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

303-637-0150

EXTENDED NATURAL GAS LIQUID ANALYSIS (*DHA)

MAIN PAGE

PROJECT NO. :	201108051	ANALYSIS NO. :	01
COMPANY NAME :	CARRIZO OIL & GAS	ANALYSIS DATE:	AUGUST 9, 2011
ACCOUNT NO. :		SAMPLE DATE :	AUGUST 9, 2011
PRODUCER :		CYLINDER NO. :	GLASS JAR
LEASE NO. :		SAMPLED BY :	J. MOSER
NAME/DESCRIP :	NELSON 17-44-9-60 @ 9:20 A.M. OIL TREATER		EMPACT
FIELD DATA		SAMPLE TEMP. :	134
SAMPLE PRES. :	19	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT		

COMPONENT	MOLE %	MASS %	VOL %
ALCOHOLS	0.0653	0.0271	0.0259
NITROGEN (AIR)	0.0522	0.0106	0.0100
CARBON DIOXIDE	0.0000	0.0000	0.0000
METHANE	0.0000	0.0000	0.0000
ETHANE	0.0968	0.0212	0.0454
PROPANE	0.5925	0.1899	0.2860
I-BUTANE	0.4369	0.1845	0.2503
N-BUTANE	1.6186	0.6836	0.8938
I-PENTANE	0.6996	0.3668	0.4484
N-PENTANE	1.0841	0.5684	0.6877
HEXANES PLUS	95.3540	97.9479	97.3525
TOTALS	100.0000	100.0000	100.0000

BTEX COMPONENTS	**MOLE%**	**MASS%**
BENZENE	0.8752	0.4967
TOLUENE	2.0435	1.3682
ETHYLBENZENE	0.9959	0.7683
XYLENE	1.5409	1.1887
TOTAL BTEX	5.4555	3.8219

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

	TOTAL SAMPLE	**C6+ FRACTION**	
Specific Gravity (H2O=1) =	0.7638	0.7689	60/60
API Gravity =	53.76	52.53	60/60
Molecular Weight =	137.62	142.001	
Absolute Density =	6.37	6.41	LBS/GAL
Heating Value Liq. Idl Gas=	126268	127337	BTU/GAL
Vapor/Liquid =	18.18	17.81	CUFT/GAL
Vapor Pressure =	4.37	1.07	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. :	201108051	ANALYSIS NO. :	01
COMPANY NAME :	CARRIZO OIL & GAS	ANALYSIS DATE:	AUGUST 9, 2011
ACCOUNT NO. :		SAMPLE DATE :	AUGUST 9, 2011
PRODUCER :		CYLINDER NO. :	GLASS JAR
LEASE NO. :		SAMPLED BY :	J. MOSER
NAME/DESCRIP :	NELSON 17-44-9-60 @ 9:20 A.M. OIL TREATER		EMPACT
FIELD DATA		SAMPLE TEMP. :	134
SAMPLE PRES. :	19	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT		

COMPONENT	Mole %		Wt %		LV %	
CARBON DIOXIDE	0.0000		0.0000		0.0000	
NITROGEN (AIR)	0.0522		0.0106		0.0100	
METHANE	0.0000		0.0000		0.0000	
ETHANE	0.0968		0.0212		0.0454	
PROPANE	0.5925		0.1899		0.2860	
I-BUTANE	0.4369		0.1845		0.2503	
N-BUTANE	1.6186		0.6836		0.8938	
I-PENTANE	0.6996		0.3668		0.4484	
N-PENTANE	1.0841		0.5684		0.6877	
CYCLOPENTANE (N-C5)	0.8449		0.4306		0.4325	
N-HEXANE	3.8529		2.4134		2.7754	
CYCLOHEXANE (OTHER C6)	1.8133		1.1089		1.0807	
OTHER HEXANES	6.2635		3.8779		4.2118	
OTHER HEPTANES	9.7298		7.0321		7.5362	
METHYLCYCLOHEXANE (OTHER C7)	2.9702		2.1192		2.0887	
2,2,4 TRIMETHYLPENTANE	0.6378		0.4551		0.4612	
BENZENE	0.8752		0.4967		0.4296	
TOLUENE	2.0435		1.3682		1.1950	
ETHYLBENZENE	0.9959		0.7683		0.6709	
XYLENES	1.5409		1.1887		1.0365	
OTHER OCTANES	9.3524		7.7748		8.0724	
OCTANES PLUS	----	66.9607	----	79.1009	----	77.6026
NONANES	12.8624		11.8045		11.7468	
DECANES PLUS	41.5713		57.1095		55.6148	
SUB TOTAL	99.9347		99.9729		99.9741	
ALCOHOLS	0.0653		0.0271		0.0259	
TOTAL	100.0000		100.0000		100.0000	

API Gravity =	**53.76**	60/60
Vapor Pressure =	**4.37**	PSIA & 100 F
Average Molecular Weight of Decanes plus =	**189.07**	
Average Specific Gravity of Decanes plus =	**0.7910**	

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303-637-0150

EXTENDED NATURAL GAS LIQUID ANALYSIS (*DHA)

DHA COMPONENT LIST

PROJECT NO. :	201108051	ANALYSIS NO. :	01
COMPANY NAME :	CARRIZO OIL & GAS	ANALYSIS DATE:	AUGUST 9, 2011
ACCOUNT NO. :		SAMPLE DATE :	AUGUST 9, 2011
PRODUCER :		CYLINDER NO. :	GLASS JAR
LEASE NO. :		SAMPLED BY :	J. MOSER
NAME/DESCRIP :	NELSON 17-44-9-60 @ 9:20 A.M. OIL TREATER		EMPACT
FIELD DATA		SAMPLE TEMP. :	134
SAMPLE PRES. :	19	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT		

