



Certificate of Analysis

HOUSTON LABORATORIES

8820 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Analysis Number: 2012100109-001A

Sample ID: 100112-W-FRAC
Project: Frac Tk.Fluid From Cavern
Project Location:

Date of Sample: 10/01/12
Time Sampled: 12:40 PM
Date Sample Analyzed: 10/04/12

Client: Shaw Env. & Infrastructure, Inc.
Address: 4171 Essex Lane
Suite / Department:
City: Baton Rouge
Phone: 225-987-7335
Fax: Ext

Contact(s): Lisa Pultz
State: LA
Zip: 70809
E-Mail:

Color: Dark
Specific Gravity @ 60° F.: 0.8564

Odor: Sulfur
API @ 60° F.: 33.72

Carbon Range: C2 - C30+

Major Range: C8 - C18

Table with 4 columns: Component, Value, Unit, and another Value. Rows include Paraffin, Isoparaffins, Naphthenics, Aromatics, Olefins, Unknowns, 2,2,4-Tri Methylpentane, N-Hexane, Benzene, Ethyl Benzene, Toluene, Meta-Xylene, Para-Xylene, Ortho-Xylene, Xylenes, EDB, EDC, Ethanol, C18, Phytane, and 2-Methyl Naphthalene.

Gasoline Range: C4-C13 Indicators: 2,2,4-TMP, Olefins
Diesel Range: C7-C20 Indicators: Pristane, Phytane
Condensate Range: C2-C25+ Indicators: No Olefins, Light & Heavies
Heavy Oil: C20+

Comments: N/A Not Applicable N/D None Detected

Chris Staley (signature)

Chris Staley
Hydrocarbon Laboratory Manager

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/4/2012 11:44:29 AM

RawFile: M:\ExtendedGas Results\CDF\2012100109-001Adat-Detector 1.cdf
Sample: 2012100109-001A JD
Processed 584 Peaks
Reference File: H:\DHA Application Software\References\DHA REF1209 JL_09042012.DHA

Acquired: 10/03/12 16:48:25
Analyzed: 10/4/2012 11:43:21 AM

Comments:

Normalized to 100.0000%

Molecular Weight and Relative Density Data

<u>Group</u>	<u>Avg Mw.</u>	<u>Avg Rel. Density</u>
C1	0.000	0.000
C2	30.070	0.340
C3	44.097	0.500
C4	58.124	0.570
C5	72.151	0.621
C6	84.996	0.696
C7	98.654	0.731
C8	113.074	0.760
C9	125.673	0.771
C10	137.921	0.795
C11	148.722	0.835
C12	160.327	0.846
C13	161.708	0.867
C14	185.914	0.757
C15	199.393	0.794
C16	209.062	0.957
C17	229.664	0.774
C18	243.543	0.778
C19	258.778	0.777
C20	273.479	0.781
C21	286.390	0.789
C22	302.229	0.793
C23	315.786	0.795
C24	331.554	0.798
C25	348.652	0.800
C26	366.644	0.800
C27	384.000	0.805
C28	398.000	0.805
C29	412.000	0.808
Total Sample:	163.00	0.80

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Sample: 2012100109-001A JD	Analyzed: 10/4/2012 11:43:21 AM
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Comments:	Normalized to 100.0000%

Totals by Group Type & Carbon Number (in Mass Percent)

	<u>Paraffins</u>	<u>I-Paraffins</u>	<u>Olefins</u>	<u>Napthenes</u>	<u>Aromatics</u>	<u>Unknowns</u>	<u>Total</u>
C1	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C2	0.00730	0.00000	0.00000	0.00000	0.00000	0.00000	0.00730
C3	0.05729	0.00000	0.00000	0.00000	0.00000	0.00000	0.05729
C4	0.15158	0.09271	0.00000	0.00000	0.00000	0.00000	0.24429
C5	0.19364	0.25633	0.00000	0.00000	0.00000	0.00000	0.44996
C6	0.22456	0.74267	0.00000	0.51679	0.04805	0.00000	1.53206
C7	0.10077	0.97300	0.00000	1.14180	0.15874	0.00000	2.37431
C8	0.30718	0.93661	0.00000	3.00756	0.82857	0.00000	5.07993
C9	0.17959	2.76174	0.00000	3.43343	1.36809	0.00000	7.74285
C10	0.15322	6.56224	0.00000	2.07148	3.69172	0.00000	12.47865
C11	0.11359	4.86754	0.00000	0.07981	3.48975	0.00000	8.55069
C12	0.40162	4.29031	0.00000	0.00000	2.91602	0.00000	7.60794
C13	0.82441	6.71246	0.00000	0.00000	0.00000	0.00000	7.53688
C14	1.15733	8.69340	0.00000	0.00000	0.00000	0.00000	9.85074
C15	1.56528	8.46451	0.00000	0.00000	0.00000	0.00000	10.02979
C16	1.48700	5.76277	0.00000	0.00000	0.00000	0.00000	7.24977
C17	1.25773	3.98503	0.00000	0.00000	0.00000	0.00000	5.24276
C18	0.96113	3.25186	0.00000	0.00000	0.00000	0.00000	4.21299
C19	0.91747	1.98670	0.00000	0.00000	0.00000	0.00000	2.90417
C20	0.70179	1.22389	0.00000	0.00000	0.00000	0.00000	1.92567
C21	0.44980	1.14131	0.00000	0.00000	0.00000	0.00000	1.59111
C22	0.36343	0.51573	0.00000	0.00000	0.00000	0.00000	0.87916
C23	0.31690	0.51868	0.00000	0.00000	0.00000	0.00000	0.83557
C24	0.28894	0.28502	0.00000	0.00000	0.00000	0.00000	0.57396
C25	0.23613	0.09172	0.00000	0.00000	0.00000	0.00000	0.32786
C26	0.19572	0.04486	0.00000	0.00000	0.00000	0.00000	0.24059
C27	0.16613	0.00000	0.00000	0.00000	0.00000	0.00000	0.16613
C28	0.13654	0.00000	0.00000	0.00000	0.00000	0.00000	0.13654
C29	0.10791	0.00000	0.00000	0.00000	0.00000	0.00000	0.10791
Total:	13.02399	64.16108	0.00000	10.25087	12.50093	0.00000	99.93687
Oxygenates	0.00000			Total C30+:	0.06313		
Total Unknowns:	0.00000			Grand Total:	100.00000		

Totals by Group Type & Carbon Number (in Volume Percent)

	<u>Paraffins</u>	<u>I-Paraffins</u>	<u>Olefins</u>	<u>Napthenes</u>	<u>Aromatics</u>	<u>Unknowns</u>	<u>Total</u>
C1	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C2	0.01720	0.00000	0.00000	0.00000	0.00000	0.00000	0.01720
C3	0.09166	0.00000	0.00000	0.00000	0.00000	0.00000	0.09166
C4	0.20970	0.13323	0.00000	0.00000	0.00000	0.00000	0.34293
C5	0.24760	0.33232	0.00000	0.00000	0.00000	0.00000	0.57992
C6	0.27269	0.90614	0.00000	0.54036	0.04377	0.00000	1.76296
C7	0.11802	1.13372	0.00000	1.20108	0.14660	0.00000	2.59943
C8	0.35014	1.03378	0.00000	3.11868	0.84696	0.00000	5.34956

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Processed 584 Peaks

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Normalized to 100.0000%

Comments:

C9	0.20040	3.07643	0.00000	3.51198	1.25663	0.00000	8.04545
C10	0.16806	7.00936	0.00000	2.06422	3.32721	0.00000	12.56886
C11	0.12225	4.99204	0.00000	0.07989	3.01017	0.00000	8.20434
C12	0.42708	4.14619	0.00000	0.00000	2.62393	0.00000	7.19720
C13	0.87273	6.08662	0.00000	0.00000	0.00000	0.00000	6.95934
C14	1.21488	9.20285	0.00000	0.00000	0.00000	0.00000	10.41773
C15	1.22878	8.88537	0.00000	0.00000	0.00000	0.00000	10.11415
C16	1.53974	4.52392	0.00000	0.00000	0.00000	0.00000	6.06366
C17	1.29447	4.12636	0.00000	0.00000	0.00000	0.00000	5.42083
C18	0.99074	3.34685	0.00000	0.00000	0.00000	0.00000	4.33759
C19	0.94500	2.04789	0.00000	0.00000	0.00000	0.00000	2.99289
C20	0.71258	1.26061	0.00000	0.00000	0.00000	0.00000	1.97319
C21	0.45493	1.15886	0.00000	0.00000	0.00000	0.00000	1.61379
C22	0.36632	0.52161	0.00000	0.00000	0.00000	0.00000	0.88793
C23	0.31842	0.52281	0.00000	0.00000	0.00000	0.00000	0.84123
C24	0.28953	0.28639	0.00000	0.00000	0.00000	0.00000	0.57592
C25	0.23635	0.09191	0.00000	0.00000	0.00000	0.00000	0.32826
C26	0.19590	0.04490	0.00000	0.00000	0.00000	0.00000	0.24081
C27	0.16525	0.00000	0.00000	0.00000	0.00000	0.00000	0.16525
C28	0.13581	0.00000	0.00000	0.00000	0.00000	0.00000	0.13581
C29	0.10690	0.00000	0.00000	0.00000	0.00000	0.00000	0.10690
Total:	13.29310	64.87017	0.00000	10.51621	11.25529	0.00000	99.93477

Oxygenates 0.00000

Total C30+: 0.06523

Total Unknowns: 0.00000

Grand Total: 100.00000

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/4/2012 11:44:29 AM

RawFile: M:\ExtendedGas Results\CDF\2012100109-001Adat-Detector 1.cdf	Acquired: 10/03/12 16:48:25
Sample: 2012100109-001A, JD	Analyzed: 10/4/2012 11:43:21 AM
Processed 584 Peaks	
Reference File: H:\DHA Application Software\References\DHA REF1209 JL_09042012.DHA	
Comments:	Normalized to 100.0000%

Totals by Group Type & Carbon Number (in Mol Percent)

	<u>Paraffins</u>	<u>I-Paraffins</u>	<u>Olefins</u>	<u>Napthenes</u>	<u>Aromatics</u>	<u>Unknowns</u>	<u>Total</u>
C1	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C2	0.03950	0.00000	0.00000	0.00000	0.00000	0.00000	0.03950
C3	0.21139	0.00000	0.00000	0.00000	0.00000	0.00000	0.21139
C4	0.42430	0.25952	0.00000	0.00000	0.00000	0.00000	0.68382
C5	0.43665	0.57802	0.00000	0.00000	0.00000	0.00000	1.01467
C6	0.42396	1.40961	0.00000	0.99905	0.10007	0.00000	2.93269
C7	0.16363	1.57985	0.00000	1.89199	0.28029	0.00000	3.91575
C8	0.43752	1.33915	0.00000	4.36066	1.17215	0.00000	7.30949
C9	0.22782	3.51948	0.00000	4.42500	1.85191	0.00000	10.02421
C10	0.17520	7.60833	0.00000	2.40276	4.53446	0.00000	14.72075
C11	0.11823	5.28621	0.00000	0.08416	3.86584	0.00000	9.35445
C12	0.38361	4.41329	0.00000	0.00000	2.92374	0.00000	7.72064
C13	0.72752	6.85566	0.00000	0.00000	0.00000	0.00000	7.58319
C14	0.94914	7.67170	0.00000	0.00000	0.00000	0.00000	8.62084
C15	1.24231	6.94184	0.00000	0.00000	0.00000	0.00000	8.18415
C16	1.06839	4.57372	0.00000	0.00000	0.00000	0.00000	5.64211
C17	0.85094	2.86320	0.00000	0.00000	0.00000	0.00000	3.71414
C18	0.61443	2.20011	0.00000	0.00000	0.00000	0.00000	2.81454
C19	0.55589	1.27005	0.00000	0.00000	0.00000	0.00000	1.82594
C20	0.40410	0.74155	0.00000	0.00000	0.00000	0.00000	1.14565
C21	0.24675	0.65718	0.00000	0.00000	0.00000	0.00000	0.90393
C22	0.19037	0.28292	0.00000	0.00000	0.00000	0.00000	0.47329
C23	0.15882	0.27169	0.00000	0.00000	0.00000	0.00000	0.43051
C24	0.13881	0.14285	0.00000	0.00000	0.00000	0.00000	0.28166
C25	0.10893	0.04406	0.00000	0.00000	0.00000	0.00000	0.15300
C26	0.08607	0.02070	0.00000	0.00000	0.00000	0.00000	0.10676
C27	0.07039	0.00000	0.00000	0.00000	0.00000	0.00000	0.07039
C28	0.05582	0.00000	0.00000	0.00000	0.00000	0.00000	0.05582
C29	0.04261	0.00000	0.00000	0.00000	0.00000	0.00000	0.04261
Total:	10.55311	60.53069	0.00000	14.16362	14.72847	0.00000	99.97589
Oxygenates	0.00000				0.02411		
Total Unknowns:	0.00000				100.00000		
Grand Total:							

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/4/2012 11:44:29 AM

RawFile: M:\ExtendedGas Results\CDF\2012100109-001Adat-Detector 1.cdf

Acquired: 10/03/12 16:48:25

Sample: 2012100109-001A JD

Analyzed: 10/4/2012 11:43:21 AM

Processed 584 Peaks

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Comments:

Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 6

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
7.337	200.000	P2	ethane	0.007	0.017	0.039
7.597	300.000	P3	propane	0.057	0.092	0.211
8.000	365.730	I4	i-butane	0.093	0.133	0.260
8.350	400.000	P4	n-butane	0.152	0.210	0.424
8.527	414.310	I5	2,2-dimethylpropane	0.017	0.023	0.038
9.623	474.790	I5	i-pentane	0.239	0.309	0.540
10.313	500.000	P5	n-pentane	0.194	0.248	0.437
10.890	517.510	I6	C6-Iso-Paraffin	0.020	0.026	0.046
11.623	536.210	I6	2,2-dimethylbutane	0.149	0.184	0.281
13.083	565.640	I6	2,3-dimethylbutane	0.223	0.269	0.420
13.307	569.480	I6	2-methylpentane	0.202	0.247	0.381
14.200	583.570	I6	3-methylpentane	0.149	0.180	0.282
15.407	600.000	P6	n-hexane	0.225	0.273	0.424
17.417	626.720	I7	2,2-dimethylpentane	0.079	0.094	0.128
17.633	629.280	N6	methylcyclopentane	0.215	0.230	0.415
17.970	633.160	I7	2,4-dimethylpentane	0.110	0.132	0.179
18.480	638.800	I7	2,2,3-trimethylbutane	0.092	0.107	0.150
19.893	653.210	A6	benzene	0.048	0.044	0.100
20.463	658.570	I7	3,3-dimethylpentane	0.075	0.086	0.121
20.850	662.080	N6	cyclohexane	0.302	0.311	0.584
21.853	670.730	I7	2-methylhexane	0.109	0.129	0.178
22.037	672.250	I7	2,3-dimethylpentane	0.182	0.209	0.295
22.343	674.750	N7	1,1-dimethylcyclopentane	0.123	0.131	0.204
22.843	678.710	I7	3-methylhexane	0.180	0.210	0.292
23.577	684.300	N7	1c,3-dimethylcyclopentane	0.146	0.157	0.243
23.907	686.740	N7	1t,3-dimethylcyclopentane	0.142	0.151	0.235
24.060	687.850	N7	1t,2-dimethylcyclopentane	0.047	0.050	0.078
24.230	689.080	I7	3-ethylpentane	0.146	0.168	0.237
24.417	690.410	I8	2,2,4-trimethylpentane	0.009	0.011	0.013
25.823	700.000	P7	n-heptane	0.101	0.118	0.164
28.350	721.690	N7	methylcyclohexane	0.683	0.711	1.132
28.773	725.070	N8	1,1,3-trimethylcyclopentane	0.305	0.326	0.442
29.930	733.980	I8	2,2,3-trimethylpentane	0.082	0.092	0.117
30.123	735.420	N8	1c,2t,4-trimethylcyclopentane	0.071	0.075	0.103
30.257	736.410	I8	C8-Iso-Paraffin	0.032	0.034	0.047
30.383	737.350	I8	3,3-dimethylhexane	0.169	0.190	0.240
31.137	742.800	N8	1t,2c,3-trimethylcyclopentane	0.219	0.228	0.318
31.340	744.240	I8	2,3,4-trimethylpentane	0.069	0.077	0.098

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Hold

Components Listed in Chromatographic Order

Page: 7

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
32.153	749.890	I8	I1	0.267	0.298	0.381
32.553	752.610	I8	2,3,3-trimethylpentane	0.047	0.052	0.067
33.097	756.220	A7	toluene	0.159	0.147	0.280
34.177	763.190	N8	1,1,2-trimethylcyclopentane	0.207	0.214	0.300
34.307	764.010	I8	2-methyl-3-ethylpentane	0.036	0.041	0.052
34.653	766.180	I8	4-methylheptane	0.009	0.010	0.012
35.023	768.460	I8	2-methylheptane	0.048	0.056	0.069
35.233	769.740	N8	1c,2c,4-trimethylcyclopentane	0.076	0.080	0.110
35.453	771.080	N8	1c,3-dimethylcyclohexane	0.070	0.073	0.101
35.793	773.120	N8	1c,2t,3-trimethylcyclopentane	0.032	0.034	0.047
36.133	775.130	N8	1t,4-dimethylcyclohexane	0.079	0.083	0.114
36.313	776.190	N8	1,1-dimethylcyclohexane	0.837	0.858	1.213
36.607	777.900	I9	2,2,5-trimethylhexane	0.527	0.597	0.669
37.473	782.860	N8	3c-ethylmethylcyclopentane	0.163	0.170	0.236
37.847	784.950	I8	C8-Iso-Paraffin	0.042	0.044	0.061
38.050	786.070	N8	3t-ethylmethylcyclopentane	0.059	0.061	0.085
38.407	788.040	N8	2t-ethylmethylcyclopentane	0.054	0.056	0.078
38.610	789.140	I8	C8-Iso-Paraffin	0.127	0.132	0.184
38.953	791.000	I9	2,2,4-trimethylhexane	0.045	0.049	0.057
39.417	793.470	N8	1t,2-dimethylcyclohexane	0.364	0.375	0.527
40.557	799.400	N8	1c,2c,3-trimethylcyclopentane	0.129	0.132	0.187
40.673	800.000	P8	n-octane	0.307	0.350	0.438
41.997	807.680	N8	i-propylcyclopentane	0.080	0.083	0.116
42.437	810.180	I9	2,4,4-trimethylhexane	0.005	0.006	0.007
42.647	811.360	I9	C9-Iso-Paraffin	0.006	0.007	0.008
43.087	813.800	N8	N1	0.065	0.066	0.094
43.537	816.270	I9	C9-Iso-Paraffin	0.046	0.048	0.067
43.880	818.140	I9	2,3,4-trimethylhexane	0.020	0.022	0.026
44.243	820.090	N8	N2	0.082	0.084	0.118
45.057	824.400	I9	2,3,5-trimethylhexane	0.237	0.263	0.301
45.240	825.360	N8	N3	0.026	0.027	0.038
45.433	826.360	N8	1c,2-dimethylcyclohexane	0.026	0.026	0.038
45.633	827.400	I9	C9-Iso-Paraffin	0.014	0.014	0.020
46.127	829.930	I9	2,2-dimethylheptane	0.619	0.697	0.785
46.450	831.570	N8	N4	0.037	0.038	0.053
46.840	833.530	I9	C9-Iso-Paraffin	0.029	0.030	0.042
47.277	835.700	N9	1,1,4-trimethylcyclohexane	0.576	0.598	0.743
47.837	838.460	I9	2,4-dimethylheptane	0.399	0.446	0.506

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Components Listed in Chromatographic Order

Page: 8

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
48.197	840.200	N9	*1c,3c,5-trimethylcyclohexane	0.132	0.137	0.170
48.437	841.360	I9	4,4-dimethylheptane	0.034	0.038	0.043
48.713	842.690	I9	C9-Iso-Paraffin	0.086	0.096	0.109
49.073	844.400	N8	n-propylcyclopentane	0.029	0.030	0.042
50.340	850.310	A8	ethylbenzene	0.237	0.219	0.363
50.737	852.130	N9	1,1,3-trimethylcyclohexane	0.412	0.419	0.531
51.700	856.470	I9	I3	0.020	0.022	0.026
52.263	858.960	N9	1c,2t,4t-trimethylcyclohexane	0.052	0.054	0.068
52.777	861.210	A8	p-xylene	0.250	0.293	0.322
53.253	863.270	N9	N12	0.029	0.029	0.037
53.573	864.650	A8	1,3-dimethylbenzene	0.131	0.121	0.200
54.060	866.720	A8	1,4-dimethylbenzene	0.072	0.067	0.110
54.880	870.160	I9	3,4 -dimethylheptane	0.039	0.042	0.049
55.160	871.320	N9	N14	0.022	0.022	0.028
55.673	873.430	I9	4-ethylheptane	0.122	0.136	0.155
56.360	876.220	N9	N15	0.161	0.165	0.208
56.760	877.830	I9	3-ethylheptane	0.089	0.098	0.113
57.193	879.560	I9	C9-Iso-Paraffin	0.008	0.009	0.011
57.393	880.350	I9	3-methyloctane	0.039	0.043	0.049
57.767	881.820	A8	o-xylene	0.139	0.147	0.176
58.020	882.810	N9	1,1,2-trimethylcyclohexane	0.025	0.025	0.033
58.597	885.050	I9	I6	0.038	0.042	0.049
59.057	886.810	I9	I7	0.207	0.227	0.262
59.303	887.750	N9	N18	0.442	0.454	0.570
59.763	889.500	N9	N19	0.379	0.390	0.489
59.993	890.360	I9	I8	0.051	0.056	0.065
60.387	891.840	I9	I9	0.022	0.024	0.028
60.950	893.930	N9	N21	0.013	0.014	0.017
61.703	896.690	N9	N23	0.171	0.176	0.221
62.233	898.610	I9	I10	0.059	0.064	0.074
62.620	900.000	P9	n-nonane	0.180	0.200	0.228
63.097	903.490	N9	N24	0.506	0.513	0.652
63.480	906.280	N9	N25	0.119	0.120	0.153
63.607	907.200	N9	N26	0.055	0.055	0.070
64.437	913.170	A9	i-propylbenzene	0.059	0.055	0.080
64.913	916.550	I10	I11	0.335	0.368	0.383
65.160	918.300	I10	C10-Iso-Paraffin	0.057	0.063	0.065
65.333	919.510	N9	i-propylcyclohexane	0.184	0.184	0.237

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/4/2012 11:44:29 AM

RawFile: M:\ExtendedGas Results\CDF\2012100109-001Adat-Detector 1.cdf

Acquired: 10/03/12 16:48:25

Sample: 2012100109-001A JD

Analyzed: 10/4/2012 11:43:21 AM

Processed 584 Peaks

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Comments:

Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 9

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
65.487	920.590	I10	I12	0.015	0.016	0.017
65.770	922.570	I10	2,2-dimethyloctane	0.085	0.094	0.097
66.040	924.450	I10	2,4-dimethyloctane	0.390	0.430	0.446
66.353	926.620	I10	C10-Iso-Paraffin	0.092	0.102	0.106
66.473	927.450	N9	N28	0.065	0.066	0.084
66.813	929.780	N9	N29	0.089	0.091	0.115
67.197	932.400	I10	2,6-dimethyloctane	0.441	0.486	0.505
67.350	933.440	I10	2,5-dimethyloctane	0.401	0.439	0.458
68.047	938.140	N10	N30	0.086	0.086	0.099
68.220	939.310	I10	C10-Iso-Paraffin	0.166	0.166	0.193
68.467	940.950	I10	I14	0.140	0.153	0.160
68.647	942.150	I10	C10-Iso-Paraffin	0.119	0.131	0.137
68.800	943.170	I10	3,3-dimethyloctane	0.146	0.159	0.167
68.900	943.830	I10	C10-Iso-Paraffin	0.094	0.102	0.108
69.050	944.820	N10	N31	0.227	0.227	0.263
69.207	945.860	I10	C10-Iso-Paraffin	0.100	0.101	0.117
69.337	946.710	A9	n-propylbenzene	0.184	0.171	0.249
69.607	948.480	I10	3-methyl-5-ethylheptane	0.112	0.123	0.128
69.863	950.160	N10	N32	0.365	0.366	0.424
70.237	952.580	I10	C10-Iso-Paraffin	0.259	0.259	0.301
70.610	955.000	A9	1,3-methylethylbenzene	0.290	0.268	0.392
70.830	956.410	A9	1,4-methylethylbenzene	0.082	0.077	0.112
71.023	957.650	N10	N33	0.014	0.014	0.017
71.317	959.520	I10	C10-Iso-Paraffin	0.184	0.184	0.213
71.700	961.960	A9	1,3,5-trimethylbenzene	0.150	0.139	0.203
71.900	963.220	I10	I15	0.280	0.303	0.320
72.040	964.100	I10	C10-Iso-Paraffin	0.186	0.201	0.213
72.283	965.630	I10	I16	0.147	0.159	0.168
72.393	966.320	I10	C10-Iso-Paraffin	0.078	0.085	0.089
72.770	968.670	I10	5-methylnonane	0.054	0.059	0.062
72.940	969.730	A9	1,2-methylethylbenzene	0.187	0.170	0.253
73.100	970.720	I10	C10-Iso-Paraffin	0.100	0.091	0.135
73.347	972.250	I10	2-methylnonane	0.111	0.123	0.127
73.460	972.950	I10	C10-Iso-Paraffin	0.084	0.092	0.096
73.627	973.980	I10	3-ethyloctane	0.222	0.241	0.254
73.850	975.350	N10	N35	0.243	0.243	0.282
74.013	976.350	I10	C10-Iso-Paraffin	0.052	0.052	0.060
74.127	977.040	I10	3-methylnonane	0.122	0.133	0.139

Detailed Hydrocarbon Analysis Detail Report -

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Sample: 2012100109-001A JD

Analyzed: 10/4/2012 11:43:21 AM

Processed 584 Peaks

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Comments:

Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 10

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
74.270	977.910	I10	C10-Iso-Paraffin	0.259	0.282	0.296
74.660	980.280	I10	I18	0.109	0.118	0.125
75.040	982.570	A9	1,2,4-trimethylbenzene	0.246	0.225	0.333
75.293	984.100	I10	C10-Iso-Paraffin	0.336	0.307	0.454
75.653	986.250	I10	I20	0.440	0.476	0.503
75.893	987.680	I10	I21	0.162	0.175	0.185
76.137	989.120	I10	I23	0.243	0.263	0.278
76.333	990.290	N10	N37	0.068	0.068	0.079
76.467	991.070	I10	C10-Iso-Paraffin	0.031	0.031	0.036
76.810	993.090	I10	I24	0.168	0.182	0.193
77.013	994.280	N10	1t-methyl-2-n-propylcyclohexane	0.370	0.370	0.429
77.277	995.820	A10	i-butylbenzene	0.058	0.055	0.071
77.460	996.890	I10	I25	0.124	0.135	0.142
77.530	997.290	I10	C10-Iso-Paraffin	0.116	0.126	0.133
77.733	998.470	A10	sec-butylbenzene	0.184	0.171	0.223
77.997	1000.000	P10	n-decane	0.153	0.168	0.175
78.263	1002.700	N10	N38	0.168	0.168	0.195
78.500	1005.090	I11	C11-Iso-Paraffin	0.238	0.239	0.277
78.807	1008.180	A9	1,2,3-trimethylbenzene	0.169	0.152	0.229
78.943	1009.560	A10	1,3-methyl-i-propylbenzene	0.023	0.022	0.028
79.053	1010.660	I11	C11-Iso-Paraffin	0.053	0.049	0.064
79.140	1011.530	N11	N39	0.080	0.080	0.084
79.267	1012.790	A10	1,4-methyl-i-propylbenzene	0.055	0.052	0.067
79.633	1016.450	I11	I28	0.146	0.158	0.152
79.853	1018.630	A10	2-3-dihydroindene	0.244	0.203	0.336
80.097	1021.040	I11	C11-Iso-Paraffin	0.142	0.118	0.196
80.323	1023.270	N10	sec-butylcyclohexane	0.531	0.522	0.616
80.683	1026.810	A10	1,2-methyl-i-propylbenzene	0.332	0.303	0.403
80.933	1029.250	I11	C11-Iso-Paraffin	0.101	0.093	0.123
81.187	1031.720	I11	3-ethylnonane	0.651	0.701	0.678
81.700	1036.700	I11	I32	0.232	0.232	0.245
81.897	1038.600	I11	C11-Iso-Paraffin	0.134	0.135	0.142
81.990	1039.500	A10	1,3-diethylbenzene	0.089	0.082	0.108
82.073	1040.300	I11	C11-Iso-Paraffin	0.118	0.109	0.143
82.453	1043.940	I11	I33	0.344	0.373	0.358
82.593	1045.280	A10	1,4-diethylbenzene	0.070	0.065	0.085
82.693	1046.240	I11	C11-Iso-Paraffin	0.119	0.110	0.144
82.797	1047.220	A10	1,4-methyl-n-propylbenzene	0.091	0.085	0.110

Detailed Hydrocarbon Analysis Detail Report -

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RawFile: M:\ExtendedGas Results\CDF\2012100109-001Adat-Detector 1.cdf
 Sample: 2012100109-001A JD
 Processed 584 Peaks
 Reference File: H:\DHA Application Software\References\DHA REF1209_JL_09042012.DHA
 Comments:
 Acquired: 10/03/12 16:48:25
 Analyzed: 10/4/2012 11:43:21 AM
 Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 11

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
82.960	1048.770	A10	n-butylbenzene	0.112	0.104	0.136
83.040	1049.530	I11	C11-Iso-Paraffin	0.045	0.042	0.054
83.140	1050.480	A10	1,3-dimethyl-5-ethylbenzene	0.053	0.048	0.064
83.330	1052.280	A10	1,2-diethylbenzene	0.137	0.124	0.166
83.437	1053.290	I11	C11-Iso-Paraffin	0.225	0.205	0.273
83.807	1056.770	A10	1,2-methyl-n-propylbenzene	0.241	0.221	0.292
83.993	1058.530	I11	I35	0.104	0.113	0.109
84.177	1060.240	I11	I36	0.096	0.104	0.100
84.283	1061.240	I11	I37	0.049	0.053	0.051
84.703	1065.150	I11	I38	0.177	0.191	0.184
84.920	1067.160	A10	A3	0.204	0.190	0.248
85.097	1068.800	A10	1,3-dimethyl-4-ethylbenzene	0.163	0.152	0.198
85.300	1070.670	I11	I39	0.155	0.168	0.162
85.483	1072.360	I11	C11-Iso-Paraffin	0.024	0.026	0.025
85.617	1073.590	I11	C11-Iso-Paraffin	0.105	0.114	0.109
85.730	1074.630	I11	I40	0.108	0.117	0.112
85.803	1075.300	A10	1,2-dimethyl-4-ethylbenzene	0.077	0.071	0.094
85.903	1076.210	I11	C11-Iso-Paraffin	0.146	0.134	0.177
86.110	1078.100	I11	I41	0.268	0.290	0.279
86.253	1079.410	I11	C11-Iso-Paraffin	0.334	0.361	0.347
86.600	1082.560	I11	I42	0.138	0.150	0.144
86.787	1084.250	I11	C11-Iso-Paraffin	0.077	0.084	0.080
86.903	1085.300	I11	I43	0.117	0.127	0.122
87.047	1086.600	I11	C11-Iso-Paraffin	0.119	0.129	0.124
87.303	1088.910	A12	1,3-di-n-propylbenzene	0.198	0.178	0.198
87.487	1090.550	I11	C11-Iso-Paraffin	0.177	0.159	0.177
87.707	1092.520	A11	1,4-methyl-t-butylbenzene	0.259	0.244	0.285
87.867	1093.950	A10	1,2-dimethyl-3-ethylbenzene	0.082	0.074	0.099
88.193	1096.860	A11	1,2-ethyl-i-propylbenzene	0.628	0.565	0.690
88.400	1098.700	I11	C11-Iso-Paraffin	0.124	0.111	0.136
88.547	1100.000	P11	n-undecane	0.114	0.122	0.118
88.793	1102.960	A11	1,4-ethyl-i-propylbenzene	0.153	0.137	0.167
88.907	1104.320	A10	1,2,4,5-tetramethylbenzene	0.282	0.254	0.341
89.227	1108.160	A11	1,2-methyl-n-butylbenzene	0.206	0.185	0.226
89.343	1109.550	A10	1,2,3,5-tetramethylbenzene	0.330	0.297	0.401
89.487	1111.260	I12	C12-Iso-Paraffin	0.118	0.106	0.143
89.810	1115.100	A11	1,2-methyl-t-butylbenzene	0.346	0.312	0.380
90.013	1117.510	I12	C12-Iso-Paraffin	0.077	0.069	0.084

Detailed Hydrocarbon Analysis Detail Report -

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Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 12

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
90.137	1118.970	I12	C12-Iso-Paraffin	0.049	0.044	0.053
90.260	1120.430	I12	C12-Iso-Paraffin	0.141	0.127	0.155
90.343	1121.410	I12	C12-Iso-Paraffin	0.146	0.132	0.160
90.637	1124.860	I12	C12-Iso-Paraffin	0.044	0.039	0.048
90.880	1127.720	A10	5-methylindan	0.480	0.432	0.591
91.027	1129.430	I12	C12-Iso-Paraffin	0.122	0.109	0.150
91.210	1131.570	I12	I44	0.299	0.318	0.286
91.413	1133.940	A10	4-methylindan	0.129	0.116	0.159
91.637	1136.540	A11	1,2-ethyl-n-propylbenzene	0.397	0.357	0.436
91.993	1140.670	A11	1,3-methyl-n-butylbenzene	0.086	0.077	0.094
92.110	1142.020	I12	C12-Iso-Paraffin	0.099	0.089	0.108
92.200	1143.060	A12	1,3-di-i-propylbenzene	0.033	0.030	0.033
92.367	1144.980	A11	s-pentylbenzene	0.102	0.092	0.112
92.530	1146.860	I12	C12-Iso-Paraffin	0.075	0.068	0.083
92.703	1148.850	I12	C12-Iso-Paraffin	0.226	0.204	0.248
92.820	1150.180	A11	n-pentylbenzene	0.037	0.034	0.041
93.027	1152.550	A12	1,2-di-i-propylbenzene	0.183	0.164	0.183
93.163	1154.110	I12	C12-Iso-Paraffin	0.118	0.106	0.118
93.403	1156.840	I12	C12-Iso-Paraffin	0.144	0.129	0.144
93.487	1157.790	I12	C12-Iso-Paraffin	0.088	0.079	0.088
93.560	1158.620	I12	C12-Iso-Paraffin	0.095	0.085	0.095
93.663	1159.790	A12	1,4-di-i-propylbenzene	0.101	0.091	0.101
93.807	1161.410	I12	C12-Iso-Paraffin	0.083	0.075	0.083
93.960	1163.150	A10	tetrahydronaphthalene	0.170	0.141	0.210
94.113	1164.880	I12	C12-Iso-Paraffin	0.221	0.182	0.271
94.273	1166.680	I12	C12-Iso-Paraffin	0.073	0.060	0.089
94.350	1167.540	A10	naphthalene	0.084	0.065	0.106
94.533	1169.600	A12	1-t-butyl-3,5-dimethylbenzene	0.230	0.207	0.231
94.623	1170.610	I12	C12-Iso-Paraffin	0.125	0.112	0.125
94.747	1172.000	I12	C12-Iso-Paraffin	0.051	0.046	0.052
94.910	1173.820	A12	1,4-ethyl-t-butylbenzene	0.216	0.194	0.216
95.050	1175.390	I12	C12-Iso-Paraffin	0.049	0.044	0.049
95.260	1177.730	I12	I45	0.339	0.361	0.324
95.520	1180.620	I12	I46	0.102	0.109	0.098
95.710	1182.720	I12	C12-Iso-Paraffin	0.468	0.498	0.447
95.890	1184.710	I12	I47	0.215	0.229	0.206
96.007	1186.000	I12	C12-Iso-Paraffin	0.053	0.056	0.050
96.193	1188.060	I12	I48	0.405	0.430	0.386

Detailed Hydrocarbon Analysis Detail Report -

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Hold

Components Listed in Chromatographic Order

Page: 13

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
96.390	1190.230	A12	A5	0.221	0.199	0.221
96.607	1192.600	A12	A6	0.371	0.334	0.372
96.840	1195.160	I12	C12-Iso-Paraffin	0.063	0.056	0.063
97.047	1197.420	I12	C12-Iso-Paraffin	0.204	0.184	0.205
97.283	1200.000	P12	n-dodecane	0.402	0.427	0.384
97.427	1201.960	I13	C13-Iso-Paraffin	0.340	0.362	0.325
97.613	1204.500	I13	C13-Iso-Paraffin	0.126	0.134	0.121
97.900	1208.410	I13	C13-Iso-Paraffin	0.439	0.467	0.419
98.113	1211.300	I13	C13-Iso-Paraffin	0.119	0.127	0.114
98.327	1214.190	I13	C13-Iso-Paraffin	0.159	0.169	0.152
98.553	1217.260	A12	1,3,5-triethylbenzene	0.484	0.435	0.485
98.690	1219.100	I13	C13-Iso-Paraffin	0.089	0.080	0.089
98.853	1221.300	I13	C13-Iso-Paraffin	0.171	0.154	0.171
99.063	1224.120	I13	C13-Iso-Paraffin	0.193	0.173	0.193
99.240	1226.490	I13	C13-Iso-Paraffin	0.337	0.303	0.338
99.493	1229.880	I13	C13-Iso-Paraffin	0.376	0.339	0.377
99.693	1232.550	I13	C13-Iso-Paraffin	0.104	0.094	0.104
99.810	1234.100	I13	C13-Iso-Paraffin	0.129	0.116	0.129
99.923	1235.610	A12	1,2,4-triethylbenzene	0.131	0.118	0.131
100.117	1238.180	I13	C13-Iso-Paraffin	0.085	0.077	0.086
100.373	1241.580	A12	1,4-methyl-n-pentylbenzene	0.569	0.512	0.570
100.640	1245.110	I13	C13-Iso-Paraffin	0.152	0.137	0.152
100.817	1247.440	I13	C13-Iso-Paraffin	0.255	0.229	0.255
101.027	1250.200	I13	C13-Iso-Paraffin	0.076	0.068	0.076
101.143	1251.730	I13	C13-Iso-Paraffin	0.132	0.119	0.133
101.347	1254.400	I13	C13-Iso-Paraffin	0.224	0.202	0.224
101.440	1255.620	A12	n-hexylbenzene	0.180	0.162	0.181
101.590	1257.580	I13	C13-Iso-Paraffin	0.285	0.256	0.286
101.817	1260.540	I13	C13-Iso-Paraffin	0.110	0.099	0.110
101.947	1262.230	I13	C13-Iso-Paraffin	0.287	0.258	0.288
102.170	1265.130	I13	C13-Iso-Paraffin	0.202	0.182	0.202
102.293	1266.730	I13	C13-Iso-Paraffin	0.429	0.386	0.430
102.410	1268.250	I13	C13-Iso-Paraffin	0.164	0.147	0.164
102.537	1269.880	I13	I50	0.180	0.191	0.159
102.790	1273.160	A11	1,2,3,4,5-pentamethylbenzene	0.357	0.286	0.392
102.937	1275.050	I13	C13-Iso-Paraffin	0.108	0.086	0.118
103.123	1277.450	A11	2-methylnaphthalene	0.531	0.417	0.604
103.317	1279.930	A11	1-methylnaphthalene	0.386	0.303	0.438

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/4/2012 11:44:29 AM

RawFile: M:\ExtendedGas Results\CDF\2012100109-001Adat-Detector 1.cdf

Acquired: 10/03/12 16:48:25

Sample: 2012100109-001A JD

Analyzed: 10/4/2012 11:43:21 AM

Processed 584 Peaks

Reference File: H:\DHA Application Software\References\DHA REF1209 JL_09042012.DHA

Comments:

Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 14

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
103.483	1282.070	I13	C13-Iso-Paraffin	0.130	0.102	0.148
103.633	1283.990	I13	C13-Iso-Paraffin	0.178	0.140	0.202
103.737	1285.310	I13	C13-Iso-Paraffin	0.071	0.056	0.081
103.900	1287.390	I13	C13-Iso-Paraffin	0.422	0.332	0.480
104.267	1292.060	I13	C13-Iso-Paraffin	0.419	0.329	0.476
104.533	1295.440	I13	C13-Iso-Paraffin	0.222	0.174	0.252
104.893	1300.000	P13	n-tridecane	0.824	0.873	0.728
105.057	1302.440	I14	C14-Iso-Paraffin	0.222	0.235	0.196
105.193	1304.490	I14	C14-Iso-Paraffin	0.063	0.067	0.056
105.317	1306.330	I14	C14-Iso-Paraffin	0.130	0.137	0.115
105.427	1307.970	I14	C14-Iso-Paraffin	0.214	0.227	0.189
105.643	1311.200	I14	C14-Iso-Paraffin	0.258	0.273	0.228
105.777	1313.180	I14	C14-Iso-Paraffin	0.115	0.121	0.101
105.863	1314.470	I14	C14-Iso-Paraffin	0.210	0.222	0.185
106.057	1317.330	I14	C14-Iso-Paraffin	0.191	0.202	0.168
106.227	1319.850	I14	C14-Iso-Paraffin	0.251	0.266	0.221
106.323	1321.280	I14	C14-Iso-Paraffin	0.306	0.324	0.270
106.630	1325.800	I14	C14-Iso-Paraffin	0.267	0.283	0.236
106.813	1328.500	I14	C14-Iso-Paraffin	0.093	0.099	0.082
107.043	1331.880	I14	C14-Iso-Paraffin	0.393	0.416	0.347
107.287	1335.440	I14	C14-Iso-Paraffin	0.244	0.258	0.215
107.427	1337.490	I14	C14-Iso-Paraffin	0.104	0.110	0.092
107.530	1339.000	I14	C14-Iso-Paraffin	0.148	0.156	0.130
107.773	1342.550	I14	C14-Iso-Paraffin	0.112	0.119	0.099
107.887	1344.200	I14	C14-Iso-Paraffin	0.128	0.135	0.113
108.050	1346.570	I14	C14-Iso-Paraffin	0.270	0.285	0.238
108.173	1348.360	I14	C14-Iso-Paraffin	0.136	0.144	0.120
108.313	1350.390	I14	C14-Iso-Paraffin	0.274	0.290	0.242
108.530	1353.520	I14	C14-Iso-Paraffin	0.291	0.308	0.257
108.730	1356.410	I14	C14-Iso-Paraffin	0.321	0.339	0.283
109.070	1361.310	I14	C14-Iso-Paraffin	0.352	0.373	0.311
109.213	1363.370	I14	C14-Iso-Paraffin	0.215	0.228	0.190
109.413	1366.240	I14	C14-Iso-Paraffin	0.356	0.376	0.314
109.557	1368.290	I14	C14-Iso-Paraffin	0.217	0.229	0.191
109.707	1370.430	I14	C14-Iso-Paraffin	0.141	0.149	0.124
109.887	1373.000	I14	C14-Iso-Paraffin	0.354	0.375	0.313
110.157	1376.850	I14	C14-Iso-Paraffin	0.171	0.181	0.151
110.447	1380.970	I14	C14-Iso-Paraffin	0.948	1.004	0.837

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/4/2012 11:44:29 AM

RawFile: M:\ExtendedGas Results\CDF\2012100109-001Adat-Detector 1.cdf

Acquired: 10/03/12 16:48:25

Sample: 2012100109-001A JD

Analyzed: 10/4/2012 11:43:21 AM

Processed 584 Peaks

Reference File: H:\DHA Application Software\References\DHA REF1209 JL_09042012.DHA

Comments:

Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 15

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
110.773	1385.600	I14	C14-Iso-Paraffin	0.278	0.294	0.245
110.887	1387.200	I14	C14-Iso-Paraffin	0.071	0.075	0.063
111.000	1388.800	I14	C14-Iso-Paraffin	0.158	0.167	0.139
111.270	1392.600	I14	C14-Iso-Paraffin	0.270	0.286	0.238
111.403	1394.480	I14	C14-Iso-Paraffin	0.422	0.447	0.373
111.797	1400.000	P14	C14	1.157	1.215	0.949
111.953	1402.540	I15	C15-Iso-Paraffin	0.238	0.250	0.195
112.260	1407.520	I15	C15-Iso-Paraffin	0.689	0.723	0.565
112.550	1412.210	I15	C15-Iso-Paraffin	0.390	0.409	0.320
112.683	1414.360	I15	C15-Iso-Paraffin	0.241	0.253	0.198
112.847	1416.990	I15	C15-Iso-Paraffin	0.076	0.080	0.063
112.987	1419.250	I15	C15-Iso-Paraffin	0.279	0.293	0.229
113.257	1423.590	I15	C15-Iso-Paraffin	0.185	0.194	0.152
113.407	1425.990	I15	C15-Iso-Paraffin	0.053	0.056	0.044
113.590	1428.930	I15	C15-Iso-Paraffin	0.223	0.234	0.183
113.703	1430.740	I15	C15-Iso-Paraffin	0.182	0.191	0.150
113.913	1434.090	I15	C15-Iso-Paraffin	0.140	0.147	0.115
114.063	1436.480	I15	C15-Iso-Paraffin	0.234	0.245	0.192
114.247	1439.400	I15	C15-Iso-Paraffin	0.490	0.515	0.402
114.450	1442.630	I15	C15-Iso-Paraffin	0.089	0.094	0.073
114.597	1444.950	I15	C15-Iso-Paraffin	0.261	0.274	0.214
115.037	1451.910	I15	C15-Iso-Paraffin	0.792	0.832	0.650
115.270	1455.590	I15	C15-Iso-Paraffin	0.267	0.280	0.219
115.420	1457.950	I15	C15-Iso-Paraffin	0.068	0.071	0.055
115.620	1461.090	I15	C15-Iso-Paraffin	0.335	0.351	0.274
115.780	1463.600	I15	C15-Iso-Paraffin	0.063	0.066	0.051
115.983	1466.790	I15	C15-Iso-Paraffin	1.033	1.085	0.848
116.377	1472.930	I15	C15-Iso-Paraffin	0.410	0.431	0.336
116.537	1475.420	I15	C15-Iso-Paraffin	0.346	0.363	0.284
116.740	1478.590	I15	C15-Iso-Paraffin	0.101	0.106	0.083
116.917	1481.330	I15	C15-Iso-Paraffin	0.178	0.186	0.146
117.123	1484.530	I15	C15-Iso-Paraffin	0.361	0.379	0.296
117.537	1490.920	I15	C15-Iso-Paraffin	0.292	0.306	0.239
117.707	1493.540	I15	C15-Iso-Paraffin	0.235	0.246	0.193
117.867	1496.000	I15	C15-Iso-Paraffin	0.215	0.225	0.176
118.047	1498.770	P15	C15	1.565	1.229	1.242
118.213	1501.660	I16	C16-Iso-Paraffin	0.220	0.173	0.175
118.373	1504.720	I16	C16-Iso-Paraffin	0.123	0.096	0.097

