



*P. O. Box 7192 (zip 71137-7192)
1000 Grimmer Dr.
Shreveport, LA 71107
Phone: (318) 222-2424
Fax: (318) 222-2425*

November 8, 2018

Mr. Keith Lorenz
Senior Environmental Specialist
Comstock Resources, Inc
5300 Town and Country Blvd
Frisco, Texas 75034

Re: LDNR-Gas Sampling Project
Comstock Oil & Gas-LA, LLC.
Derrick 21 HZ #3 ALT - Serial Number: 250254
Section 21, Township 13 N, Range 15 W
SONRIS GPS (Production Well): 32.09464149, -93.91395841

Dear Mr. Lorenz:

Approach Environmental, LLC (Approach Environmental) was retained by the Comstock Oil & Gas-LA, LLC. (Comstock) to collect natural gas samples from the referenced well. On August 2, 2018, Approach Environmental collected the gas samples from the referenced well for analysis of specific parameters as established by Louisiana Department of Natural Resources (LDNR).

The gas sampling activities included photo documentation of the well, obtaining GPS Coordinates (Via SONRIS), gas sampling, and preparation of a brief letter report presenting the analytical data. The gas sample was collected by Approach Environmental's Environmental Specialist using laboratory-specific containers in accordance with laboratory and method-specific sampling protocol. The gas samples were collected from the well surface casing and the well tubing via laboratory supplied, decontaminated cylinders capable of holding 1800 pounds of pressure per square inch (psi). Proper procedures included checking the pressure of the well or line to insure the pressure is below 1800 psi. Subsequently, the caps were removed from both ends of the cylinder, cleaned off, and the threads wrapped with Teflon tape. After wrapping the threads, the sampling port was then cracked until a small amount of gas was heard venting from the sampling point and was allowed to purge for approximately twenty (20) seconds. The cylinder was then attached to the sampling valve and snugged tight with a wrench. The valve was, then, opened for approximately 5-10 seconds to allow the cylinder to be pressurized up to the well pressure. After the cylinder was pressurized, the valve was closed and the outlet valve was opened on the cylinder to allow the gas to vent and purge the cylinder. This step was repeated three (3) times to allow for proper purging of the

cylinder. After purging the cylinder, the cylinder was once again pressurized, but for 20-30 seconds then closed off to trap the gas sample. All valves were, then, closed off and the cylinder was removed and labeled with the proper well and sampling documentation. Samples were, then, properly packaged and sent to ISOTECH Laboratory, an ISO 9001:2008 Certified company, for samples to be run by analytical methods NG2 Suite and Gas Comp., d13C of Methane, Ethane, Propane, and plus dD of Methane. Samples were also sent to Element laboratory, an ISO 17025, ISO 17020, ISO 17065, ISO 9001, AS 9100 and Nadcap accredited lab, for Extended Gas Analysis according to GPA method 2261 and 2286. The samples were submitted to each laboratory with chain-of-custody documentation.

The well surface casing gas sample was collected from a valve on the surface casing with a recorded pressure of approximately 950 psi according to Element Lab.

The well tubing gas sample was collected at the tubing at the wellhead with a recorded pressure of approximately 900 psi according to Element Lab.

Photographs are shown below for future reference and the analytical laboratory report is attached for review and future reference.

Photographs taken by John Maggio on August 2, 2018.



Derrick 21 HZ #3 Well Head



Gauge for well surface casing



Gauge for well tubing

Should you have any questions and/or comments, please do not hesitate to contact me at (318) 222-2424, via my cell at (318) 401-0085, or via e-mail at marksm@approachenv.com.

Sincerely,



Mark S. Moore
Approach Environmental, L.L.C.

Encl./

Attachments Table of Contents

Analytical Data Report

SEND DATA TO:

 Name: Mark Moore
 Company: Approach Environmental
 Address: 151 Freestate Blvd. Suite B
 City/State: Shreveport, LA 71107
 Phone: 318-222-2424
 Email: marksm@approachenv.com
SEND INVOICE TO: (if different from SEND DATA TO:)

 Name: SAME
 Company: SAME
 Address: P.O. Box 7192
 City/State: Shreveport, LA 71137-7192
 Phone: SAME
 Email: SAME

Project: <u>Comstock Oil + Gas</u> Location: <u>DESOTO PARISH</u>	Purchase Order #: _____ Sampled By: <u>JDA Macario</u>
----------------------------------------------------------------------	-----------------------------------------------------------

 Select One: Standard Priority Rush

WELL SN # 250254

Sample Description

Container Number	Sample Identification	Date Sampled	Time	Analyses Requested			Comments
				NC2 Suite and Gas Comp.	d13C of Meth., eth., prop.	plus dD of Methane	
3139	<u>DRYICK 21H2 #3 ALT SURFACE CASING</u>	<u>8/2/18</u>	<u>15:00</u>	X	X	X	Meth=methane; Eth=Ethane; Prop=Propane
3140	<u>DRYICK 21H2 #3 ALT WELL TUBING</u>	<u>8/2/18</u>	<u>15:15</u>	X	X	X	