COMPONENT	PIANO #	MOLE %	MASS %	VOL %
Nitrogen		0.0522	0.0106	0.0100
Carbon Dioxide		0.0000	0.0000	0.0000
Ethane	P2	0.0968	0.0212	0.0454
Propane	P3	0.5925	0.1899	0.2860
i-Butane	I4	0.4369	0.1845	0.2503
n-Butane	P4	1.6186	0.6836	0.8938
2,2-Dimethylpropane	I5	0.0029	0.0015	0.0019
Ethanol	X2	0.0048	0.0016	0.0015
i-Pentane	I5	0.6967	0.3653	0.4465
Acetone	X2	0.0605	0.0255	0.0244
n-Pentane	P5	1.0841	0.5684	0.6877
2,2-Dimethylbutane	I6	0.0148	0.0093	0.0109
Cyclopentane	N5	0.8449	0.4306	0.4325
2,3-Dimethylbutane	I6	0.1719	0.1076	0.1232
2-Methylpentane	I6	1.8558	1.1621	1.3490
3-Methylpentane	I6	1.1996	0.7512	0.8575
n-Hexane	P6	3.8529	2.4134	2.7754
2,2-Dimethylpentane	I7	0.0153	0.0111	0.0124
Methylcyclopentane	N6	3.0214	1.8477	1.8712
2,4-Dimethylpentane	I7	0.1331	0.0969	0.1094
2,2,3-Trimethylbutane	I7	0.0057	0.0041	0.0045
Benzene	A6	0.8752	0.4967	0.4296
3,3-Dimethylpentane	I7	0.0147	0.0107	0.0117
Cyclohexane	N6	1.8133	1.1089	1.0807
2-Methylhexane	I7	0.9231	0.6721	0.7521
2,3-Dimethylpentane	I7	0.4629	0.3370	0.3664
1,1-Dimethylcyclopentane	N7	0.2136	0.1524	0.1533
3-Methylhexane	I7	1.2300	0.8956	0.9871
1c,3-Dimethylcyclopentane	N7	0.6831	0.4874	0.4965
1t,3-Dimethylcyclopentane	N7	0.6378	0.4551	0.4612
3-Ethylpentane	I7	0.0839	0.0611	0.0663
1t,2-Dimethylcyclopentane	N7	1.3442	0.9591	0.9685
2,2,4-Trimethylpentane	I8	0.0126	0.0105	0.0115
n-Heptane	P7	3.2900	2.3954	2.6576
1c,2-Dimethylcyclopentane	N7	0.1234	0.0880	0.0865
Methylcyclohexane	N7	2.9702	2.1192	2.0887
2,2-Dimethylhexane	I8	0.2501	0.2076	0.2264
Ethylcyclopentane	N7	0.5631	0.4018	0.3979
2,5-Dimethylhexane	I8	0.1041	0.0864	0.0945
2,2,3-Trimethylpentane	I8	0.0046	0.0038	0.0040
2,4-Dimethylhexane	I8	0.1678	0.1393	0.1516

