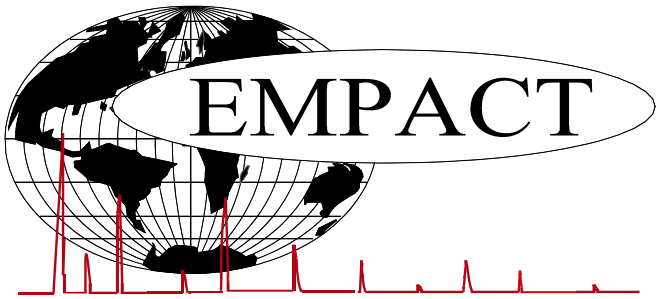
CRUDE OIL ASSAY

LEASE #:		NAME/DESCRIP :	**TIMBRO 2-3-9-59** **TANK BATTERY TK#134106**
PROJECT NO. :	**201506097**	ANALYSIS NO. :	**07**
COMPANY NAME :	**CARRIZO OIL & GAS, INC**	ANALYSIS DATE:	JUNE 29, 2015
OFFICE / BRANCH:	COLORADO	SAMPLE DATE :	JUNE 12, 2015 13:35
CUSTOMER REF:		TO:	
PRODUCER :		EFFECTIVE DATE:	
FIELD DATA			
SAMPLE CYCLE:		SAMPLE TYPE:	SPOT
SAMPLE PRES. :		CYLINDER NO. :	1L GLASS
LAB PRES:		SAMPLED BY :	GALE MCENDREE
SAMPLE TEMP. :	97	SAMPLING COMPANY:	EMPACT
AMBIENT TEMP.:			
FIELD COMMENTS:			
LAB COMMENTS:			

SPECIFICATION		TEST METHOD	DETECTION LIMIT	UNITS	RESULTS
API GRAVITY				API 60/60	35.0
RVP @100 DEG F		D323		PSIG	6.4
TOTAL SULFUR		D2622		Wt %	0.4280
VISUAL APPEARANCE					N/A
BS&W		D96			
Crude Oil				Vol %	N/A
Water				Vol %	N/A
Emulsion				Vol %	N/A
Sediment				Vol %	N/A
VISCOSITY		D445			
Average Centipoise	45° F			° F cP	N/A
Average Centipoise	65° F			° F cP	N/A
Average Centipoise	85° F			° F cP	N/A
Kinetic Viscosity	45° F			cSt (mm2/s)	N/A
Kinetic Viscosity	65° F			cSt (mm2/s)	N/A
Kinetic Viscosity	85° F			cSt (mm2/s)	N/A
FLASH POINT		D93	<40	° F	N/A
POUR POINT		D3227	<-110	° F	N/A
CLOUD POINT		D2500		° F	N/A
DISTILLATION:		D86			
Initial Point				° F	N/A
50%				° F	N/A
90%				° F	N/A
Final Boiling Point 100%				° F	N/A
PARAFFINS		Distillation		Wt %	N/A
ASPHALTENES		D6560 M	<0.02	Wt %	N/A
TOTAL CHLORIDE		D86/XFR	<0.001	Wt %	N/A
ORGANIC CHLORIDE		D4929	<0.0001	Vol %	N/A

BDL: BELOW DETECTION LIMIT

N/A: NO TEST PREFORMED FOR THIS PARAMETER



EXTENDED NATURAL GAS LIQUID ANALYSIS (*DHA)

MAIN PAGE

PROJECT NO. :	201506097	ANALYSIS NO. :	08
COMPANY NAME :	CARRIZO OIL & GAS, INC	ANALYSIS DATE:	JUNE 18, 2015 13:02
ACCOUNT NO. :		SAMPLE DATE :	JUNE 12, 2015 13:35
PRODUCER :		CYLINDER NO. :	17378
LEASE NO. :		SAMPLED BY :	GALE MCENDREE
NAME/DESCRIP :	TIMBRO 2-3-9-59 TREATER		EMPACT
FIELD DATA		SAMPLE TEMP. :	178
SAMPLE PRES. :	20	AMBIENT TEMP.:	
COMMENTS :	SPOT		

COMPONENT	MOLE %	MASS %	VOL %
ALCOHOLS	0.0661	0.0175	0.0165
NITROGEN (AIR)	0.0690	0.0160	0.0148
CARBON DIOXIDE	0.0160	0.0058	0.0053
METHANE	0.0240	0.0032	0.0080
ETHANE	0.2160	0.0538	0.1133
PROPANE	1.1360	0.4148	0.6137
I-BUTANE	0.3240	0.1559	0.2078
N-BUTANE	1.7860	0.8595	1.1041
I-PENTANE	0.8683	0.5187	0.6237
N-PENTANE	1.5270	0.9123	1.0843
UNKNOWN C1-C5	0.0057	0.0031	0.0038
HEXANES PLUS	93.9619	97.0394	96.2047
TOTALS	100.0000	100.0000	100.0000

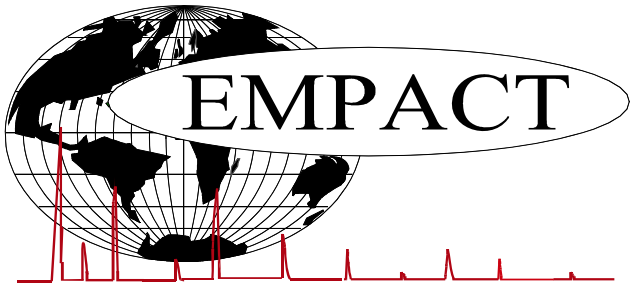
BTEX COMPONENTS	**MOLE%**	**MASS%**
BENZENE	1.2869	0.8323
TOLUENE	2.7120	2.0691
ETHYLBENZENE	0.8798	0.7734
XYLENE	1.6771	1.4744
TOTAL BTEX	6.5558	5.1492

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

	TOTAL SAMPLE	**C6+ FRACTION**	
Specific Gravity (H2O=1) =	0.7505	0.7571	60/60
API Gravity =	57.04	55.4	60/60
Molecular Weight =	120.77	125.5	
Absolute Density =	6.26	6.31	LBS/GAL
Heating Value Liq. Idl Gas=	126071	127546	BTU/GAL
Vapor/Liquid =	19.83	19.34	CUFT/GAL
Vapor Pressure =	8.07	1.47	PSIA @100 F