Chain-of-Custody Record

Signature	Company	Date	Time
Relinquished by <u>[Signature]</u>	<u>APPROACH ENV.</u>	<u>8/3/18</u>	<u>8:30</u>
Received by <u>RAL CARRIERS</u>		<u>8/3/18</u>	<u>8:30</u>
Relinquished by			
Received by <u>Abby L. Skube / Isotech Laboratories</u>		<u>AUG 08 2018</u>	<u>12:35</u>
Relinquished by			
Received by			



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Lab #: 676748 Job #: 39164 IS-99404 Co. Job#: _____
 Sample Name: Derrick 21HZ #3 ALT Surface Tubing Co. Lab#: _____
 Company: Approach Environmental, LLC Cylinder: 3139
 API/Well: _____
 Container: Cylinder
 Field/Site Name: Comstock Oil & Gas
 Location: Desoto Parish
 Formation: _____
 Sampling Point: _____
 Date Sampled: 8/02/2018 15:00 Date Received: 8/08/2018 Date Reported: 10/17/2018

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0305			
Hydrogen -----	nd			
Argon -----	0.0109			
Oxygen -----	nd			
Nitrogen -----	1.93			
Carbon Dioxide -----	nd			
Methane -----	92.44	-39.76	-152.4	
Ethane -----	3.60	-25.30		
Ethylene -----	0.0002			
Propane -----	0.967	-24.11		
Propylene -----	nd			
Iso-butane -----	0.237			
N-butane -----	0.299			
Iso-pentane -----	0.160			
N-pentane -----	0.114			
Hexanes + -----	0.212			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1065
 Specific gravity, calculated: 0.607

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 676749 Job #: 39164 IS-99404 Co. Job#: _____
 Sample Name: Derrick 21HZ #3 ALT Well Casing Co. Lab#: _____
 Company: Approach Environmental, LLC Cylinder: 3140
 API/Well: _____
 Container: Cylinder
 Field/Site Name: Comstock Oil & Gas
 Location: Desoto Parish
 Formation: _____
 Sampling Point: _____
 Date Sampled: 8/02/2018 15:15 Date Received: 8/08/2018 Date Reported: 10/17/2018

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	0.0514			
Argon -----	nd			
Oxygen -----	nd			
Nitrogen -----	0.034			
Carbon Dioxide -----	2.15			
Methane -----	97.30	-36.39	-146.1	
Ethane -----	0.434	-27.42		
Ethylene -----	nd			
Propane -----	0.0240			
Propylene -----	nd			
Iso-butane -----	0.0036			
N-butane -----	0.0033			
Iso-pentane -----	0.0009			
N-pentane -----	0.0005			
Hexanes + -----	0.0021			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 996

Specific gravity, calculated: 0.577

Remarks: Insufficient C3 concentrations for isotopic analysis.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.



element™

Chain of Custody

Laboratory Number:

Company Name:

Contact Name:

Address:

City, State Zip:

Phone Number:

Fax Number:

E-mail Address:

Client Information:

Billing Information:

PO Number:

Project Name/Number:

Page 1 of 1

APPROACH EST.

SAMPLE

Quote Number:

Constock Oil Hvas

Matrix Code

MARK MOORE

P.O. BOX 7192

Required QC Level

Sampler's Signature

DW = Drinking Water
WW = Waste Water
GW = Ground Water
AQ = Aqueous
OT = Other
SL = Sludge
O = Oil
F = Food
NG = Natural Gas
NGL = Natural Gas Liquid
PW = Produced Water
CF = Completion Fluid

SHREVEPORT LA 71107

SHREVEPORT 71137-7192

Bill Monthly

Shipping Method:
UPS / FedEx / NOW
DHL / Element / Hand / Mail

318-401-0095

Ext: 318-222-2425

Yes
No

Signature

318-401-0095

Ext: 318-222-2425

Yes
No

Shipping Method:
UPS / FedEx / NOW
DHL / Element / Hand / Mail

318-401-0095

Ext: 318-222-2425

Yes
No

Shipping Method:
UPS / FedEx / NOW
DHL / Element / Hand / Mail

marism@approachest.com

Which Regulations Apply:

RCRA Drinking Water

POTW Distribution

NPDES Special

USDA/FDA State

RECAP/RISC Other

Turn Time

Standard

RUSH

1 Day

2 Day

Other

(Rush turn times will incur a surcharge and must be pre-approved by lab.)

Container

Type
P=Plastic,
G=Glass, V=Vial

Pres.

HCl, HNO₃, H₂SO₄,
NaOH, Na₂S₂O₃

Requested Tests

Comments

Sample ID/Description

Collection Information

Date

Time

Grab / Composite

Matrix

Quantity

Type

Pres.

