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

303-637-0150

EXTENDED NATURAL GAS LIQUID ANALYSIS (*DHA)

MAIN PAGE

PROJECT NO. :	201406094	ANALYSIS NO. :	07
COMPANY NAME :	CARRIZO OIL & GAS	ANALYSIS DATE:	JUNE 16, 2014
ACCOUNT NO. :		SAMPLE DATE :	JUNE 13, 2014
PRODUCER :		CYLINDER NO. :	10411
LEASE NO. :		SAMPLED BY :	JOHN MOSER
NAME/DESCRIP :	OIL TREATER @ 13:40		EMPACT
	BRINGELSON RANCH 9-20-9-58		
FIELD DATA		SAMPLE TEMP. :	152
SAMPLE PRES. :	23	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; NO PROBE		

COMPONENT	MOLE %	MASS %	VOL %
ALCOHOLS	0.0071	0.0039	0.0037
NITROGEN (AIR)	0.0050	0.0012	0.0011
CARBON DIOXIDE	0.0190	0.0073	0.0067
METHANE	0.0330	0.0046	0.0114
ETHANE	0.3000	0.0787	0.1648
PROPANE	1.3540	0.5208	0.7664
I-BUTANE	0.3410	0.1729	0.2292
N-BUTANE	1.7980	0.9115	1.1646
I-PENTANE	0.7749	0.4877	0.5834
N-PENTANE	1.2720	0.8005	0.9464
HEXANES PLUS	94.0960	97.0109	96.1223
TOTALS	100.0000	100.0000	100.0000

BTEX COMPONENTS	**MOLE%**	**MASS%**
BENZENE	1.0852	0.7394
TOLUENE	2.3030	1.8509
ETHYLBENZENE	0.7447	0.6897
XYLENE	2.2724	2.1045
TOTAL BTEX	6.4053	5.3845

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

	TOTAL SAMPLE	**C6+ FRACTION**	
Specific Gravity (H2O=1) =	0.7462	0.7536	60/60
API Gravity =	58.13	56.27	60/60
Molecular Weight =	114.64	118.885	
Absolute Density =	6.22	6.28	LBS/GAL
Heating Value Liq. Idl Gas=	126485	127434	BTU/GAL
Vapor/Liquid =	20.76	20.21	CUFT/GAL
Vapor Pressure =	9.73	1.66	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. :	201406094	ANALYSIS NO. :	07
COMPANY NAME :	CARRIZO OIL & GAS	ANALYSIS DATE:	JUNE 16, 2014
ACCOUNT NO. :		SAMPLE DATE :	JUNE 13, 2014
PRODUCER :		CYLINDER NO. :	10411
LEASE NO. :		SAMPLED BY :	JOHN MOSER
NAME/DESCRIP :	OIL TREATER @ 13:40 BRINGELSON RANCH 9-20-9-58		EMPACT
FIELD DATA		SAMPLE TEMP. :	152
SAMPLE PRES. :	23	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; NO PROBE		

COMPONENT	Mole %		Wt %		LV %	
CARBON DIOXIDE	0.0190		0.0073		0.0067	
NITROGEN (AIR)	0.0050		0.0012		0.0011	
METHANE	0.0330		0.0046		0.0114	
ETHANE	0.3000		0.0787		0.1648	
PROPANE	1.3540		0.5208		0.7664	
I-BUTANE	0.3410		0.1729		0.2292	
N-BUTANE	1.7980		0.9115		1.1646	
I-PENTANE	0.7749		0.4877		0.5834	
N-PENTANE	1.2720		0.8005		0.9464	
CYCLOPENTANE (N-C5)	1.3077		0.7999		0.7851	
N-HEXANE	6.5736		4.9412		5.5544	
CYCLOHEXANE (OTHER C6)	2.7124		1.9912		1.8963	
OTHER HEXANES	10.3477		7.7019		8.2401	
OTHER HEPTANES	13.5201		11.7339		12.3113	
METHYLCYCLOHEXANE (OTHER C7)	4.3284		3.7072		3.5705	
2,2,4 TRIMETHYLPENTANE	0.8951		0.7666		0.7591	
BENZENE	1.0852		0.7394		0.6249	
TOLUENE	2.3030		1.8509		1.5796	
ETHYLBENZENE	0.7447		0.6897		0.5885	
XYLENES	2.2724		2.1045		1.7990	
OTHER OCTANES	11.6376		11.6232		11.7716	
OCTANES PLUS	----	51.9179	----	63.5453	----	61.5601
NONANES	10.5623		11.6649		11.4484	
DECANES PLUS	25.8058		36.6964		35.1935	
SUB TOTAL	99.9929		99.9961		99.9963	
ALCOHOLS	0.0071		0.0039		0.0037	
TOTAL	100.0000		100.0000		100.0000	

API Gravity	=	**58.13**	60/60
Vapor Pressure	=	**9.73**	PSIA & 100 F
Average Molecular Weight of Decanes plus	=	**163.03**	
Average Specific Gravity of Decanes plus	=	**0.7840**	

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EXTENDED NATURAL GAS LIQUID ANALYSIS (*DHA)

BY CARBON NUMBER

PROJECT NO. :	201406094	ANALYSIS NO. :	07
COMPANY NAME :	CARRIZO OIL & GAS	ANALYSIS DATE:	JUNE 16, 2014
ACCOUNT NO. :		SAMPLE DATE :	JUNE 13, 2014
PRODUCER :		CYLINDER NO. :	10411
LEASE NO. :		SAMPLED BY :	JOHN MOSER
NAME/DESCRIP :	OIL TREATER @ 13:40		EMPACT
	BRINGELSON RANCH 9-20-9-58		
FIELD DATA		SAMPLE TEMP. :	152
SAMPLE PRES. :	23	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; NO PROBE		