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

***Calculated values may error depending on amount of unknown components in DHA, physical testing may be required.**



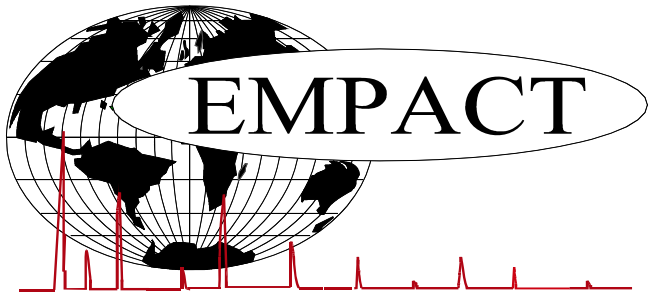
EXTENDED NATURAL GAS LIQUID ANALYSIS (*DHA)

E & P TANK / GLYCALC INFORMATION

PROJECT NO. :	201506097	ANALYSIS NO. :	08
COMPANY NAME :	CARRIZO OIL & GAS, INC	ANALYSIS DATE:	JUNE 18, 2015 13:02
ACCOUNT NO. :		SAMPLE DATE :	JUNE 12, 2015 13:35
PRODUCER :		CYLINDER NO. :	17378
LEASE NO. :		SAMPLED BY :	GALE MCENDREE
NAME/DESCRIP :	TIMBRO 2-3-9-59 TREATER		EMPACT
FIELD DATA		SAMPLE TEMP. :	178
SAMPLE PRES. :	20	AMBIENT TEMP.:	
COMMENTS :	SPOT		

COMPONENT	Mole %		Wt %		LV %	
CARBON DIOXIDE	0.0160		0.0058		0.0053	
NITROGEN (AIR)	0.0690		0.0160		0.0148	
METHANE	0.0240		0.0032		0.0080	
ETHANE	0.2160		0.0538		0.1133	
PROPANE	1.1360		0.4148		0.6137	
I-BUTANE	0.3240		0.1559		0.2078	
N-BUTANE	1.7860		0.8595		1.1041	
I-PENTANE	0.8683		0.5187		0.6237	
N-PENTANE	1.5270		0.9123		1.0843	
CYCLOPENTANE (N-C5)	1.3254		0.7696		0.7594	
UNKNOWN C1-C5	0.0057		0.0031		0.0038	
N-HEXANE	6.0344		4.3059		4.8671	
CYCLOHEXANE (OTHER C6)	2.4419		1.7017		1.6294	
OTHER HEXANES	8.9589		6.3263		6.7677	
OTHER HEPTANES	12.0417		9.9351		10.5135	
METHYLCYCLOHEXANE (OTHER C7)	3.7292		3.0320		2.9359	
2,2,4 TRIMETHYLPENTANE	0.3060		0.2488		0.2477	
BENZENE	1.2869		0.8323		0.7072	
TOLUENE	2.7120		2.0691		1.7754	
ETHYLBENZENE	0.8798		0.7734		0.6635	
XYLENES	1.6771		1.4744		1.2649	
OTHER OCTANES	10.5453		9.9292		10.0647	
OCTANES PLUS	----	55.4315	----	68.0674	----	66.2491
NONANES	10.8051		11.3612		11.2877	
DECANES PLUS	31.2182		44.2804		42.7206	
SUB TOTAL	99.9339		99.9825		99.9835	
ALCOHOLS	0.0661		0.0175		0.0165	
TOTAL	100.0000		100.0000		100.0000	

API Gravity	=	**57.04**	60/60
Vapor Pressure	=	**8.07**	PSIA & 100 F
Average Molecular Weight of Decanes plus	=	**171.30**	
Average Specific Gravity of Decanes plus	=	**0.7720**	

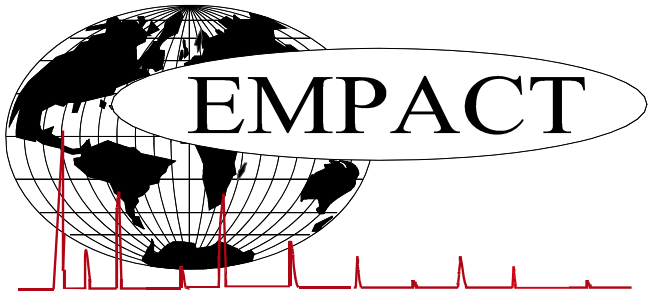


EXTENDED NATURAL GAS LIQUID ANALYSIS (*DHA)

BY CARBON NUMBER

PROJECT NO. :	201506097	ANALYSIS NO. :	08
COMPANY NAME :	CARRIZO OIL & GAS, INC	ANALYSIS DATE:	JUNE 18, 2015 13:02
ACCOUNT NO. :		SAMPLE DATE :	JUNE 12, 2015 13:35
PRODUCER :		CYLINDER NO. :	17378
LEASE NO. :		SAMPLED BY :	GALE MCENDREE
NAME/DESCRIP :	TIMBRO 2-3-9-59 TREATER		EMPACT
FIELD DATA		SAMPLE TEMP. :	178
SAMPLE PRES. :	20	AMBIENT TEMP.:	
COMMENTS :	SPOT		

COMPONENT / CARBON NUMBER		MOLE%	MASS %	VOLUME %
ALCOHOLS		0.0661	0.0175	0.0165
NITROGEN		0.0690	0.0160	0.0148
CARBON DIOXIDE		0.0160	0.0058	0.0053
	C1	0.0240	0.0032	0.0080
	C2	0.2160	0.0538	0.1133
	C3	1.1360	0.4148	0.6137
	C4	2.1127	1.0167	1.3136
	C5	3.7237	2.2024	2.4695
	C6	18.7221	13.1662	13.9714
	C7	18.4829	15.0362	15.2248
	C8	13.4082	12.4258	12.2408
	C9	10.8051	11.3612	11.2877
	C10	10.6413	12.1594	11.8200
	C11	5.7878	7.0974	6.6604
	C12	3.2459	4.3378	4.2108
	C13	2.6664	3.9648	3.8668
	C14	2.3728	3.8978	3.8307
	C15	2.2974	4.0409	3.9257
	C16	1.5252	2.8597	2.7601
	C17	0.8481	1.6887	1.6249
	C18	0.5138	1.0827	1.0388
	C19	0.4463	0.9924	0.9460
	C20	0.3550	0.8306	0.7875
	C21	0.2511	0.6167	0.5817
	C22	0.1616	0.4156	0.3906
	C23	0.0630	0.1694	0.1587
	C24	0.0140	0.0393	0.0368
	C25	0.0099	0.0290	0.0271
	C26	0.0085	0.0258	0.0240
	C27	0.0068	0.0215	0.0199
	C28	0.0020	0.0065	0.0060
	C29	0.0008	0.0027	0.0025
	C30+	0.0005	0.0017	0.0016
	Total	100.0000	100.0000	100.0000