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/4/2012 11:44:29 AM

RawFile: M:\ExtendedGas Results\CDF\2012100109-001Adat-Detector 1.cdf
 Sample: 2012100109-001A JD
 Processed 584 Peaks
 Reference File: H:\DHA Application Software\References\DHA REF1209_JL_09042012.DHA
 Comments:

Acquired: 10/03/12 16:48:25
 Analyzed: 10/4/2012 11:43:21 AM

Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 16

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
118.487	1506.890	I16	C16-Iso-Paraffin	0.127	0.100	0.101
118.727	1511.470	I16	C16-Iso-Paraffin	0.335	0.263	0.266
118.977	1516.230	I16	C16-Iso-Paraffin	0.369	0.289	0.292
119.203	1520.540	I16	C16-Iso-Paraffin	0.153	0.120	0.121
119.307	1522.500	I16	C16-Iso-Paraffin	0.139	0.109	0.110
119.470	1525.600	I16	C16-Iso-Paraffin	0.066	0.052	0.052
119.593	1527.930	I16	C16-Iso-Paraffin	0.058	0.046	0.046
119.760	1531.080	I16	C16-Iso-Paraffin	0.134	0.105	0.106
119.880	1533.350	I16	C16-Iso-Paraffin	0.076	0.060	0.061
120.167	1538.750	I16	C16-Iso-Paraffin	0.280	0.220	0.222
120.393	1543.020	I16	C16-Iso-Paraffin	0.205	0.161	0.162
120.513	1545.270	I16	C16-Iso-Paraffin	0.103	0.081	0.082
120.697	1548.710	I16	C16-Iso-Paraffin	0.222	0.175	0.177
120.803	1550.710	I16	C16-Iso-Paraffin	0.196	0.154	0.155
121.000	1554.390	I16	C16-Iso-Paraffin	0.292	0.229	0.232
121.083	1555.940	I16	C16-Iso-Paraffin	0.298	0.234	0.237
121.200	1558.120	I16	C16-Iso-Paraffin	0.199	0.156	0.158
121.303	1560.050	I16	C16-Iso-Paraffin	0.262	0.205	0.208
121.580	1565.200	I16	C16-Iso-Paraffin	0.283	0.222	0.224
121.840	1570.030	I16	C16-Iso-Paraffin	0.417	0.328	0.331
121.973	1572.500	I16	C16-Iso-Paraffin	0.423	0.332	0.336
122.340	1579.280	I16	C16-Iso-Paraffin	0.134	0.105	0.106
122.543	1583.040	I16	C16-Iso-Paraffin	0.082	0.065	0.065
122.673	1585.430	I16	C16-Iso-Paraffin	0.051	0.040	0.041
122.780	1587.400	I16	C16-Iso-Paraffin	0.047	0.037	0.037
123.080	1592.910	I16	C16-Iso-Paraffin	0.329	0.258	0.261
123.200	1595.110	I16	C16-Iso-Paraffin	0.141	0.111	0.112
123.393	1598.650	P16	C16	1.487	1.540	1.068
123.573	1602.330	I17	C17-Iso-Paraffin	0.186	0.193	0.134
123.737	1605.910	I17	C17-Iso-Paraffin	0.066	0.069	0.048
123.853	1608.450	I17	C17-Iso-Paraffin	0.123	0.127	0.088
124.000	1611.660	I17	C17-Iso-Paraffin	0.239	0.248	0.172
124.207	1616.160	I17	C17-Iso-Paraffin	0.194	0.201	0.139
124.497	1622.470	I17	C17-Iso-Paraffin	0.151	0.156	0.108
124.633	1625.440	I17	C17-Iso-Paraffin	0.057	0.059	0.041
124.780	1628.620	I17	C17-Iso-Paraffin	0.080	0.083	0.058
124.903	1631.290	I17	C17-Iso-Paraffin	0.079	0.082	0.057
125.113	1635.830	I17	C17-Iso-Paraffin	0.095	0.099	0.069

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/4/2012 11:44:29 AM

RawFile: M:\ExtendedGas Results\CDF\2012100109-001Adat-Detector 1.cdf
 Sample: 2012100109-001A JD
 Processed 584 Peaks
 Reference File: H:\DHA Application Software\References\DHA REF1209 JL_09042012.DHA
 Comments:
 Acquired: 10/03/12 16:48:25
 Analyzed: 10/4/2012 11:43:21 AM
 Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 17

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
125.213	1637.990	I17	C17-Iso-Paraffin	0.086	0.089	0.062
125.430	1642.670	I17	C17-Iso-Paraffin	0.087	0.090	0.062
125.597	1646.260	I17	C17-Iso-Paraffin	0.247	0.256	0.177
125.750	1649.550	I17	C17-Iso-Paraffin	0.137	0.141	0.098
125.920	1653.210	I17	C17-Iso-Paraffin	0.534	0.553	0.383
126.247	1660.210	I17	C17-Iso-Paraffin	0.446	0.462	0.321
126.453	1664.630	I17	C17-Iso-Paraffin	0.167	0.173	0.120
126.567	1667.050	I17	C17-Iso-Paraffin	0.149	0.154	0.107
126.817	1672.380	I17	C17-Iso-Paraffin	0.202	0.209	0.145
126.940	1675.010	I17	C17-Iso-Paraffin	0.075	0.078	0.054
127.067	1677.700	I17	C17-Iso-Paraffin	0.043	0.044	0.031
127.150	1679.470	I17	C17-Iso-Paraffin	0.022	0.022	0.015
127.267	1681.950	I17	C17-Iso-Paraffin	0.048	0.050	0.034
127.433	1685.480	I17	C17-Iso-Paraffin	0.140	0.145	0.101
127.580	1688.590	I17	C17-Iso-Paraffin	0.100	0.103	0.072
127.660	1690.280	I17	C17-Iso-Paraffin	0.081	0.084	0.058
127.930	1695.990	I17	C17-Iso-Paraffin	0.151	0.157	0.109
128.050	1698.520	P17	C17	1.258	1.294	0.851
128.193	1701.820	I18	C18-Iso-Paraffin	0.104	0.107	0.071
128.393	1706.800	I18	C18-Iso-Paraffin	0.147	0.152	0.100
128.517	1709.860	I18	C18-Iso-Paraffin	0.698	0.718	0.472
128.660	1713.420	I18	C18-Iso-Paraffin	0.087	0.090	0.059
128.780	1716.400	I18	C18-Iso-Paraffin	0.150	0.154	0.101
128.977	1721.270	I18	C18-Iso-Paraffin	0.102	0.105	0.069
129.060	1723.330	I18	C18-Iso-Paraffin	0.075	0.077	0.051
129.183	1726.380	I18	C18-Iso-Paraffin	0.056	0.057	0.038
129.370	1730.990	I18	C18-Iso-Paraffin	0.136	0.140	0.092
129.483	1733.780	I18	C18-Iso-Paraffin	0.024	0.025	0.017
129.627	1737.310	I18	C18-Iso-Paraffin	0.087	0.090	0.059
129.757	1740.510	I18	C18-Iso-Paraffin	0.019	0.020	0.013
129.943	1745.100	I18	C18-Iso-Paraffin	0.138	0.142	0.094
130.010	1746.730	I18	C18-Iso-Paraffin	0.101	0.104	0.068
130.117	1749.350	I18	C18-Iso-Paraffin	0.138	0.142	0.093
130.287	1753.510	I18	C18-Iso-Paraffin	0.078	0.080	0.053
130.447	1757.430	I18	C18-Iso-Paraffin	0.197	0.202	0.133
130.543	1759.790	I18	C18-Iso-Paraffin	0.120	0.123	0.081
130.647	1762.310	I18	C18-Iso-Paraffin	0.059	0.061	0.040
130.783	1765.650	I18	C18-Iso-Paraffin	0.211	0.217	0.143

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/4/2012 11:44:29 AM

RawFile: M:\ExtendedGas Results\CDF\2012100109-001Adat-Detector 1.cdf
 Sample: 2012100109-001A JD
 Processed 584 Peaks
 Reference File: H:\DHA Application Software\References\DHA REF1209 JL_09042012.DHA
 Comments:

Acquired: 10/03/12 16:48:25
 Analyzed: 10/4/2012 11:43:21 AM

Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 18

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
130.910	1768.730	I18	C18-Iso-Paraffin	0.059	0.061	0.040
131.100	1773.360	I18	C18-Iso-Paraffin	0.144	0.148	0.097
131.317	1778.620	I18	C18-Iso-Paraffin	0.073	0.075	0.049
131.413	1780.970	I18	C18-Iso-Paraffin	0.039	0.040	0.027
131.493	1782.910	I18	C18-Iso-Paraffin	0.035	0.036	0.024
131.587	1785.170	I18	C18-Iso-Paraffin	0.033	0.034	0.022
131.787	1790.010	I18	C18-Iso-Paraffin	0.142	0.146	0.096
132.200	1800.000	P18	C18	0.961	0.991	0.614
132.313	1802.990	I19	C19-Iso-Paraffin	0.054	0.056	0.035
132.453	1806.690	I19	C19-Iso-Paraffin	0.078	0.080	0.050
132.647	1811.790	I19	C19-Iso-Paraffin	0.158	0.163	0.101
132.780	1815.310	I19	C19-Iso-Paraffin	0.384	0.396	0.245
133.067	1822.850	I19	C19-Iso-Paraffin	0.097	0.100	0.062
133.163	1825.390	I19	C19-Iso-Paraffin	0.047	0.049	0.030
133.240	1827.400	I19	C19-Iso-Paraffin	0.063	0.065	0.040
133.460	1833.170	I19	C19-Iso-Paraffin	0.031	0.032	0.020
133.617	1837.270	I19	C19-Iso-Paraffin	0.064	0.066	0.041
133.737	1840.410	I19	C19-Iso-Paraffin	0.090	0.092	0.057
133.867	1843.810	I19	C19-Iso-Paraffin	0.078	0.080	0.050
133.947	1845.900	I19	C19-Iso-Paraffin	0.048	0.049	0.031
134.050	1848.590	I19	C19-Iso-Paraffin	0.076	0.079	0.049
134.220	1853.020	I19	C19-Iso-Paraffin	0.067	0.069	0.043
134.477	1859.700	I19	C19-Iso-Paraffin	0.119	0.123	0.076
134.673	1864.810	I19	C19-Iso-Paraffin	0.124	0.128	0.079
134.870	1869.900	I19	C19-Iso-Paraffin	0.100	0.103	0.064
134.977	1872.670	I19	C19-Iso-Paraffin	0.070	0.072	0.045
135.197	1878.360	I19	C19-Iso-Paraffin	0.048	0.049	0.031
135.337	1881.970	I19	C19-Iso-Paraffin	0.061	0.063	0.039
135.420	1884.120	I19	C19-Iso-Paraffin	0.022	0.023	0.014
135.553	1887.560	I19	C19-Iso-Paraffin	0.035	0.036	0.022
135.697	1891.250	I19	C19-Iso-Paraffin	0.073	0.075	0.047
135.970	1898.280	P19	C19	0.917	0.945	0.556
136.203	1904.850	I20	C20-Iso-Paraffin	0.080	0.083	0.049
136.317	1908.150	I20	C20-Iso-Paraffin	0.055	0.057	0.034
136.520	1914.060	I20	C20-Iso-Paraffin	0.114	0.118	0.069
136.667	1918.310	I20	C20-Iso-Paraffin	0.081	0.084	0.049
136.797	1922.080	I20	C20-Iso-Paraffin	0.030	0.031	0.018
136.903	1925.170	I20	C20-Iso-Paraffin	0.017	0.017	0.010

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/4/2012 11:44:29 AM

RawFile: M:\ExtendedGas Results\CDF\2012100109-001Adat-Detector 1.cdf

Acquired: 10/03/12 16:48:25

Sample: 2012100109-001A JD

Analyzed: 10/4/2012 11:43:21 AM

Processed 584 Peaks

Reference File: H:\DHA Application Software\References\DHA REF1209 JL_09042012.DHA

Comments:

Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 19

<u>Minutes</u>	<u>Index</u>	<u>Group</u>	<u>Component</u>	<u>Mass %</u>	<u>Volume %</u>	<u>Mol %</u>
137.100	1930.860	I20	C20-Iso-Paraffin	0.070	0.072	0.042
137.337	1937.700	I20	C20-Iso-Paraffin	0.043	0.045	0.026
137.453	1941.060	I20	C20-Iso-Paraffin	0.088	0.091	0.054
137.560	1944.140	I20	C20-Iso-Paraffin	0.033	0.034	0.020
137.660	1947.020	I20	C20-Iso-Paraffin	0.070	0.072	0.043
137.823	1951.720	I20	C20-Iso-Paraffin	0.024	0.025	0.015
138.057	1958.420	I20	C20-Iso-Paraffin	0.055	0.057	0.034
138.230	1963.390	I20	C20-Iso-Paraffin	0.101	0.104	0.061
138.390	1967.980	I20	C20-Iso-Paraffin	0.043	0.044	0.026
138.583	1973.510	I20	C20-Iso-Paraffin	0.143	0.148	0.087
138.810	1979.980	I20	C20-Iso-Paraffin	0.040	0.041	0.024
138.953	1984.070	I20	C20-Iso-Paraffin	0.056	0.058	0.034
139.073	1987.490	I20	C20-Iso-Paraffin	0.079	0.081	0.048
139.450	1998.200	P20	C20	0.702	0.713	0.404
139.660	2004.570	I21	C21-Iso-Paraffin	0.028	0.028	0.016
139.870	2011.100	I21	C21-Iso-Paraffin	0.095	0.097	0.055
140.057	2016.900	I21	C21-Iso-Paraffin	0.073	0.074	0.042
140.240	2022.590	I21	C21-Iso-Paraffin	0.058	0.059	0.034
140.367	2026.510	I21	C21-Iso-Paraffin	0.030	0.030	0.017
140.453	2029.200	I21	C21-Iso-Paraffin	0.008	0.009	0.005
140.660	2035.590	I21	C21-Iso-Paraffin	0.062	0.063	0.036
140.793	2039.710	I21	C21-Iso-Paraffin	0.082	0.084	0.047
140.913	2043.410	I21	C21-Iso-Paraffin	0.046	0.047	0.027
141.007	2046.290	I21	C21-Iso-Paraffin	0.057	0.058	0.033
141.167	2051.220	I21	C21-Iso-Paraffin	0.035	0.035	0.020
141.393	2058.200	I21	C21-Iso-Paraffin	0.050	0.051	0.029
141.563	2063.420	I21	C21-Iso-Paraffin	0.066	0.067	0.038
141.667	2066.590	I21	C21-Iso-Paraffin	0.018	0.018	0.010
141.847	2072.110	I21	C21-Iso-Paraffin	0.095	0.096	0.054
141.937	2074.860	I21	C21-Iso-Paraffin	0.030	0.030	0.017
142.113	2080.270	I21	C21-Iso-Paraffin	0.190	0.193	0.110
142.277	2085.260	I21	C21-Iso-Paraffin	0.088	0.089	0.050
142.470	2091.160	I21	C21-Iso-Paraffin	0.030	0.030	0.017
142.693	2097.970	P21	C21	0.450	0.455	0.247
142.860	2103.300	I22	C22-Iso-Paraffin	0.012	0.012	0.007
143.183	2113.980	I22	C22-Iso-Paraffin	0.026	0.026	0.014
143.380	2120.460	I22	C22-Iso-Paraffin	0.037	0.037	0.020
143.923	2138.320	I22	C22-Iso-Paraffin	0.108	0.110	0.059

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/4/2012 11:44:29 AM

RawFile: M:\ExtendedGas Results\CDF\2012100109-001Adat-Detector 1.cdf

Acquired: 10/03/12 16:48:25

Sample: 2012100109-001A JD

Analyzed: 10/4/2012 11:43:21 AM

Processed 584 Peaks

Reference File: H:\DHA Application Software\References\DHA REF1209 JL_09042012.DHA

Comments:

Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 20

<u>Minutes</u>	<u>Index</u>	<u>Group</u>	<u>Component</u>	<u>Mass %</u>	<u>Volume %</u>	<u>Mol %</u>
144.067	2143.020	I22	C22-Iso-Paraffin	0.013	0.013	0.007
144.170	2146.400	I22	C22-Iso-Paraffin	0.028	0.029	0.016
144.317	2151.200	I22	C22-Iso-Paraffin	0.015	0.015	0.008
144.533	2158.280	I22	C22-Iso-Paraffin	0.044	0.044	0.024
144.680	2163.070	I22	C22-Iso-Paraffin	0.052	0.052	0.028
144.827	2167.850	I22	C22-Iso-Paraffin	0.026	0.026	0.014
145.017	2174.040	I22	C22-Iso-Paraffin	0.061	0.061	0.033
145.270	2182.270	I22	C22-Iso-Paraffin	0.094	0.095	0.052
145.750	2197.840	P22	C22	0.363	0.366	0.190
146.113	2209.640	I23	C23-Iso-Paraffin	0.019	0.019	0.010
146.307	2215.910	I23	C23-Iso-Paraffin	0.024	0.025	0.013
146.457	2220.780	I23	C23-Iso-Paraffin	0.030	0.030	0.016
146.587	2224.990	I23	C23-Iso-Paraffin	0.057	0.057	0.030
146.910	2235.440	I23	C23-Iso-Paraffin	0.047	0.047	0.024
147.077	2240.820	I23	C23-Iso-Paraffin	0.108	0.109	0.057
147.340	2249.310	I23	C23-Iso-Paraffin	0.016	0.016	0.008
147.550	2256.060	I23	C23-Iso-Paraffin	0.046	0.046	0.024
147.717	2261.420	I23	C23-Iso-Paraffin	0.049	0.049	0.026
147.913	2267.730	I23	C23-Iso-Paraffin	0.044	0.044	0.023
148.023	2271.250	I23	C23-Iso-Paraffin	0.025	0.026	0.013
148.180	2276.270	I23	C23-Iso-Paraffin	0.019	0.019	0.010
148.463	2285.330	I23	C23-Iso-Paraffin	0.026	0.026	0.013
148.567	2288.630	I23	C23-Iso-Paraffin	0.009	0.009	0.005
148.850	2297.660	P23	C23	0.317	0.318	0.159
149.553	2318.450	I24	C24-Iso-Paraffin	0.014	0.014	0.007
149.670	2321.860	I24	C24-Iso-Paraffin	0.054	0.054	0.027
149.820	2326.240	I24	C24-Iso-Paraffin	0.004	0.004	0.002
150.087	2334.020	I24	C24-Iso-Paraffin	0.024	0.024	0.012
150.467	2345.070	I24	C24-Iso-Paraffin	0.030	0.030	0.015
150.583	2348.460	I24	C24-Iso-Paraffin	0.009	0.009	0.004
150.827	2355.510	I24	C24-Iso-Paraffin	0.033	0.033	0.016
151.013	2360.920	I24	C24-Iso-Paraffin	0.039	0.039	0.020
151.323	2369.880	I24	C24-Iso-Paraffin	0.046	0.046	0.023
151.620	2378.440	I24	C24-Iso-Paraffin	0.017	0.017	0.008
151.980	2388.800	I24	C24-Iso-Paraffin	0.015	0.016	0.008
152.280	2397.410	P24	C24	0.289	0.290	0.139
153.160	2420.090	I25	C25-Iso-Paraffin	0.011	0.012	0.006
153.640	2432.250	I25	C25-Iso-Paraffin	0.015	0.015	0.007

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/4/2012 11:44:29 AM

RawFile: M:\ExtendedGas Results\CDF\2012100109-001Adat-Detector 1.cdf
 Sample: 2012100109-001A JD
 Processed 584 Peaks
 Reference File: H:\DHA Application Software\References\DHA REF1209 JL_09042012.DHA
 Comments:

