004	0.0016	0.000	0.000
Methylcyclopentane	N6	0.0758	0.2474	0.027	0.027
2,4-Dimethylpentane	I7	0.0033	0.0128	0.002	0.002
2,2,3-Trimethylbutane	I7	0.0001	0.0004	0.000	0.000
Benzene	A6	0.0291	0.0882	0.008	0.008
3,3-Dimethylpentane	I7	0.0002	0.0008	0.000	0.000
Cyclohexane	N6	0.0321	0.1048	0.011	0.011
2-Methylhexane	I7	0.0134	0.0521	0.006	0.006
2,3-Dimethylpentane	I7	0.0064	0.0249	0.003	0.003
1,1-Dimethylcyclopentane	N7	0.0026	0.0099	0.001	0.001
3-Methylhexane	I7	0.0153	0.0595	0.007	0.007
1c,3-Dimethylcyclopentane	N7	0.0077	0.0293	0.004	0.004
1t,3-Dimethylcyclopentane	N7	0.0069	0.0263	0.003	0.003
3-Ethylpentane	I7	0.0009	0.0035	0.000	0.000
1t,2-Dimethylcyclopentane	N7	0.0150	0.0571	0.007	0.007
2,2,4-Trimethylpentane	I8	0.0001	0.0004	0.000	0.000
n-Heptane	P7	0.0304	0.1181	0.014	0.014

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1c,2-Dimethylcyclopentane	N7	0.0008	0.0031	0.000	0.000
Methylcyclohexane	N7	0.0235	0.0895	0.009	0.009
2,2-Dimethylhexane	I8	0.0014	0.0062	0.001	0.001
Ethylcyclopentane	N7	0.0039	0.0149	0.002	0.002
2,5-Dimethylhexane	I8	0.0006	0.0027	0.000	0.000
2,2,3-Trimethylpentane	I8	0.0001	0.0004	0.000	0.000
2,4-Dimethylhexane	I8	0.0011	0.0049	0.001	0.001
1c,2t,4-Trimethylcyclopentane	N8	0.0019	0.0083	0.001	0.001
3,3-Dimethylhexane	I8	0.0001	0.0004	0.000	0.000
1t,2c,4-Trimethylcyclopentane	N8	0.0022	0.0096	0.001	0.001
2,3,4-Trimethylpentane	I8	0.0005	0.0022	0.000	0.000
Toluene	A7	0.0125	0.0447	0.004	0.004
2,3-Dimethylhexane	I8	0.0009	0.0040	0.000	0.000
2-Methyl-3-ethylpentane	I8	0.0006	0.0027	0.000	0.000
2-Methylheptane	I8	0.0048	0.0213	0.002	0.002
4-Methylheptane	I8	0.0013	0.0058	0.001	0.001
3-Methyl-3-ethylpentane	I8	0.0001	0.0004	0.000	0.000
3,4-Dimethylhexane	I8	0.0002	0.0009	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	0.0020	0.0088	0.001	0.001
1c,2t,3-Trimethylcyclopentane	N8	0.0029	0.0126	0.001	0.001
3-Ethylhexane	I8	0.0003	0.0013	0.000	0.000
1t,4-Dimethylcyclohexane	N8	0.0009	0.0039	0.000	0.000
1,1-Dimethylcyclohexane	N8	0.0004	0.0018	0.000	0.000
3t-Ethylmethylcyclopentane	N8	0.0007	0.0031	0.000	0.000
2t-Ethylmethylcyclopentane	N8	0.0006	0.0026	0.000	0.000
1,1-Methylethylcyclopentane	N8	0.0020	0.0087	0.001	0.001
2,2,4-Trimethylhexane	I9	0.0001	0.0005	0.000	0.000
1t,2-Dimethylcyclohexane	N8	0.0014	0.0061	0.001	0.001
n-Octane	P8	0.0057	0.0253	0.003	0.003
1c,4-Dimethylcyclohexane	N8	0.0009	0.0039	0.000	0.000
i-Propylcyclopentane	I8	0.0001	0.0004	0.000	0.000
2,3,5-Trimethylhexane	I9	0.0001	0.0005	0.000	0.000
1c,2-Dimethylcyclohexane	N8	0.0003	0.0013	0.000	0.000
1,1,4-Trimethylcyclohexane	N9	0.0017	0.0083	0.001	0.001
2,2,3-Trimethylhexane	I9	0.0006	0.0030	0.000	0.000
2,4-Dimethylheptane	I9	0.0001	0.0005	0.000	0.000
4,4-Dimethylheptane	I9	0.0001	0.0005	0.000	0.000
Ethylcyclohexane	N8	0.0010	0.0043	0.000	0.000
n-Propylcyclopentane	N8	0.0003	0.0013	0.000	0.000
1c,3c,5-Trimethylcyclohexane	N9	0.0001	0.0005	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
1,1,3-Trimethylcyclohexane	N9	0.0001	0.0005	0.000	0.000
Ethylbenzene	I8	0.0011	0.0045	0.000	0.000
1c,2t,4t-Trimethylcyclohexane	N9	0.0002	0.0010	0.000	0.000
1,3-Dimethylbenzene (m-Xylene)	A8	0.0009	0.0037	0.000	0.000
1,4-Dimethylbenzene (p-Xylene)	A8	0.0003	0.0012	0.000	0.000
3,4-Dimethylheptane	I9	0.0008	0.0040	0.000	0.000
3,4-Dimethylheptane (2)	I9	0.0002	0.0010	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	0.0020	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	0.0020	0.000	0.000
3,3-Diethylpentane	I9	0.0001	0.0005	0.000	0.000
1,2-Dimethylbenzene (o-Xylene)	A8	0.0005	0.0021	0.000	0.000
i-Butylcyclopentane	N9	0.0002	0.0010	0.000	0.000
n-Nonane	P9	0.0011	0.0055	0.001	0.001
1,1-Methylethylcyclohexane	N9	0.0001	0.0005	0.000	0.000