EXTENDED NATURAL GAS LIQUID ANALYSIS (*DHA)

DHA COMPONENT LIST

PROJECT NO. :	201506097	ANALYSIS NO. :	08
COMPANY NAME :	CARRIZO OIL & GAS, INC	ANALYSIS DATE:	JUNE 18, 2015 13:02
ACCOUNT NO. :		SAMPLE DATE :	JUNE 12, 2015 13:35
PRODUCER :		CYLINDER NO. :	17378
LEASE NO. :		SAMPLED BY :	GALE MCENDREE
NAME/DESCRIP :	TIMBRO 2-3-9-59 TREATER		EMPACT
FIELD DATA		SAMPLE TEMP. :	178
SAMPLE PRES. :	20	AMBIENT TEMP.:	
COMMENTS :	SPOT		

COMPONENT	PIANO #	MOLE %	MASS %	VOL %
Nitrogen	NHC	0.0690	0.0160	0.0148
Carbon Dioxide	NHC	0.0160	0.0058	0.0053
Methane	P1	0.0240	0.0032	0.0080
Ethane	P2	0.2160	0.0538	0.1133
Propane	P3	1.1360	0.4148	0.6137
i-Butane	I4	0.3240	0.1559	0.2078
Methanol	X1	0.0661	0.0175	0.0165
n-Butane	P4	1.7860	0.8595	1.1041
2,2-Dimethylpropane	I5	0.0243	0.0145	0.0182
i-Pentane	I5	0.8440	0.5042	0.6055
UnknownC4s	U4	0.0027	0.0013	0.0017
n-Pentane	P5	1.5270	0.9123	1.0843
2,2-Dimethylbutane	I6	0.0230	0.0164	0.0188
Cyclopentane	N5	1.3254	0.7696	0.7594
2,3-Dimethylbutane	I6	0.2364	0.1687	0.1897
2-Methylpentane	I6	1.7409	1.2423	1.4168
3-Methylpentane	I6	2.9688	2.1185	2.3758
UnknownC5s	U5	0.0030	0.0018	0.0021
n-Hexane	P6	6.0344	4.3059	4.8671
2,2-Dimethylpentane	I7	0.0013	0.0011	0.0012
Methylcyclopentane	N6	3.9873	2.7786	2.7646
2,4-Dimethylpentane	I7	0.1683	0.1396	0.1548
2,2,3-Trimethylbutane	I7	0.0105	0.0087	0.0094
Benzene	A6	1.2869	0.8323	0.7072
3,3-Dimethylpentane	I7	0.0142	0.0118	0.0127
Cyclohexane	N6	2.4419	1.7017	1.6294
2-Methylhexane	I7	0.6559	0.5442	0.5983
2,3-Dimethylpentane	I7	0.9751	0.8090	0.8640
1,1-Dimethylcyclopentane	N7	0.2650	0.2155	0.2129
3-Methylhexane	I7	1.2419	1.0304	1.1157
1c,3-Dimethylcyclopentane	N7	0.5144	0.4182	0.4186
1t,3-Dimethylcyclopentane	N7	0.3060	0.2488	0.2477
3-Ethylpentane	I7	0.3990	0.3310	0.3526
1t,2-Dimethylcyclopentane	N7	1.5917	1.2941	1.2839
2,2,4-Trimethylpentane	I8	0.0821	0.0777	0.0834
UnknownC6s	U6	0.0025	0.0018	0.0020
n-Heptane	P7	4.4160	3.6639	3.9936
1c,2-Dimethylcyclopentane	N7	0.1354	0.1101	0.1063
Methylcyclohexane	N7	3.7292	3.0320	2.9359
2,2-Dimethylhexane	I8	0.2087	0.1974	0.2115
1,1,3-Trimethylcyclopentane	N7	0.0241	0.0224	0.0223
Ethylcyclopentane	N7	0.6775	0.5508	0.5358
2,5-Dimethylhexane	I8	0.1050	0.0993	0.1067
2,2,3-Trimethylpentane	I8	0.0174	0.0165	0.0172