Acquired: 10/03/12 16:48:25
 Analyzed: 10/4/2012 11:43:21 AM

Normalized to 100.0000%

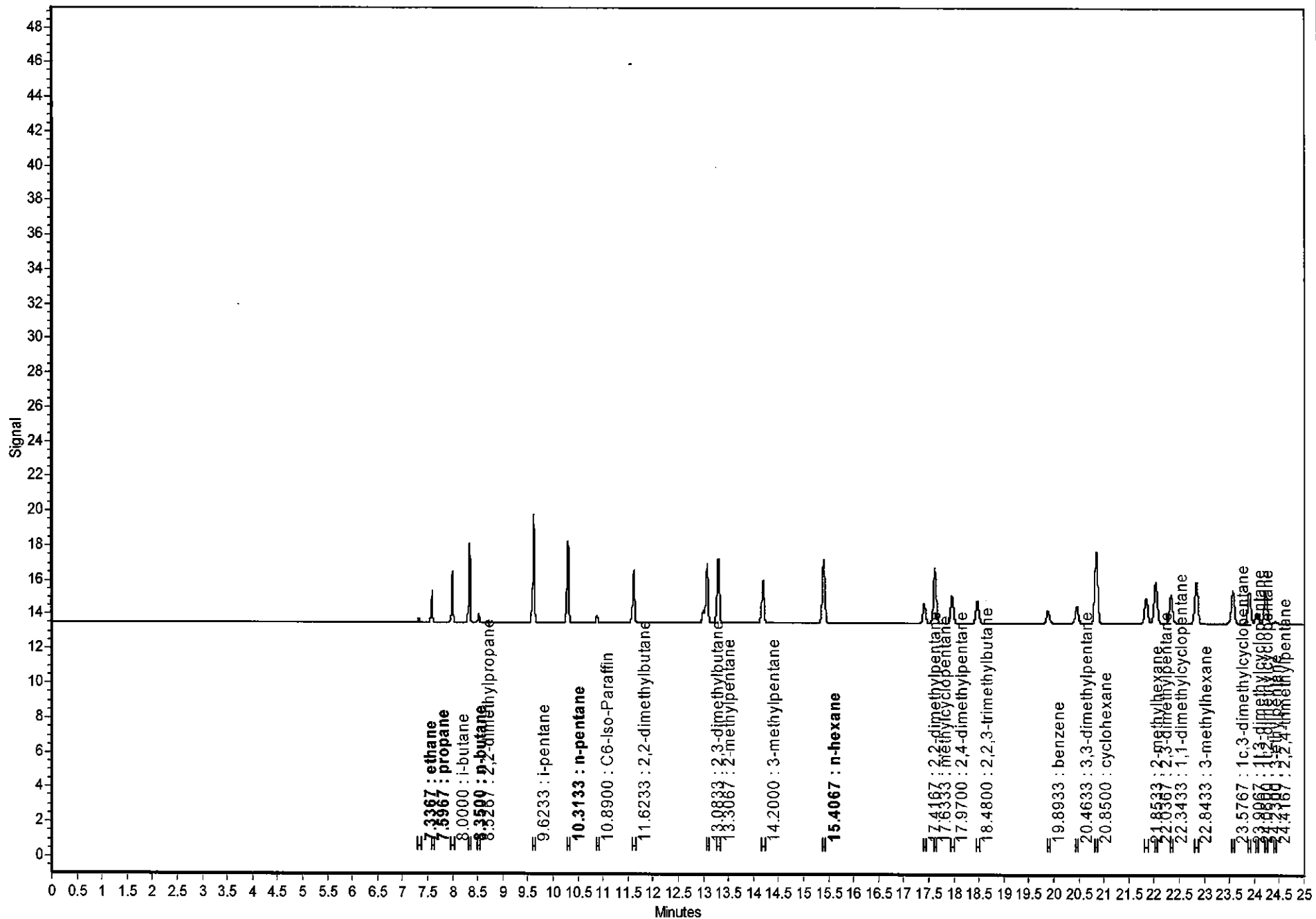
Hold

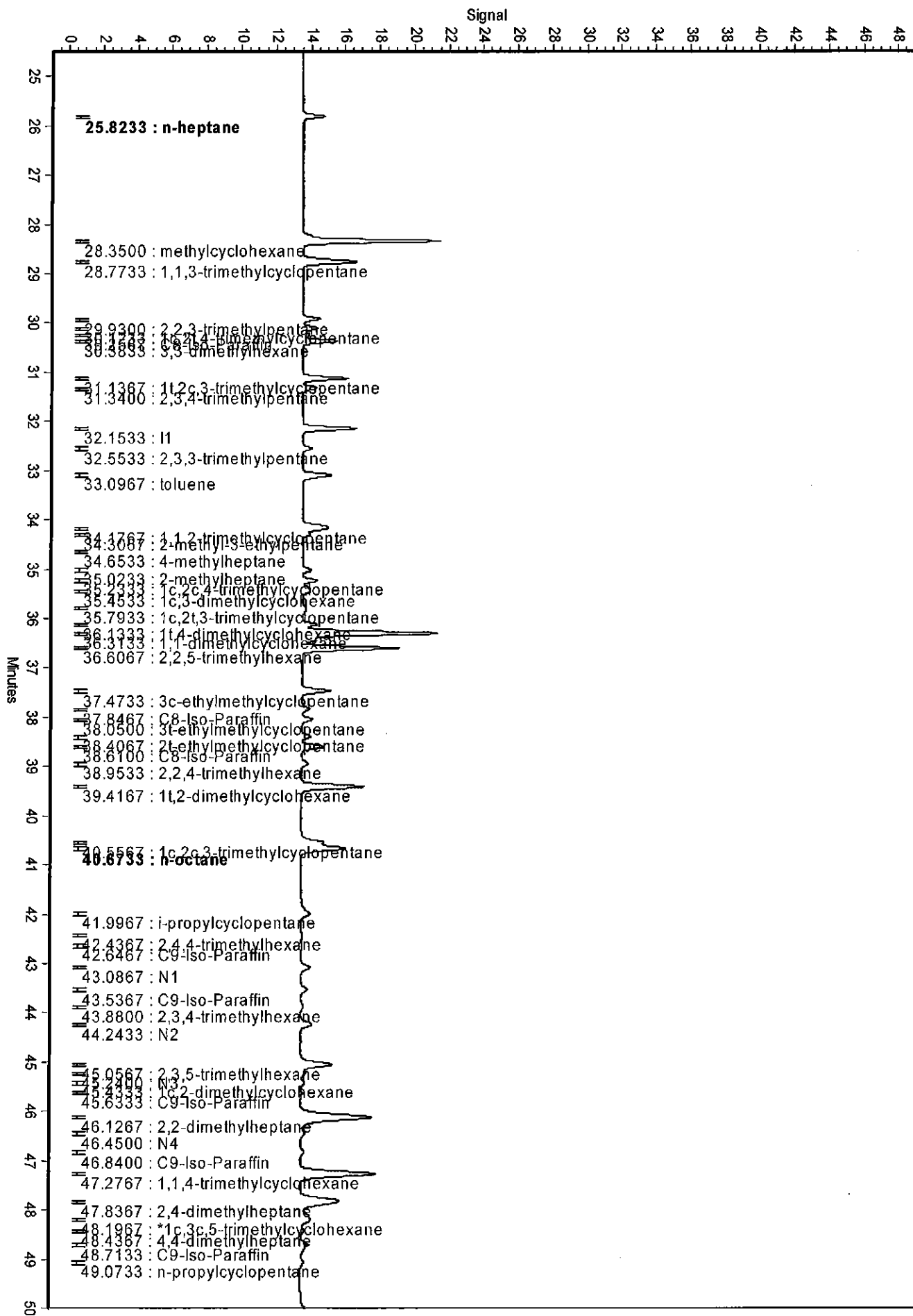
Components Listed in Chromatographic Order

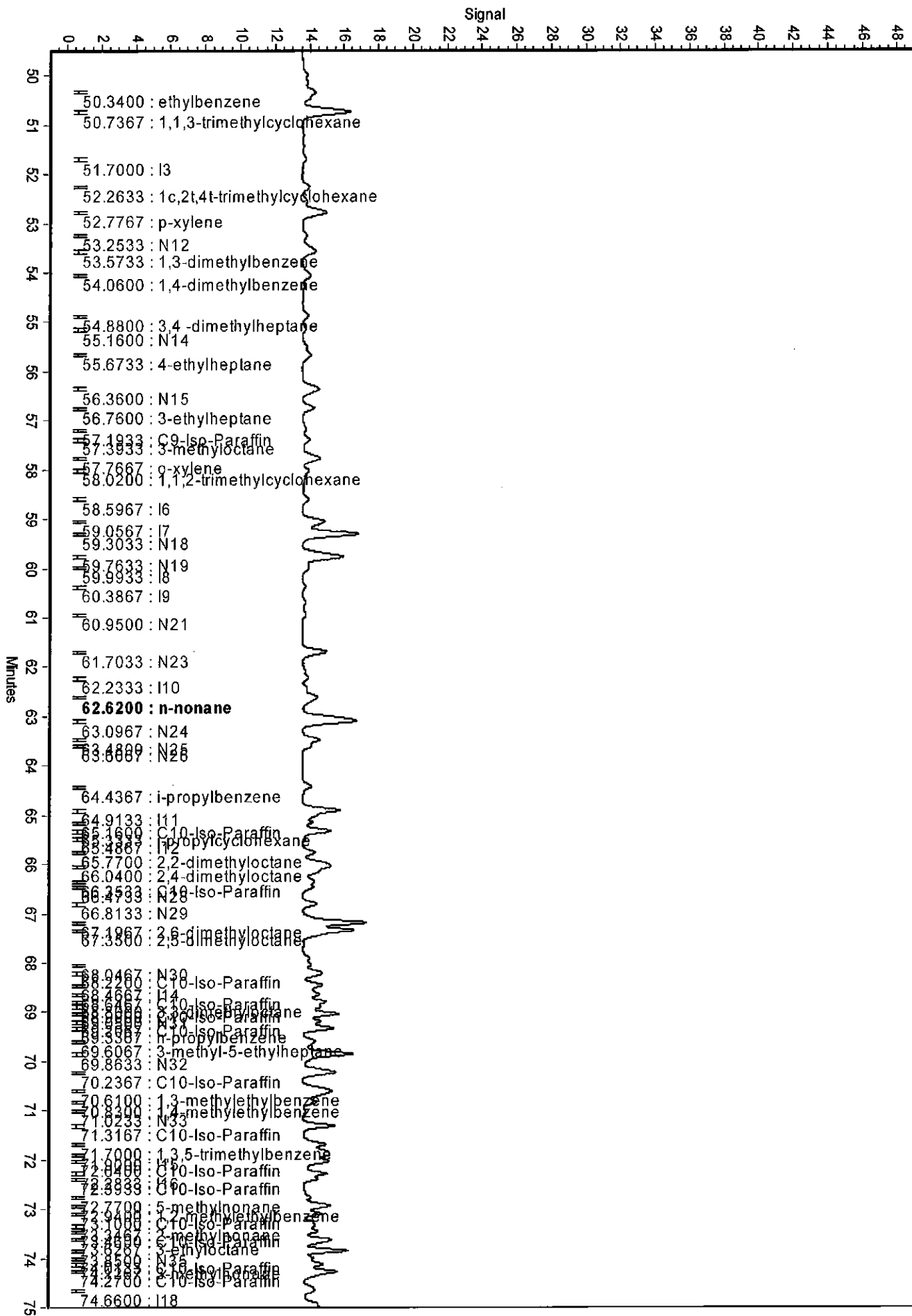
Page: 21

<u>Minutes</u>	<u>Index</u>	<u>Group</u>	<u>Component</u>	<u>Mass %</u>	<u>Volume %</u>	<u>Mol %</u>
154.563	2455.530	I25	C25-Iso-Paraffin	0.006	0.006	0.003
154.760	2460.470	I25	C25-Iso-Paraffin	0.024	0.024	0.012
155.167	2470.660	I25	C25-Iso-Paraffin	0.016	0.016	0.008
156.033	2492.290	I25	C25-Iso-Paraffin	0.020	0.020	0.010
156.233	2497.260	P25	C25	0.236	0.236	0.109
157.800	2531.300	I26	C26-Iso-Paraffin	0.018	0.018	0.008
159.147	2559.970	I26	C26-Iso-Paraffin	0.027	0.027	0.013
160.917	2597.270	P26	C26	0.196	0.196	0.086
166.580	2697.180	P27	C27	0.166	0.165	0.070
173.507	2797.090	P28	C28	0.137	0.136	0.056
182.053	2897.080	P29	C29	0.108	0.107	0.043
192.667	2972.540	+	C30+	0.063	0.065	0.024

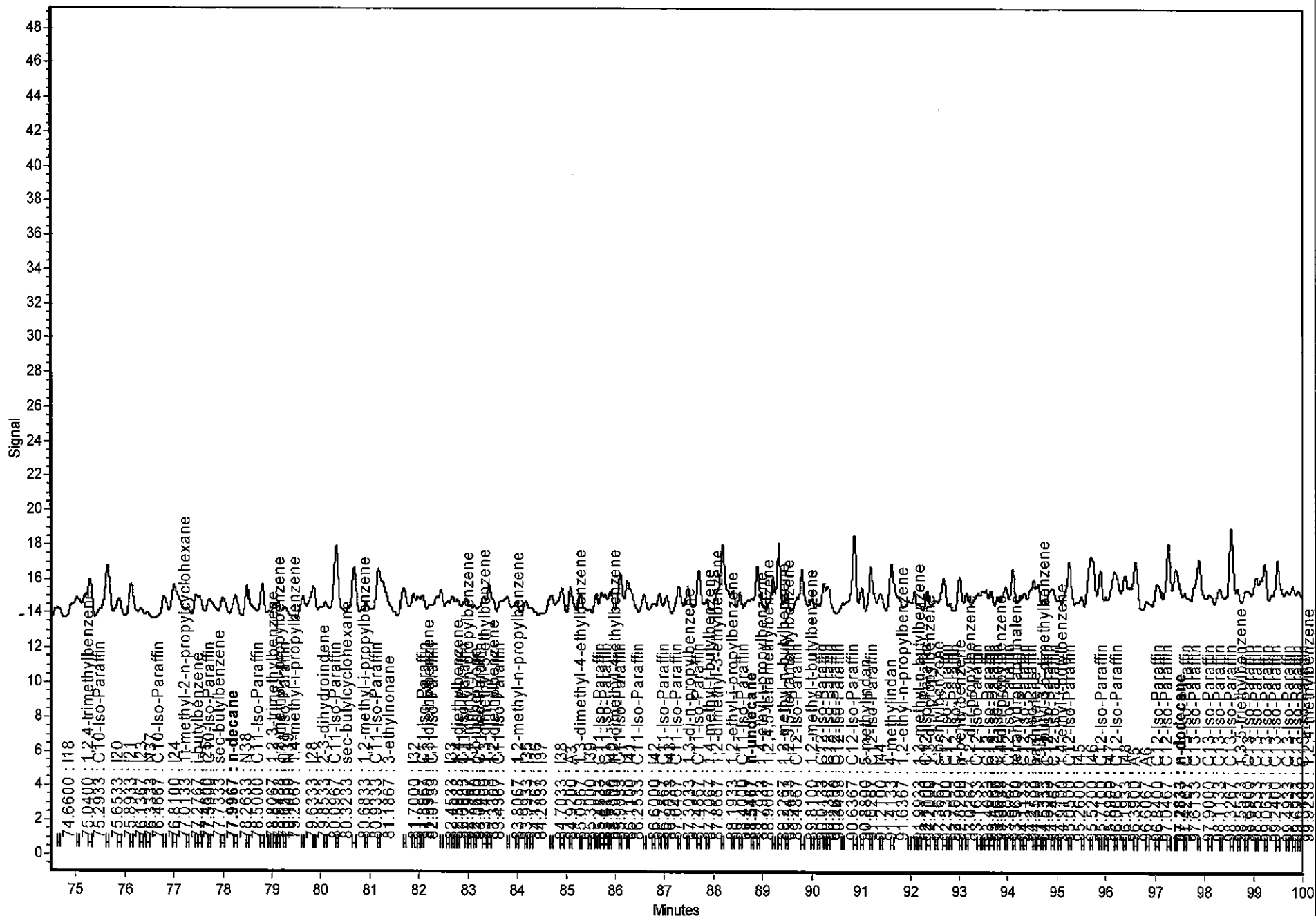
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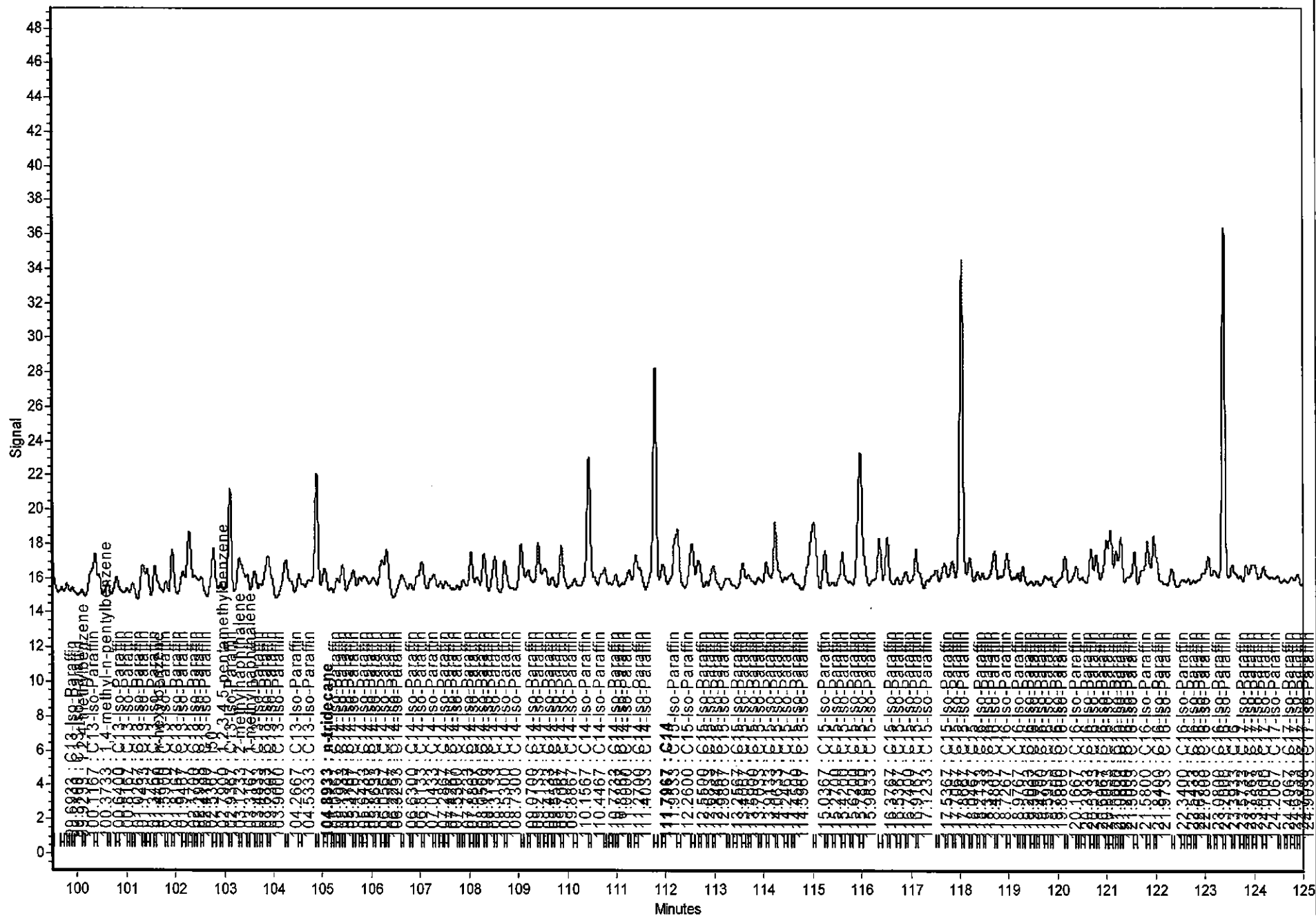