1c,2t,4-Trimethylcyclopentane	N8	0.3475	0.2833	0.2817
3,3-Dimethylhexane	I8	0.0195	0.0162	0.0173
2,3,4-Trimethylpentane	I8	0.0864	0.0717	0.0756
2,3,3-Trimethylpentane	I8	0.0078	0.0065	0.0068
Toluene	A7	2.0435	1.3682	1.1950
2,3-Dimethylhexane	I8	0.2086	0.1731	0.1846
2-Methyl-3-ethylpentane	I8	0.1054	0.0875	0.0923
1,1,2-Trimethylcyclopentane	N8	0.0086	0.0070	0.0069
2-Methylheptane	I8	1.1559	0.9594	1.0412
4-Methylheptane	I8	0.3579	0.2971	0.3147
3-Methyl-3-ethylpentane	I8	0.0158	0.0131	0.0137
3,4-Dimethylhexane	I8	0.0331	0.0275	0.0290
1c,2c,4-Trimethylcyclopentane	N8	0.0238	0.0194	0.0191
1c,3-Dimethylcyclohexane	N8	0.0227	0.0185	0.0183
3-Methylheptane	I8	0.5377	0.4463	0.4802
1c,2t,3-Trimethylcyclopentane	N8	0.8626	0.7033	0.6930
3-Ethylhexane	I8	0.1169	0.0970	0.1033
1t,4-Dimethylcyclohexane	N8	0.2934	0.2392	0.2381
1,1-Dimethylcyclohexane	N8	0.0971	0.0792	0.0770
3c-Ethylmethylcyclopentane	N8	0.0034	0.0028	0.0028
3t-Ethylmethylcyclopentane	N8	0.2010	0.1639	0.1623
2t-Ethylmethylcyclopentane	N8	0.1797	0.1465	0.1446
1,1-Methylethylcyclopentane	N8	0.5769	0.4704	0.4573
2,2,4-Trimethylhexane	I9	0.0325	0.0303	0.0321
1t,2-Dimethylcyclohexane	N8	0.5111	0.4167	0.4078
1t,3-Dimethylcyclohexane	N8	0.0098	0.0080	0.0077
UnknownC7s	U7	0.0059	0.0043	0.0048
n-Octane	P8	2.5616	2.1262	2.2965
1c,4-Dimethylcyclohexane	N8	0.2602	0.2122	0.2058
i-Propylcyclopentane	I8	0.0752	0.0613	0.0599
2,4,4-Trimethylhexane	I9	0.0242	0.0226	0.0238
2,2,3,4-Tetramethylpentane	I9	0.0232	0.0216	0.0228
2,3,4-Trimethylhexane	I9	0.0205	0.0191	0.0201
1c,2-Dimethylcyclohexane	N8	0.0433	0.0353	0.0337
2,3,5-Trimethylhexane	I9	0.1791	0.1669	0.1755
2,2-Dimethylheptane	I9	0.0146	0.0136	0.0145
1,1,4-Trimethylcyclohexane	N9	1.0071	0.9238	0.9087
2,2,3-Trimethylhexane	I9	0.3660	0.3411	0.3550
2,4-Dimethylheptane	I9	0.0150	0.0140	0.0149
4,4-Dimethylheptane	I9	0.0313	0.0292	0.0310
Ethylcyclohexane	N8	0.5370	0.4379	0.4221
n-Propylcyclopentane	N8	0.1911	0.1558	0.1523
1c,3c,5-Trimethylcyclohexane	N9	0.0340	0.0312	0.0307
2,5-Dimethylheptane	I9	0.0786	0.0733	0.0776
3,3-Dimethylheptane	I9	0.0962	0.0897	0.0950
3,5-Dimethylheptane	I9	0.0675	0.0629	0.0666
2,6-Dimethylheptane	I9	0.0584	0.0544	0.0582
1,1,3-Trimethylcyclohexane	N9	0.2094	0.1921	0.1890
Ethylbenzene	A8	0.9959	0.7683	0.6709
1c,2t,4t-Trimethylcyclohexane	N9	0.0586	0.0538	0.0519
2,3-Dimethylheptane	I9	0.0071	0.0066	0.0069
1,3-Dimethylbenzene (m-Xylene)	A8	0.5923	0.4569	0.4013
1,4-Dimethylbenzene (p-Xylene)	A8	0.2611	0.2014	0.1775
3,4-Dimethylheptane	I9	0.0256	0.0239	0.0248
3,4-Dimethylheptane (2)	I9	0.1538	0.1433	0.1488
4-Ethylheptane	I9	0.0701	0.0653	0.0693
4-Methyloctane	I9	0.3358	0.3130	0.3297
2-Methyloctane	I9	0.4021	0.3747	0.3986
1c,2t,4c-Trimethylcyclohexane	I9	0.0285	0.0266	0.0278
3-Ethylheptane	I9	0.0723	0.0674	0.0704
3-Methyloctane	I9	0.5207	0.4853	0.5112
3,3-Diethylpentane	I9	0.0164	0.0153	0.0154
1c,2t,3-Trimethylcyclohexane	N9	0.0756	0.0694	0.0670
1,1,2-Trimethylcyclohexane	N9	0.0544	0.0499	0.0481
1,2-Dimethylbenzene (o-Xylene)	A8	0.6875	0.5304	0.4577
i-Butylcyclopentane	N9	0.3547	0.3254	0.3164
n-Nonane	P9	2.1800	2.0317	2.1492
1,1-Methylethylcyclohexane	N9	0.2497	0.2327	0.2469
i-Propylbenzene	A9	0.5252	0.4587	0.4033
i-Propylcyclohexane	N9	0.1142	0.1048	0.0992
2,2-Dimethyloctane	I10	0.0960	0.0993	0.1020
2,4-Dimethyloctane	I10	0.1050	0.1086	0.1115
2,6-Dimethyloctane	I10	0.0155	0.0160	0.0170