2,4-Dimethylhexane	I8	0.2043	0.1932	0.2066
1c,2t,4-Trimethylcyclopentane	N8	0.3622	0.3365	0.3287
3,3-Dimethylhexane	I8	0.0232	0.0219	0.0230
2,3,4-Trimethylpentane	I8	0.0566	0.0535	0.0554
2,3,3-Trimethylpentane	I8	0.0417	0.0394	0.0405
Toluene	A7	2.7120	2.0691	1.7754
2,3-Dimethylhexane	I8	0.1306	0.1235	0.1294
2-Methyl-3-ethylpentane	I8	0.1559	0.1475	0.1528
1,1,2-Trimethylcyclopentane	N8	0.0464	0.0431	0.0416
2-Methylheptane	I8	1.2938	1.2237	1.3047
4-Methylheptane	I8	0.2641	0.2498	0.2599
3-Methyl-3-ethylpentane	I8	0.1914	0.1810	0.1856
3,4-Dimethylhexane	I8	0.0310	0.0293	0.0304
1c,2c,4-Trimethylcyclopentane	N8	0.0306	0.0284	0.0275
1c,3-Dimethylcyclohexane	N8	0.0146	0.0136	0.0132
3-Methylheptane	I8	0.3283	0.3105	0.3282
1c,2t,3-Trimethylcyclopentane	N8	0.9935	0.9231	0.8936
3-Ethylhexane	I8	0.2766	0.2616	0.2736
1t,4-Dimethylcyclohexane	N8	0.3448	0.3204	0.3134
1,1-Dimethylcyclohexane	N8	0.0824	0.0766	0.0732
2,2,5-Trimethylhexane	I9	0.0162	0.0172	0.0180
3c-Ethylmethylcyclopentane	N8	0.0014	0.0013	0.0013
3t-Ethylmethylcyclopentane	N8	0.2193	0.2038	0.1982
2t-Ethylmethylcyclopentane	N8	0.1851	0.1720	0.1668
1,1-Methylethylcyclopentane	N8	0.6325	0.5877	0.5613
2,2,4-Trimethylhexane	I9	0.0336	0.0357	0.0372
1t,2-Dimethylcyclohexane	N8	0.4253	0.3952	0.3800
1c,2c,3-Trimethylcyclopentane	N8	0.0834	0.0775	0.0742
UnknownC7s	U7	0.6454	0.5355	0.5837
n-Octane	P8	2.2859	2.1621	2.2943
1c,4-Dimethylcyclohexane	N8	0.9087	0.8443	0.8045
i-Propylcyclopentane	I8	0.0354	0.0329	0.0316
2,4,4-Trimethylhexane	I9	0.0019	0.0020	0.0021
2,2,3,4-Tetramethylpentane	I9	0.0145	0.0154	0.0160
2,3,4-Trimethylhexane	I9	0.0060	0.0064	0.0066
1c,2-Dimethylcyclohexane	N8	0.1609	0.1495	0.1401
2,3,5-Trimethylhexane	I9	0.0826	0.0877	0.0906
2,2-Dimethylheptane	I9	0.0047	0.0050	0.0052
1,1,4-Trimethylcyclohexane	N9	1.0389	1.0860	1.0495
2,2,3-Trimethylhexane	I9	0.3508	0.3726	0.3810
2,4-Dimethylheptane	I9	0.0084	0.0089	0.0093
4,4-Dimethylheptane	I9	0.0421	0.0447	0.0466
Ethylcyclohexane	N8	0.3707	0.3444	0.3262
n-Propylcyclopentane	N8	0.2212	0.2055	0.1974
1c,3c,5-Trimethylcyclohexane	N9	0.0254	0.0266	0.0257
2,5-Dimethylheptane	I9	0.0863	0.0917	0.0954
3,3-Dimethylheptane	I9	0.0702	0.0746	0.0776
3,5-Dimethylheptane	I9	0.0629	0.0668	0.0695
2,6-Dimethylheptane	I9	0.0486	0.0516	0.0543
1,1,3-Trimethylcyclohexane	N9	0.0411	0.0430	0.0416
Ethylbenzene	A8	0.8798	0.7734	0.6635
1c,2t,4t-Trimethylcyclohexane	N9	0.1941	0.2029	0.1923
2,3-Dimethylheptane	I9	0.2473	0.2626	0.2698
1,3-Dimethylbenzene (m-Xylene)	A8	0.5187	0.4560	0.3935
1,4-Dimethylbenzene (p-Xylene)	A8	0.5099	0.4483	0.3881
3,4-Dimethylheptane	I9	0.5075	0.5390	0.5497
3,4-Dimethylheptane (2)	I9	0.1141	0.1212	0.1236
4-Ethylheptane	I9	0.0144	0.0153	0.0159
4-Methyloctane	I9	0.3124	0.3318	0.3434
2-Methyloctane	I9	0.3074	0.3265	0.3413
1c,2t,4c-Trimethylcyclohexane	I9	0.0970	0.1030	0.1059
3-Ethylheptane	I9	0.1022	0.1085	0.1114
3-Methyloctane	I9	0.3990	0.4237	0.4384
3,3-Diethylpentane	I9	0.0186	0.0198	0.0196
1c,2t,3-Trimethylcyclohexane	N9	0.0714	0.0746	0.0707
1,1,2-Trimethylcyclohexane	N9	0.0297	0.0310	0.0294
1,2-Dimethylbenzene (o-Xylene)	A8	0.6485	0.5701	0.4833
i-Butylcyclopentane	N9	0.2544	0.2659	0.2540
UnknownC8s	U8	0.0363	0.0343	0.0364
n-Nonane	P9	2.0234	2.1489	2.2333
1,1-Methylethylcyclohexane	N9	0.4189	0.4449	0.4638
i-Propylbenzene	A9	0.1975	0.1966	0.1698
i-Propylcyclohexane	N9	0.0830	0.0868	0.0808
2,2-Dimethyloctane	I10	0.0239	0.0282	0.0284

2,4-Dimethyloctane	I10	0.0431	0.0508	0.0512
2,6-Dimethyloctane	I10	0.0105	0.0124	0.0129
2,5-Dimethyloctane	I10	0.0413	0.0487	0.0491
n-Butylcyclopentane	N9	0.2884	0.3350	0.3128
3,3-Dimethyloctane	I10	0.1470	0.1732	0.1748
n-Propylbenzene	A9	0.1407	0.1400	0.1210
3,6-Dimethyloctane	I10	0.1897	0.2235	0.2255
3-Methyl-5-ethylheptane	I10	0.2869	0.3047	0.3132
1,3-Methylethylbenzene	A9	0.3449	0.3433	0.2941
1,4-Methylethylbenzene	A9	0.1471	0.1464	0.1254
1,3,5-Trimethylbenzene	A9	0.1263	0.1257	0.1084
2,3-Dimethyloctane	I10	0.0788	0.0928	0.0936
5-Methylnonane	I10	0.2378	0.2802	0.2853
1,2-Methylethylbenzene	A9	0.4217	0.4197	0.3577
2-Methylnonane	I10	0.1024	0.1206	0.1238
3-Ethyloctane	I10	0.0669	0.0788	0.0795
3-Methylnonane	I10	0.1690	0.1991	0.2025
1,2,4-Trimethylbenzene	A9	0.0157	0.0156	0.0133
t-Butylbenzene	A10	0.3282	0.3648	0.3143
i-Butylcyclohexane	N10	0.2431	0.2824	0.2596
1t-Methyl-2-n-propylcyclohexane	I10	0.0574	0.0610	0.0627
i-Butylbenzene	A10	0.0359	0.0399	0.0349
sec-Butylbenzene	A10	0.0550	0.0611	0.0529
UnknownC9s	U9	1.6825	1.7868	1.8570
n-Decane	P10	1.5737	1.8540	1.8944
1,2,3-Trimethylbenzene	A9	0.3113	0.3098	0.2587
1,3-Methyl-i-propylbenzene	A10	0.1193	0.1187	0.1012
1,4-Methyl-i-propylbenzene	A10	0.1193	0.1187	0.1012
Sec-Butylcyclohexane	N10	0.3685	0.4280	0.3929
1,2-Methyl-i-propylbenzene	A10	0.1793	0.1993	0.1697
3-Ethylnonane	I10	0.0470	0.0554	0.0569
1,3-Diethylbenzene	A10	0.1866	0.2074	0.1792
1,3-Methyl-n-propylbenzene	A10	0.0228	0.0253	0.0219
1,4-Diethylbenzene	A10	0.2155	0.2395	0.2074
1,4-Methyl-n-propylbenzene	A10	0.1166	0.1296	0.1127
n-Butylbenzene	A10	0.1471	0.1635	0.1416
1,3-Dimethyl-5-ethylbenzene	A10	0.0956	0.1062	0.0917
1,2-Diethylbenzene	A10	0.1606	0.1785	0.1515
1,2-Methyl-n-propylbenzene	A10	0.0153	0.0170	0.0145
1,4-Dimethyl-2-ethylbenzene	A10	0.0060	0.0067	0.0057
1,3-Dimethyl-4-ethylbenzene	A10	0.1189	0.1321	0.1125
1,2-Dimethyl-4-ethylbenzene	A10	0.1459	0.1622	0.1385
1,3-Dimethyl-2-ethylbenzene	A10	0.0420	0.0467	0.0392
1t,2c,4-Trimethylcyclopentane	A10	0.4433	0.4119	0.4110
1,2-Dimethyl-3-ethylbenzene	A10	0.1805	0.2006	0.1678
1,2-Ethyl-i-propylbenzene	A10	0.2043	0.2271	0.1934
1,4-Methyl-t-butylbenzene	A11	0.2269	0.2522	0.2147
UnknownC10s	U10	3.6953	4.3535	4.4484
n-Undecane	P11	1.2788	1.6551	1.6677
1,4-Ethyl-i-propylbenzene	A11	0.0658	0.0731	0.0622
1,2,4,5-Tetramethylbenzene	A11	0.2090	0.2323	0.1957
1,2-Methyl-n-butylbenzene	A11	0.0464	0.0516	0.0439
1,2,3,5-Tetramethylbenzene	A11	0.0931	0.1035	0.0868
1,2-Methyl-t-butylbenzene	A11	0.1188	0.1320	0.1124
5-Methylindan	A11	0.0228	0.0322	0.0321
4-Methylindan	A11	0.0129	0.0182	0.0181
1,2-Ethyl-n-propylbenzene	A11	0.1663	0.1848	0.1574
2-Methylindan	A11	0.0822	0.1159	0.1155
1,3-Methyl-n-butylbenzene	A11	0.0618	0.0687	0.0585
1,3-Di-i-propylbenzene	A11	0.1362	0.1514	0.1289
sec-Pentylbenzene	A11	0.1442	0.1603	0.1365
n-Pentylbenzene	A11	0.1613	0.1980	0.1721
1t-M-2-(4MP)cyclopentane	P12	0.0174	0.0245	0.0244
1,2-Di-n-propylbenzene	A11	0.1984	0.2205	0.1877
1,4-Di-i-propylbenzene	A11	0.1392	0.1547	0.1317
Tetrahydronaphthalene	A10	0.1174	0.1305	0.1111
t-Decahydronaphthalene	A10	0.1738	0.1932	0.1645
Naphthalene	A10	0.0298	0.0316	0.0269
1-t-Butyl-3,5-dimethylbenzene	A12	0.0644	0.0716	0.0610
1,4-Ethyl-t-butylbenzene	A11	0.1681	0.1868	0.1591
UnknownC11s	U11	1.8385	2.3795	2.3977
n-Dodecane	P12	1.0684	1.5069	1.5017
1,3-Di-n-propylbenzene	A12	0.0191	0.0212	0.0181
1,3,5-Triethylbenzene	A12	0.3648	0.3630	0.3131