COMPONENT / CARBON NUMBER		MOLE%	MASS %	VOLUME %
ALCOHOLS		0.0071	0.0039	0.0037
NITROGEN		0.0050	0.0012	0.0011
CARBON DIOXIDE		0.0190	0.0073	0.0067
	C1	0.0330	0.0046	0.0114
	C2	0.3000	0.0787	0.1648
	C3	1.3540	0.5208	0.7664
	C4	2.1390	1.0844	1.3938
	C5	3.3546	2.0881	2.3149
	C6	20.7189	15.3737	16.3157
	C7	20.1515	17.2920	17.4614
	C8	15.5498	15.1840	14.9182
	C9	10.5623	11.6649	11.4484
	C10	9.5994	11.4743	11.0222
	C11	5.1607	6.6647	6.2369
	C12	3.0842	4.3309	4.1724
	C13	2.4729	3.8685	3.7508
	C14	2.0403	3.5307	3.4512
	C15	1.7027	3.1548	3.0484
	C16	0.7812	1.5430	1.4813
	C17	0.3753	0.7872	0.7534
	C18	0.3795	0.8424	0.8039
	C19	0.1423	0.3333	0.3160
	C20	0.0611	0.1506	0.1420
	C21	0.0062	0.0160	0.0150
	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. :	201406094	ANALYSIS NO. :	07
COMPANY NAME :	CARRIZO OIL & GAS	ANALYSIS DATE:	JUNE 16, 2014
ACCOUNT NO. :		SAMPLE DATE :	JUNE 13, 2014
PRODUCER :		CYLINDER NO. :	10411
LEASE NO. :		SAMPLED BY :	JOHN MOSER
NAME/DESCRIP :	OIL TREATER @ 13:40		EMPACT
	BRINGELSON RANCH 9-20-9-58		
FIELD DATA		SAMPLE TEMP. :	152
SAMPLE PRES. :	23	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; NO PROBE		

COMPONENT	PIANO #	MOLE %	MASS %	VOL %
Nitrogen	NHC	0.0050	0.0012	0.0011
Carbon Dioxide	NHC	0.0190	0.0073	0.0067
Methane	P1	0.0330	0.0046	0.0114
Ethane	P2	0.3000	0.0787	0.1648
Propane	P3	1.3540	0.5208	0.7664
i-Butane	I4	0.3410	0.1729	0.2292
n-Butane	P4	1.7980	0.9115	1.1646
2,2-Dimethylpropane	I5	0.0249	0.0157	0.0196
Ethanol	X2	0.0018	0.0007	0.0007
i-Pentane	I5	0.7500	0.4720	0.5638
i-Propanol	X3	0.0024	0.0013	0.0012
n-Pentane	P5	1.2720	0.8005	0.9464
t-Butanol	X4	0.0029	0.0019	0.0018
2,2-Dimethylbutane	I6	0.0509	0.0383	0.0437
Cyclopentane	N5	1.3077	0.7999	0.7851
2,3-Dimethylbutane	I6	0.3772	0.2835	0.3171
2-Methylpentane	I6	3.4539	2.5964	2.9452
3-Methylpentane	I6	2.1152	1.5900	1.7735
n-Hexane	P6	6.5736	4.9412	5.5544
2,2-Dimethylpentane	I7	0.0199	0.0174	0.0190
Methylcyclopentane	N6	4.3505	3.1937	3.1606
2,4-Dimethylpentane	I7	0.2689	0.2350	0.2592
2,2,3-Trimethylbutane	I7	0.0334	0.0292	0.0313
Benzene	A6	1.0852	0.7394	0.6249
3,3-Dimethylpentane	I7	0.0303	0.0265	0.0284
Cyclohexane	N6	2.7124	1.9912	1.8963
2-Methylhexane	I7	1.2621	1.1031	1.2062
2,3-Dimethylpentane	I7	0.6481	0.5665	0.6018
1,1-Dimethylcyclopentane	N7	0.4374	0.3746	0.3681
3-Methylhexane	I7	1.7157	1.4995	1.6150
1c,3-Dimethylcyclopentane	N7	0.9505	0.8141	0.8104
1t,3-Dimethylcyclopentane	N7	0.8951	0.7666	0.7591
3-Ethylpentane	I7	0.1461	0.1277	0.1353
1t,2-Dimethylcyclopentane	N7	1.7263	1.4785	1.4590
2,2,4-Trimethylpentane	I8	0.1055	0.1051	0.1122