2,5-Dimethyloctane	I10	0.0455	0.0470	0.0483
n-Butylcyclopentane	N9	0.4467	0.4553	0.4327
3,3-Dimethyloctane	I10	0.2000	0.2068	0.2125
n-Propylbenzene	A9	0.5557	0.4853	0.4268
3,6-Dimethyloctane	I10	0.4173	0.4314	0.4430
3-Methyl-5-ethylheptane	I10	0.5573	0.5194	0.5434
1,3-Methylethylbenzene	A9	0.4690	0.4096	0.3572
1,4-Methylethylbenzene	A9	0.3387	0.2958	0.2580
1,3,5-Trimethylbenzene	A9	0.2202	0.1923	0.1689
2,3-Dimethyloctane	I10	0.0924	0.0955	0.0981
5-Methylnonane	I10	0.3397	0.3512	0.3640
1,2-Methylethylbenzene	A9	0.7847	0.6853	0.5945
2-Methylnonane	I10	0.0396	0.0409	0.0427
3-Ethyloctane	I10	0.0881	0.0911	0.0935
3-Methylnonane	I10	0.3114	0.3219	0.3333
1,2,4-Trimethylbenzene	A9	0.0732	0.0639	0.0554
t-Butylbenzene	A10	0.5941	0.5794	0.5081
i-Butylcyclohexane	N10	0.2722	0.2774	0.2595
1t-Methyl-2-n-propylcyclohexane	I10	0.0909	0.0847	0.0886
i-Butylbenzene	A10	0.0955	0.0931	0.0829
sec-Butylbenzene	A10	0.0861	0.0840	0.0741
UnknownC9s	U9	2.1270	1.9823	2.0970
n-Decane	P10	1.8421	1.9045	1.9808
1,2,3-Trimethylbenzene	A9	0.3448	0.3011	0.2559
1,3-Methyl-i-propylbenzene	A10	0.1365	0.1192	0.1034
1,4-Methyl-i-propylbenzene	A10	0.1240	0.1083	0.0940
Sec-Butylcyclohexane	N10	0.4756	0.4848	0.4530
1,2-Methyl-i-propylbenzene	A10	0.2687	0.2621	0.2272
3-Ethylnonane	I10	0.0299	0.0309	0.0323
1,3-Diethylbenzene	A10	0.2039	0.1989	0.1749
1,3-Methyl-n-propylbenzene	A10	0.0227	0.0221	0.0195
1,4-Diethylbenzene	A10	0.3809	0.3715	0.3275
1,4-Methyl-n-propylbenzene	A10	0.0481	0.0469	0.0415
n-Butylbenzene	A10	0.0935	0.0912	0.0804
1,3-Dimethyl-5-ethylbenzene	A10	0.1202	0.1172	0.1030
1,2-Diethylbenzene	A10	0.1907	0.1860	0.1607
1,2-Methyl-n-propylbenzene	A10	0.1586	0.1547	0.1345
1,4-Dimethyl-2-ethylbenzene	A10	0.1929	0.1881	0.1629
1,3-Dimethyl-4-ethylbenzene	A10	0.0324	0.0316	0.0274
1,2-Dimethyl-4-ethylbenzene	A10	0.3389	0.3305	0.2872
1,3-Dimethyl-2-ethylbenzene	A10	0.2244	0.2189	0.1868
1t,2c,4-Trimethylcyclopentane	A10	0.4496	0.3666	0.3723
1,2-Dimethyl-3-ethylbenzene	A10	0.1433	0.1398	0.1191
1,2-Ethyl-i-propylbenzene	A10	0.2349	0.2291	0.1986
1,4-Methyl-t-butylbenzene	A11	0.2286	0.2230	0.1933
UnknownC10s	U10	2.0916	2.1624	2.2490
n-Undecane	P11	1.5938	1.8103	1.8567
1,4-Ethyl-i-propylbenzene	A11	0.1083	0.1056	0.0915
1,2,4,5-Tetramethylbenzene	A11	0.2154	0.2101	0.1802
1,2-Methyl-n-butylbenzene	A11	0.1985	0.1936	0.1678
1,2,3,5-Tetramethylbenzene	A11	0.2208	0.2153	0.1838
1,2-Methyl-t-butylbenzene	A11	0.1313	0.1281	0.1110
5-Methylindan	A11	0.0383	0.0474	0.0481
4-Methylindan	A11	0.2083	0.2578	0.2615
1,2-Ethyl-n-propylbenzene	A11	0.2365	0.2307	0.1999
2-Methylindan	A11	0.1170	0.1448	0.1469
1,3-Methyl-n-butylbenzene	A11	0.1210	0.1180	0.1023
1,3-Di-i-propylbenzene	A11	0.2114	0.2062	0.1787
sec-Pentylbenzene	A11	0.1556	0.1518	0.1316
n-Pentylbenzene	A11	0.1110	0.1196	0.1058
1t-M-2-(4MP)cyclopentane	P12	0.1268	0.1569	0.1592
1,2-Di-n-propylbenzene	A11	0.1905	0.1858	0.1610
1,4-Di-i-propylbenzene	A11	0.2217	0.2162	0.1874
Tetrahydronaphthalene	A10	0.0415	0.0405	0.0351
t-Decahydronaphthalene	A10	0.2472	0.2411	0.2090
Naphthalene	A10	0.1713	0.1595	0.1382
1-t-Butyl-3,5-dimethylbenzene	A12	0.0453	0.0442	0.0383
1,4-Ethyl-t-butylbenzene	A11	0.1087	0.1060	0.0919
UnknownC11s	U11	2.2269	2.5293	2.5941
n-Dodecane	P12	1.3243	1.6392	1.6627
1,3-Di-n-propylbenzene	A12	0.0786	0.0767	0.0665
1,3,5-Triethylbenzene	A12	0.0613	0.0535	0.0470
1,2,4-Triethylbenzene	A12	0.4212	0.3679	0.3190

1,4-Methyl-n-pentylbenzene	A12	0.1450	0.1414	0.1225
n-Hexylbenzene	A12	0.1304	0.1538	0.1362
1,2,3,4,5-Pentamethylbenzene	A13	0.1925	0.1877	0.1627
2-Methylnaphthalene	A11	0.2538	0.2622	0.2272
1-Methylnaphthalene	A11	0.3766	0.3891	0.2898
UnknownC12s	U12	1.6978	2.1015	2.1317
n-Tridecane	P13	1.1234	1.5049	1.5085
UnknownC13s	U13	1.5309	2.0508	2.0557
n-Tetradecane	P14	1.0164	1.4652	1.4657
UnknownC14s	U14	1.9495	2.8104	2.8113
n-Pentadecane	P15	0.8893	1.3727	1.3574
UnknownC15s	U15	1.8359	2.8338	2.8022
n-Hexadecane	P16	0.7020	1.1551	1.1348
UnknownC16s	U16	1.2647	2.0809	2.0443
n-Heptadecane	P17	0.5484	0.9582	0.9385
UnknownC17s	U17	0.7805	1.3638	1.3357
n-Octadecane	P18	0.4663	0.8623	0.8421
UnknownC18s	U18	0.9317	1.7230	1.6826
n-Nonadecane	P19	0.4211	0.8217	0.7973
UnknownC19s	U19	0.5684	1.1091	1.0762
n-Eicosane	P20	0.3201	0.6572	0.6342
UnknownC20s	U20	0.4018	0.8249	0.7960
n-Heneicosane	P21	0.2976	0.6413	0.6157
UnknownC21s	U21	0.3127	0.6739	0.6470
n-Docosane	P22	0.2436	0.5498	0.5260
UnknownC22s	U22	0.2869	0.6475	0.6195
n-Tricosane	P23	0.1976	0.4661	0.4447
UnknownC23s	U23	0.2019	0.4763	0.4544
n-Tetracosane	P24	0.1957	0.4816	0.4583
UnknownC24s	U24	0.2391	0.5884	0.5599
n-Pentacosane	P25	0.1425	0.3652	0.3474
UnknownC25s	U25	0.3661	0.9382	0.8925
n-Hexacosane	P26	0.1282	0.3416	0.3228
UnknownC26s	U26	0.1270	0.3384	0.3198
n-Heptacosane	P27	0.0867	0.2399	0.2266
UnknownC27s	U27	0.1258	0.3480	0.3286
n-Octacosane	P28	0.0659	0.1890	0.1781
UnknownC28s	U28	0.0850	0.2438	0.2298
n-Nonacosane	P29	0.0551	0.1637	0.1539
UnknownC29s	U29	0.0674	0.2002	0.1883
n-Triacontane Plus	P30	0.3889	1.1948	1.1219
TOTAL		100.0000	100.0000	100.0000