1,2,4-Triethylbenzene	A12	0.0543	0.0540	0.0460
1,4-Methyl-n-pentylbenzene	A12	0.1041	0.1157	0.0985
n-Hexylbenzene	A12	0.1500	0.2015	0.1754
1,2,3,4,5-Pentamethylbenzene	A13	0.2542	0.2825	0.2405
2-Methylnaphthalene	A11	0.3546	0.4175	0.3555
1-Methylnaphthalene	A11	0.2625	0.3091	0.2262
UnknownC12s	U12	1.4034	1.9794	1.9726
n-Tridecane	P13	0.9653	1.4736	1.4512
UnknownC13s	U13	1.4469	2.2087	2.1751
n-Tetradecane	P14	0.8635	1.4185	1.3941
UnknownC14s	U14	1.5093	2.4793	2.4366
n-Pentadecane	P15	0.7380	1.2981	1.2611
UnknownC15s	U15	1.5594	2.7428	2.6646
n-Hexadecane	P16	0.5349	1.0029	0.9680
UnknownC16s	U16	0.9903	1.8568	1.7921
n-Heptadecane	P17	0.1900	0.3783	0.3640
UnknownC17s	U17	0.6581	1.3104	1.2609
n-Octadecane	P18	0.1407	0.2965	0.2845
UnknownC18s	U18	0.3731	0.7862	0.7543
n-Nonadecane	P19	0.2839	0.6313	0.6018
UnknownC19s	U19	0.1624	0.3611	0.3442
n-Eicosane	P20	0.1457	0.3409	0.3232
UnknownC20s	U20	0.2093	0.4897	0.4643
n-Heneicosane	P21	0.1042	0.2559	0.2414
UnknownC21s	U21	0.1469	0.3608	0.3403
n-Docosane	P22	0.0703	0.1808	0.1699
UnknownC22s	U22	0.0913	0.2348	0.2207
n-Tricosane	P23	0.0270	0.0726	0.0680
UnknownC23s	U23	0.0360	0.0968	0.0907
n-Tetracosane	P24	0.0057	0.0160	0.0150
UnknownC24s	U24	0.0083	0.0233	0.0218
n-Pentacosane	P25	0.0056	0.0164	0.0153
UnknownC25s	U25	0.0043	0.0126	0.0118
n-Hexacosane	P26	0.0071	0.0216	0.0201
UnknownC26s	U26	0.0014	0.0042	0.0039
n-Heptacosane	P27	0.0044	0.0139	0.0129
UnknownC27s	U27	0.0024	0.0076	0.0070
n-Octacosane	P28	0.0020	0.0065	0.0060
n-Nonacosane	P29	0.0008	0.0027	0.0025
n-Triacontane Plus	P30	0.0005	0.0017	0.0016
TOTAL		100.0000	100.0000	100.0000

EMPACT

EXTENDED NATURAL GAS ANALYSIS (*DHA)

MAIN PAGE

LEASE #:		NAME/DESCRIP :	**TIMBRO 2-3-9-59 SALES GAS**
PROJECT NO. :	**201506097**	ANALYSIS NO. :	**09**
COMPANY NAME :	**CARRIZO OIL & GAS, INC**	ANALYSIS DATE:	JUNE 25, 2015 13:56
OFFICE / BRANCH:	COLORADO	SAMPLE DATE :	JUNE 12, 2015 12:50
CUSTOMER REF:		TO:	
PRODUCER :		EFFECTIVE DATE:	

*****FIELD DATA*****

SAMPLE CYCLE:			SAMPLE TYPE:	SPOT	
SAMPLE PRES. :	80	psig	CYLINDER NO. :	1724	
LAB PRES:		psig	SAMPLED BY :	GALE MCENDREE	
SAMPLE TEMP. :	107	ºf	SAMPLING COMPANY:	EMPACT	
AMBIENT TEMP.:		ºf	H2S BY STAIN TUBE:	<1	ppm
H2O BY STAIN TUBE:	-	#/mmcf	CO2 BY STAIN TUBE:	-	Mol %