n-Heptane	P7	4.5750	3.9986	4.3350
1c,2-Dimethylcyclopentane	N7	0.1603	0.1373	0.1318
Methylcyclohexane	N7	4.3284	3.7072	3.5705
2,2-Dimethylhexane	I8	0.5538	0.5518	0.5881
Ethylcyclopentane	N7	0.5480	0.4693	0.4541
2,5-Dimethylhexane	I8	0.1271	0.1266	0.1353
2,2,3-Trimethylpentane	I8	0.0377	0.0376	0.0389
2,4-Dimethylhexane	I8	0.2264	0.2256	0.2399
1c,2t,4-Trimethylcyclopentane	N8	0.4432	0.4338	0.4215
3,3-Dimethylhexane	I8	0.0493	0.0491	0.0513
2,3,4-Trimethylpentane	I8	0.0961	0.0958	0.0987
2,3,3-Trimethylpentane	I8	0.0067	0.0067	0.0068
Toluene	A7	2.3030	1.8509	1.5796
2,3-Dimethylhexane	I8	0.2677	0.2667	0.2779
2-Methyl-3-ethylpentane	I8	0.1210	0.1206	0.1243
1,1,2-Trimethylcyclopentane	N8	0.0041	0.0040	0.0038
2-Methylheptane	I8	1.3519	1.3470	1.4285
4-Methylheptane	I8	0.4044	0.4029	0.4170
3-Methyl-3-ethylpentane	I8	0.0777	0.0774	0.0789
3,4-Dimethylhexane	I8	0.0775	0.0772	0.0795
1c,2c,4-Trimethylcyclopentane	N8	0.0368	0.0360	0.0346
1c,3-Dimethylcyclohexane	N8	0.0288	0.0282	0.0273
3-Methylheptane	I8	0.6475	0.6452	0.6783
1c,2t,3-Trimethylcyclopentane	N8	1.1583	1.1337	1.0915
3-Ethylhexane	I8	0.1293	0.1288	0.1340
1t,4-Dimethylcyclohexane	N8	0.5101	0.4993	0.4857
1,1-Dimethylcyclohexane	N8	0.1317	0.1289	0.1225
3c-Ethylmethylcyclopentane	N8	0.0061	0.0060	0.0058
3t-Ethylmethylcyclopentane	N8	0.1940	0.1899	0.1837
2t-Ethylmethylcyclopentane	N8	0.1655	0.1620	0.1563
1,1-Methylethylcyclopentane	N8	0.5343	0.5230	0.4969
2,2,4-Trimethylhexane	I9	0.0513	0.0574	0.0595
1t,2-Dimethylcyclohexane	N8	0.6576	0.6436	0.6155
1t,3-Dimethylcyclohexane	N8	0.0012	0.0012	0.0011
UnknownC7s	U7	0.1030	0.0900	0.0976
n-Octane	P8	2.6625	2.6529	2.8000
1c,4-Dimethylcyclohexane	N8	0.5629	0.5510	0.5222
i-Propylcyclopentane	I8	0.0760	0.0744	0.0711
2,4,4-Trimethylhexane	I9	0.0244	0.0273	0.0280
2,2,3,4-Tetramethylpentane	I9	0.0213	0.0238	0.0245
2,3,4-Trimethylhexane	I9	0.0310	0.0347	0.0357
1c,2-Dimethylcyclohexane	N8	0.2287	0.2238	0.2086
2,3,5-Trimethylhexane	I9	0.0960	0.1074	0.1104
2,2-Dimethylheptane	I9	0.0150	0.0168	0.0175
1,1,4-Trimethylcyclohexane	N9	0.9790	1.0780	1.0362
2,2,3-Trimethylhexane	I9	0.4237	0.4740	0.4821
2,4-Dimethylheptane	I9	0.0608	0.0680	0.0705
4,4-Dimethylheptane	I9	0.0520	0.0582	0.0603
Ethylcyclohexane	N8	0.5764	0.5642	0.5315
n-Propylcyclopentane	N8	0.2376	0.2326	0.2222
1c,3c,5-Trimethylcyclohexane	N9	0.0414	0.0456	0.0438
2,5-Dimethylheptane	I9	0.0728	0.0814	0.0842
3,3-Dimethylheptane	I9	0.0915	0.1024	0.1060
3,5-Dimethylheptane	I9	0.0619	0.0692	0.0716
2,6-Dimethylheptane	I9	0.0531	0.0594	0.0621
1,1,3-Trimethylcyclohexane	N9	0.1623	0.1787	0.1718
Ethylbenzene	A8	0.7447	0.6897	0.5885
1c,2t,4t-Trimethylcyclohexane	N9	0.1374	0.1513	0.1427
2,3-Dimethylheptane	I9	0.0987	0.1104	0.1128
1,3-Dimethylbenzene (m-Xylene)	A8	1.3626	1.2619	1.0831
1,4-Dimethylbenzene (p-Xylene)	A8	0.3277	0.3035	0.2613
3,4-Dimethylheptane	I9	0.0447	0.0500	0.0507
3,4-Dimethylheptane (2)	I9	0.1336	0.1495	0.1516
4-Ethylheptane	I9	0.0313	0.0350	0.0363
4-Methyloctane	I9	0.2923	0.3270	0.3366
2-Methyloctane	I9	0.3607	0.4035	0.4195
1c,2t,4c-Trimethylcyclohexane	I9	0.0445	0.0498	0.0509