Requested Tests

Comments

DETRICK OILFIELD #3 ACT 8/2/18 15:10 GARAB NG 1 CNSTR

SURFACE CASING

DETRICK OILFIELD #3 ACT 8/2/18 15:15 GARAB NG 1 CNSTR

WELL TURBIDITY

EXT GAS ANALYSIS
GPA 2261 + 2286

Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1. [Signature]	8/3/18	[Signature]	8-3-18 9:20 AM	WELL SN # 250254
2. [Signature]	8/6/18	[Signature]	8-6-18	
3. [Signature]				

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.

3901 Innovation Drive, Suite 115 Daleville, IN 47334-0569 USA P 765-378-4103 F 765-378-4109

629 Washington St. Suite 300 Columbus, IN 47201-6231 USA P 812-375-0531 F 812-375-0731

2121 East Washington Boulevard Fort Wayne, IN 46803-1328 USA P 260-471-7000 F 260-471-7777

909 Executive Dr Warsaw, IN 46580-2368 USA P 574-267-3305 F 574-269-6569

3371 Cleveland Road, Suite 100A South Bend, IN 46628-9780 USA P 574-277-0707 F 574-273-5699

2417 W. Pinhook Rd Lafayette, LA 70508-3344 USA P 337-235-0483 F 337-233-6540



Element Materials Technology
 2129 West Willow Street
 Scott, LA
 70583-5301 USA

P 337 232 3568
 F 337 232 3621
 T 888 786 7555
 info.scott@element.com
 element.com

GRAVIMETRIC CERTIFICATE

ELEMENT
 APRIL

CUSTOM GRAVIMETRIC BLEND

ELEMENT

DATE: July 19, 2017
 ORDER NUMBER: n/a

CYL NO: 53488AW

QC NO: 071817-JL4
 SCF = 16.9

COMPONENT	REQUESTED MOLE %	ACTUAL MOLE %	ACTUAL WT %
HEXANES + ELEMENT III	0.303	0.303	1.402
N-PENTANE	0.500	0.500	1.848
ISOPENTANE	0.500	0.500	1.848
N-BUTANE	1.000	1.000	2.980
ISOBUTANE	1.000	0.998	2.974
PROPANE	3.000	2.999	6.779
ETHANE	1.500	1.499	2.310
CARBON DIOXIDE	1.740	1.735	3.913
NITROGEN	2.520	2.535	3.639
METHANE	87.937	87.931	72.307

TOTAL 100.000 100.000 100.000

MOLECULAR WEIGHT:	19.5092				
COMPRESSIBILITY FACTOR:	0.9973	BTU:	14.696	14.650	14.730 15.025
SPECIFIC GRAVITY (IDEAL) :	0.6736	IDEAL :	1110.1	1106.6	1112.7 1135.0
SPECIFIC GRAVITY (REAL) :	0.6754	REAL :	1113.1	1109.6	1115.7 1138.0
CGA	510	PSIA	64	PSIG	49 DP (DEG F) : 40

DOC CONTROL #: PETRO - F009.002

Manufactured gravimetric blend with NIST traceable balance.

GPA 2261, GPA 2145 and GPA 2198

Expiration Date: NOT APPLICABLE

$C_6 = 0.185$
 $C_7 = 0.118$
 0.303

Trevor Judice Operations Manager



Gas Analysis Report No: 239444-5 -18

Reported Date: 8/8/2018

For: APPROACH ENVIRONMENTAL
 Attn: MARK MOORE
 151 FREESTATE BLVD
 SUITE B
 SHREVEPORT, LA 71107

Sample Identification:
Company: APPROACH ENVIRONMENTAL
Field: COMSTOCK O&G-BETHANY LS
Lease: DERRICK 21 HZ #3 ALT
STA # : 250254

Sample Data: **Date Collected:** 08/02/2018 03:00 PM **Date Received:** 08/06/2018 **By:** JOHN MAGGIO
PSIG: 950 **Temp:** N/P **DEG. F.**

Remarks: SURFACE CASING

CYL # 3152

Sample Type: SPOT

Analyst: GG

Hydrocarbon Analysis - GPA 2261-13

Component Name	Mol Percent	GPM @ 14.730 PSIA
Carbon Dioxide (CO2)	0.056	
Nitrogen (N2)	1.946	
Methane (C1)	92.130	
Ethane (C2)	3.586	0.961
Propane (C3)	0.962	0.266
Iso-Butane (IC4)	0.242	0.080
N-Butane (NC4)	0.319	0.101
Iso-Pentane (IC5)	0.176	0.064
N-Pentane (NC5)	0.130	0.047
Hexanes Plus (C6+)	0.453	0.200
Total	100.000	

Mol Weight: 17.83
BTU/LB: 22824.60

Ethane + GPM: 1.719
Propane + GPM: 0.758
Iso-Pentane + GPM: 0.311

Compressibility Factor: 0.9976
Specific Gravity @ 60 Deg. F. (Air = 1) : 0.617

BTU/Cuft. (Real) 60 Deg. F. - PSIA:	14.650	14.696	14.730	15.025
Dry:	1071.5	1074.8	1077.3	1099.0
Sat:	1053.2	1056.5	1058.9	1080.2