FIELD COMMENTS:

LAB COMMENTS:

COMPONENT	MOLE %	MASS %	GPM @ 14.730	GPM @ 14.650
ALCOHOLS	0.0020	0.0029		
HELIUM	0.00	0.00	---	---
HYDROGEN	0.00	0.00	---	---
OXYGEN/ARGON	0.01	0.01	---	---
NITROGEN	1.0300	1.1700	---	---
CARBON DIOXIDE	2.70	4.81	---	---
METHANE	68.05060	44.19860	---	---
ETHANE	11.8903	14.4756	3.1940	3.1767
PROPANE	9.3935	16.7705	2.5989	2.5848
I-BUTANE	0.9516	2.2393	0.3132	0.3115
N-BUTANE	3.3629	7.9137	1.0643	1.0586
I-PENTANE	0.7237	2.1077	0.2608	0.2593
N-PENTANE	0.8991	2.6264	0.3273	0.3255
HEXANES PLUS	0.9863	3.6753	0.4033	0.4013
TOTALS	100.00000	100.00000	8.1618	8.1177

BTEX COMPONENTS	MOLE%	WT%
BENZENE	0.0357	0.1129
TOLUENE	0.0235	0.0877
ETHYLBENZENE	0.0002	0.0009
XYLENES	0.0039	0.0168
TOTAL BTEX	0.0633	0.2183

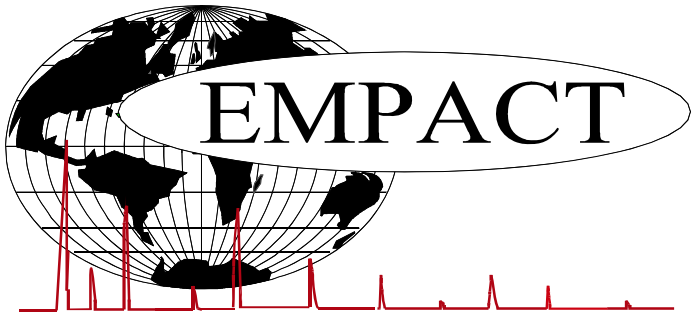
BTU @		14.730	14.650
LOW	NET DRY REAL :	1272.0 /scf	1265.1 /scf
	NET WET REAL :	1249.9 /scf	1242.9 /scf
HIGH	GROSS DRY REAL :	1397.6 /scf	1390.0 /scf
	GROSS WET REAL :	1373.3 /scf	1365.7 /scf
	NET DRY REAL :	19567.9 /lb	19461.6 /lb
	GROSS DRY REAL :	21494.5 /lb	21377.8 /lb

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

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

RELATIVE DENSITY (AIR=1): 0.8518

COMPRESSIBILITY FACTOR : 0.99541

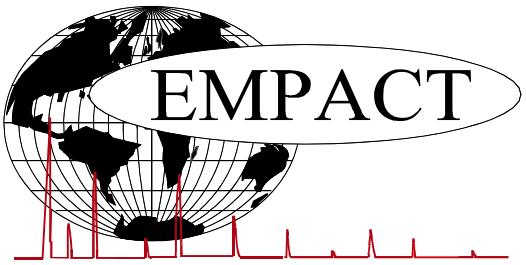


EXTENDED NATURAL GAS ANALYSIS (*DHA)

GLYCALC INFORMATION

PROJECT NO. :	201506097	ANALYSIS NO. :	09
COMPANY NAME :	CARRIZO OIL & GAS, INC	ANALYSIS DATE:	JUNE 25, 2015 13:56
ACCOUNT NO. :		SAMPLE DATE :	JUNE 12, 2015 12:50
PRODUCER :		CYLINDER NO. :	1724
LEASE NO. :		SAMPLED BY :	GALE MCENDREE
NAME/DESCRIP :	TIMBRO 2-3-9-59 SALES GAS		
FIELD DATA		SAMPLE TEMP. :	107
SAMPLE PRES. :	80	AMBIENT TEMP.:	
COMMENTS :	SPOT		

Componet	Mole %	Wt %
Helium	0.00	0.00
Hydrogen	0.00	0.00
Carbon Dioxide	2.70	4.81
Nitrogen	1.03	1.17
Methane	68.05060	44.19860
Ethane	11.8903	14.4756
Propane	9.3935	16.7705
Isobutane	0.9516	2.2393
n-Butane	3.3629	7.9137
Isopentane	0.6460	1.8871
n-Pentane	0.8991	2.6264
Cyclopentane	0.0777	0.2206
n-Hexane	0.2059	0.7184
Cyclohexane	0.0533	0.1816
Other Hexanes	0.3492	1.2089
Heptanes	0.1751	0.7059
Methycyclohexane	0.0405	0.1610
2,2,4 Trimethylpentane	0.0030	0.0139
Benzene	0.0357	0.1129
Toluene	0.0235	0.0877
Ethylbenzene	0.0002	0.0009
Xylenes	0.0039	0.0168
C8+ Heavies	0.0960	0.4673
Subtotal	99.98800	99.98710
Oxygen/Argon	0.01	0.01
Alcohols	0.0020	0.0029
Total	100.00000	100.00000



EXTENDED NATURAL GAS ANALYSIS (*DHA)

DHA COMPONENT LIST

PROJECT NO. :	201506097	ANALYSIS NO. :	09
COMPANY NAME :	CARRIZO OIL & GAS, INC	ANALYSIS DATE:	JUNE 25, 2015 13:56
ACCOUNT NO. :		SAMPLE DATE :	JUNE 12, 2015 12:50
PRODUCER :		CYLINDER NO. :	1724
LEASE NO. :		SAMPLED BY :	GALE MCENDREE
NAME/DESCRIP :	TIMBRO 2-3-9-59 SALES GAS		
FIELD DATA		SAMPLE TEMP. :	107
SAMPLE PRES. :	80	AMBIENT TEMP.:	
COMMENTS :	SPOT		