3-Ethylheptane	I9	0.0677	0.0757	0.0773
3-Methyloctane	I9	0.4782	0.5350	0.5506
3,3-Diethylpentane	I9	0.0483	0.0540	0.0531
1c,2t,3-Trimethylcyclohexane	N9	0.0742	0.0817	0.0770
1,1,2-Trimethylcyclohexane	N9	0.0333	0.0367	0.0346
1,2-Dimethylbenzene (o-Xylene)	A8	0.5821	0.5391	0.4546
i-Butylcyclopentane	N9	0.2931	0.3227	0.3066
UnknownC8s	U8	0.0373	0.0372	0.0393
n-Nonane	P9	1.8670	2.0887	2.1591
1,1-Methylethylcyclohexane	N9	0.3962	0.4433	0.4596
i-Propylbenzene	A9	0.3402	0.3567	0.3065
i-Propylcyclohexane	N9	0.1075	0.1184	0.1096
2,2-Dimethyloctane	I10	0.0762	0.0946	0.0949
2,4-Dimethyloctane	I10	0.1016	0.1261	0.1265
2,6-Dimethyloctane	I10	0.0133	0.0165	0.0171
2,5-Dimethyloctane	I10	0.0477	0.0592	0.0594
n-Butylcyclopentane	N9	0.2656	0.3250	0.3018
3,3-Dimethyloctane	I10	0.0710	0.0881	0.0884
n-Propylbenzene	A9	0.4293	0.4501	0.3868
3,6-Dimethyloctane	I10	0.2545	0.3159	0.3170
3-Methyl-5-ethylheptane	I10	0.4652	0.5204	0.5320
1,3-Methylethylbenzene	A9	0.2678	0.2808	0.2393
1,4-Methylethylbenzene	A9	0.2669	0.2798	0.2384
1,3,5-Trimethylbenzene	A9	0.1094	0.1147	0.0984
2,3-Dimethyloctane	I10	0.0689	0.0855	0.0858
5-Methylnonane	I10	0.2289	0.2841	0.2877
1,2-Methylethylbenzene	A9	0.3686	0.3864	0.3275
2-Methylnonane	I10	0.0447	0.0555	0.0567
3-Ethyloctane	I10	0.0587	0.0729	0.0731
3-Methylnonane	I10	0.2536	0.3147	0.3184
1,2,4-Trimethylbenzene	A9	0.0575	0.0603	0.0511
t-Butylbenzene	A10	0.5161	0.6042	0.5178
i-Butylcyclohexane	N10	0.2159	0.2642	0.2416
1t-Methyl-2-n-propylcyclohexane	I10	0.0470	0.0526	0.0538
i-Butylbenzene	A10	0.0836	0.0979	0.0852
sec-Butylbenzene	A10	0.0505	0.0591	0.0509
UnknownC9s	U9	1.4567	1.6297	1.6846
n-Decane	P10	1.3602	1.6881	1.7156
1,2,3-Trimethylbenzene	A9	0.2541	0.2664	0.2212
1,3-Methyl-i-propylbenzene	A10	0.0753	0.0789	0.0669
1,4-Methyl-i-propylbenzene	A10	0.0943	0.0989	0.0838
Sec-Butylcyclohexane	N10	0.3553	0.4347	0.3969
1,2-Methyl-i-propylbenzene	A10	0.1823	0.2134	0.1807
3-Ethylnonane	I10	0.0264	0.0328	0.0335
1,3-Diethylbenzene	A10	0.1442	0.1688	0.1451
1,3-Methyl-n-propylbenzene	A10	0.0544	0.0637	0.0549
1,4-Diethylbenzene	A10	0.1628	0.1906	0.1642
1,4-Methyl-n-propylbenzene	A10	0.1370	0.1604	0.1387
n-Butylbenzene	A10	0.0625	0.0732	0.0631
1,3-Dimethyl-5-ethylbenzene	A10	0.1347	0.1577	0.1354
1,2-Diethylbenzene	A10	0.0393	0.0460	0.0388
1,2-Methyl-n-propylbenzene	A10	0.1228	0.1438	0.1222
1,4-Dimethyl-2-ethylbenzene	A10	0.1622	0.1899	0.1607
1,3-Dimethyl-4-ethylbenzene	A10	0.0131	0.0153	0.0130
1,2-Dimethyl-4-ethylbenzene	A10	0.2188	0.2562	0.2175
1,3-Dimethyl-2-ethylbenzene	A10	0.1254	0.1468	0.1224
1t,2c,4-Trimethylcyclopentane	A10	0.5279	0.5167	0.5128
1,2-Dimethyl-3-ethylbenzene	A10	0.0884	0.1035	0.0861
1,2-Ethyl-i-propylbenzene	A10	0.1204	0.1410	0.1194
1,4-Methyl-t-butylbenzene	A11	0.2163	0.2532	0.2144
UnknownC10s	U10	2.5151	3.1214	3.1723
n-Undecane	P11	1.1619	1.5842	1.5877
1,4-Ethyl-i-propylbenzene	A11	0.0638	0.0747	0.0633
1,2,4,5-Tetramethylbenzene	A11	0.1417	0.1659	0.1390
1,2-Methyl-n-butylbenzene	A11	0.0820	0.0960	0.0813
1,2,3,5-Tetramethylbenzene	A11	0.1496	0.1751	0.1461
1,2-Methyl-t-butylbenzene	A11	0.1023	0.1198	0.1015

5-Methylindan	A11	0.0217	0.0322	0.0319
4-Methylindan	A11	0.0080	0.0119	0.0118
1,2-Ethyl-n-propylbenzene	A11	0.1760	0.2061	0.1745
2-Methylindan	A11	0.0771	0.1146	0.1136
1,3-Methyl-n-butylbenzene	A11	0.0878	0.1028	0.0871
1,3-Di-i-propylbenzene	A11	0.0982	0.1150	0.0974
sec-Pentylbenzene	A11	0.1113	0.1303	0.1104
n-Pentylbenzene	A11	0.0650	0.0841	0.0727
1t-M-2-(4MP)cyclopentane	P12	0.0884	0.1313	0.1302
1,2-Di-n-propylbenzene	A11	0.1165	0.1364	0.1155
1,4-Di-i-propylbenzene	A11	0.2105	0.2465	0.2088
Tetrahydronaphthalene	A10	0.0253	0.0296	0.0251
t-Decahydronaphthalene	A10	0.1436	0.1681	0.1424
Naphthalene	A10	0.1103	0.1233	0.1044
1-t-Butyl-3,5-dimethylbenzene	A12	0.0731	0.0856	0.0725
1,4-Ethyl-t-butylbenzene	A11	0.1079	0.1263	0.1070
UnknownC11s	U11	1.6778	2.2876	2.2927
n-Dodecane	P12	0.9848	1.4632	1.4503
1,3-Di-n-propylbenzene	A12	0.0875	0.1024	0.0867
1,3,5-Triethylbenzene	A12	0.0390	0.0409	0.0351
1,2,4-Triethylbenzene	A12	0.3550	0.3722	0.3154
1,4-Methyl-n-pentylbenzene	A12	0.0605	0.0708	0.0600
n-Hexylbenzene	A12	0.1355	0.1918	0.1660
1,2,3,4,5-Pentamethylbenzene	A13	0.2473	0.2895	0.2452
2-Methylnaphthalene	A11	0.2845	0.3529	0.2989
1-Methylnaphthalene	A11	0.2008	0.2491	0.1813
UnknownC12s	U12	1.2604	1.8727	1.8562
n-Tridecane	P13	0.8711	1.4008	1.3721
UnknownC13s	U13	1.3545	2.1782	2.1335
n-Tetradecane	P14	0.6518	1.1279	1.1025
UnknownC14s	U14	1.3885	2.4028	2.3487
n-Pentadecane	P15	0.2097	0.3885	0.3754
UnknownC15s	U15	1.4930	2.7663	2.6730
n-Hexadecane	P16	0.0977	0.1930	0.1853
UnknownC16s	U16	0.6835	1.3500	1.2960
n-Heptadecane	P17	0.2276	0.4774	0.4569
UnknownC17s	U17	0.1477	0.3098	0.2965
n-Octadecane	P18	0.1175	0.2608	0.2489
UnknownC18s	U18	0.2620	0.5816	0.5550
n-Nonadecane	P19	0.0327	0.0766	0.0726
UnknownC19s	U19	0.1096	0.2567	0.2434
n-Eicosane	P20	0.0097	0.0239	0.0225
UnknownC20s	U20	0.0514	0.1267	0.1195
n-Heneicosane	P21	0.0041	0.0106	0.0099
UnknownC21s	U21	0.0021	0.0054	0.0051
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. :	201406094	ANALYSIS NO. :	08
COMPANY NAME :	CARRIZO OIL & GAS	ANALYSIS DATE:	JUNE 18, 2014
ACCOUNT NO. :		SAMPLE DATE :	JUNE 13, 2014
PRODUCER :		CYLINDER NO. :	0903
LEASE NO. :		SAMPLED BY :	JOHN MOSER-EMPACT
NAME/DESCRIP :	SALES GAS @ 13:45 BRINGELSON RANCH 9-20-9-58		
FIELD DATA		SAMPLE TEMP. :	112
SAMPLE PRES. :	102	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; PROBE; LENGTH OF H2S STAIN @ 3.0 PPM (1-7 PPM) @ 13:50		