Reviewed By: 
 Tina Venable, Customer Service Representative

Data Reviewer

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 2129 W. Willow St. Scott, LA 70583 337-232-3568



Gas Analysis Report No: 239444

239444-5 -20

Date: 8/8/2018

For: APPROACH ENVIRONMENTAL

Attn: MARK MOORE
151 FREESTATE BLVD
SUITE B
SHREVEPORT, LA 71107

Sample Identification:

Company: APPROACH ENVIRONMENTAL

Field: COMSTOCK O&G-BETHANY LS

Lease: DERRICK 21 HZ #3 ALT

STA # : 250254

239444-5

**CAPILLARY ANALYSIS - METHOD GPA 2286-95
COMPONENT AS % OF TOTAL SAMPLE**

COMPONENT NAME	MOL %	WEIGHT %
METHANE	0.0000	0.0000
ETHANE	0.0000	0.0000
PROPANE	0.0000	0.0000
ISO-BUTANE	0.0000	0.0000
N-BUTANE	0.0000	0.0000
2,2-DIMETHYLPROPANE (NEOPENTANE)	0.0000	0.0000
ISOPENTANE	0.0000	0.0000
N-PENTANE	0.0000	0.0000
2,2-DIMETHYLBUTANE (NEOHEXANE)	0.0150	0.0691
2,3-DIMETHYLBUTANE CYCLOPENTANE	0.0179	0.0752
2-METHYLPENTANE	0.0657	0.3036
3-METHYLPENTANE	0.0339	0.1568
N-HEXANE	0.0704	0.3252
2,2-DIMETHYLPENTANE	0.0042	0.0228
METHYLCYCLOPENTANE	0.0146	0.0660
2,4-DIMETHYLPENTANE	0.0057	0.0305
2,2,3-TRIMETHYLBUTANE	0.0010	0.0056
BENZENE	0.0001	0.0006
3,3-DIMETHYLPENTANE	0.0016	0.0088
CYCLOHEXANE	0.0058	0.0263
2-METHYLHEXANE	0.0217	0.1167
2,3-DIMETHYLPENTANE	0.0059	0.0318
1,1-DIMETHYLCYCLOPENTANE 3-METHYLHEXANE	0.0204	0.1091

CAPILLARY ANALYSIS - METHOD GPA 2286-95
COMPONENT AS % OF TOTAL SAMPLE

COMPONENT NAME	MOL %	WEIGHT %
1,t3-DIMETHYLCYCLOPENTANE	0.0028	0.0148
1,c3-DIMETHYLCYCLOPENTANE 3-ETHYLPENTANE	0.0036	0.0192
1,t2-DIMETHYLCYCLOPENTANE 2,2,4-TRIMETHYLPENTANE	0.0042	0.0227
N-HEPTANE	0.0342	0.1839
METHYLCYCLOHEXANE 1,1,3-TRIMETHYLCYCLOPENTANE 2,2-DIMETHYLHEXANE	0.0011	0.0059
1,C2-DIMETHYLCYCLOPENTANE	0.0005	0.0027
2,5-DIMETHYLHEXANE	0.0025	0.0153
2,4-DIMETHYLHEXANE 2,2,3-TRIMETHYLPENTANE ETHYLCYCLOPENTANE	0.0039	0.0218
1,t2,c4-TRIMETHYLCYCLOPENTANE 3,3-DIMETHYLHEXANE	0.0020	0.0121
1,t2,C3-TRIMETHYLCYCLOPENTANE	0.0011	0.0066
2,3,4-TRIMETHYLPENTANE	0.0002	0.0015
TOLUENE	0.0003	0.0015
2,3-DIMETHYLHEXANE	0.0013	0.0078
1,1,2-TRIMETHYLCYCLOPENTANE	0.0003	0.0020
2-METHYLHEPTANE	0.0114	0.0700
4-METHYLHEPTANE	0.0034	0.0209
3,4-DIMETHYLHEXANE	0.0007	0.0041
3-METHYLHEPTANE 3-ETHYLHEXANE	0.0084	0.0513
1,c3-DIMETHYLCYCLOHEXANE 1,c2,t3-TRIMETHYLCYCLOPENTANE 1,c2,t4-TRIMETHYLCYCLOPENTANE	0.0025	0.0151
1,t4-DIMETHYLCYCLOHEXANE	0.0011	0.0066
2,2,5-TRIMETHYLHEXANE	0.0003	0.0022
1,1-DIMETHYLCYCLOHEXANE 1,methyl-t3-ETHYLCYCLOPENTANE	0.0005	0.0033
1-methyl-C3-ETHYLCYCLOPENTANE	0.0002	0.0012
1-methyl-t2-ETHYLCYCLOPENTANE 2,2,4-TRIMETHYLHEXANE	0.0004	0.0028
1-methyl-1-ETHYLCYCLOPENTANE CYCLOHEPTANE	0.0156	0.0957
N-OCTANE		
1,T2-DIMETHYLCYCLOCHEXANE	0.0002	0.0013
UNKNOWN	0.0004	0.0030
1,t3-DIMETHYLCYCLOHEXANE 1,c4-DIMETHYLCYCLOHEXANE 1,c2,c3-TRIMETHYLCYCLOPENTANE	0.0004	0.0026
2,4,4-TRIMETHYLHEXANE	0.0000	0.0000
ISOPROPYLCYCLOPENTANE	0.0001	0.0007