PROJECT NO:	201108051	ANALYSIS NO.:	01
COMPANY NAME:	CARRIZO OIL & GAS	ANALYSIS DATE:	AUGUST 9, 2011
		SAMPLE DATE:	AUGUST 9, 2011
COMMENTS:	GLASS JAR	SAMPLED BY:	J. MOSER
	BLACK; SPOT		EMPACT

TEST PROCEDURE / METHOD: API GRAVITY

DESCRIPTION:	API GRAVITY @ 60/60
NELSON 17-44-9-60 @ 9:20 A.M. OIL TREATER; 143 DEGREES	33.1

PROJECT NO:	201108051	ANALYSIS NO.:	01
COMPANY NAME:	CARRIZO OIL & GAS	ANALYSIS DATE:	AUGUST 9, 2011
		SAMPLE DATE:	AUGUST 9, 2011
COMMENTS:	GLASS JAR BLACK; SPOT	SAMPLED BY:	J. MOSER EMPACT

TEST PROCEDURE / METHOD: REID VAPOR PRESSURE (ASTM D-323)

DESCRIPTION:	REID VAPOR PRESSURE
NELSON 17-44-9-60 @ 9:20 A.M. OIL TREATER; 143 DEGREES	6.1

EMPACT

PROJECT NO:	**201108051**	ANALYSIS NO.:	01
COMPANY NAME:	**CARRIZO OIL & GAS**	ANALYSIS DATE:	AUGUST 10, 2011
		SAMPLE DATE:	AUGUST 9, 2011
COMMENTS:	SPOT GLASS JAR	SAMPLED BY:	JOHN MOSER EMPACT

TEST PROCEDURE / METHOD: TOTAL SULFUR (ASTM D2622)

DESCRIPTION:	TOTAL SULFUR WT %
NELSON 17-44-9-60 @ 9:20 A.M. OIL TREATER; 134 DEGREES	0.4540%

Detection Limit: 0.0001 WT%

EMPACT ANALYTICAL SYSTEMS INC.
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80601

303-637-0150

EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

PROJECT NO. :	201108051	ANALYSIS NO. :	02
COMPANY NAME :	CARRIZO OIL & GAS	ANALYSIS DATE:	AUGUST 9, 2011
ACCOUNT NO. :		SAMPLE DATE :	AUGUST 9, 2011
PRODUCER :		CYLINDER NO. :	1099
LEASE NO. :		SAMPLED BY :	JOHN MOSER - EMPACT
NAME/DESCRIP :	NELSON 17-44-9-60 @ 9:20 A.M. SALES GAS SCRUBBER		
FIELD DATA		SAMPLE TEMP. :	142
SAMPLE PRES. :	77	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; NO PROBE H2S @ 1.0 PPM		

COMPONENT	MOLE %	MASS %	GPM @ 14.650	GPM @ 14.730
ALCOHOLS	0.0073	0.0128		
HELIUM	0.01	0.00	---	---
HYDROGEN	0.02	0.00	---	---
OXYGEN/ARGON	0.01	0.01	---	---
NITROGEN	1.94	1.95	---	---
CARBON DIOXIDE	2.84	4.47	---	---
METHANE	58.17340	33.40080	---	---
ETHANE	13.1836	14.1880	3.5267	3.5459
PROPANE	13.1736	20.7907	3.6299	3.6498
I-BUTANE	1.4371	2.9895	0.4703	0.4729
N-BUTANE	5.1497	10.7126	1.6234	1.6323
I-PENTANE	1.1760	3.0277	0.4211	0.4234
N-PENTANE	1.3875	3.5829	0.5034	0.5061
HEXANES PLUS	1.4918	4.8650	0.6043	0.6075
TOTALS	100.00000	100.00000	10.7791	10.8379

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0491	0.1373
TOLUENE	0.0288	0.0950
ETHYLBENZENE	0.0034	0.0129
XYLENES	0.0045	0.0171
TOTAL BTEX	0.0858	0.2623

	BTU @	14.650	14.730
LOW	NET DRY REAL :	1412.1 **/scf**	1419.8 **/scf**
	NET WET REAL :	1387.4 **/scf**	1395.1 **/scf**
HIGH	GROSS DRY REAL :	1546.3 **/scf**	1554.8 **/scf**
	GROSS WET REAL :	1519.3 **/scf**	1527.8 **/scf**
	NET DRY REAL :	19200.8 **/lb**	19305.6 **/lb**
	GROSS DRY REAL :	21031.2 **/lb**	21146.0 **/lb**
	RELATIVE DENSITY (AIR=1):		0.9636
	COMPRESSIBILITY FACTOR :		0.99414