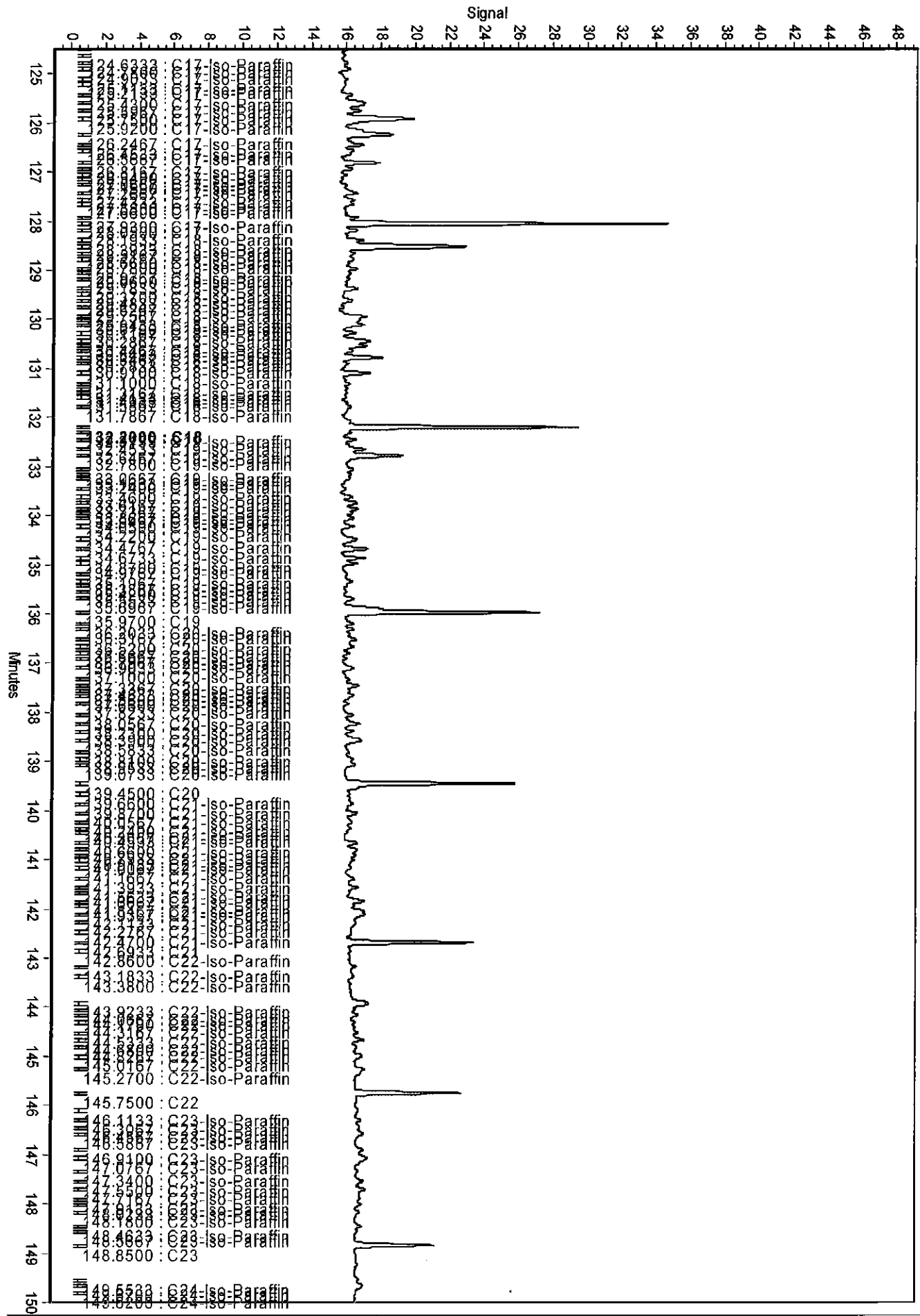


Start Time: 74.500 - End Time: 100.000

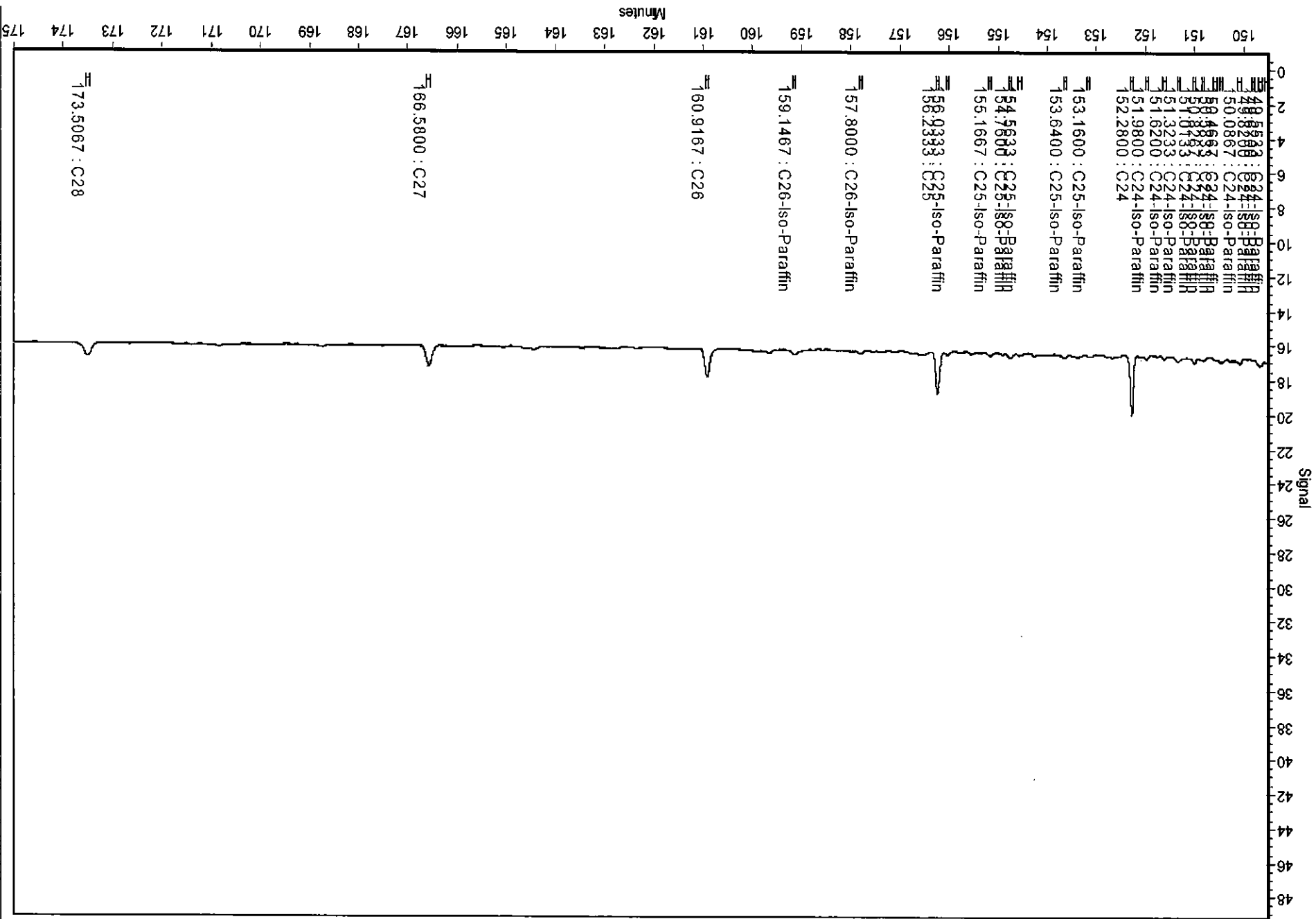


Start Time: 99.500 - End Time: 125.000

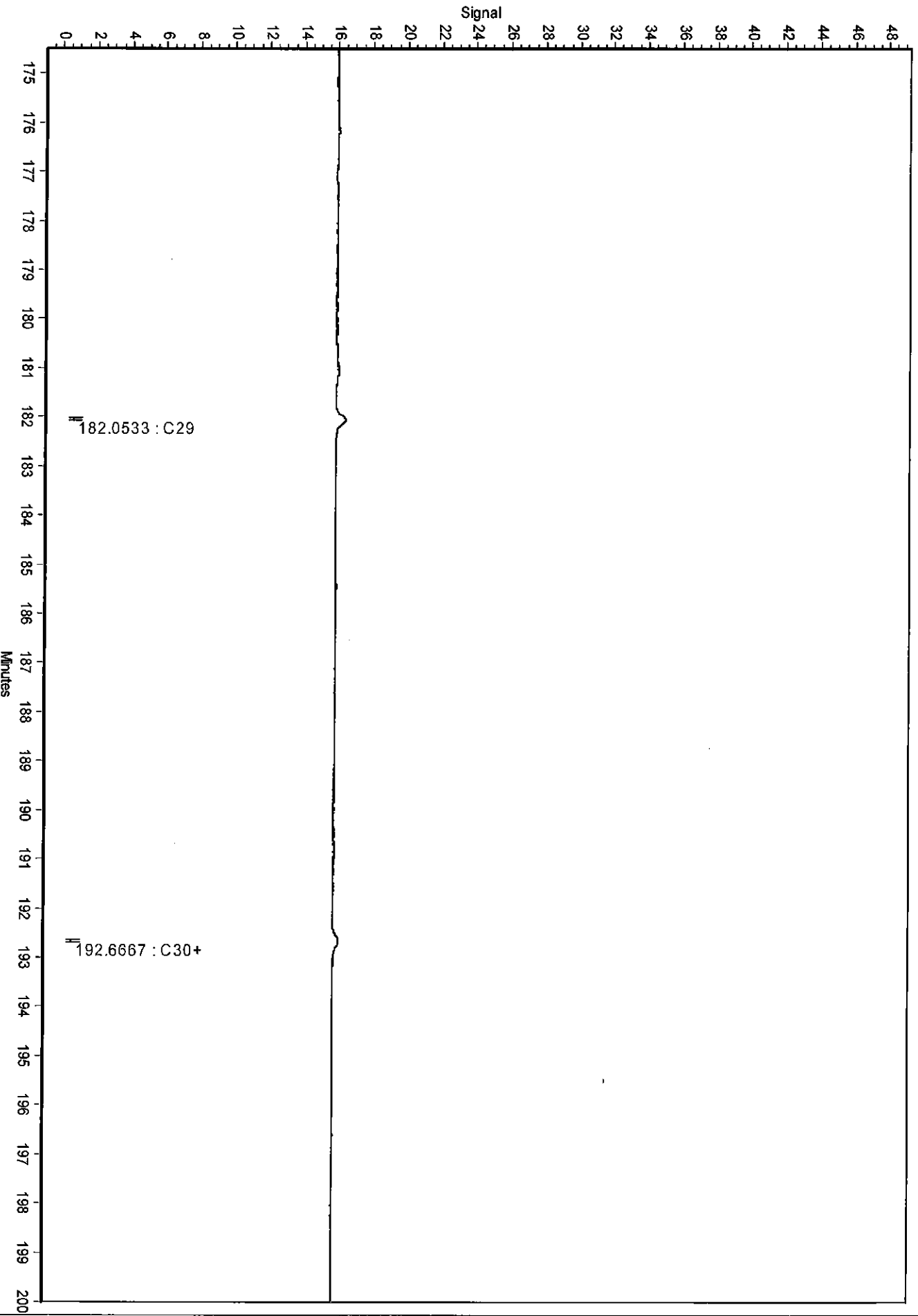




Time (min)	Signal	Retention Time (min)	Peak Label
128	~48	128.000	128.000
133	~25	133.000	133.000
136	~20	136.000	136.000
140	~15	140.000	140.000
143	~10	143.000	143.000
146	~12	146.000	146.000
149	~15	149.000	149.000



2012100109-001A.JD (MExtendedGas Results\CDF\2012100109-001A\data\Detector 1.cdf)
Start Time: 174.500 - End Time: 200.000





Certificate of Analysis

HOUSTON LABORATORIES
8820 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Analysis Number: 2012100109-002AA

Sample ID: 100112-SW-SH01
Project: Oil on Surface
Project Location:

Date of Sample: 10/01/12
Time Sampled: 11:05 AM
Date Sample Analyzed: 10/05/12

Client: Shaw Env. & Infrastructure, Inc.
Address: 4171 Essex Lane
Suite / Department:
City: Baton Rouge
Phone: 225-987-7335
Fax: Ext

Contact(s): Lisa Pultz
State: LA
Zip: 70809
E-Mail:

Color: Dark
Specific Gravity @ 60° F: 0.9149

Odor: Low
API @ 60° F: 23.16

Carbon Range: C4 - C30+

Major Range: C13 - C22

Table with 6 columns: Component, Value, Unit, Component, Value, Unit. Rows include Paraffin, Isoparaffins, Naphthenics, Aromatics, Olefins, Unknowns, 2,2,4-Tri Methylpentane, N-Hexane, Benzene, Ethyl Benzene, Toluene, Meta-Xylene, Para-Xylene, Ortho-Xylene, Xylenes, EDB, EDC, Ethanol, C18, Phytane, 2-Methyl Naphthalene.

Gasoline Range: C4-C13 Indicators: 2,2,4-TMP, Olefins
Diesel Range: C7-C20 Indicators: Pristane, Phytane
Condensate Range: C2-C25+ Indicators: No Olefins, Light & Heavies
Heavy Oil: C20+

Comments: N/A Not Applicable N/D None Detected

Chris Staley (Signature)

Chris Staley
Hydrocarbon Laboratory Manager

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/5/2012 3:18:48 PM

RawFile: M:\ExtendedGas Results\CDF\2012100109-002AAdat-Detector 1.cdf
Sample: 2012100109-002A JD
Processed 429 Peaks
Reference File: H:\DHA Application Software\References\2012100109-002A JD_10042012.DHA

Acquired: 10/05/12 11:50:25
Analyzed: 10/5/2012 3:17:32 PM

Comments:

Normalized to 100.0000%

Oxygenates

<u>Compound</u>	<u>Mass%</u>	<u>Mass% Oxygen</u>	<u>Vol%</u>
No Oxy Compounds Found	0.00	0.00	0.00

Molecular Weight and Relative Density Data

<u>Group</u>	<u>Avg Mw.</u>	<u>Avg Rel. Density</u>
C1	0.000	0.000
C2	0.000	0.000
C3	0.000	0.000
C4	58.124	0.557
C5	72.151	0.621
C6	85.640	0.682
C7	99.123	0.723
C8	112.876	0.750
C9	127.043	0.738
C10	134.195	0.877
C11	146.546	0.950
C12	163.526	0.834
C13	159.127	0.886
C14	185.664	0.757
C15	199.082	0.784
C16	207.077	0.987
C17	227.947	0.774
C18	241.780	0.778
C19	256.672	0.777
C20	270.521	0.779
C21	284.211	0.789
C22	299.150	0.792
C23	313.746	0.795
C24	328.335	0.797
C25	342.699	0.799
C26	360.071	0.800
C27	381.290	0.804
C28	393.820	0.805

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/5/2012 3:18:48 PM

RawFile: M:\ExtendedGas Results\CDF\2012100109-002AAdat-Detector 1.cdf
Sample: 2012100109-002A JD
Processed 429 Peaks
Reference File: H:\DHA Application Software\References\2012100109-002A JD_10042012.DHA

Acquired: 10/05/12 11:50:25
Analyzed: 10/5/2012 3:17:32 PM

Comments:

Normalized to 100.0000%

C29	412.000	0.808
Total Sample:	222.00	0.81

Octane Number

Research Octane Number: 89.90
(Calculated from Individual Component Values)

Contribution to Total by:

Paraffins:	11.50
Iso-Paraffins:	76.40
Aromatics:	1.69
Napthenes:	0.24
Olefins:	0.00
Oxygenates:	0.00

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/5/2012 3:18:48 PM

RawFile: M:\ExtendedGas Results\CDF\2012100109-002AAdat-Detector 1.cdf	Acquired: 10/05/12 11:50:25
Sample: 2012100109-002A JD	Analyzed: 10/5/2012 3:17:32 PM
Processed 429 Peaks	
Reference File: H:\DHA Application Software\References\2012100109-002A JD_10042012.DHA	
Comments:	Normalized to 100.0000%

Totals by Group Type & Carbon Number (in Mass Percent)

	<u>Paraffins</u>	<u>I-Paraffins</u>	<u>Olefins</u>	<u>Napthenes</u>	<u>Aromatics</u>	<u>Unknowns</u>	<u>Total</u>
C1	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C2	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C3	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C4	0.00000	0.00773	0.00000	0.00000	0.00000	0.00000	0.00773
C5	0.00693	0.02102	0.00000	0.00000	0.00000	0.00000	0.02794
C6	0.00904	0.05251	0.00000	0.02190	0.00000	0.00000	0.08344
C7	0.00000	0.05723	0.00000	0.06493	0.00000	0.00000	0.12216
C8	0.02453	0.03365	0.00000	0.11741	0.00000	0.00000	0.17558
C9	0.00000	0.08341	0.00000	0.02560	0.01103	0.00000	0.12005
C10	0.00000	0.04675	0.00000	0.04329	0.31316	0.00000	0.40320
C11	0.00000	0.05505	0.00000	0.00000	0.77285	0.00000	0.82790
C12	0.10479	0.69638	0.00000	0.00926	0.78516	0.00000	1.59561
C13	0.37650	2.55587	0.00000	0.00000	0.00000	0.00000	2.93237
C14	0.79831	7.29445	0.00000	0.00000	0.00000	0.00000	8.09276
C15	1.57992	13.08410	0.00000	0.00000	0.00000	0.00000	14.66402
C16	1.61554	13.64409	0.00000	0.00000	0.00000	0.00000	15.25963
C17	1.55909	12.29450	0.00000	0.00000	0.00000	0.00000	13.85359
C18	1.20175	11.12339	0.00000	0.00000	0.00000	0.00000	12.32515
C19	1.50822	7.84104	0.00000	0.00000	0.00000	0.00000	9.34925
C20	0.93790	5.39018	0.00000	0.00000	0.00000	0.00000	6.32808
C21	0.62258	4.44661	0.00000	0.00000	0.00000	0.00000	5.06918
C22	0.63652	2.72109	0.00000	0.00000	0.00000	0.00000	3.35762
C23	0.39122	1.30020	0.00000	0.00000	0.00000	0.00000	1.69142
C24	0.37304	1.00003	0.00000	0.00000	0.00000	0.00000	1.37308
C25	0.29689	0.70693	0.00000	0.00000	0.00000	0.00000	1.00381
C26	0.25637	0.32872	0.00000	0.00000	0.00000	0.00000	0.58510
C27	0.21923	0.05071	0.00000	0.00000	0.00000	0.00000	0.26994
C28	0.17165	0.07049	0.00000	0.00000	0.00000	0.00000	0.24214
C29	0.16748	0.00000	0.00000	0.00000	0.00000	0.00000	0.16748
Total:	12.85752	84.90612	0.00000	0.28239	1.88220	0.00000	99.92824
Oxygenates		0.00000	Total C30+:		0.07176		
Total Unknowns:		0.00000	Grand Total:		100.00000		

Totals by Group Type & Carbon Number (in Volume Percent)

	<u>Paraffins</u>	<u>I-Paraffins</u>	<u>Olefins</u>	<u>Napthenes</u>	<u>Aromatics</u>	<u>Unknowns</u>	<u>Total</u>
C1	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C2	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C3	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C4	0.00000	0.01123	0.00000	0.00000	0.00000	0.00000	0.01123
C5	0.00896	0.02747	0.00000	0.00000	0.00000	0.00000	0.03642
C6	0.01110	0.06475	0.00000	0.02322	0.00000	0.00000	0.09907
C7	0.00000	0.06747	0.00000	0.06929	0.00000	0.00000	0.13675
C8	0.02827	0.03803	0.00000	0.12327	0.00000	0.00000	0.18958

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/5/2012 3:18:48 PM

RawFile: M:\ExtendedGas Results\CDF\2012100109-002AAdat-Detector 1.cdf

Acquired: 10/05/12 11:50:25

Sample: 2012100109-002A JD

Analyzed: 10/5/2012 3:17:32 PM

Processed 429 Peaks

Reference File: H:\DHA Application Software\References\2012100109-002A JD_10042012.DHA

Comments:

Normalized to 100.0000%

C9	0.00000	0.09489	0.00000	0.02685	0.00999	0.00000	0.13172
C10	0.00000	0.05149	0.00000	0.04325	0.27768	0.00000	0.37242
C11	0.00000	0.06024	0.00000	0.00000	0.64563	0.00000	0.70587
C12	0.11269	0.71252	0.00000	0.00938	0.71448	0.00000	1.54906
C13	0.40305	2.27617	0.00000	0.00000	0.00000	0.00000	2.67922
C14	0.84743	7.80872	0.00000	0.00000	0.00000	0.00000	8.65614
C15	1.25422	13.88904	0.00000	0.00000	0.00000	0.00000	15.14326
C16	1.69164	10.83137	0.00000	0.00000	0.00000	0.00000	12.52301
C17	1.62267	12.87365	0.00000	0.00000	0.00000	0.00000	14.49633
C18	1.25270	11.57702	0.00000	0.00000	0.00000	0.00000	12.82971
C19	1.57094	8.17341	0.00000	0.00000	0.00000	0.00000	9.74434
C20	0.96303	5.61433	0.00000	0.00000	0.00000	0.00000	6.57735
C21	0.63676	4.56574	0.00000	0.00000	0.00000	0.00000	5.20249
C22	0.64880	2.78306	0.00000	0.00000	0.00000	0.00000	3.43186
C23	0.39752	1.32528	0.00000	0.00000	0.00000	0.00000	1.72280
C24	0.37801	1.01613	0.00000	0.00000	0.00000	0.00000	1.39413
C25	0.30050	0.71633	0.00000	0.00000	0.00000	0.00000	1.01683
C26	0.25949	0.33272	0.00000	0.00000	0.00000	0.00000	0.59221
C27	0.22052	0.05132	0.00000	0.00000	0.00000	0.00000	0.27185
C28	0.17266	0.07091	0.00000	0.00000	0.00000	0.00000	0.24357
C29	0.16778	0.00000	0.00000	0.00000	0.00000	0.00000	0.16778
Total:	12.94871	85.03328	0.00000	0.29526	1.64777	0.00000	99.92502

Oxygenates 0.00000

Total C30+: 0.07498

Total Unknowns: 0.00000

Grand Total: 100.00000

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/5/2012 3:18:48 PM

RawFile: M:\ExtendedGas Results\CDF\2012100109-002AAdat-Detector 1.cdf

Acquired: 10/05/12 11:50:25

Sample: 2012100109-002A JD

Analyzed: 10/5/2012 3:17:32 PM

Processed 429 Peaks

Reference File: H:\DHA Application Software\References\2012100109-002A JD_10042012.DHA

Normalized to 100.0000%

Comments:

Totals by Group Type & Carbon Number (in Mol Percent)

	<u>Paraffins</u>	<u>I-Paraffins</u>	<u>Olefins</u>	<u>Napthenes</u>	<u>Aromatics</u>	<u>Unknowns</u>	<u>Total</u>
C1	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C2	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C3	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
C4	0.00000	0.02958	0.00000	0.00000	0.00000	0.00000	0.02958
C5	0.02135	0.06478	0.00000	0.00000	0.00000	0.00000	0.08613
C6	0.02332	0.13551	0.00000	0.05786	0.00000	0.00000	0.21668
C7	0.00000	0.12701	0.00000	0.14706	0.00000	0.00000	0.27406
C8	0.04776	0.06550	0.00000	0.23268	0.00000	0.00000	0.34594
C9	0.00000	0.14463	0.00000	0.04510	0.02041	0.00000	0.21014
C10	0.00000	0.07306	0.00000	0.06864	0.52649	0.00000	0.66819
C11	0.00000	0.07833	0.00000	0.00000	1.17806	0.00000	1.25639
C12	0.13682	0.94487	0.00000	0.01224	1.07605	0.00000	2.16998
C13	0.45414	3.64406	0.00000	0.00000	0.00000	0.00000	4.09820
C14	0.89489	8.79872	0.00000	0.00000	0.00000	0.00000	9.69361
C15	1.71395	14.66701	0.00000	0.00000	0.00000	0.00000	16.38096
C16	1.58658	14.80158	0.00000	0.00000	0.00000	0.00000	16.38816
C17	1.44182	12.07413	0.00000	0.00000	0.00000	0.00000	13.51595
C18	1.05009	10.28669	0.00000	0.00000	0.00000	0.00000	11.33679
C19	1.24907	6.85151	0.00000	0.00000	0.00000	0.00000	8.10058
C20	0.73818	4.46404	0.00000	0.00000	0.00000	0.00000	5.20222
C21	0.46683	3.49974	0.00000	0.00000	0.00000	0.00000	3.96656
C22	0.45574	2.04035	0.00000	0.00000	0.00000	0.00000	2.49609
C23	0.26800	0.93092	0.00000	0.00000	0.00000	0.00000	1.19892
C24	0.24496	0.68506	0.00000	0.00000	0.00000	0.00000	0.93002
C25	0.18721	0.46421	0.00000	0.00000	0.00000	0.00000	0.65142
C26	0.15410	0.20728	0.00000	0.00000	0.00000	0.00000	0.36137
C27	0.12697	0.03048	0.00000	0.00000	0.00000	0.00000	0.15745
C28	0.09591	0.04083	0.00000	0.00000	0.00000	0.00000	0.13674
C29	0.09041	0.00000	0.00000	0.00000	0.00000	0.00000	0.09041
Total:	11.44809	85.14985	0.00000	0.56358	2.80101	0.00000	99.96254
Oxygenates	0.00000			Total C30+:	0.03746		
Total Unknowns:	0.00000			Grand Total:	100.00000		

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/5/2012 3:18:48 PM

RawFile: M:\ExtendedGas Results\CDF\2012100109-002AAdat-Detector 1.cdf
 Sample: 2012100109-002A JD
 Processed 429 Peaks
 Reference File: H:\DHA Application Software\References\2012100109-002A JD_10042012.DHA
 Comments:

Acquired: 10/05/12 11:50:25
 Analyzed: 10/5/2012 3:17:32 PM
 Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 7

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
8.003	362.050	I4	i-butane	0.008	0.011	0.030
9.627	473.540	I5	i-pentane	0.021	0.027	0.065
10.317	500.000	P5	n-pentane	0.007	0.009	0.021
11.627	536.200	I6	2,2-dimethylbutane	0.013	0.017	0.034
13.083	565.570	I6	2,3-dimethylbutane	0.015	0.018	0.038
13.303	569.360	I6	2-methylpentane	0.014	0.018	0.036
14.207	583.620	I6	3-methylpentane	0.010	0.013	0.027
15.410	600.000	P6	n-hexane	0.009	0.011	0.023
17.413	626.640	I7	2,2-dimethylpentane	0.007	0.008	0.015
17.633	629.240	N6	methylcyclopentane	0.011	0.012	0.029
17.977	633.190	I7	2,4-dimethylpentane	0.011	0.013	0.023
18.473	638.690	I7	2,2,3-trimethylbutane	0.006	0.007	0.014
20.860	662.130	N6	cyclohexane	0.011	0.012	0.029
22.047	672.300	I7	2,3-dimethylpentane	0.014	0.017	0.032
22.360	674.850	N7	1,1-dimethylcyclopentane	0.013	0.014	0.030
22.853	678.760	I7	3-methylhexane	0.010	0.012	0.023
23.587	684.350	N7	1c,3-dimethylcyclopentane	0.010	0.011	0.023
23.913	686.760	N7	1t,3-dimethylcyclopentane	0.011	0.012	0.025
24.230	689.050	I7	3-ethylpentane	0.009	0.011	0.021
28.360	721.750	N7	methylcyclohexane	0.030	0.032	0.068
28.783	725.130	N8	1,1,3-trimethylcyclopentane	0.019	0.020	0.037
29.943	734.060	I8	2,2,3-trimethylpentane	0.006	0.007	0.011
30.383	737.330	I8	3,3-dimethylhexane	0.008	0.009	0.015
31.140	742.810	N8	1t,2c,3-trimethylcyclopentane	0.013	0.013	0.025
31.333	744.180	I8	2,3,4-trimethylpentane	0.006	0.007	0.012
32.157	749.900	I8	I1	0.014	0.016	0.027
34.137	762.930	N8	1,1,2-trimethylcyclopentane	0.009	0.010	0.018
36.323	776.240	N8	1,1-dimethylcyclohexane	0.041	0.042	0.080
36.623	777.990	I9	2,2,5-trimethylhexane	0.026	0.030	0.045
37.470	782.830	N8	3c-ethylmethylcyclopentane	0.009	0.009	0.017
38.613	789.160	N8	2t-ethylmethylcyclopentane	0.007	0.007	0.013
39.417	793.470	N8	1t,2-dimethylcyclohexane	0.021	0.022	0.042
40.673	800.000	P8	n-octane	0.025	0.028	0.048
45.060	824.420	I9	2,3,5-trimethylhexane	0.009	0.011	0.016
46.130	829.950	I9	2,2-dimethylheptane	0.029	0.034	0.051
47.283	835.740	N9	1,1,4-trimethylcyclohexane	0.026	0.027	0.045
47.807	838.310	I9	2,4-dimethylheptane	0.019	0.021	0.032
67.347	933.060	I10	2,5-dimethyloctane	0.023	0.026	0.036

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/5/2012 3:18:48 PM

RawFile: M:\ExtendedGas Results\CDF\2012100109-002AAdat-Detector 1.cdf

Acquired: 10/05/12 11:50:25

Sample: 2012100109-002A JD

Analyzed: 10/5/2012 3:17:32 PM

Processed 429 Peaks

Reference File: H:\DHA Application Software\References\2012100109-002A JD_10042012.DHA

Comments:

Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 8

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
73.837	974.450	I10	3-ethyloctane	0.008	0.009	0.013
75.637	985.220	N10	i-butylcyclohexane	0.008	0.008	0.013
76.127	988.100	I10	I22	0.015	0.017	0.024
78.807	1006.460	A9	1,2,3-trimethylbenzene	0.011	0.010	0.020
80.310	1021.900	N10	sec-butylcyclohexane	0.035	0.035	0.056
80.680	1025.660	I11	I30	0.020	0.022	0.028
86.107	1078.620	I11	I41	0.021	0.023	0.030
86.243	1079.900	A10	1,3-dimethyl-2-ethylbenzene	0.029	0.026	0.047
86.583	1083.100	I11	I42	0.014	0.016	0.020
87.297	1089.740	A12	1,3-di-n-propylbenzene	0.012	0.011	0.017
87.487	1091.510	A11	1,4-methyl-t-butylbenzene	0.015	0.014	0.023
87.693	1093.420	A10	1,2-dimethyl-3-ethylbenzene	0.031	0.028	0.051
88.187	1097.960	A11	1,2-ethyl-i-propylbenzene	0.047	0.043	0.071
88.547	1101.630	A11	1,4-ethyl-i-propylbenzene	0.005	0.005	0.008
88.897	1105.780	A10	1,2,4,5-tetramethylbenzene	0.017	0.015	0.028
89.217	1109.550	A10	1,2,3,5-tetramethylbenzene	0.030	0.028	0.050
89.333	1110.930	I12	C12-Iso-Paraffin	0.042	0.038	0.069
89.473	1112.570	I12	C12-Iso-Paraffin	0.015	0.013	0.024
89.803	1116.440	A11	1,2-methyl-t-butylbenzene	0.065	0.059	0.097
90.253	1121.680	I12	C12-Iso-Paraffin	0.040	0.037	0.060
90.870	1128.820	A10	5-methylindan	0.045	0.041	0.076
91.023	1130.590	I12	I44	0.031	0.033	0.040
91.203	1132.660	A10	4-methylindan	0.061	0.056	0.103
91.417	1135.110	A11	1,2-ethyl-n-propylbenzene	0.025	0.023	0.037
91.633	1137.590	A10	2-methylindan	0.038	0.034	0.065
92.093	1142.840	A12	1,3-di-i-propylbenzene	0.009	0.008	0.012
92.350	1145.750	A11	s-pentylbenzene	0.021	0.019	0.031
92.687	1149.560	A11	n-pentylbenzene	0.069	0.063	0.104
92.810	1150.960	N12	1t-M-2-(4-MP)cyclopentane	0.009	0.009	0.012
93.017	1153.290	A12	1,2-di-i-propylbenzene	0.040	0.036	0.054
93.937	1163.580	A10	tetrahydronaphthalene	0.017	0.014	0.029
94.107	1165.470	A10	naphthalene	0.045	0.035	0.078
94.533	1170.200	A12	1-t-butyl-3,5-dimethylbenzene	0.058	0.053	0.080
94.617	1171.120	I12	C12-Iso-Paraffin	0.035	0.032	0.048
94.843	1173.620	A12	1,4-ethyl-t-butylbenzene	0.037	0.034	0.051
95.250	1178.090	I12	I45	0.081	0.087	0.106
95.427	1180.030	I12	I46	0.017	0.018	0.022
95.700	1183.020	I12	C12-Iso-Paraffin	0.146	0.157	0.191

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/5/2012 3:18:48 PM

RawFile: M:\ExtendedGas Results\CDF\2012100109-002AAdat-Detector 1.cdf

Acquired: 10/05/12 11:50:25

Sample: 2012100109-002A JD

Analyzed: 10/5/2012 3:17:32 PM

Processed 429 Peaks

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Comments:

Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 9

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
95.887	1185.050	I12	I47	0.065	0.070	0.085
96.153	1187.950	I12	I48	0.137	0.147	0.179
96.390	1190.510	A12	A5	0.064	0.058	0.088
96.587	1192.640	A12	A6	0.146	0.133	0.201
97.040	1197.530	I12	C12-Iso-Paraffin	0.088	0.080	0.120
97.270	1200.000	P12	n-dodecane	0.105	0.113	0.137
97.413	1201.950	I13	C13-Iso-Paraffin	0.100	0.107	0.130
97.893	1208.490	I13	C13-Iso-Paraffin	0.111	0.119	0.145
98.107	1211.390	I13	C13-Iso-Paraffin	0.029	0.031	0.037
98.327	1214.370	I13	C13-Iso-Paraffin	0.045	0.048	0.058
98.547	1217.340	A12	1,3,5-triethylbenzene	0.128	0.116	0.175
98.670	1219.000	I13	C13-Iso-Paraffin	0.038	0.034	0.052
99.053	1224.160	I13	C13-Iso-Paraffin	0.158	0.144	0.217
99.223	1226.440	I13	C13-Iso-Paraffin	0.070	0.064	0.096
99.480	1229.870	A12	1,2,4-triethylbenzene	0.106	0.097	0.146
99.680	1232.540	I13	C13-Iso-Paraffin	0.017	0.016	0.024
100.360	1241.560	A12	1,4-methyl-n-pentylbenzene	0.118	0.108	0.162
100.447	1242.710	I13	C13-Iso-Paraffin	0.045	0.041	0.061
100.630	1245.130	I13	C13-Iso-Paraffin	0.019	0.017	0.025
100.810	1247.500	I13	C13-Iso-Paraffin	0.035	0.032	0.049
101.137	1251.800	I13	C13-Iso-Paraffin	0.024	0.022	0.033
101.337	1254.420	I13	C13-Iso-Paraffin	0.129	0.117	0.176
101.423	1255.550	A12	n-hexylbenzene	0.066	0.060	0.090
101.587	1257.690	I13	C13-Iso-Paraffin	0.107	0.097	0.147
101.803	1260.510	I13	C13-Iso-Paraffin	0.051	0.047	0.070
101.940	1262.290	I13	C13-Iso-Paraffin	0.106	0.096	0.145
102.157	1265.110	I13	C13-Iso-Paraffin	0.105	0.095	0.143
102.283	1266.750	I13	C13-Iso-Paraffin	0.276	0.251	0.378
102.520	1269.810	I13	I50	0.105	0.113	0.127
102.777	1273.130	A11	1,2,3,4,5-pentamethylbenzene	0.175	0.142	0.262
102.920	1274.970	I13	C13-Iso-Paraffin	0.068	0.055	0.102
103.110	1277.420	A11	2-methylnaphthalene	0.246	0.195	0.382
103.303	1279.900	A11	1-methylnaphthalene	0.105	0.083	0.163
103.393	1281.050	I13	C13-Iso-Paraffin	0.152	0.120	0.235
103.623	1284.000	I13	C13-Iso-Paraffin	0.098	0.078	0.152
103.887	1287.360	I13	C13-Iso-Paraffin	0.331	0.263	0.514
104.253	1292.020	I13	C13-Iso-Paraffin	0.176	0.139	0.273
104.360	1293.370	I13	C13-Iso-Paraffin	0.054	0.042	0.083

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/5/2012 3:18:48 PM

RawFile: M:\ExtendedGas Results\CDF\2012100109-002AAdat-Detector 1.cdf
 Sample: 2012100109-002A JD
 Processed 429 Peaks
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 Comments: Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 10

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
104.520	1295.400	I13	C13-Iso-Paraffin	0.111	0.088	0.172
104.883	1300.000	P13	n-tridecane	0.377	0.403	0.454
105.047	1302.440	I14	C14-Iso-Paraffin	0.142	0.153	0.172
105.180	1304.440	I14	C14-Iso-Paraffin	0.031	0.033	0.037
105.307	1306.330	I14	C14-Iso-Paraffin	0.082	0.088	0.099
105.410	1307.870	I14	C14-Iso-Paraffin	0.145	0.155	0.175
105.633	1311.200	I14	C14-Iso-Paraffin	0.144	0.154	0.173
105.760	1313.080	I14	C14-Iso-Paraffin	0.083	0.089	0.101
105.860	1314.560	I14	C14-Iso-Paraffin	0.117	0.125	0.141
106.067	1317.630	I14	C14-Iso-Paraffin	0.143	0.154	0.173
106.227	1320.000	I14	C14-Iso-Paraffin	0.386	0.413	0.465
106.620	1325.800	I14	C14-Iso-Paraffin	0.209	0.224	0.252
106.800	1328.450	I14	C14-Iso-Paraffin	0.090	0.097	0.109
107.027	1331.780	I14	C14-Iso-Paraffin	0.287	0.308	0.347
107.273	1335.390	I14	C14-Iso-Paraffin	0.200	0.214	0.241
107.420	1337.540	I14	C14-Iso-Paraffin	0.071	0.076	0.086
107.523	1339.050	I14	C14-Iso-Paraffin	0.105	0.112	0.126
107.667	1341.140	I14	C14-Iso-Paraffin	0.043	0.046	0.051
107.757	1342.450	I14	C14-Iso-Paraffin	0.030	0.032	0.037
107.877	1344.200	I14	C14-Iso-Paraffin	0.115	0.123	0.139
108.040	1346.570	I14	C14-Iso-Paraffin	0.204	0.219	0.247
108.157	1348.260	I14	C14-Iso-Paraffin	0.093	0.099	0.112
108.307	1350.440	I14	C14-Iso-Paraffin	0.246	0.263	0.297
108.520	1353.520	I14	C14-Iso-Paraffin	0.207	0.222	0.250
108.723	1356.460	I14	C14-Iso-Paraffin	0.182	0.195	0.220
108.887	1358.810	I14	C14-Iso-Paraffin	0.042	0.045	0.050
109.063	1361.360	I14	C14-Iso-Paraffin	0.276	0.295	0.333
109.200	1363.320	I14	C14-Iso-Paraffin	0.242	0.259	0.292
109.403	1366.240	I14	C14-Iso-Paraffin	0.327	0.350	0.394
109.547	1368.290	I14	C14-Iso-Paraffin	0.210	0.225	0.254
109.700	1370.480	I14	C14-Iso-Paraffin	0.140	0.150	0.169
109.877	1373.000	I14	C14-Iso-Paraffin	0.287	0.307	0.346
110.150	1376.900	I14	C14-Iso-Paraffin	0.188	0.202	0.227
110.433	1380.920	I14	C14-Iso-Paraffin	0.736	0.787	0.887
110.557	1382.670	I14	C14-Iso-Paraffin	0.130	0.139	0.156
110.760	1385.550	I14	C14-Iso-Paraffin	0.341	0.365	0.411
110.873	1387.150	I14	C14-Iso-Paraffin	0.080	0.085	0.096
110.990	1388.800	I14	C14-Iso-Paraffin	0.213	0.228	0.256

Detailed Hydrocarbon Analysis Detail Report -

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 Comments: Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 11

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
111.253	1392.510	I14	C14-Iso-Paraffin	0.315	0.337	0.380
111.393	1394.480	I14	C14-Iso-Paraffin	0.414	0.443	0.499
111.787	1400.000	P14	C14	0.798	0.847	0.895
111.937	1402.430	I15	C15-Iso-Paraffin	0.287	0.305	0.322
112.253	1407.560	I15	C15-Iso-Paraffin	0.718	0.762	0.805
112.540	1412.190	I15	C15-Iso-Paraffin	0.455	0.483	0.510
112.677	1414.390	I15	C15-Iso-Paraffin	0.290	0.308	0.325
112.837	1416.970	I15	C15-Iso-Paraffin	0.117	0.124	0.131
112.993	1419.490	I15	C15-Iso-Paraffin	0.371	0.394	0.416
113.247	1423.550	I15	C15-Iso-Paraffin	0.266	0.283	0.299
113.410	1426.170	I15	C15-Iso-Paraffin	0.111	0.117	0.124
113.580	1428.880	I15	C15-Iso-Paraffin	0.280	0.297	0.314
113.693	1430.690	I15	C15-Iso-Paraffin	0.295	0.313	0.330
113.890	1433.830	I15	C15-Iso-Paraffin	0.233	0.247	0.261
114.057	1436.480	I15	C15-Iso-Paraffin	0.383	0.406	0.429
114.237	1439.340	I15	C15-Iso-Paraffin	0.752	0.798	0.843
114.447	1442.670	I15	C15-Iso-Paraffin	0.157	0.166	0.176
114.590	1444.940	I15	C15-Iso-Paraffin	0.435	0.462	0.488
115.017	1451.680	I15	C15-Iso-Paraffin	1.015	1.078	1.138
115.257	1455.450	I15	C15-Iso-Paraffin	0.419	0.445	0.470
115.410	1457.860	I15	C15-Iso-Paraffin	0.100	0.106	0.112
115.610	1461.000	I15	C15-Iso-Paraffin	0.509	0.540	0.570
115.780	1463.660	I15	C15-Iso-Paraffin	0.113	0.120	0.126
115.973	1466.690	I15	C15-Iso-Paraffin	1.409	1.496	1.580
116.373	1472.920	I15	C15-Iso-Paraffin	0.654	0.695	0.733
116.530	1475.360	I15	C15-Iso-Paraffin	0.742	0.788	0.832
116.727	1478.410	I15	C15-Iso-Paraffin	0.246	0.261	0.276
116.890	1480.950	I15	C15-Iso-Paraffin	0.359	0.381	0.402
117.117	1484.450	I15	C15-Iso-Paraffin	0.782	0.830	0.877
117.523	1490.730	I15	C15-Iso-Paraffin	0.710	0.753	0.795
117.693	1493.340	I15	C15-Iso-Paraffin	0.447	0.474	0.501
117.860	1495.900	I15	C15-Iso-Paraffin	0.431	0.458	0.483
118.037	1498.620	P15	C15	1.580	1.254	1.714
118.207	1501.530	I16	C16-Iso-Paraffin	0.373	0.296	0.405
118.370	1504.650	I16	C16-Iso-Paraffin	0.286	0.227	0.310
118.473	1506.630	I16	C16-Iso-Paraffin	0.191	0.151	0.207
118.590	1508.860	I16	C16-Iso-Paraffin	0.282	0.224	0.305
118.723	1511.400	I16	C16-Iso-Paraffin	0.433	0.344	0.470

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/5/2012 3:18:48 PM

RawFile: M:\ExtendedGas Results\CDF\2012100109-002AAdat-Detector 1.cdf

Acquired: 10/05/12 11:50:25

Sample: 2012100109-002A JD

Analyzed: 10/5/2012 3:17:32 PM

Processed 429 Peaks

Reference File: H:\DHA Application Software\References\2012100109-002A_JD_10042012.DHA

Comments:

Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 12

<u>Minutes</u>	<u>Index</u>	<u>Group</u>	<u>Component</u>	<u>Mass %</u>	<u>Volume %</u>	<u>Mol %</u>
118.827	1513.370	I16	C16-Iso-Paraffin	0.199	0.158	0.216
118.967	1516.040	I16	C16-Iso-Paraffin	0.579	0.460	0.629
119.120	1518.960	I16	C16-Iso-Paraffin	0.205	0.163	0.222
119.193	1520.350	I16	C16-Iso-Paraffin	0.181	0.143	0.196
119.293	1522.250	I16	C16-Iso-Paraffin	0.379	0.301	0.411
119.450	1525.220	I16	C16-Iso-Paraffin	0.159	0.126	0.173
119.577	1527.620	I16	C16-Iso-Paraffin	0.215	0.170	0.233
119.760	1531.080	I16	C16-Iso-Paraffin	0.352	0.279	0.381
119.873	1533.220	I16	C16-Iso-Paraffin	0.216	0.171	0.234
120.010	1535.800	I16	C16-Iso-Paraffin	0.172	0.137	0.187
120.153	1538.500	I16	C16-Iso-Paraffin	0.502	0.399	0.545
120.377	1542.700	I16	C16-Iso-Paraffin	0.515	0.409	0.559
120.487	1544.770	I16	C16-Iso-Paraffin	0.385	0.305	0.417
120.690	1548.580	I16	C16-Iso-Paraffin	0.396	0.314	0.429
120.797	1550.580	I16	C16-Iso-Paraffin	0.419	0.333	0.454
120.993	1554.260	I16	C16-Iso-Paraffin	0.483	0.383	0.524
121.077	1555.820	I16	C16-Iso-Paraffin	0.507	0.402	0.550
121.190	1557.930	I16	C16-Iso-Paraffin	0.409	0.324	0.443
121.297	1559.920	I16	C16-Iso-Paraffin	0.492	0.390	0.533
121.427	1562.350	I16	C16-Iso-Paraffin	0.256	0.204	0.278
121.570	1565.010	I16	C16-Iso-Paraffin	0.468	0.371	0.508
121.833	1569.900	I16	C16-Iso-Paraffin	1.089	0.865	1.182
121.970	1572.440	I16	C16-Iso-Paraffin	0.855	0.678	0.927
122.213	1576.940	I16	C16-Iso-Paraffin	0.130	0.103	0.141
122.330	1579.100	I16	C16-Iso-Paraffin	0.403	0.320	0.437
122.547	1583.100	I16	C16-Iso-Paraffin	0.338	0.268	0.366
122.670	1585.370	I16	C16-Iso-Paraffin	0.222	0.176	0.241
122.777	1587.330	I16	C16-Iso-Paraffin	0.195	0.155	0.211
123.073	1592.790	I16	C16-Iso-Paraffin	0.841	0.668	0.913
123.230	1595.660	I16	C16-Iso-Paraffin	0.521	0.414	0.566
123.387	1598.530	P16	C16	1.616	1.692	1.587
123.557	1602.000	I17	C17-Iso-Paraffin	0.328	0.344	0.322
123.637	1603.780	I17	C17-Iso-Paraffin	0.214	0.224	0.210
123.737	1606.000	I17	C17-Iso-Paraffin	0.168	0.176	0.165
123.843	1608.370	I17	C17-Iso-Paraffin	0.361	0.378	0.354
123.980	1611.400	I17	C17-Iso-Paraffin	0.623	0.653	0.612
124.203	1616.350	I17	C17-Iso-Paraffin	0.567	0.594	0.557
124.363	1619.890	I17	C17-Iso-Paraffin	0.198	0.208	0.195

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/5/2012 3:18:48 PM

RawFile: M:\ExtendedGas Results\CDF\2012100109-002AAdat-Detector 1.cdf

Acquired: 10/05/12 11:50:25

Sample: 2012100109-002A JD

Analyzed: 10/5/2012 3:17:32 PM

Processed 429 Peaks

Reference File: H:\DHA Application Software\References\2012100109-002A JD_10042012.DHA

Comments:

Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 13

<u>Minutes</u>	<u>Index</u>	<u>Group</u>	<u>Component</u>	<u>Mass %</u>	<u>Volume %</u>	<u>Mol %</u>
124.493	1622.770	I17	C17-Iso-Paraffin	0.355	0.372	0.349
124.627	1625.710	I17	C17-Iso-Paraffin	0.272	0.285	0.268
124.783	1629.160	I17	C17-Iso-Paraffin	0.266	0.279	0.262
124.900	1631.730	I17	C17-Iso-Paraffin	0.302	0.316	0.297
125.110	1636.350	I17	C17-Iso-Paraffin	0.431	0.452	0.424
125.293	1640.370	I17	C17-Iso-Paraffin	0.426	0.446	0.418
125.430	1643.370	I17	C17-Iso-Paraffin	0.287	0.300	0.281
125.567	1646.360	I17	C17-Iso-Paraffin	0.619	0.648	0.608
125.747	1650.300	I17	C17-Iso-Paraffin	0.390	0.408	0.383
125.910	1653.860	I17	C17-Iso-Paraffin	1.022	1.070	1.004
126.237	1660.980	I17	C17-Iso-Paraffin	1.031	1.079	1.012
126.433	1665.250	I17	C17-Iso-Paraffin	0.484	0.507	0.476
126.547	1667.720	I17	C17-Iso-Paraffin	0.574	0.601	0.564
126.807	1673.350	I17	C17-Iso-Paraffin	0.524	0.548	0.514
126.927	1675.950	I17	C17-Iso-Paraffin	0.312	0.327	0.307
127.060	1678.830	I17	C17-Iso-Paraffin	0.232	0.243	0.228
127.143	1680.630	I17	C17-Iso-Paraffin	0.170	0.178	0.167
127.423	1686.670	I17	C17-Iso-Paraffin	0.830	0.869	0.815
127.567	1689.760	I17	C17-Iso-Paraffin	0.368	0.386	0.362
127.653	1691.620	I17	C17-Iso-Paraffin	0.343	0.359	0.337
127.920	1697.350	I17	C17-Iso-Paraffin	0.595	0.623	0.584
128.043	1700.000	P17	C17	1.559	1.623	1.442
128.183	1703.420	I18	C18-Iso-Paraffin	0.344	0.358	0.318
128.383	1708.320	I18	C18-Iso-Paraffin	0.441	0.459	0.408
128.507	1711.330	I18	C18-Iso-Paraffin	1.341	1.395	1.240
128.647	1714.740	I18	C18-Iso-Paraffin	0.333	0.346	0.308
128.747	1717.180	I18	C18-Iso-Paraffin	0.331	0.345	0.306
128.960	1722.380	I18	C18-Iso-Paraffin	0.535	0.556	0.494
129.057	1724.730	I18	C18-Iso-Paraffin	0.336	0.350	0.311
129.170	1727.480	I18	C18-Iso-Paraffin	0.279	0.291	0.258
129.367	1732.250	I18	C18-Iso-Paraffin	0.637	0.663	0.589
129.613	1738.220	I18	C18-Iso-Paraffin	0.423	0.441	0.392
129.750	1741.530	I18	C18-Iso-Paraffin	0.164	0.170	0.151
129.937	1746.040	I18	C18-Iso-Paraffin	0.416	0.433	0.385
130.033	1748.370	I18	C18-Iso-Paraffin	0.333	0.346	0.308
130.113	1750.300	I18	C18-Iso-Paraffin	0.424	0.441	0.392
130.270	1754.070	I18	C18-Iso-Paraffin	0.286	0.297	0.264
130.443	1758.240	I18	C18-Iso-Paraffin	0.571	0.594	0.528

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/5/2012 3:18:48 PM

RawFile: M:\ExtendedGas Results\CDF\2012100109-002AAdat-Detector 1.cdf

Acquired: 10/05/12 11:50:25

Sample: 2012100109-002A JD

Analyzed: 10/5/2012 3:17:32 PM

Processed 429 Peaks

Reference File: H:\DHA Application Software\References\2012100109-002A JD_10042012.DHA

Comments:

Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 14

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
130.537	1760.480	I18	C18-Iso-Paraffin	0.305	0.317	0.282
130.630	1762.720	I18	C18-Iso-Paraffin	0.208	0.216	0.192
130.773	1766.160	I18	C18-Iso-Paraffin	0.507	0.528	0.469
130.907	1769.350	I18	C18-Iso-Paraffin	0.346	0.361	0.320
131.093	1773.820	I18	C18-Iso-Paraffin	0.429	0.446	0.396
131.233	1777.160	I18	C18-Iso-Paraffin	0.168	0.175	0.155
131.310	1778.990	I18	C18-Iso-Paraffin	0.244	0.254	0.225
131.493	1783.360	I18	C18-Iso-Paraffin	0.454	0.473	0.420
131.580	1785.430	I18	C18-Iso-Paraffin	0.161	0.167	0.149
131.777	1790.110	I18	C18-Iso-Paraffin	0.750	0.781	0.694
132.073	1797.150	I18	C18-Iso-Paraffin	0.358	0.373	0.332
132.193	1800.000	P18	C18	1.202	1.253	1.050
132.307	1802.990	I19	C19-Iso-Paraffin	0.272	0.284	0.238
132.437	1806.420	I19	C19-Iso-Paraffin	0.288	0.300	0.251
132.640	1811.770	I19	C19-Iso-Paraffin	0.477	0.497	0.417
132.767	1815.110	I19	C19-Iso-Paraffin	0.926	0.965	0.809
133.053	1822.640	I19	C19-Iso-Paraffin	0.429	0.447	0.375
133.153	1825.260	I19	C19-Iso-Paraffin	0.580	0.605	0.507
133.447	1832.940	I19	C19-Iso-Paraffin	0.238	0.248	0.208
133.607	1837.120	I19	C19-Iso-Paraffin	0.313	0.326	0.274
133.733	1840.430	I19	C19-Iso-Paraffin	0.335	0.350	0.293
133.857	1843.650	I19	C19-Iso-Paraffin	0.207	0.216	0.181
133.937	1845.730	I19	C19-Iso-Paraffin	0.175	0.182	0.153
134.050	1848.680	I19	C19-Iso-Paraffin	0.263	0.275	0.230
134.213	1852.930	I19	C19-Iso-Paraffin	0.386	0.403	0.338
134.490	1860.110	I19	C19-Iso-Paraffin	0.494	0.515	0.431
134.667	1864.690	I19	C19-Iso-Paraffin	0.396	0.413	0.346
134.860	1869.700	I19	C19-Iso-Paraffin	0.362	0.378	0.317
134.970	1872.540	I19	C19-Iso-Paraffin	0.254	0.265	0.222
135.177	1877.880	I19	C19-Iso-Paraffin	0.287	0.299	0.251
135.333	1881.920	I19	C19-Iso-Paraffin	0.500	0.521	0.437
135.530	1886.980	I19	C19-Iso-Paraffin	0.238	0.248	0.208
135.683	1890.930	I19	C19-Iso-Paraffin	0.419	0.437	0.366
135.963	1898.110	P19	C19	1.508	1.571	1.249
136.193	1904.660	I20	C20-Iso-Paraffin	0.384	0.400	0.318
136.310	1908.120	I20	C20-Iso-Paraffin	0.194	0.202	0.161
136.410	1911.090	I20	C20-Iso-Paraffin	0.188	0.196	0.156
136.527	1914.550	I20	C20-Iso-Paraffin	0.340	0.354	0.281

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/5/2012 3:18:48 PM

RawFile: M:\ExtendedGas Results\CDF\2012100109-002AAdat-Detector 1.cdf

Acquired: 10/05/12 11:50:25

Sample: 2012100109-002A JD

Analyzed: 10/5/2012 3:17:32 PM

Processed 429 Peaks

Reference File: H:\DHA Application Software\References\2012100109-002A JD_10042012.DHA

Comments:

Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 15

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
136.660	1918.510	I20	C20-Iso-Paraffin	0.251	0.262	0.208
136.780	1922.060	I20	C20-Iso-Paraffin	0.180	0.188	0.149
136.893	1925.410	I20	C20-Iso-Paraffin	0.154	0.161	0.128
137.110	1931.810	I20	C20-Iso-Paraffin	0.378	0.394	0.313
137.330	1938.300	I20	C20-Iso-Paraffin	0.284	0.296	0.235
137.447	1941.740	I20	C20-Iso-Paraffin	0.269	0.280	0.222
137.647	1947.630	I20	C20-Iso-Paraffin	0.468	0.487	0.388
137.823	1952.820	I20	C20-Iso-Paraffin	0.103	0.107	0.085
138.050	1959.470	I20	C20-Iso-Paraffin	0.292	0.304	0.242
138.223	1964.540	I20	C20-Iso-Paraffin	0.407	0.424	0.337
138.383	1969.220	I20	C20-Iso-Paraffin	0.176	0.183	0.146
138.573	1974.780	I20	C20-Iso-Paraffin	0.523	0.544	0.433
138.793	1981.190	I20	C20-Iso-Paraffin	0.196	0.205	0.163
138.943	1985.560	I20	C20-Iso-Paraffin	0.301	0.313	0.249
139.067	1989.150	I20	C20-Iso-Paraffin	0.303	0.315	0.251
139.440	2000.000	P20	C20	0.938	0.963	0.738
139.530	2002.740	I21	C21-Iso-Paraffin	0.251	0.258	0.198
139.733	2008.930	I21	C21-Iso-Paraffin	0.344	0.353	0.270
139.860	2012.780	I21	C21-Iso-Paraffin	0.184	0.189	0.145
140.043	2018.350	I21	C21-Iso-Paraffin	0.217	0.223	0.171
140.227	2023.920	I21	C21-Iso-Paraffin	0.250	0.257	0.197
140.357	2027.850	I21	C21-Iso-Paraffin	0.220	0.225	0.173
140.530	2033.100	I21	C21-Iso-Paraffin	0.050	0.051	0.039
140.657	2036.930	I21	C21-Iso-Paraffin	0.266	0.273	0.209
140.787	2040.860	I21	C21-Iso-Paraffin	0.130	0.133	0.102
140.897	2044.180	I21	C21-Iso-Paraffin	0.221	0.227	0.174
140.993	2047.090	I21	C21-Iso-Paraffin	0.159	0.163	0.125
141.070	2049.400	I21	C21-Iso-Paraffin	0.238	0.245	0.187
141.320	2056.930	I21	C21-Iso-Paraffin	0.100	0.103	0.079
141.390	2059.030	I21	C21-Iso-Paraffin	0.172	0.177	0.136
141.560	2064.140	I21	C21-Iso-Paraffin	0.141	0.145	0.111
141.663	2067.240	I21	C21-Iso-Paraffin	0.109	0.112	0.086
141.843	2072.630	I21	C21-Iso-Paraffin	0.316	0.325	0.249
141.917	2074.830	I21	C21-Iso-Paraffin	0.135	0.138	0.106
142.093	2080.110	I21	C21-Iso-Paraffin	0.468	0.480	0.368
142.260	2085.090	I21	C21-Iso-Paraffin	0.296	0.304	0.233
142.423	2089.970	I21	C21-Iso-Paraffin	0.109	0.112	0.086
142.513	2092.650	I21	C21-Iso-Paraffin	0.071	0.073	0.056

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/5/2012 3:18:48 PM

RawFile: M:\ExtendedGas Results\CDF\2012100109-002AAdat-Detector 1.cdf

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Sample: 2012100109-002A JD

Analyzed: 10/5/2012 3:17:32 PM

Processed 429 Peaks

Reference File: H:\DHA Application Software\References\2012100109-002A JD_10042012.DHA

Comments:

Normalized to 100.0000%

Hold

Components Listed in Chromatographic Order

Page: 16

Minutes	Index	Group	Component	Mass %	Volume %	Mol %
142.683	2097.710	P21	C21	0.623	0.637	0.467
142.853	2103.160	I22	C22-Iso-Paraffin	0.118	0.121	0.089
143.020	2108.810	I22	C22-Iso-Paraffin	0.110	0.113	0.083
143.173	2114.000	I22	C22-Iso-Paraffin	0.115	0.118	0.087
143.363	2120.420	I22	C22-Iso-Paraffin	0.152	0.155	0.114
143.657	2130.310	I22	C22-Iso-Paraffin	0.140	0.143	0.105
143.950	2140.190	I22	C22-Iso-Paraffin	0.555	0.568	0.416
144.160	2147.250	I22	C22-Iso-Paraffin	0.132	0.135	0.099
144.313	2152.390	I22	C22-Iso-Paraffin	0.085	0.087	0.063
144.410	2155.630	I22	C22-Iso-Paraffin	0.097	0.100	0.073
144.660	2164.000	I22	C22-Iso-Paraffin	0.321	0.328	0.240
144.820	2169.350	I22	C22-Iso-Paraffin	0.153	0.157	0.115
145.013	2175.810	I22	C22-Iso-Paraffin	0.182	0.186	0.137
145.130	2179.700	I22	C22-Iso-Paraffin	0.093	0.095	0.069
145.263	2184.140	I22	C22-Iso-Paraffin	0.333	0.341	0.250
145.593	2195.120	I22	C22-Iso-Paraffin	0.135	0.138	0.101
145.740	2200.000	P22	C22	0.637	0.649	0.456
145.937	2206.240	I23	C23-Iso-Paraffin	0.066	0.068	0.048
146.107	2211.630	I23	C23-Iso-Paraffin	0.125	0.127	0.089
146.300	2217.750	I23	C23-Iso-Paraffin	0.100	0.101	0.071
146.577	2226.500	I23	C23-Iso-Paraffin	0.348	0.355	0.249
146.903	2236.800	I23	C23-Iso-Paraffin	0.078	0.079	0.056
147.063	2241.840	I23	C23-Iso-Paraffin	0.225	0.230	0.161
147.353	2250.960	I23	C23-Iso-Paraffin	0.027	0.028	0.020
147.540	2256.820	I23	C23-Iso-Paraffin	0.088	0.090	0.063
147.707	2262.040	I23	C23-Iso-Paraffin	0.062	0.063	0.044
148.013	2271.640	I23	C23-Iso-Paraffin	0.030	0.030	0.021
148.167	2276.430	I23	C23-Iso-Paraffin	0.045	0.046	0.032
148.453	2285.370	I23	C23-Iso-Paraffin	0.056	0.057	0.040
148.550	2288.390	I23	C23-Iso-Paraffin	0.050	0.051	0.035
148.840	2297.410	P23	C23	0.391	0.398	0.268
149.047	2303.620	I24	C24-Iso-Paraffin	0.062	0.063	0.043
149.243	2309.380	I24	C24-Iso-Paraffin	0.075	0.076	0.051
149.530	2317.770	I24	C24-Iso-Paraffin	0.079	0.081	0.054
149.653	2321.380	I24	C24-Iso-Paraffin	0.148	0.151	0.102
149.800	2325.660	I24	C24-Iso-Paraffin	0.027	0.027	0.018
149.927	2329.350	I24	C24-Iso-Paraffin	0.046	0.047	0.032
150.077	2333.730	I24	C24-Iso-Paraffin	0.093	0.094	0.064

Detailed Hydrocarbon Analysis Detail Report -

Report Date: 10/5/2012 3:18:48 PM

RawFile: M:\ExtendedGas Results\CDF\2012100109-002AAdat-Detector 1.cdf

Acquired: 10/05/12 11:50:25

Sample: 2012100109-002A JD

Analyzed: 10/5/2012 3:17:32 PM

Processed 429 Peaks

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Comments:

Normalized to 100.0000%

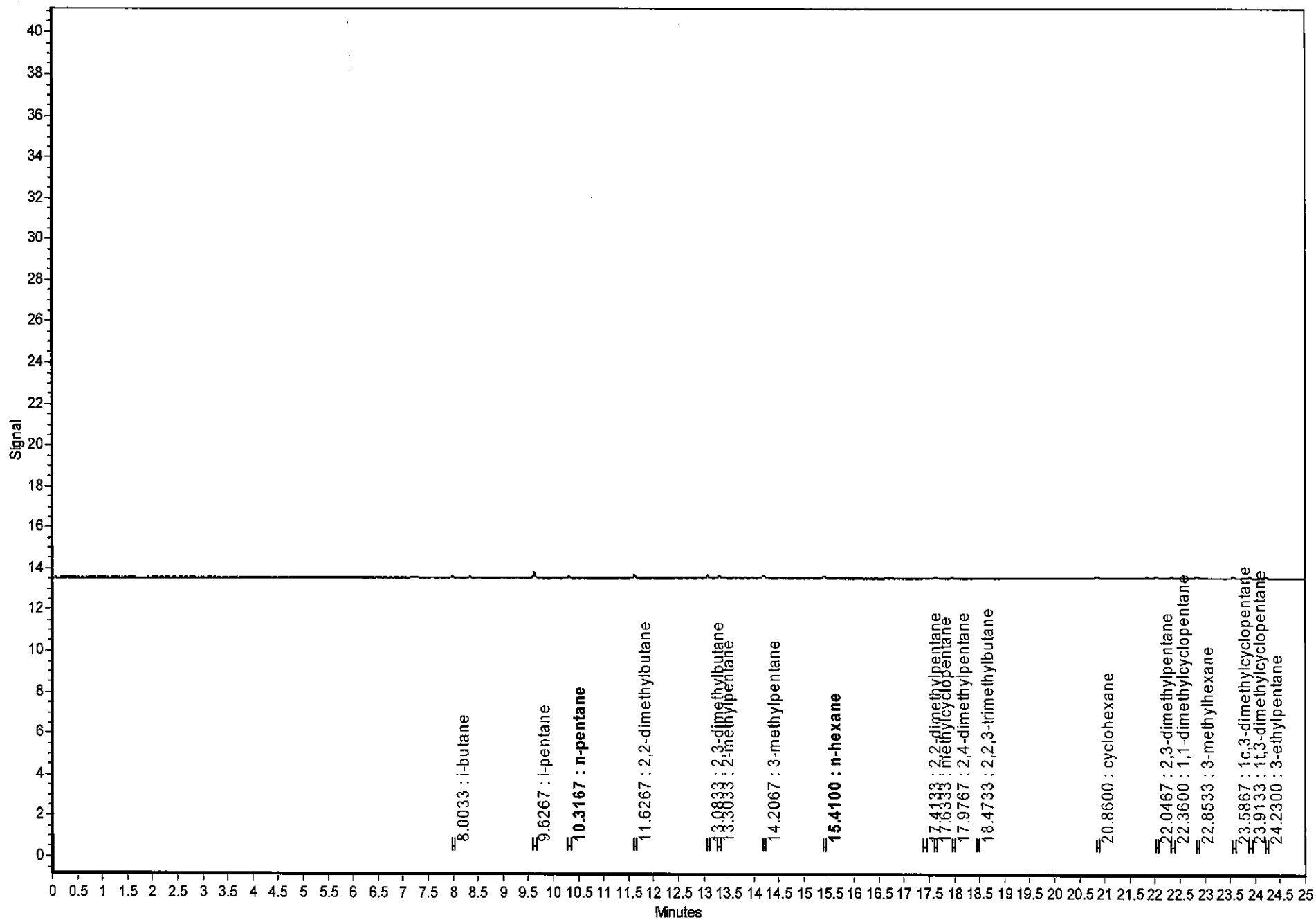
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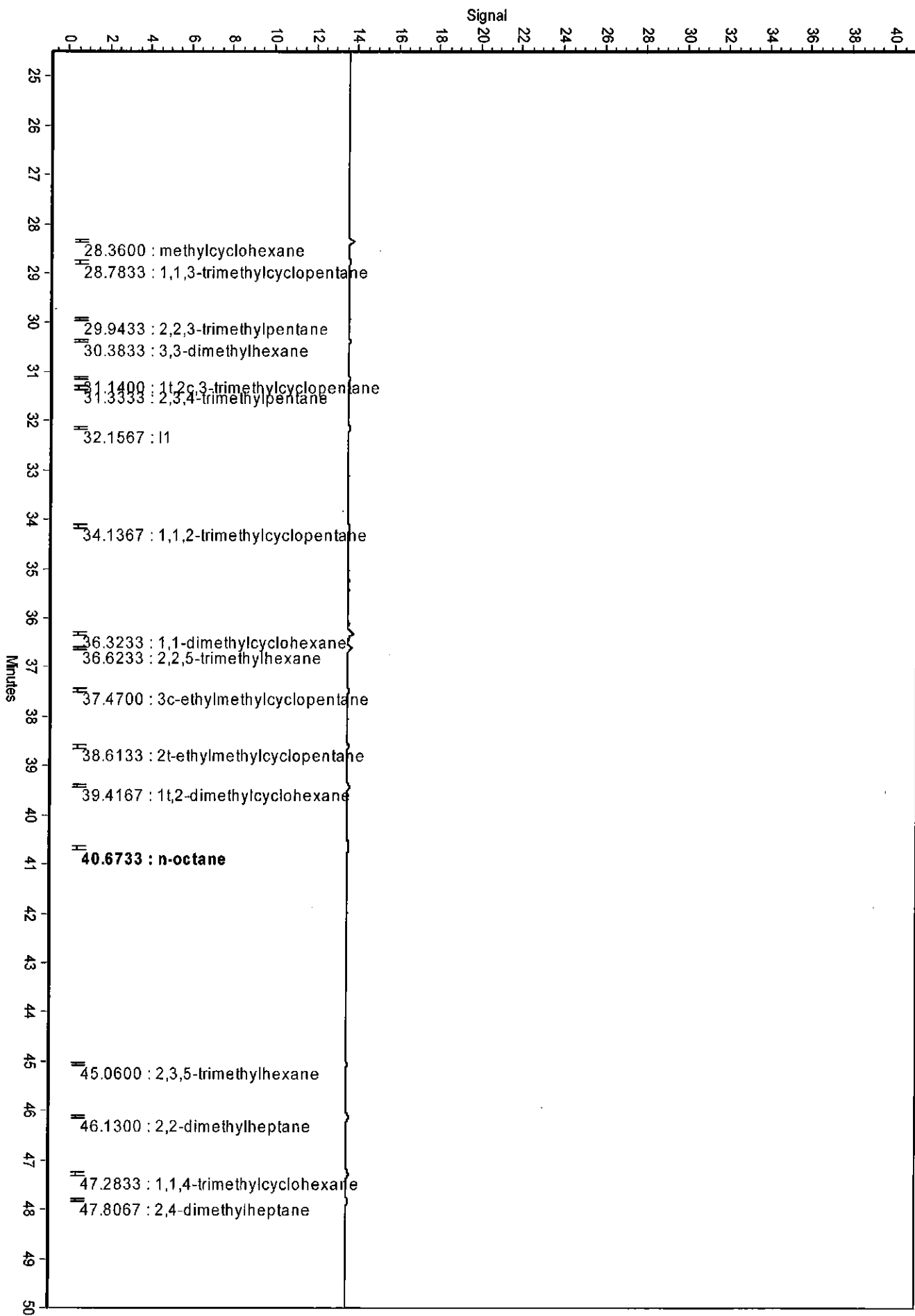
Components Listed in Chromatographic Order

Page: 17

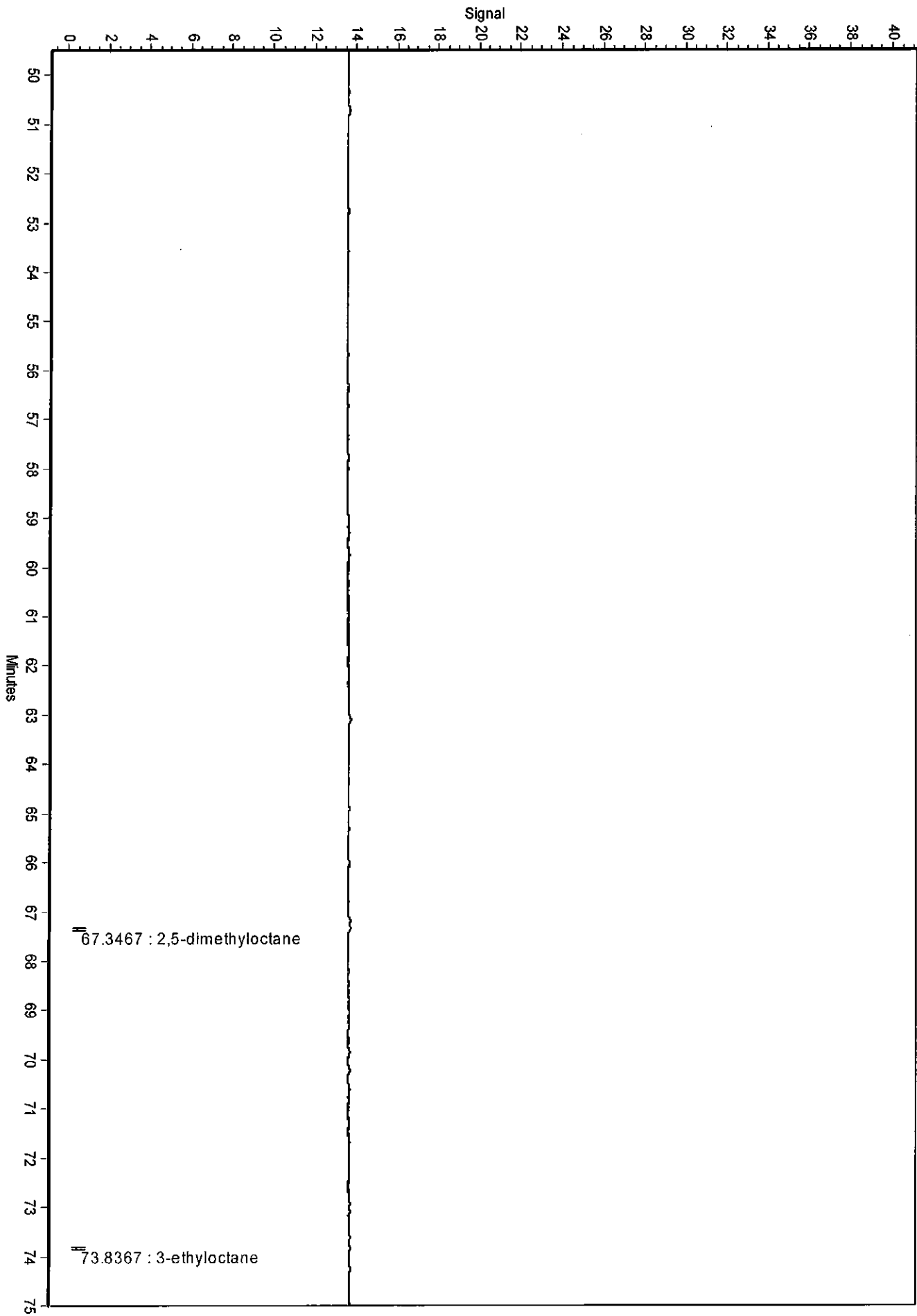
Minutes	Index	Group	Component	Mass %	Volume %	Mol %
150.270	2339.350	I24	C24-Iso-Paraffin	0.100	0.102	0.068
150.467	2345.070	I24	C24-Iso-Paraffin	0.116	0.118	0.079
150.567	2347.970	I24	C24-Iso-Paraffin	0.029	0.029	0.020
150.820	2355.320	I24	C24-Iso-Paraffin	0.039	0.039	0.027
151.003	2360.630	I24	C24-Iso-Paraffin	0.059	0.060	0.041
151.307	2369.400	I24	C24-Iso-Paraffin	0.056	0.057	0.038
151.613	2378.250	I24	C24-Iso-Paraffin	0.033	0.033	0.023
151.980	2388.800	I24	C24-Iso-Paraffin	0.022	0.023	0.015
152.087	2391.860	I24	C24-Iso-Paraffin	0.015	0.016	0.010
152.267	2397.030	P24	C24	0.373	0.378	0.245
152.670	2407.640	I25	C25-Iso-Paraffin	0.100	0.102	0.066
152.790	2410.690	I25	C25-Iso-Paraffin	0.042	0.042	0.027
152.903	2413.580	I25	C25-Iso-Paraffin	0.021	0.021	0.014
153.080	2418.060	I25	C25-Iso-Paraffin	0.064	0.064	0.042
153.373	2425.500	I25	C25-Iso-Paraffin	0.090	0.092	0.059
153.637	2432.170	I25	C25-Iso-Paraffin	0.058	0.059	0.038
154.553	2455.280	I25	C25-Iso-Paraffin	0.039	0.039	0.025
154.743	2460.050	I25	C25-Iso-Paraffin	0.073	0.074	0.048
154.897	2463.900	I25	C25-Iso-Paraffin	0.045	0.046	0.030
155.127	2469.660	I25	C25-Iso-Paraffin	0.050	0.051	0.033
155.513	2479.330	I25	C25-Iso-Paraffin	0.083	0.084	0.054
156.010	2491.710	I25	C25-Iso-Paraffin	0.043	0.044	0.028
156.220	2496.930	P25	C25	0.297	0.300	0.187
156.513	2503.660	I26	C26-Iso-Paraffin	0.060	0.061	0.038
156.960	2513.290	I26	C26-Iso-Paraffin	0.092	0.093	0.058
157.777	2530.800	I26	C26-Iso-Paraffin	0.033	0.034	0.021
159.123	2559.480	I26	C26-Iso-Paraffin	0.074	0.075	0.046
159.660	2570.830	I26	C26-Iso-Paraffin	0.070	0.071	0.044
160.897	2596.850	P26	C26	0.256	0.259	0.154
165.363	2676.100	I27	C27-Iso-Paraffin	0.051	0.051	0.030
166.550	2696.660	P27	C27	0.219	0.221	0.127
167.483	2710.820	I28	C28-Iso-Paraffin	0.031	0.031	0.018
170.823	2759.050	I28	C28-Iso-Paraffin	0.040	0.040	0.023
173.483	2796.760	P28	C28	0.172	0.173	0.096
182.017	2896.660	P29	C29	0.167	0.168	0.090
192.630	2972.290	+	C30+	0.072	0.075	0.037