COMPONENT	MOLE %	MASS %	GPM @ 14.650	GPM @ 14.730
ALCOHOLS	0.0005	0.0013		
GLYCOLS	0.0004	0.0023		
HELIUM	0.01	0.00	---	---
HYDROGEN	0.01	0.00	---	---
OXYGEN/ARGON	0.01	0.01	---	---
NITROGEN	0.95	1.03	---	---
CARBON DIOXIDE	2.37	4.05	---	---
METHANE	64.19900	40.01170	---	---
ETHANE	13.2780	15.5107	3.5489	3.5682
PROPANE	11.4690	19.6471	3.1581	3.1754
I-BUTANE	1.1279	2.5468	0.3687	0.3707
N-BUTANE	3.8428	8.6770	1.2103	1.2170
I-PENTANE	0.7709	2.1554	0.2765	0.2780
N-PENTANE	0.9100	2.5506	0.3296	0.3314
HEXANES PLUS	1.0515	3.8071	0.4286	0.4308
TOTALS	100.00000	100.00000	9.3207	9.3715

BTEX COMPONENTS	**MOLE%**	**WT%**
BENZENE	0.0257	0.0780
TOLUENE	0.0184	0.0658
ETHYLBENZENE	0.0021	0.0087
XYLENES	0.0044	0.0181
TOTAL BTEX	0.0506	0.1706

	BTU @	14.650	14.730
LOW	NET DRY REAL :	1326.7 **/scf**	1333.9 **/scf**
	NET WET REAL :	1303.5 **/scf**	1310.7 **/scf**
HIGH	GROSS DRY REAL :	1456.0 **/scf**	1464.0 **/scf**
	GROSS WET REAL :	1430.5 **/scf**	1438.5 **/scf**
	NET DRY REAL :	19587.7 **/lb**	19694.7 **/lb**
	GROSS DRY REAL :	21494.2 **/lb**	21611.6 **/lb**
	RELATIVE DENSITY (AIR=1):		0.8878
	COMPRESSIBILITY FACTOR :		0.99494

(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

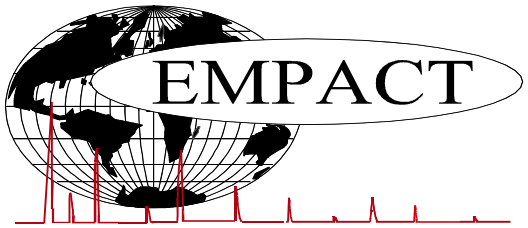
303-637-0150

EXTENDED NATURAL GAS ANALYSIS (*DHA)

GLYCALC INFORMATION

PROJECT NO. :	201406094	ANALYSIS NO. :	08
COMPANY NAME :	CARRIZO OIL & GAS	ANALYSIS DATE:	JUNE 18, 2014
ACCOUNT NO. :		SAMPLE DATE :	JUNE 13, 2014
PRODUCER :		CYLINDER NO. :	0903
LEASE NO. :		SAMPLED BY :	JOHN MOSER-EMPACT
NAME/DESCRIP :	SALES GAS @ 13:45 BRINGELSON RANCH 9-20-9-58		
FIELD DATA		SAMPLE TEMP. :	112
SAMPLE PRES. :	102	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; PROBE; LENGTH OF H2S STAIN @ 3.0 PPM (1-7 PPM) @ 13:50		

Componet	Mole %	Wt %
Helium	0.01	0.00
Hydrogen	0.01	0.00
Carbon Dioxide	2.37	4.05
Nitrogen	0.95	1.03
Methane	64.19900	40.01170
Ethane	13.2780	15.5107
Propane	11.4690	19.6471
Isobutane	1.1279	2.5468
n-Butane	3.8428	8.6770
Isopentane	0.7031	1.9707
n-Pentane	0.9100	2.5506
Cyclopentane	0.0678	0.1847
n-Hexane	0.2050	0.6863
Cyclohexane	0.0530	0.1733
Other Hexanes	0.3664	1.2176
Heptanes	0.1982	0.7658
Methycyclohexane	0.0468	0.1785
2,2,4 Trimethylpentane	0.0001	0.0004
Benzene	0.0257	0.0780
Toluene	0.0184	0.0658
Ethylbenzene	0.0021	0.0087
Xylenes	0.0044	0.0181
C8+ Heavies	0.1314	0.6146
Subtotal	99.98910	99.98640
Oxygen/Argon	0.01	0.01
Alcohols	0.0005	0.0013
Glycols	0.0004	0.0023
Total	100.00000	100.00000