(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

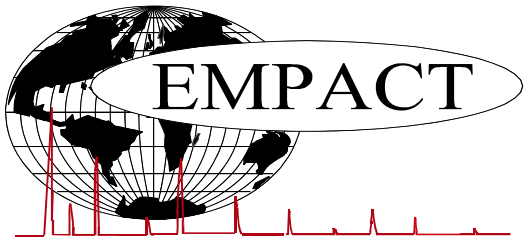
303-637-0150

EXTENDED NATURAL GAS ANALYSIS (*DHA)

GLYCALC INFORMATION

PROJECT NO. :	201108051	ANALYSIS NO. :	02
COMPANY NAME :	CARRIZO OIL & GAS	ANALYSIS DATE:	AUGUST 9, 2011
ACCOUNT NO. :		SAMPLE DATE :	AUGUST 9, 2011
PRODUCER :		CYLINDER NO. :	1099
LEASE NO. :		SAMPLED BY :	JOHN MOSER - EMPACT
NAME/DESCRIP :	NELSON 17-44-9-60 @ 9:20 A.M. SALES GAS SCRUBBER		
FIELD DATA		SAMPLE TEMP. :	142
SAMPLE PRES. :	77	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; NO PROBE H2S @ 1.0 PPM		

Componet	Mole %	Wt %
Helium	0.01	0.00
Hydrogen	0.02	0.00
Carbon Dioxide	2.84	4.47
Nitrogen	1.94	1.95
Methane	58.17340	33.40080
Ethane	13.1836	14.1880
Propane	13.1736	20.7907
Isobutane	1.4371	2.9895
n-Butane	5.1497	10.7126
Isopentane	1.0508	2.7134
n-Pentane	1.3875	3.5829
Cyclopentane	0.1252	0.3143
n-Hexane	0.3182	0.9814
Cyclohexane	0.0793	0.2389
Other Hexanes	0.5694	1.7426
Heptanes	0.2662	0.9478
Methycyclohexane	0.0573	0.2014
2,2,4 Trimethylpentane	0.0002	0.0008
Benzene	0.0491	0.1373
Toluene	0.0288	0.0950
Ethylbenzene	0.0034	0.0129
Xylenes	0.0045	0.0171
C8+ Heavies	0.1154	0.4898
Subtotal	99.98270	99.97720
Oxygen/Argon	0.01	0.01
Alcohols	0.0073	0.0128
Total	100.00000	100.00000



EXTENDED NATURAL GAS ANALYSIS (*DHA)

DHA COMPONENT LIST

PROJECT NO. :	201108051	ANALYSIS NO. :	02
COMPANY NAME :	CARRIZO OIL & GAS	ANALYSIS DATE:	AUGUST 9, 2011
ACCOUNT NO. :		SAMPLE DATE :	AUGUST 9, 2011
PRODUCER :		CYLINDER NO. :	1099
LEASE NO. :		SAMPLED BY :	JOHN MOSER - EMPACT
NAME/DESCRIP :	NELSON 17-44-9-60 @ 9:20 A.M. SALES GAS SCRUBBER		
FIELD DATA		SAMPLE TEMP. :	142
SAMPLE PRES. :	77	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; NO PROBE H2S @ 1.0 PPM		

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	---	1.94	1.95	---	---
Carbon Dioxide	---	2.84	4.47	---	---
Methane	P1	58.17340	33.40080	---	---
Ethane	P2	13.1836	14.1880	3.527	3.546
Propane	P3	13.1736	20.7907	3.630	3.650
i-Butane	I4	1.4371	2.9895	0.470	0.473
n-Butane	P4	5.1497	10.7126	1.623	1.632
2,2-Dimethylpropane	I5	0.0029	0.0075	0.001	0.001
Ethanol	X2	0.0063	0.0104	0.001	0.001
i-Pentane	I5	1.0479	2.7059	0.383	0.385
Acetone	X3	0.0004	0.0008	0.000	0.000
n-Pentane	P5	1.3872	3.5821	0.503	0.506
t-Butanol	X4	0.0004	0.0011	0.000	0.000
2,2-Dimethylbutane	I6	0.0029	0.0090	0.001	0.001
Cyclopentane	N5	0.1252	0.3143	0.037	0.037
2,3-Dimethylbutane	I6	0.0218	0.0673	0.009	0.009
2-Methylpentane	I6	0.2301	0.7097	0.095	0.096
i-Butanol	X4	0.0002	0.0005	0.000	0.000
3-Methylpentane	I6	0.1242	0.3831	0.051	0.051
UnknownC5s	U5	0.0003	0.0008	0.000	0.000
n-Hexane	P6	0.3182	0.9814	0.131	0.132
2,2-Dimethylpentane	I7	0.0010	0.0036	0.000	0.000
Methylcyclopentane	N6	0.1904	0.5735	0.067	0.068
2,4-Dimethylpentane	I7	0.0073	0.0262	0.003	0.003
2,2,3-Trimethylbutane	I7	0.0003	0.0011	0.000	0.000
Benzene	A6	0.0491	0.1373	0.014	0.014
3,3-Dimethylpentane	I7	0.0006	0.0022	0.000	0.000
Cyclohexane	N6	0.0793	0.2389	0.027	0.027
2-Methylhexane	I7	0.0311	0.1115	0.014	0.014
2,3-Dimethylpentane	I7	0.0157	0.0563	0.007	0.007
1,1-Dimethylcyclopentane	N7	0.0073	0.0257	0.003	0.003
3-Methylhexane	I7	0.0375	0.1345	0.017	0.017
1c,3-Dimethylcyclopentane	N7	0.0212	0.0745	0.010	0.010