CAPILLARY ANALYSIS - METHOD GPA 2286-95
COMPONENT AS % OF TOTAL SAMPLE

COMPONENT NAME	MOL %	WEIGHT %
UNKNOWN	0.0002	0.0012
2,2-DIMETHYLHEPTANE	0.0008	0.0055
2,4-DIMETHYLHEPTANE	0.0012	0.0080
1-methyl-c2-ETHYLCYCLOPENTANE		
2,2,3-TRIMETHYLHEXANE	0.0003	0.0022
1,c2-DIMETHYLCYCLOHEXANE	0.0027	0.0169
2,6-DIMETHYLHEPTANE		
N-PROPYLCYCLOPENTANE	0.0003	0.0019
1,c3,c5-TRIMETHYLCYCLOHEXANE		
2,5-DIMETHYLHEPTANE	0.0038	0.0232
3,5-DIMETHYLHEPTANE		
ETHYLCYCLOHEXANE		
1,1,3-TRIMETHYLCYCLOHEXANE	0.0012	0.0081
2,3,3-TRIMETHYLHEXANE		
3,3-DIMETHYLHEPTANE		
1,1,4-TRIMETHYLCYCLOHEXANE	0.0002	0.0011
UNKNOWN	0.0000	0.0000
2,3,4-TRIMETHYLHEXANE	0.0001	0.0010
ETHYLBENZENE	0.0004	0.0020
1,t2,t4-TRIMETHYLCYCLOHEXANE	0.0020	0.0132
1,c3,t5-TRIMETHYLCYCLOHEXANE		
2,3-DIMETHYLHEPTANE		
M-XYLENE	0.0012	0.0066
P-XYLENE		
3,4-DIMETHYLHEPTANE		
2-METHYLOCTANE	0.0059	0.0403
4-METHYLOCTANE		
UNKNOWN	0.0000	0.0000
3-METHYLOCTANE	0.0036	0.0245
UNKNOWN	0.0002	0.0012
1,t2,c3-TRIMETHYLCYCLOHEXANE	0.0004	0.0025
1,t2,c4-TRIMETHYLCYCLOHEXANE		
O-XYLENE	0.0002	0.0012
1,1,2-TRIMETHYLCYCLOHEXANE	0.0001	0.0008
UNKNOWN	0.0004	0.0031
ISOBUTYLCYCLOPENTANE	0.0003	0.0020
N-NONANE	0.0087	0.0597
UNKNOWN	0.0000	0.0000
1,c2,c3-TRIMETHYLCYCLOHEXANE	0.0002	0.0016
1,c2,t3-TRIMETHYLCYCLOHEXANE		
UNKNOWN	0.0000	0.0001
ISOPROPYLBENZENE	0.0011	0.0072
2,2-DIMETHYLOCTANE	0.0014	0.0104
ISOPROPYLCYCLOHEXANE	0.0000	0.0000
CYCLOOCTANE		
UNKNOWN	0.0004	0.0029

CAPILLARY ANALYSIS - METHOD GPA 2286-95
COMPONENT AS % OF TOTAL SAMPLE

COMPONENT NAME	MOL %	WEIGHT %
N-BUTYLCYCLOPENTANE N-PROPYLCYCLOHEXANE	0.0026	0.0176
3,3-DIMETHYLOCTANE	0.0004	0.0028
UNKNOWN	0.0001	0.0006
N-PROPYLBENZENE	0.0000	0.0000
UNKNOWN	0.0003	0.0019
M-ETHYLTOLUENE	0.0000	0.0000
P-ETHYLTOLUENE 2,3-DIMETHYLOCTANE	0.0021	0.0133
4-METHYLNONANE 5-METHYLNONANE	0.0000	0.0000
1,3,5-TRIMETHYLBENZENE 2-METHYLNONANE	0.0037	0.0284
3-ETHYLOCTANE	0.0000	0.0000
O-ETHYLTOLUENE 3-METHYLNONANE	0.0020	0.0141
UNKNOWN	0.0000	0.0000
1,2,4-TRIMETHYLBENZENE t-BUTYLBENZENE	0.0002	0.0015
METHYLCYCLOOCTANE tert-BUTYLCYCLOHEXANE	0.0007	0.0049
ISO-BUTYLCYCLOHEXANE	0.0002	0.0013
N-DECANE	0.0046	0.0349
ISOBUTYLBENZENE	0.0000	0.0000
sec-BUTYLBENZENE	0.0002	0.0013
UNKNOWN	0.0001	0.0008
1-METHYL-3-ISOPROPYLBENZENE	0.0005	0.0033
1,2,3-TRIMETHYLBENZENE 1-METHYL-4-ISOPROPYLBENZENE	0.0008	0.0051
UNKNOWN	0.0011	0.0089
1-METHYL-2-ISOPROPYLBENZENE	0.0006	0.0040
UNKNOWN	0.0004	0.0035
N-BUTYLCYCLOHEXANE	0.0011	0.0083
UNKNOWN	0.0003	0.0024
1,3-DIETHYLBENZENE 1-METHYL-3-PROPYLBENZENE	0.0004	0.0030
1,2-DIETHYLBENZENE N-BUTYLBENZENE	0.0006	0.0042
1-METHYL-4-PROPYLBENZENE 1,4-DIETHYLBENZENE	0.0006	0.0040
1-METHYL-2-PROPYLBENZENE	0.0005	0.0033
1,4-DIMETHYL-2-ETHYLBENZENE	0.0006	0.0046
UNKNOWN	0.0002	0.0018