EXTENDED NATURAL GAS ANALYSIS (*DHA)

DHA COMPONENT LIST

PROJECT NO. :	201406094	ANALYSIS NO. :	08
COMPANY NAME :	CARRIZO OIL & GAS	ANALYSIS DATE:	JUNE 18, 2014
ACCOUNT NO. :		SAMPLE DATE :	JUNE 13, 2014
PRODUCER :		CYLINDER NO. :	0903
LEASE NO. :		SAMPLED BY :	JOHN MOSER-EMPACT
NAME/DESCRIP :	SALES GAS @ 13:45 BRINGELSON RANCH 9-20-9-58		
FIELD DATA		SAMPLE TEMP. :	112
SAMPLE PRES. :	102	AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT; PROBE; LENGTH OF H2S STAIN @ 3.0 PPM (1-7 PPM) @ 13:50		

COMPONENT	PIANO #	MOLE %	MASS %	GPM @ 14.650	GPM @ 14.730
Helium	---	0.01	0.00	---	---
Hydrogen	---	0.01	0.00	---	---
Oxygen/Argon	---	0.01	0.01	---	---
Nitrogen	---	0.95	1.03	---	---
Carbon Dioxide	---	2.37	4.05	---	---
Methane	P1	64.19900	40.01170	---	---
Ethane	P2	13.2780	15.5107	3.549	3.568
Propane	P3	11.4690	19.6471	3.158	3.175
i-Butane	I4	1.1279	2.5468	0.369	0.371
n-Butane	P4	3.8428	8.6770	1.210	1.217
2,2-Dimethylpropane	I5	0.0029	0.0081	0.001	0.001
Ethanol	X2	0.0002	0.0004	0.000	0.000
i-Pentane	I5	0.7002	1.9626	0.256	0.257
n-Pentane	P5	0.9100	2.5506	0.330	0.331
t-Butanol	X4	0.0003	0.0009	0.000	0.000
2,2-Dimethylbutane	I6	0.0022	0.0074	0.001	0.001
Cyclopentane	N5	0.0678	0.1847	0.020	0.020
2,3-Dimethylbutane	I6	0.0198	0.0663	0.008	0.008
2-Methylpentane	I6	0.1476	0.4942	0.061	0.062
3-Methylpentane	I6	0.0786	0.2632	0.032	0.032
n-Hexane	P6	0.2050	0.6863	0.084	0.085
2,2-Dimethylpentane	I7	0.0010	0.0039	0.000	0.000
Methylcyclopentane	N6	0.1180	0.3858	0.042	0.042
2,4-Dimethylpentane	I7	0.0052	0.0202	0.002	0.002
2,2,3-Trimethylbutane	I7	0.0001	0.0004	0.000	0.000
Benzene	A6	0.0257	0.0780	0.007	0.007
3,3-Dimethylpentane	I7	0.0006	0.0023	0.000	0.000
Cyclohexane	N6	0.0530	0.1733	0.018	0.018
2-Methylhexane	I7	0.0229	0.0892	0.011	0.011
2,3-Dimethylpentane	I7	0.0108	0.0420	0.005	0.005
1,1-Dimethylcyclopentane	N7	0.0068	0.0260	0.003	0.003
3-Methylhexane	I7	0.0270	0.1051	0.012	0.012
1c,3-Dimethylcyclopentane	N7	0.0160	0.0610	0.007	0.007
1t,3-Dimethylcyclopentane	N7	0.0143	0.0545	0.007	0.007
3-Ethylpentane	I7	0.0012	0.0047	0.001	0.001
1t,2-Dimethylcyclopentane	N7	0.0279	0.1064	0.013	0.013