i-Propylbenzene	A9	0.0002	0.0009	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	0.0001	0.0005	0.000	0.000
3,6-Dimethyloctane	I10	0.0001	0.0005	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
1,2-Methylethylbenzene	A9	0.0001	0.0005	0.000	0.000
t-Butylbenzene	A10	0.0001	0.0005	0.000	0.000
UnknownC9s	U9	0.0014	0.0070	0.001	0.001
n-Decane	P10	0.0001	0.0005	0.000	0.000
UnknownC10s	U10	0.0005	0.0028	0.000	0.000
n-Undecane	P11	0.0001	0.0006	0.000	0.000
n-Pentadecane	P15	0.0001	0.0008	0.000	0.000
n-Hexadecane	P16	0.0001	0.0009	0.000	0.000
n-Heptadecane	P17	0.0001	0.0009	0.000	0.000
n-Octadecane	P18	0.0001	0.0010	0.000	0.000
UnknownC18s	U18	0.0001	0.0010	0.000	0.000
TOTAL		100.00000	100.00000	9.4637	9.5152

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0291	0.0882
TOLUENE	0.0125	0.0447
ETHYLBENZENE	0.0011	0.0045
XYLENES	0.0017	0.0070
TOTAL BTEX	0.0444	0.1444

		BTU @	14.650	14.730
LOW		NET DRY REAL :	1311.7 **/scf**	1318.9 **/scf**
		NET WET REAL :	1288.8 **/scf**	1295.9 **/scf**
HIGH		GROSS DRY REAL :	1439.1 **/scf**	1446.9 **/scf**
		GROSS WET REAL :	1413.9 **/scf**	1421.8 **/scf**
		NET DRY REAL :	19316.5 **/lb**	19421.9 **/lb**
		GROSS DRY REAL :	21197.0 **/lb**	21312.8 **/lb**

RELATIVE DENSITY (AIR=1): 0.8893

COMPRESSIBILITY FACTOR : 0.99489

(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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