CAPILLARY ANALYSIS - METHOD GPA 2286-95
COMPONENT AS % OF TOTAL SAMPLE

COMPONENT NAME	MOL %	WEIGHT %
1,2-DIMETHYL-4-ETHYLBENZENE	0.0000	0.0000
1,3-DIMETHYL-2-ETHYLBENZENE	0.0002	0.0016
UNKNOWN	0.0000	0.0000
1,2-DIMETHYL-3-ETHYLBENZENE	0.0000	0.0000
UNKNOWN	0.0002	0.0020
N-UNDECANE	0.0007	0.0062
UNKNOWN	0.0000	0.0000
1,2,4,5-TETRAMETHYLBENZENE	0.0003	0.0020
1,2,3,5-TETRAMETHYLBENZENE	0.0007	0.0047
UNKNOWN	0.0001	0.0007
1,2,3,4-TETRAMETHYLBENZENE CYCLODECANE	0.0004	0.0032
UNKNOWN	0.0001	0.0009
NAPHTHALENE	0.0000	0.0000
N-DODECANE	0.0002	0.0021
ISOTRIDECANES PLUS	0.0001	0.0007
Total:	0.4530	2.3991

TOTAL HEXANES	0.2029	0.9298
TOTAL HEPTANES	0.1262	0.6588
TOTAL OCTANES	0.0582	0.3519
TOTAL NONANES	0.0350	0.2326
TOTAL DECANES PLUS	0.0307	0.2261

BTEX COMPONENTS

N-HEXANE	0.0704	0.3252
BENZENE	0.0001	0.0006
TOLUENE	0.0003	0.0015
ETHYLBENZENE	0.0004	0.0020
XYLENE	0.0014	0.0078

239444-5
**CAPILLARY ANALYSIS - METHOD GPA 2286-95
 HEAVY END FRACTION**

COMPONENT NAME	MOL %	WEIGHT %
METHANE	0.000	0.000
ETHANE	0.000	0.000
PROPANE	0.000	0.000
ISO-BUTANE	0.000	0.000
N-BUTANE	0.000	0.000
2,2-DIMETHYLPROPANE (NEOPENTANE)	0.000	0.000
ISOPENTANE	0.000	0.000
N-PENTANE	0.000	0.000
2,2-DIMETHYLBUTANE (NEOHEXANE)	3.304	2.882
2,3-DIMETHYLBUTANE	3.960	3.133
CYCLOPENTANE		
2-METHYLPENTANE	14.508	12.653
3-METHYLPENTANE	7.493	6.535
N-HEXANE	15.540	13.553
2,2-DIMETHYLPENTANE	0.937	0.951
METHYLCYCLOPENTANE	3.229	2.750
2,4-DIMETHYLPENTANE	1.254	1.272
2,2,3-TRIMETHYLBUTANE	0.229	0.232
BENZENE	0.029	0.023
3,3-DIMETHYLPENTANE	0.362	0.367
CYCLOHEXANE	1.288	1.097
2-METHYLHEXANE	4.795	4.863
2,3-DIMETHYLPENTANE	1.308	1.327
1,1-DIMETHYLCYCLOPENTANE	4.492	4.547
3-METHYLHEXANE		
1,t3-DIMETHYLCYCLOPENTANE	0.623	0.619
1,c3-DIMETHYLCYCLOPENTANE	0.804	0.800
3-ETHYLPENTANE		
1,t2-DIMETHYLCYCLOPENTANE	0.938	0.947
2,2,4-TRIMETHYLPENTANE		
N-HEPTANE	7.559	7.666
METHYLCYCLOHEXANE	0.245	0.247
1,1,3-TRIMETHYLCYCLOPENTANE		