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1t,3-Dimethylcyclopentane	N7	0.0189	0.0664	0.009	0.009
3-Ethylpentane	I7	0.0023	0.0082	0.001	0.001
1t,2-Dimethylcyclopentane	N7	0.0386	0.1356	0.018	0.018
2,2,4-Trimethylpentane	I8	0.0002	0.0008	0.000	0.000
n-Heptane	P7	0.0724	0.2597	0.033	0.033
1c,2-Dimethylcyclopentane	N7	0.0024	0.0085	0.001	0.001
Methylcyclohexane	N7	0.0573	0.2014	0.023	0.023
2,2-Dimethylhexane	I8	0.0044	0.0180	0.002	0.002
Ethylcyclopentane	N7	0.0095	0.0334	0.004	0.004
2,5-Dimethylhexane	I8	0.0015	0.0061	0.001	0.001
2,2,3-Trimethylpentane	I8	0.0001	0.0004	0.000	0.000
2,4-Dimethylhexane	I8	0.0024	0.0098	0.001	0.001
1c,2t,4-Trimethylcyclopentane	N8	0.0049	0.0197	0.002	0.002
3,3-Dimethylhexane	I8	0.0003	0.0012	0.000	0.000
1t,2c,4-Trimethylcyclopentane	N8	0.0057	0.0229	0.003	0.003
2,3,4-Trimethylpentane	I8	0.0010	0.0041	0.000	0.000
2,3,3-Trimethylpentane	I8	0.0001	0.0004	0.000	0.000
Toluene	A7	0.0288	0.0950	0.010	0.010
2,3-Dimethylhexane	I8	0.0021	0.0086	0.001	0.001
2-Methyl-3-ethylpentane	I8	0.0011	0.0045	0.001	0.001
1,1,2-Trimethylcyclopentane	N8	0.0001	0.0004	0.000	0.000
2-Methylheptane	I8	0.0100	0.0409	0.005	0.005
4-Methylheptane	I8	0.0031	0.0127	0.002	0.002
3-Methyl-3-ethylpentane	I8	0.0002	0.0008	0.000	0.000
3,4-Dimethylhexane	I8	0.0003	0.0012	0.000	0.000
1c,2c,4-Trimethylcyclopentane	N8	0.0002	0.0008	0.000	0.000
1c,3-Dimethylcyclohexane	N8	0.0003	0.0012	0.000	0.000
3-Methylheptane	I8	0.0040	0.0164	0.002	0.002
1c,2t,3-Trimethylcyclopentane	N8	0.0070	0.0281	0.004	0.004
3-Ethylhexane	I8	0.0011	0.0045	0.001	0.001
1t,4-Dimethylcyclohexane	N8	0.0024	0.0096	0.001	0.001
1,1-Dimethylcyclohexane	N8	0.0008	0.0032	0.000	0.000
3t-Ethylmethylcyclopentane	N8	0.0015	0.0060	0.001	0.001
2t-Ethylmethylcyclopentane	N8	0.0013	0.0052	0.001	0.001
1,1-Methylethylcyclopentane	N8	0.0043	0.0173	0.002	0.002
2,2,4-Trimethylhexane	I9	0.0002	0.0009	0.000	0.000
1t,2-Dimethylcyclohexane	N8	0.0035	0.0141	0.002	0.002
1t,3-Dimethylcyclohexane	N8	0.0001	0.0004	0.000	0.000
UnknownC7s	U7	0.0001	0.0004	0.000	0.000
n-Octane	P8	0.0123	0.0503	0.006	0.006
1c,4-Dimethylcyclohexane	N8	0.0026	0.0105	0.001	0.001
i-Propylcyclopentane	I8	0.0005	0.0020	0.000	0.000
2,4,4-Trimethylhexane	I9	0.0001	0.0005	0.000	0.000
2,3,5-Trimethylhexane	I9	0.0007	0.0032	0.000	0.000
2,2,3,4-Tetramethylpentane	I9	0.0001	0.0005	0.000	0.000
2,3,4-Trimethylhexane	I9	0.0001	0.0005	0.000	0.000
1c,2-Dimethylcyclohexane	N8	0.0004	0.0016	0.000	0.000
1,1,4-Trimethylcyclohexane	N9	0.0041	0.0185	0.002	0.002
2,2,3-Trimethylhexane	I9	0.0013	0.0060	0.001	0.001
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	0.0020	0.0080	0.001	0.001
n-Propylcyclopentane	N8	0.0007	0.0028	0.000	0.000
1c,3c,5-Trimethylcyclohexane	N9	0.0001	0.0005	0.000	0.000
2,5-Dimethylheptane	I9	0.0003	0.0014	0.000	0.000
3,3-Dimethylheptane	I9	0.0003	0.0014	0.000	0.000
3,5-Dimethylheptane	I9	0.0002	0.0009	0.000	0.000
2,6-Dimethylheptane	I9	0.0002	0.0009	0.000	0.000
1,1,3-Trimethylcyclohexane	N9	0.0007	0.0032	0.000	0.000
Ethylbenzene	I8	0.0034	0.0129	0.001	0.001