COMPONENT	PIANO #	MOLE %	MASS %	GPM @ 14.730	GPM @ 14.650
Helium	---	0.00	0.00	---	---
Hydrogen	---	0.00	0.00	---	---
Oxygen/Argon	---	0.01	0.01	---	---
Nitrogen	---	1.03	1.17	---	---
Carbon Dioxide	---	2.70	4.81	---	---
Methane	P1	68.05060	44.19860	---	---
Ethane	P2	11.8903	14.4756	3.194	3.177
Propane	P3	9.3935	16.7705	2.599	2.585
i-Butane	I4	0.9516	2.2393	0.313	0.312
Methanol	X1	0.0018	0.0024	0.000	0.000
n-Butane	P4	3.3629	7.9137	1.064	1.059
2,2-Dimethylpropane	I5	0.0027	0.0079	0.001	0.001
i-Pentane	I5	0.6433	1.8792	0.237	0.235
n-Pentane	P5	0.8989	2.6258	0.327	0.326
2,2-Dimethylbutane	I6	0.0018	0.0063	0.001	0.001
n-Propanol	X3	0.0002	0.0005	0.000	0.000
Cyclopentane	N5	0.0777	0.2206	0.023	0.023
2,3-Dimethylbutane	I6	0.0124	0.0433	0.005	0.005
2-Methylpentane	I6	0.1444	0.5038	0.060	0.060
3-Methylpentane	I6	0.0745	0.2599	0.030	0.030
UnknownC5s	U5	0.0002	0.0006	0.000	0.000
n-Hexane	P6	0.2059	0.7184	0.085	0.084
Methylcyclopentane	N6	0.1159	0.3949	0.041	0.041
2,4-Dimethylpentane	I7	0.0047	0.0191	0.002	0.002
2,2,3-Trimethylbutane	I7	0.0002	0.0008	0.000	0.000
Benzene	A6	0.0357	0.1129	0.010	0.010
3,3-Dimethylpentane	I7	0.0003	0.0012	0.000	0.000
Cyclohexane	N6	0.0533	0.1816	0.018	0.018
2-Methylhexane	I7	0.0156	0.0633	0.007	0.007
2,3-Dimethylpentane	I7	0.0124	0.0503	0.006	0.006
1,1-Dimethylcyclopentane	N7	0.0075	0.0298	0.003	0.003
3-Methylhexane	I7	0.0192	0.0779	0.009	0.009
1c,3-Dimethylcyclopentane	N7	0.0061	0.0243	0.003	0.003
1t,3-Dimethylcyclopentane	N7	0.0124	0.0493	0.006	0.006

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3-Ethylpentane	I7	0.0048	0.0195	0.002	0.002
1t,2-Dimethylcyclopentane	N7	0.0236	0.0938	0.011	0.011
2,2,4-Trimethylpentane	I8	0.0030	0.0139	0.002	0.002
UnknownC6s	U6	0.0002	0.0007	0.000	0.000
n-Heptane	P7	0.0539	0.2187	0.025	0.025
1c,2-Dimethylcyclopentane	N7	0.0012	0.0048	0.001	0.001
Methylcyclohexane	N7	0.0405	0.1610	0.016	0.016
2,2-Dimethylhexane	I8	0.0023	0.0107	0.001	0.001
1,1,3-Trimethylcyclopentane	N7	0.0003	0.0014	0.000	0.000
Ethylcyclopentane	N7	0.0072	0.0286	0.003	0.003
2,5-Dimethylhexane	I8	0.0007	0.0032	0.000	0.000
2,2,3-Trimethylpentane	I8	0.0010	0.0046	0.001	0.001
2,4-Dimethylhexane	I8	0.0011	0.0051	0.001	0.001
1c,2t,4-Trimethylcyclopentane	N8	0.0033	0.0150	0.002	0.002
3,3-Dimethylhexane	I8	0.0002	0.0009	0.000	0.000
1t,2c,4-Trimethylcyclopentane	N8	0.0033	0.0150	0.002	0.002
2,3,4-Trimethylpentane	I8	0.0004	0.0019	0.000	0.000
2,3,3-Trimethylpentane	I8	0.0004	0.0019	0.000	0.000
Toluene	A7	0.0235	0.0877	0.008	0.008
2,3-Dimethylhexane	I8	0.0010	0.0046	0.001	0.001
2-Methyl-3-ethylpentane	I8	0.0008	0.0037	0.000	0.000
1,1,2-Trimethylcyclopentane	N8	0.0001	0.0005	0.000	0.000
2-Methylheptane	I8	0.0073	0.0338	0.004	0.004
4-Methylheptane	I8	0.0019	0.0088	0.001	0.001
3-Methyl-3-ethylpentane	I8	0.0011	0.0051	0.001	0.001
3,4-Dimethylhexane	I8	0.0006	0.0028	0.000	0.000
1c,2c,4-Trimethylcyclopentane	N8	0.0006	0.0027	0.000	0.000
1c,3-Dimethylcyclohexane	N8	0.0002	0.0009	0.000	0.000
3-Methylheptane	I8	0.0020	0.0092	0.001	0.001
1c,2t,3-Trimethylcyclopentane	N8	0.0045	0.0205	0.002	0.002
3-Ethylhexane	I8	0.0017	0.0079	0.001	0.001
1t,4-Dimethylcyclohexane	N8	0.0024	0.0109	0.001	0.001
1,1-Dimethylcyclohexane	N8	0.0004	0.0018	0.000	0.000
2,2,5-Trimethylhexane	I9	0.0001	0.0005	0.000	0.000
3t-Ethylmethylcyclopentane	N8	0.0015	0.0068	0.001	0.001
2t-Ethylmethylcyclopentane	N8	0.0022	0.0100	0.001	0.001
1,1-Methylethylcyclopentane	N8	0.0020	0.0091	0.001	0.001
2,2,4-Trimethylhexane	I9	0.0003	0.0015	0.000	0.000
1t,2-Dimethylcyclohexane	N8	0.0021	0.0096	0.001	0.001
1c,2c,3-Trimethylcyclopentane	N8	0.0005	0.0023	0.000	0.000
1t,3-Dimethylcyclohexane	N8	0.0011	0.0050	0.001	0.001
UnknownC7s	U7	0.0057	0.0231	0.003	0.003
n-Octane	P8	0.0043	0.0199	0.002	0.002
1c,4-Dimethylcyclohexane	N8	0.0059	0.0268	0.003	0.003
i-Propylcyclopentane	I8	0.0002	0.0009	0.000	0.000
2,3,5-Trimethylhexane	I9	0.0002	0.0011	0.000	0.000
2,2,3,4-Tetramethylpentane	I9	0.0002	0.0011	0.000	0.000
2,3,4-Trimethylhexane	I9	0.0001	0.0005	0.000	0.000
1c,2-Dimethylcyclohexane	N8	0.0002	0.0009	0.000	0.000
2,2-Dimethylheptane	I9	0.0001	0.0005	0.000	0.000
1,1,4-Trimethylcyclohexane	N9	0.0023	0.0117	0.001	0.001
2,2,3-Trimethylhexane	I9	0.0002	0.0011	0.000	0.000
2,4-Dimethylheptane	I9	0.0002	0.0011	0.000	0.000
4,4-Dimethylheptane	I9	0.0015	0.0078	0.001	0.001
Ethylcyclohexane	N8	0.0010	0.0045	0.000	0.000
n-Propylcyclopentane	N8	0.0005	0.0023	0.000	0.000
1c,3c,5-Trimethylcyclohexane	N9	0.0004	0.0020	0.000	0.000