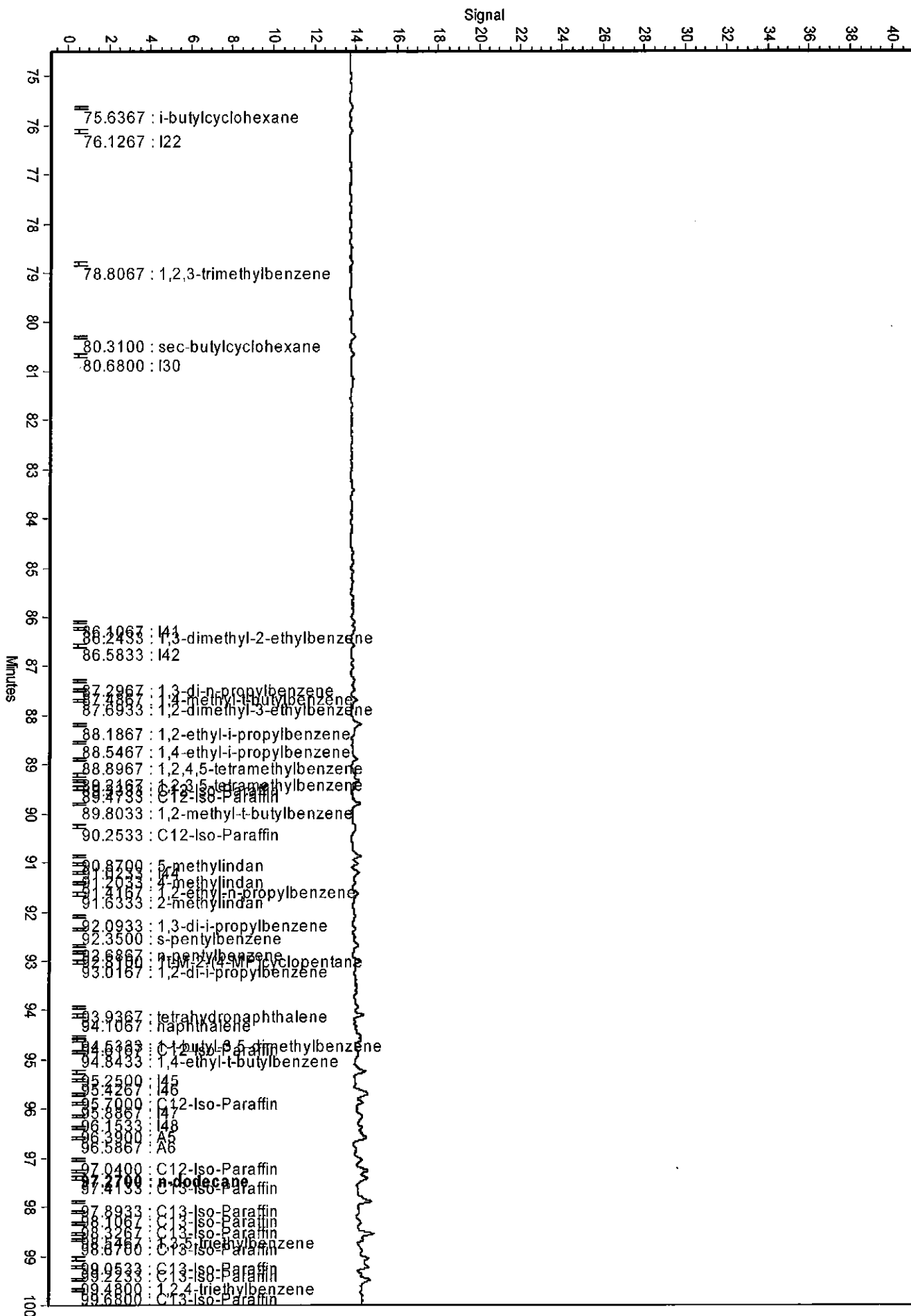
Start Time: 0.000 - End Time: 25.000

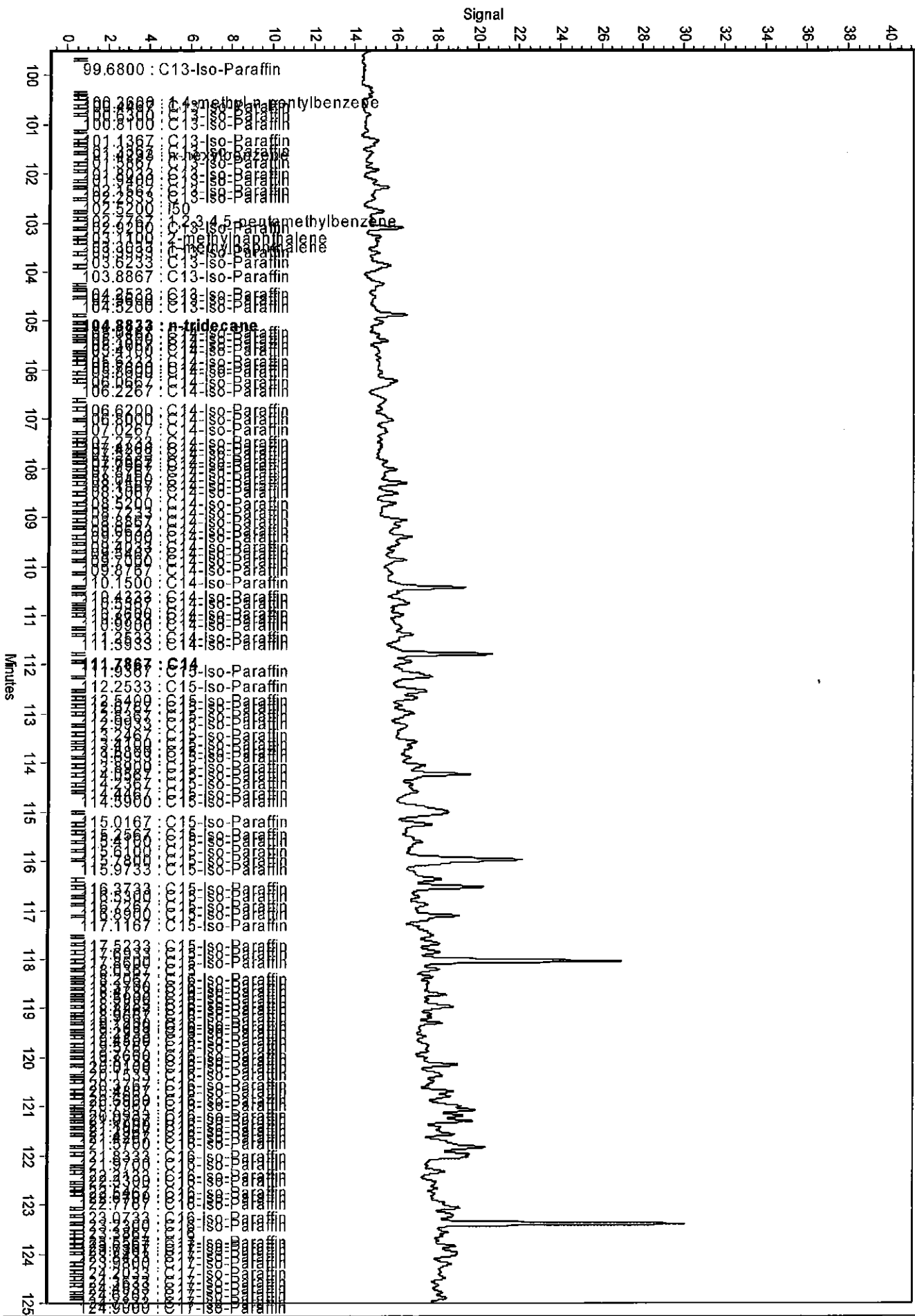




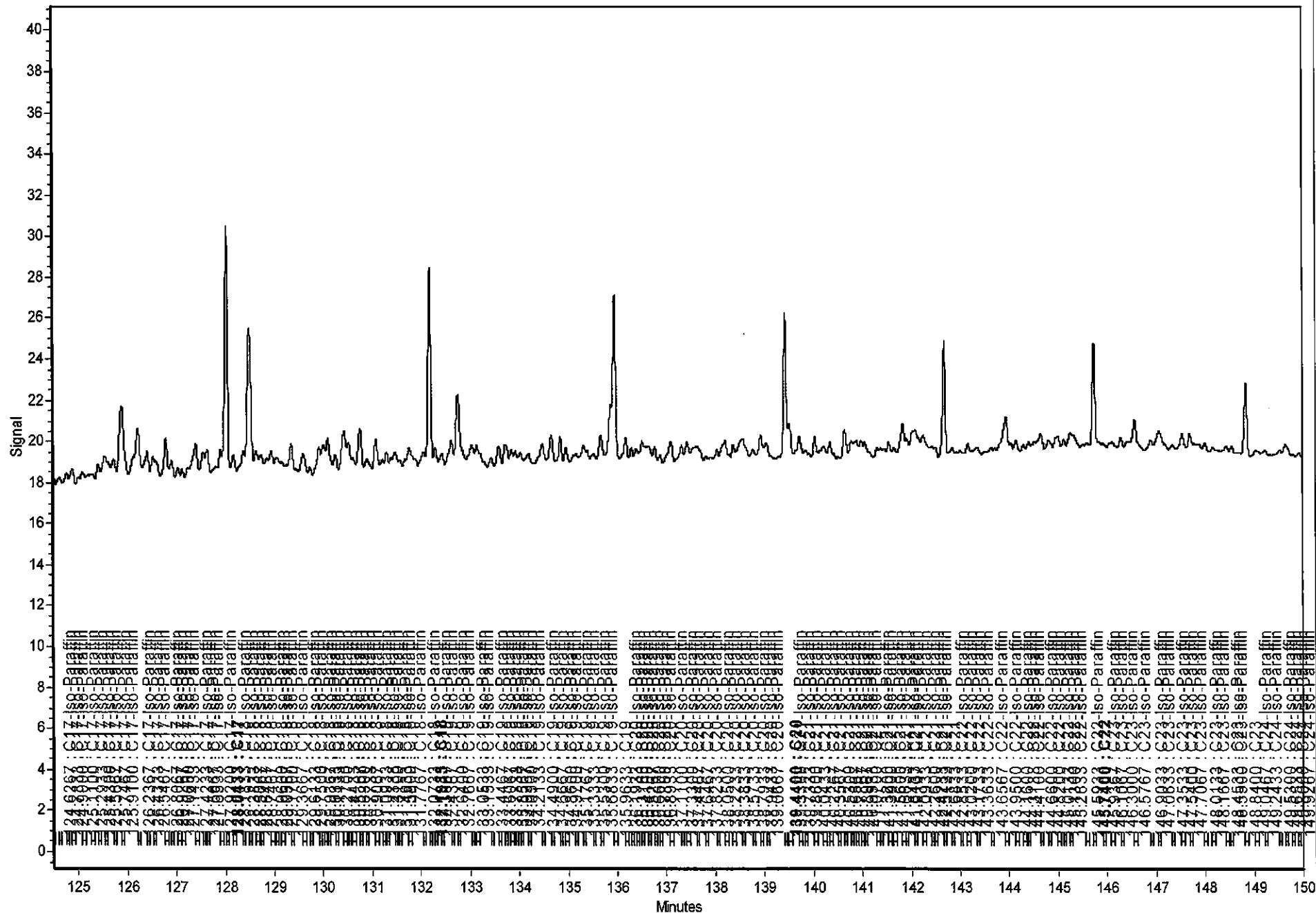
2012100109-002A.JD (M\ExtendedGas Results\CDF\2012100109-002A\data\Detector 1.cdf)
Start Time: 49,500 - End Time: 75,000

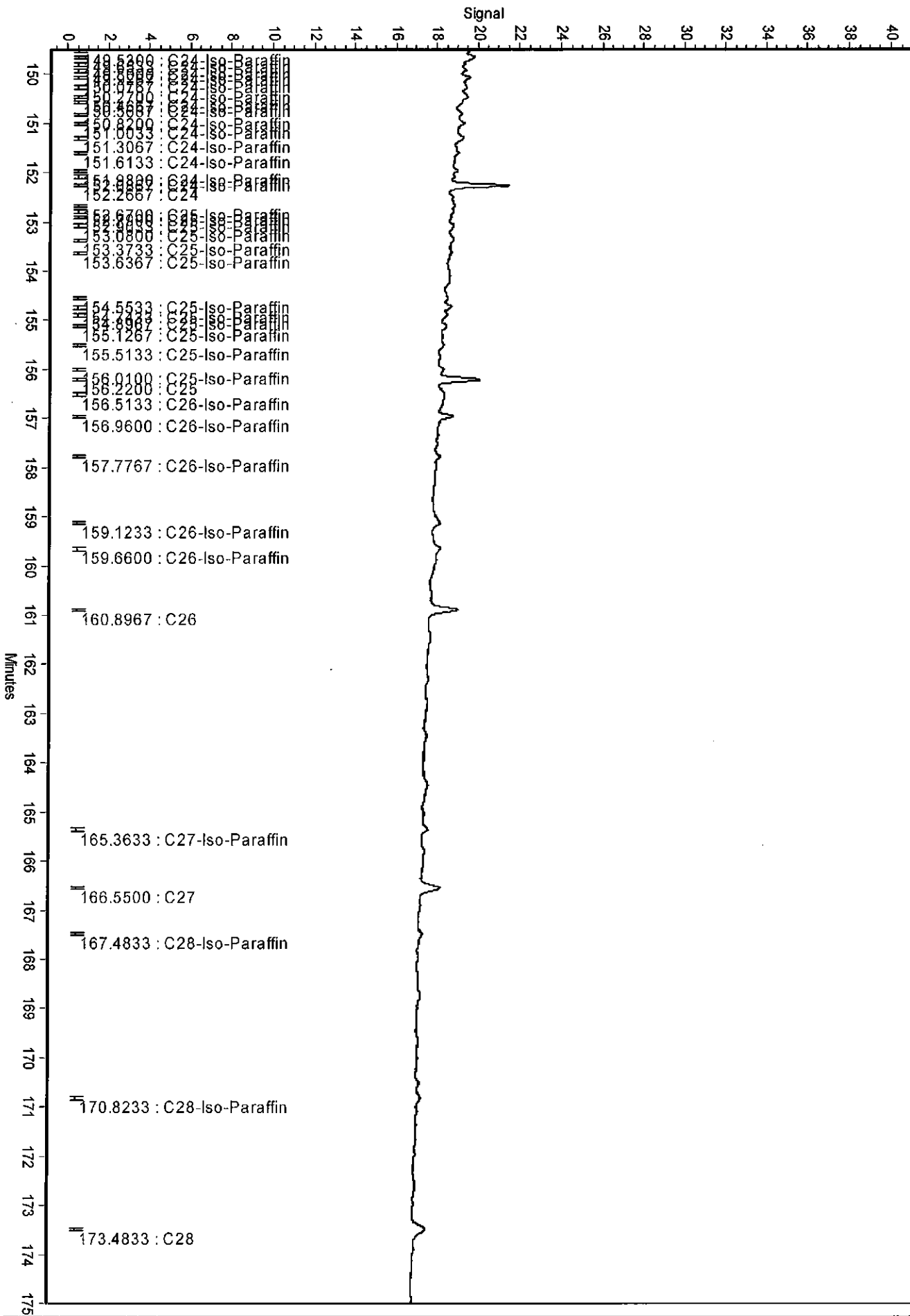




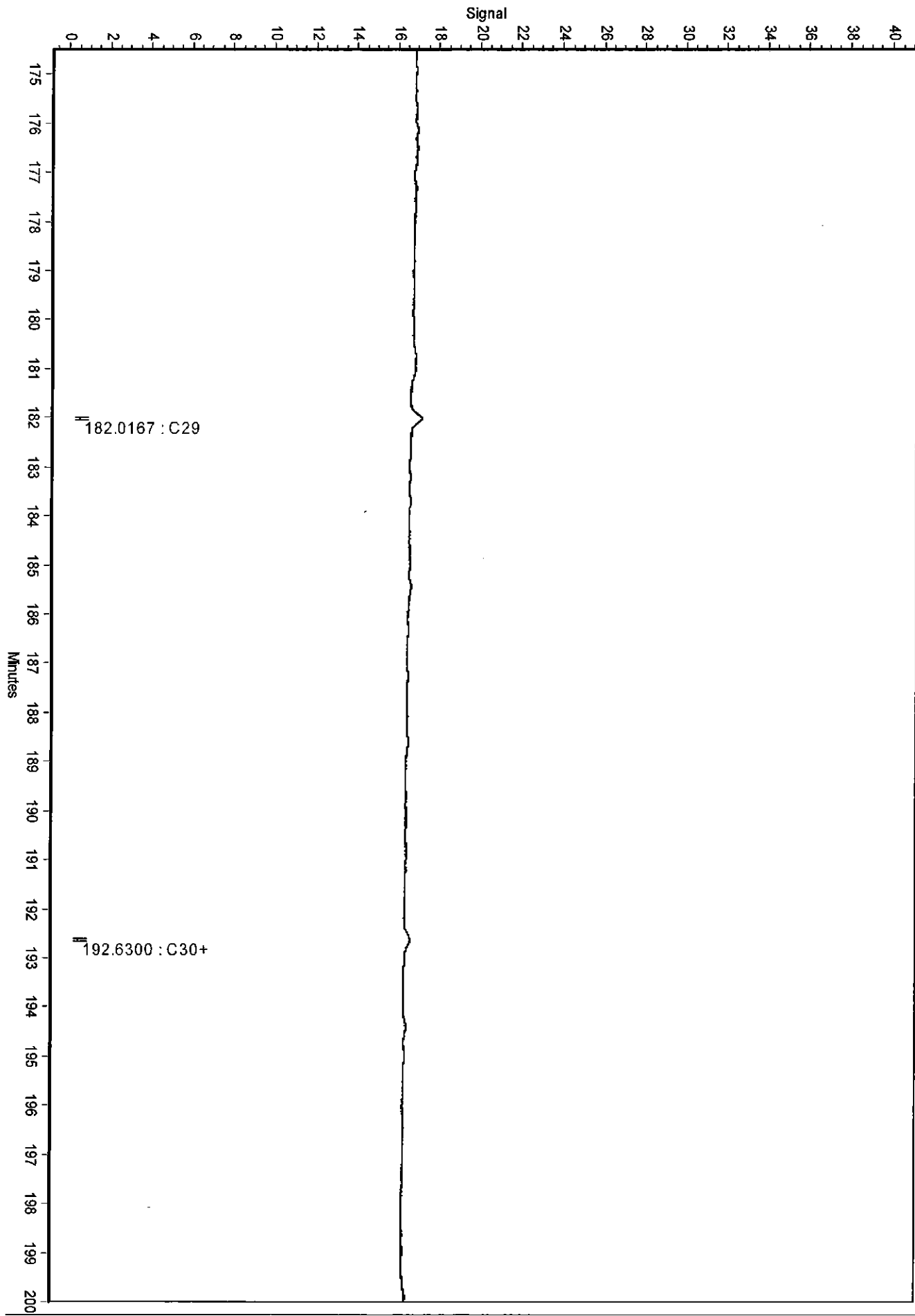


Start Time: 124.500 - End Time: 150.000





2012100109-002A.JD (M\ExtendedGas Results\CDF2012100109-002A\dat-Detector 1.cdf)
Start Time: 174.500 - End Time: 200.000



ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Project Name/No. 10012/Bayou Corne
 Sample Team Members 2 L. Pultz / B. Peroyea
 Profit Center No. 3 Baton Rouge
 Project Manager 4 Deborah Saxton
 Purchase Order No. 6 TBA
 Required Report Date 11 10/5/12 or sooner

Samples Shipment Date 7 10/01/12
 Lab Destination 8 SPL-Houston
 Lab Contact 9 Steve Grandal
 Project Contact /Phone 12 USA Pultz/255-987-7335
 Carrier / Waybill No. 13 FedEx

Bill To: 5 Shaw Env + Infrastructure
4171 Essen Lane
Baton Rouge, LA 70809
Attn: LSC Pultz
 Report To: 10 Same as bill to

ONE CONTAINER PER LINE

Sample Number ¹⁴	Sample Description / Type ¹⁵	Date / Time Collected ¹⁶	Container Type ¹⁷	Sample Volume ¹⁸	Pre-Servative ¹⁹	Requested Testing Program ²⁰	Condition on Receipt ²¹	Disposal Record No. ²²
100112-SW-SH15-20	Surface Water 15-20 ft deep	100112 / 1040	poly bottle	1 liter	none	PIANO by Mod Method 8260		
100112-SW-SH01	OIL on surface	100112 / 1105	poly bottle	1 liter	none	PIANO by Mod Method 8260	FOR LAB USE ONLY	
100112-W-FRAC	FRAC TANK FLUIDS from cavern	100112 / 1240	Amber bottle	1 liter	none	PIANO by Mod Method 8260	FOR LAB USE ONLY	
Use for 10/01/12								

Special Instructions: ²³

Possible Hazard Identification: ²⁴
 No-hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal: ²⁵
 Return to Client Disposal by Lab Archive Hold at lab - 12 mo. (mos.)

Turnaround Time Required: ²⁶ Normal Rush Initial or final data by 10/5/12

QC Level: ²⁷ I. II. III. Project Specific (Specify): _____

1. Relinquished by (Signature/Affiliation) <u>J. M. Pultz/Shaw</u>	Date: <u>10/01/12</u> Time: <u>1646</u>	1. Relinquished by (Signature/Affiliation) <u>EMASTON</u>	Date: <u>10/1/12</u> Time: <u>1646</u>
2. Relinquished by (Signature/Affiliation) <u>EMASTON</u>	Date: <u>10/01/12</u> Time: <u>1645</u>	2. Relinquished by (Signature/Affiliation) <u>[Signature]</u>	Date: <u>10-2-12</u> Time: _____
3. Relinquished by (Signature/Affiliation) _____	Date: _____ Time: _____	3. Relinquished by (Signature/Affiliation) <u>[Signature]</u>	Date: _____ Time: _____

Comments: ²⁸

Write: To accompany Samples
Yellow: Field Copy
* See back of form for special instructions.