1c,2t,4t-Trimethylcyclohexane	N9	0.0002	0.0009	0.000	0.000
1,3-Dimethylbenzene (m-Xylene)	A8	0.0021	0.0080	0.001	0.001
1,4-Dimethylbenzene (p-Xylene)	A8	0.0008	0.0030	0.000	0.000
3,4-Dimethylheptane	I9	0.0001	0.0005	0.000	0.000
3,4-Dimethylheptane (2)	I9	0.0005	0.0023	0.000	0.000
4-Ethylheptane	I9	0.0002	0.0009	0.000	0.000
4-Methyloctane	I9	0.0007	0.0032	0.000	0.000
2-Methyloctane	I9	0.0009	0.0041	0.001	0.001
1c,2t,3-Trimethylcyclohexane	N9	0.0002	0.0009	0.000	0.000
3-Ethylheptane	I9	0.0002	0.0009	0.000	0.000
3-Methyloctane	I9	0.0010	0.0046	0.001	0.001
1c,2t,4c-Trimethylcyclohexane	I9	0.0001	0.0005	0.000	0.000
1,1,2-Trimethylcyclohexane	N9	0.0001	0.0005	0.000	0.000
1,2-Dimethylbenzene (o-Xylene)	A8	0.0016	0.0061	0.001	0.001
i-Butylcyclopentane	N9	0.0006	0.0027	0.000	0.000
UnknownC8s	U8	0.0001	0.0004	0.000	0.000
n-Nonane	P9	0.0028	0.0129	0.002	0.002
i-Propylbenzene	A9	0.0008	0.0034	0.000	0.000
i-Propylcyclohexane	N9	0.0001	0.0005	0.000	0.000
2,2-Dimethyloctane	I10	0.0001	0.0005	0.000	0.000
2,4-Dimethyloctane	I10	0.0001	0.0005	0.000	0.000
2,5-Dimethyloctane	I10	0.0001	0.0005	0.000	0.000
n-Butylcyclopentane	N9	0.0006	0.0027	0.000	0.000
3,3-Dimethyloctane	I10	0.0002	0.0010	0.000	0.000
n-Propylbenzene	A9	0.0005	0.0022	0.000	0.000
3,6-Dimethyloctane	I10	0.0004	0.0020	0.000	0.000
3-Methyl-5-ethylheptane	I10	0.0005	0.0025	0.000	0.000
1,3-Methylethylbenzene	A9	0.0004	0.0017	0.000	0.000
1,4-Methylethylbenzene	A9	0.0002	0.0009	0.000	0.000
1,3,5-Trimethylbenzene	A9	0.0001	0.0004	0.000	0.000
2,3-Dimethyloctane	I10	0.0001	0.0005	0.000	0.000
5-Methylnonane	I10	0.0002	0.0010	0.000	0.000
1,2-Methylethylbenzene	A9	0.0006	0.0026	0.000	0.000
3-Ethyloctane	I10	0.0001	0.0005	0.000	0.000
3-Methylnonane	I10	0.0002	0.0010	0.000	0.000
1,2,4-Trimethylbenzene	A9	0.0001	0.0004	0.000	0.000
t-Butylbenzene	A10	0.0004	0.0019	0.000	0.000
i-Butylcyclohexane	N10	0.0001	0.0005	0.000	0.000
1t-Methyl-2-n-propylcyclohexane	I10	0.0001	0.0005	0.000	0.000
i-Butylbenzene	A10	0.0001	0.0005	0.000	0.000
UnknownC9s	U9	0.0049	0.0225	0.003	0.003
n-Decane	P10	0.0007	0.0036	0.000	0.000
1,2,3-Trimethylbenzene	A9	0.0002	0.0009	0.000	0.000
1,3-Methyl-i-propylbenzene	A10	0.0001	0.0005	0.000	0.000
Sec-Butylcyclohexane	A10	0.0001	0.0005	0.000	0.000
1,2-Methyl-i-propylbenzene	A10	0.0001	0.0005	0.000	0.000
1,3-Diethylbenzene	A10	0.0001	0.0005	0.000	0.000
1,4-Diethylbenzene	A10	0.0001	0.0005	0.000	0.000
1,3-Dimethyl-5-ethylbenzene	A10	0.0001	0.0005	0.000	0.000
1,2-Diethylbenzene	A10	0.0001	0.0005	0.000	0.000
t-Decahydronaphthalene	A9	0.0001	0.0005	0.000	0.000
1,2-Dimethyl-4-ethylbenzene	A10	0.0001	0.0005	0.000	0.000
1,3-Dimethyl-2-ethylbenzene	A10	0.0001	0.0005	0.000	0.000
UnknownC10s	U10	0.0025	0.0127	0.002	0.002
n-Undecane	P11	0.0002	0.0011	0.000	0.000
UnknownC11s	U11	0.0006	0.0034	0.000	0.000
n-Dodecane	P12	0.0001	0.0006	0.000	0.000
UnknownC12s	U12	0.0001	0.0006	0.000	0.000
n-Tridecane	P13	0.0001	0.0006	0.000	0.000
n-Tetradecane	P14	0.0001	0.0007	0.000	0.000

UnknownC14s	U14	0.0001	0.0007	0.000	0.000
UnknownC15s	U15	0.0001	0.0008	0.000	0.000
TOTAL		100.00000	100.00000	10.7801	10.8389

BTEX COMPONENTS	**MOLE%**	**WT%**
BENZENE	0.0491	0.1373
TOLUENE	0.0288	0.0950
ETHYLBENZENE	0.0034	0.0129
XYLENES	0.0045	0.0171
TOTAL BTEX	0.0858	0.2623

	BTU @	14.650	14.730
LOW	NET DRY REAL :	1412.1 **/scf**	1419.8 **/scf**
	NET WET REAL :	1387.4 **/scf**	1395.1 **/scf**
HIGH	GROSS DRY REAL :	1546.3 **/scf**	1554.8 **/scf**
	GROSS WET REAL :	1519.3 **/scf**	1527.8 **/scf**
	NET DRY REAL :	19200.8 **/lb**	19305.6 **/lb**
	GROSS DRY REAL :	21031.2 **/lb**	21146.0 **/lb**

RELATIVE DENSITY (AIR=1): 0.9636

COMPRESSIBILITY FACTOR : 0.99414

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

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

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