CAPILLARY ANALYSIS - METHOD GPA 2286-95
HEAVY END FRACTION

COMPONENT NAME	MOL %	WEIGHT %
2,2-DIMETHYLHEXANE		
1,C2-DIMETHYLCYCLOPENTANE	0.114	0.113
2,5-DIMETHYLHEXANE	0.552	0.639
2,4-DIMETHYLHEXANE	0.870	0.907
2,2,3-TRIMETHYLPENTANE		
ETHYLCYCLOPENTANE		
1,t2,c4-TRIMETHYLCYCLOPENTANE	0.445	0.506
3,3-DIMETHYLHEXANE		
1,t2,C3-TRIMETHYLCYCLOPENTANE	0.243	0.276
2,3,4-TRIMETHYLPENTANE	0.055	0.063
TOLUENE	0.068	0.064
2,3-DIMETHYLHEXANE	0.281	0.324
1,1,2-TRIMETHYLCYCLOPENTANE	0.075	0.085
2-METHYLHEPTANE	2.525	2.919
4-METHYLHEPTANE	0.754	0.872
3,4-DIMETHYLHEXANE	0.147	0.170
3-METHYLHEPTANE	1.850	2.139
3-ETHYLHEXANE		
1,c3-DIMETHYLCYCLOHEXANE	0.554	0.629
1,c2,t3-TRIMETHYLCYCLOPENTANE		
1,c2,t4-TRIMETHYLCYCLOPENTANE		
1,t4-DIMETHYLCYCLOHEXANE	0.243	0.276
2,2,5-TRIMETHYLHEXANE	0.069	0.090
1,1-DIMETHYLCYCLOHEXANE	0.120	0.136
1,methyl-t3-ETHYLCYCLOPENTANE		
1-methyl-C3-ETHYLCYCLOPENTANE	0.046	0.052
1-methyl-t2-ETHYLCYCLOPENTANE	0.097	0.118
2,2,4-TRIMETHYLHEXANE		
1-methyl-1-ETHYLCYCLOPENTANE	3.449	3.987
CYCLOHEPTANE		
N-OCTANE		
1,T2-DIMETHYLCYCLOCHEXANE	0.049	0.056
UNKNOWN	0.096	0.124
1,t3-DIMETHYLCYCLOHEXANE	0.095	0.108
1,c4-DIMETHYLCYCLOHEXANE		
1,c2,c3-TRIMETHYLCYCLOPENTANE		
2,4,4-TRIMETHYLHEXANE	0.000	0.000
ISOPROPYLCYCLOPENTANE	0.026	0.030
UNKNOWN	0.038	0.049
2,2-DIMETHYLHEPTANE	0.178	0.231
2,4-DIMETHYLHEPTANE	0.274	0.334
1-methyl-c2-ETHYLCYCLOPENTANE		
2,2,3-TRIMETHYLHEXANE	0.070	0.091

CAPILLARY ANALYSIS - METHOD GPA 2286-95
HEAVY END FRACTION

COMPONENT NAME	MOL %	WEIGHT %
1,c2-DIMETHYLCYCLOHEXANE	0.602	0.703
2,6-DIMETHYLHEPTANE		
N-PROPYLCYCLOPENTANE	0.067	0.081
1,c3,c5-TRIMETHYLCYCLOHEXANE		
2,5-DIMETHYLHEPTANE	0.840	0.967
3,5-DIMETHYLHEPTANE		
ETHYLCYCLOHEXANE		
1,1,3-TRIMETHYLCYCLOHEXANE	0.263	0.339
2,3,3-TRIMETHYLHEXANE		
3,3-DIMETHYLHEPTANE		
1,1,4-TRIMETHYLCYCLOHEXANE	0.037	0.047
UNKNOWN	0.000	0.000
2,3,4-TRIMETHYLHEXANE	0.032	0.041
ETHYLBENZENE	0.079	0.085
1,t2,t4-TRIMETHYLCYCLOHEXANE	0.431	0.550
1,c3,t5-TRIMETHYLCYCLOHEXANE		
2,3-DIMETHYLHEPTANE		
M-XYLENE	0.257	0.277
P-XYLENE		
3,4-DIMETHYLHEPTANE		
2-METHYLOCTANE	1.295	1.680
4-METHYLOCTANE		
UNKNOWN	0.000	0.000
3-METHYLOCTANE	0.787	1.021
UNKNOWN	0.035	0.050
1,t2,c3-TRIMETHYLCYCLOHEXANE	0.082	0.105
1,t2,c4-TRIMETHYLCYCLOHEXANE		
O-XYLENE	0.046	0.050
1,1,2-TRIMETHYLCYCLOHEXANE	0.025	0.032
UNKNOWN	0.089	0.129
ISOBUTYLCYCLOPENTANE	0.064	0.082
N-NONANE	1.917	2.488
UNKNOWN	0.000	0.000
1,c2,c3-TRIMETHYLCYCLOHEXANE	0.052	0.066
1,c2,t3-TRIMETHYLCYCLOHEXANE		
UNKNOWN	0.003	0.004
ISOPROPYLBENZENE	0.248	0.302
2,2-DIMETHYLOCTANE	0.302	0.434
ISOPROPYLCYCLOHEXANE	0.000	0.000
CYCLOOCTANE		
UNKNOWN	0.090	0.122
N-BUTYLCYCLOPENTANE	0.574	0.733
N-PROPYLCYCLOHEXANE		
3,3-DIMETHYLOCTANE	0.080	0.115