2,5-Dimethylheptane	I9	0.0002	0.0011	0.000	0.000
3,3-Dimethylheptane	I9	0.0001	0.0005	0.000	0.000
3,5-Dimethylheptane	I9	0.0002	0.0011	0.000	0.000
2,6-Dimethylheptane	I9	0.0002	0.0011	0.000	0.000
Ethylbenzene	I8	0.0002	0.0009	0.000	0.000
1c,2t,4t-Trimethylcyclohexane	N9	0.0022	0.0113	0.001	0.001
2,3-Dimethylheptane	I9	0.0006	0.0031	0.000	0.000
1,3-Dimethylbenzene (m-Xylene)	A8	0.0013	0.0056	0.001	0.001
1,4-Dimethylbenzene (p-Xylene)	A8	0.0010	0.0043	0.000	0.000
3,4-Dimethylheptane	I9	0.0004	0.0021	0.000	0.000
3,4-Dimethylheptane (2)	I9	0.0015	0.0078	0.001	0.001
4-Methyloctane	I9	0.0008	0.0042	0.000	0.000
2-Methyloctane	I9	0.0005	0.0026	0.000	0.000
1c,2t,3-Trimethylcyclohexane	N9	0.0006	0.0031	0.000	0.000
3-Ethylheptane	I9	0.0002	0.0011	0.000	0.000
3-Methyloctane	I9	0.0004	0.0021	0.000	0.000
1,1,2-Trimethylcyclohexane	N9	0.0002	0.0010	0.000	0.000
3,3-Diethylpentane	I9	0.0002	0.0011	0.000	0.000
1,2-Dimethylbenzene (o-Xylene)	A8	0.0016	0.0069	0.001	0.001
i-Butylcyclopentane	N9	0.0007	0.0036	0.000	0.000
UnknownC8s	U8	0.0011	0.0051	0.001	0.001
n-Nonane	P9	0.0016	0.0083	0.001	0.001
1,1-Methylethylcyclohexane	N9	0.0013	0.0066	0.001	0.001
i-Propylbenzene	A9	0.0003	0.0015	0.000	0.000
i-Propylcyclohexane	N9	0.0003	0.0015	0.000	0.000
2,2-Dimethyloctane	I10	0.0001	0.0006	0.000	0.000
2,4-Dimethyloctane	I10	0.0001	0.0006	0.000	0.000
2,6-Dimethyloctane	I10	0.0001	0.0006	0.000	0.000
2,5-Dimethyloctane	I10	0.0001	0.0006	0.000	0.000
n-Butylcyclopentane	N9	0.0005	0.0026	0.000	0.000
3,3-Dimethyloctane	I10	0.0002	0.0011	0.000	0.000
n-Propylbenzene	A9	0.0001	0.0005	0.000	0.000
3,6-Dimethyloctane	I10	0.0004	0.0023	0.000	0.000
3-Methyl-5-ethylheptane	I10	0.0003	0.0017	0.000	0.000
1,3-Methylethylbenzene	A9	0.0004	0.0019	0.000	0.000
1,4-Methylethylbenzene	A9	0.0002	0.0010	0.000	0.000
1,3,5-Trimethylbenzene	A9	0.0001	0.0005	0.000	0.000
2,3-Dimethyloctane	I10	0.0002	0.0011	0.000	0.000
5-Methylnonane	I10	0.0002	0.0011	0.000	0.000
1,2-Methylethylbenzene	A9	0.0003	0.0015	0.000	0.000
3-Methylnonane	I10	0.0001	0.0006	0.000	0.000
t-Butylbenzene	A10	0.0003	0.0016	0.000	0.000
1t-Methyl-2-n-propylcyclohexane	I10	0.0001	0.0006	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	0.0080	0.0415	0.004	0.004
n-Decane	P10	0.0007	0.0041	0.000	0.000
1,2,3-Trimethylbenzene	A9	0.0001	0.0005	0.000	0.000
1,3-Methyl-i-propylbenzene	A10	0.0001	0.0005	0.000	0.000
Sec-Butylcyclohexane	A10	0.0001	0.0006	0.000	0.000
3-Ethylnonane	I10	0.0001	0.0007	0.000	0.000
1,4-Diethylbenzene	A10	0.0001	0.0005	0.000	0.000
n-Butylbenzene	A10	0.0001	0.0005	0.000	0.000
1,4-Dimethyl-2-ethylbenzene	A10	0.0001	0.0005	0.000	0.000
1,3-Dimethyl-4-ethylbenzene	A10	0.0001	0.0005	0.000	0.000
UnknownC10s	U10	0.0025	0.0144	0.002	0.002
n-Undecane	P11	0.0003	0.0019	0.000	0.000
1,2-Methyl-t-butylbenzene	A11	0.0001	0.0006	0.000	0.000

UnknownC11s	U11	0.0009	0.0057	0.001	0.001
n-Dodecane	P12	0.0001	0.0007	0.000	0.000
UnknownC12s	U12	0.0002	0.0013	0.000	0.000
n-Tridecane	P13	0.0001	0.0007	0.000	0.000
UnknownC13s	U13	0.0003	0.0022	0.000	0.000
TOTAL		100.00000	100.00000	8.1618	8.1177

BTEX COMPONENTS	**MOLE%**	**WT%**
BENZENE	0.0357	0.1129
TOLUENE	0.0235	0.0877
ETHYLBENZENE	0.0002	0.0009
XYLENES	0.0039	0.0168
TOTAL BTEX	0.0633	0.2183

		BTU @	14.730	14.650
LOW	NET DRY REAL :		1272.0 **/scf**	1265.1 **/scf**
	NET WET REAL :		1249.9 **/scf**	1242.9 **/scf**
HIGH	GROSS DRY REAL :		1397.6 **/scf**	1390.0 **/scf**
	GROSS WET REAL :		1373.3 **/scf**	1365.7 **/scf**
	NET DRY REAL :		19567.9 **/lb**	19461.6 **/lb**
	GROSS DRY REAL :		21494.5 **/lb**	21377.8 **/lb**

RELATIVE DENSITY (AIR=1): 0.8518

COMPRESSIBILITY FACTOR : 0.99541

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

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