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2,2,4-Trimethylpentane	I8	0.0001	0.0004	0.000	0.000
UnknownC6s	U6	0.0002	0.0007	0.000	0.000
n-Heptane	P7	0.0564	0.2195	0.026	0.026
1c,2-Dimethylcyclopentane	N7	0.0019	0.0073	0.001	0.001
Methylcyclohexane	N7	0.0468	0.1785	0.019	0.019
2,2-Dimethylhexane	I8	0.0047	0.0209	0.002	0.002
Ethylcyclopentane	N7	0.0060	0.0229	0.002	0.002
2,5-Dimethylhexane	I8	0.0014	0.0062	0.001	0.001
2,2,3-Trimethylpentane	I8	0.0001	0.0004	0.000	0.000
2,4-Dimethylhexane	I8	0.0021	0.0093	0.001	0.001
1c,2t,4-Trimethylcyclopentane	N8	0.0044	0.0192	0.002	0.002
3,3-Dimethylhexane	I8	0.0003	0.0013	0.000	0.000
1t,2c,4-Trimethylcyclopentane	N8	0.0049	0.0214	0.002	0.002
2,3,4-Trimethylpentane	I8	0.0008	0.0035	0.000	0.000
2,3,3-Trimethylpentane	I8	0.0001	0.0004	0.000	0.000
Toluene	A7	0.0184	0.0658	0.006	0.006
2,3-Dimethylhexane	I8	0.0017	0.0075	0.001	0.001
2-Methyl-3-ethylpentane	I8	0.0009	0.0040	0.000	0.000
2-Methylheptane	I8	0.0102	0.0453	0.005	0.005
4-Methylheptane	I8	0.0028	0.0124	0.001	0.001
3-Methyl-3-ethylpentane	I8	0.0003	0.0013	0.000	0.000
3,4-Dimethylhexane	I8	0.0004	0.0018	0.000	0.000
1c,2c,4-Trimethylcyclopentane	N8	0.0002	0.0009	0.000	0.000
1c,3-Dimethylcyclohexane	N8	0.0002	0.0009	0.000	0.000
3-Methylheptane	I8	0.0050	0.0222	0.003	0.003
1c,2t,3-Trimethylcyclopentane	N8	0.0073	0.0318	0.004	0.004
3-Ethylhexane	I8	0.0007	0.0031	0.000	0.000
1t,4-Dimethylcyclohexane	N8	0.0027	0.0118	0.001	0.001
1,1-Dimethylcyclohexane	N8	0.0008	0.0035	0.000	0.000
3t-Ethylmethylcyclopentane	N8	0.0013	0.0057	0.001	0.001
2t-Ethylmethylcyclopentane	N8	0.0011	0.0048	0.001	0.001
1,1-Methylethylcyclopentane	N8	0.0034	0.0148	0.002	0.002
2,2,4-Trimethylhexane	I9	0.0002	0.0010	0.000	0.000
1t,2-Dimethylcyclohexane	N8	0.0037	0.0161	0.002	0.002
UnknownC7s	U7	0.0001	0.0004	0.000	0.000
n-Octane	P8	0.0156	0.0692	0.008	0.008
1c,4-Dimethylcyclohexane	N8	0.0014	0.0061	0.001	0.001
i-Propylcyclopentane	I8	0.0004	0.0018	0.000	0.000
2,4,4-Trimethylhexane	I9	0.0002	0.0010	0.000	0.000
2,3,5-Trimethylhexane	I9	0.0007	0.0035	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	0.0007	0.0031	0.000	0.000
2,2-Dimethylheptane	I9	0.0001	0.0005	0.000	0.000
1,1,4-Trimethylcyclohexane	N9	0.0039	0.0191	0.002	0.002
2,2,3-Trimethylhexane	I9	0.0018	0.0090	0.001	0.001
2,4-Dimethylheptane	I9	0.0006	0.0030	0.000	0.000
4,4-Dimethylheptane	I9	0.0001	0.0005	0.000	0.000
Ethylcyclohexane	N8	0.0024	0.0105	0.001	0.001
n-Propylcyclopentane	N8	0.0010	0.0044	0.000	0.000
1c,3c,5-Trimethylcyclohexane	N9	0.0002	0.0010	0.000	0.000
2,5-Dimethylheptane	I9	0.0003	0.0015	0.000	0.000
3,3-Dimethylheptane	I9	0.0004	0.0020	0.000	0.000
3,5-Dimethylheptane	I9	0.0002	0.0010	0.000	0.000
2,6-Dimethylheptane	I9	0.0002	0.0010	0.000	0.000
1,1,3-Trimethylcyclohexane	N9	0.0008	0.0039	0.000	0.000
Ethylbenzene	I8	0.0021	0.0087	0.001	0.001
1c,2t,4t-Trimethylcyclohexane	N9	0.0009	0.0044	0.001	0.001
2,3-Dimethylheptane	I9	0.0022	0.0110	0.001	0.001
1,4-Dimethylbenzene (p-Xylene)	A8	0.0028	0.0115	0.001	0.001

3,4-Dimethylheptane	I9	0.0008	0.0040	0.000	0.000
3,4-Dimethylheptane (2)	I9	0.0005	0.0025	0.000	0.000
4-Ethylheptane	I9	0.0001	0.0005	0.000	0.000
4-Methyloctane	I9	0.0010	0.0050	0.001	0.001
2-Methyloctane	I9	0.0012	0.0060	0.001	0.001
1c,2t,3-Trimethylcyclohexane	N9	0.0002	0.0010	0.000	0.000
3-Ethylheptane	I9	0.0004	0.0020	0.000	0.000
3-Methyloctane	I9	0.0015	0.0075	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
3,3-Diethylpentane	I9	0.0002	0.0010	0.000	0.000
1,2-Dimethylbenzene (o-Xylene)	A8	0.0016	0.0066	0.001	0.001
i-Butylcyclopentane	N9	0.0009	0.0044	0.000	0.000
UnknownC8s	U8	0.0005	0.0022	0.000	0.000
n-Nonane	P9	0.0045	0.0224	0.003	0.003
1,1-Methylethylcyclohexane	N9	0.0006	0.0030	0.000	0.000
i-Propylbenzene	A9	0.0007	0.0033	0.000	0.000
i-Propylcyclohexane	N9	0.0003	0.0015	0.000	0.000
2,2-Dimethyloctane	I10	0.0001	0.0005	0.000	0.000
2,4-Dimethyloctane	I10	0.0002	0.0011	0.000	0.000
2,6-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	0.0008	0.0039	0.000	0.000
3,3-Dimethyloctane	I10	0.0003	0.0017	0.000	0.000
n-Propylbenzene	A9	0.0008	0.0037	0.000	0.000
3,6-Dimethyloctane	I10	0.0001	0.0005	0.000	0.000
3-Methyl-5-ethylheptane	I10	0.0011	0.0061	0.001	0.001
1,3-Methylethylbenzene	A9	0.0005	0.0023	0.000	0.000
1,4-Methylethylbenzene	A9	0.0002	0.0009	0.000	0.000
1,3,5-Trimethylbenzene	A9	0.0002	0.0009	0.000	0.000
2,3-Dimethyloctane	I10	0.0001	0.0005	0.000	0.000
5-Methylnonane	I10	0.0004	0.0022	0.000	0.000
1,2-Methylethylbenzene	A9	0.0005	0.0023	0.000	0.000
2-Methylnonane	I10	0.0003	0.0017	0.000	0.000
3-Ethyloctane	I10	0.0002	0.0011	0.000	0.000
3-Methylnonane	I10	0.0003	0.0017	0.000	0.000
1,2,4-Trimethylbenzene	A9	0.0002	0.0009	0.000	0.000
t-Butylbenzene	A10	0.0005	0.0026	0.000	0.000
i-Butylcyclohexane	N10	0.0003	0.0016	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
sec-Butylbenzene	A10	0.0001	0.0005	0.000	0.000
UnknownC9s	U9	0.0035	0.0174	0.002	0.002
n-Decane	P10	0.0015	0.0083	0.001	0.001
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
1,4-Methyl-i-propylbenzene	A10	0.0001	0.0005	0.000	0.000
Sec-Butylcyclohexane	A10	0.0003	0.0016	0.000	0.000
1,2-Methyl-i-propylbenzene	A10	0.0002	0.0011	0.000	0.000
1,3-Diethylbenzene	A10	0.0001	0.0005	0.000	0.000
1,3-Methyl-n-propylbenzene	A10	0.0001	0.0005	0.000	0.000
1,4-Diethylbenzene	A10	0.0001	0.0005	0.000	0.000
1,4-Methyl-n-propylbenzene	A10	0.0001	0.0005	0.000	0.000
n-Butylbenzene	A10	0.0001	0.0005	0.000	0.000
1,3-Dimethyl-5-ethylbenzene	A10	0.0001	0.0005	0.000	0.000
t-Decahydronaphthalene	A9	0.0001	0.0006	0.000	0.000
1,2-Methyl-n-propylbenzene	A10	0.0001	0.0005	0.000	0.000
1,4-Dimethyl-2-ethylbenzene	A10	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

1,2-Dimethyl-3-ethylbenzene	A10	0.0001	0.0005	0.000	0.000
1,2-Ethyl-i-propylbenzene	A10	0.0001	0.0006	0.000	0.000
1,4-Methyl-t-butylbenzene	A11	0.0001	0.0006	0.000	0.000
UnknownC10s	U10	0.0031	0.0171	0.002	0.002
n-Undecane	P11	0.0006	0.0037	0.000	0.000
1,4-Ethyl-i-propylbenzene	A11	0.0001	0.0006	0.000	0.000
1,2,4,5-Tetramethylbenzene	A11	0.0001	0.0005	0.000	0.000
1,2-Methyl-n-butylbenzene	A11	0.0001	0.0006	0.000	0.000
1,2-Methyl-t-butylbenzene	A11	0.0001	0.0006	0.000	0.000
1,2-Ethyl-n-propylbenzene	A11	0.0001	0.0006	0.000	0.000
sec-Pentylbenzene	A11	0.0001	0.0006	0.000	0.000
1,4-Di-i-propylbenzene	A11	0.0001	0.0006	0.000	0.000
Triethylene Glycol	GL6	0.0004	0.0023	0.000	0.000
UnknownC11s	U11	0.0010	0.0061	0.001	0.001
n-Dodecane	P12	0.0002	0.0013	0.000	0.000
1,2,4-Triethylbenzene	A12	0.0001	0.0006	0.000	0.000
1,2,3,4,5-Pentamethylbenzene	A13	0.0001	0.0006	0.000	0.000
2-Methylnaphthalene	A11	0.0001	0.0005	0.000	0.000
UnknownC12s	U12	0.0003	0.0018	0.000	0.000
n-Tridecane	P13	0.0002	0.0014	0.000	0.000
UnknownC13s	U13	0.0002	0.0014	0.000	0.000
n-Tetradecane	P14	0.0001	0.0008	0.000	0.000
UnknownC14s	U14	0.0001	0.0008	0.000	0.000
n-Pentadecane	P15	0.0001	0.0008	0.000	0.000
TOTAL		100.00000	100.00000	9.3207	9.3715

BTEX COMPONENTS	**MOLE%**	**WT%**
BENZENE	0.0257	0.0780
TOLUENE	0.0184	0.0658
ETHYLBENZENE	0.0021	0.0087
XYLENES	0.0044	0.0181
TOTAL BTEX	0.0506	0.1706

	BTU @	14.650		14.730
LOW	NET DRY REAL :	1326.7	**/scf**	1333.9 **/scf**
	NET WET REAL :	1303.5	**/scf**	1310.7 **/scf**
HIGH	GROSS DRY REAL :	1456.0	**/scf**	1464.0 **/scf**
	GROSS WET REAL :	1430.5	**/scf**	1438.5 **/scf**
	NET DRY REAL :	19587.7	**/lb**	19694.7 **/lb**
	GROSS DRY REAL :	21494.2	**/lb**	21611.6 **/lb**

RELATIVE DENSITY (AIR=1): 0.8878

COMPRESSIBILITY FACTOR : 0.99494

(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.

CRUDE OIL ASSAY

PROJECT NO. :	201406094	ANALYSIS NO. :	09
COMPANY NAME :	CARRIZO OIL & GAS	ANALYSIS DATE:	JUNE 18, 2014
ACCOUNT NO. :		SAMPLE DATE :	JUNE 13, 2014
PRODUCER :		CYLINDER NO. :	1L GLASS JAR
LEASE NO. :		SAMPLED BY :	JOHN MOSER
NAME/DESCRIP :	PRODUCTION TANK @ 14:10 BRINGELSON RANCH @ 9-20-9-58		EMPACT
FIELD DATA		SAMPLE TEMP. :	106
SAMPLE PRES. :		AMBIENT TEMP.:	
VAPOR PRES. :		GRAVITY :	
COMMENTS :	SPOT		

SPECIFICATION	TEST METHOD	UNITS	RESULTS
API GRAVITY		API 60/60	35.8
RVP @100 DEG F	D323	PSIG	6.4
TOTAL SULFUR	D2622	WT %	0.296
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 RED/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