CAPILLARY ANALYSIS - METHOD GPA 2286-95
HEAVY END FRACTION

COMPONENT NAME	MOL %	WEIGHT %
UNKNOWN	0.018	0.025
N-PROPYLBENZENE	0.000	0.000
UNKNOWN	0.057	0.078
M-ETHYLTOLUENE	0.000	0.000
P-ETHYLTOLUENE	0.454	0.553
2,3-DIMETHYLOCTANE		
4-METHYLNONANE	0.000	0.000
5-METHYLNONANE		
1,3,5-TRIMETHYLBENZENE		
2-METHYLNONANE	0.822	1.183
3-ETHYLOCTANE	0.000	0.000
O-ETHYLTOLUENE	0.442	0.587
3-METHYLNONANE		
UNKNOWN	0.000	0.000
1,2,4-TRIMETHYLBENZENE	0.050	0.063
t-BUTYLBENZENE		
METHYLCYCLOOCTANE		
tert-BUTYLCYCLOHEXANE	0.145	0.205
ISO-BUTYLCYCLOHEXANE	0.039	0.055
N-DECANE	1.009	1.453
ISOBUTYLBENZENE	0.000	0.000
sec-BUTYLBENZENE	0.041	0.056
UNKNOWN	0.020	0.032
1-METHYL-3-ISOPROPYLBENZENE	0.102	0.139
1,2,3-TRIMETHYLBENZENE	0.168	0.213
1-METHYL-4-ISOPROPYLBENZENE		
UNKNOWN	0.235	0.371
1-METHYL-2-ISOPROPYLBENZENE	0.124	0.168
UNKNOWN	0.092	0.145
N-BUTYLCYCLOHEXANE	0.244	0.346
UNKNOWN	0.064	0.102
1,3-DIETHYLBENZENE	0.092	0.124
1-METHYL-3-PROPYLBENZENE		
1,2-DIETHYLBENZENE	0.127	0.173
N-BUTYLBENZENE		
1-METHYL-4-PROPYLBENZENE		
1,4-DIETHYLBENZENE	0.122	0.166
1-METHYL-2-PROPYLBENZENE	0.101	0.137
1,4-DIMETHYL-2-ETHYLBENZENE	0.142	0.193
UNKNOWN	0.047	0.074
1,2-DIMETHYL-4-ETHYLBENZENE	0.000	0.000

**CAPILLARY ANALYSIS - METHOD GPA 2286-95
HEAVY END FRACTION**

COMPONENT NAME	MOL %	WEIGHT %
1,3-DIMETHYL-2-ETHYLBENZENE	0.048	0.065
UNKNOWN	0.000	0.000
1,2-DIMETHYL-3-ETHYLBENZENE	0.000	0.000
UNKNOWN	0.053	0.084
N-UNDECANE	0.164	0.259
UNKNOWN	0.000	0.000
1,2,4,5-TETRAMETHYLBENZENE	0.060	0.082
1,2,3,5-TETRAMETHYLBENZENE	0.145	0.197
UNKNOWN	0.017	0.030
1,2,3,4-TETRAMETHYLBENZENE	0.096	0.133
CYCLODECANE		
UNKNOWN	0.023	0.039
NAPHTHALENE	0.000	0.000
N-DODECANE	0.051	0.088
ISOTRIDECANES PLUS	0.014	0.029
Total:	100.000	100.000

Specific Gravity @ 60 Deg. F. (Air = 1)	3.3982
Molecular Weight	98.85
Compressibility Factor	0.8596
Summation Factor	0.0978
Cu. Ft. Vapor/Gal @ 14.696 & 60 Deg. F.	22.870
Cu. Ft. Vapor/Gal @ 14.730 & 60 Deg. F.	22.817
Cu. Ft. Vapor/Gal @ 14.650 & 60 Deg. F.	22.942
Btu/cu. Ft. @ 14.696 PSIA, Dry	5382.38
Btu/cu. Ft. @ 14.730 PSIA, Dry	5394.83
BTU/LB	20703



Gas Analysis Report No: 239444-6 -18

Reported Date: 8/8/2018

For: APPROACH ENVIRONMENTAL
 Attn: MARK MOORE
 151 FREESTATE BLVD
 SUITE B
 SHREVEPORT, LA 71107

Sample Identification:
 Company: APPROACH ENVIRONMENTAL
 Field: COMSTOCK O&G-BETHANY LS
 Lease: DERRICK 21 HZ #3 ALT
 STA # : 250254

Sample Data: Date Collected: 08/02/2018 03:15 PM Date Received: 08/06/2018 By: JOHN MAGGIO
 PSIG: 900 Temp: N/P DEG. F.

Remarks: WELL TUBING

CYL # 1875

Sample Type: SPOT

Analyst: GG

Hydrocarbon Analysis - GPA 2261-13

Component Name	Mol Percent	GPM @ 14.730 PSIA
Carbon Dioxide (CO2)	2.312	
Nitrogen (N2)	0.040	
Methane (C1)	97.202	
Ethane (C2)	0.413	0.111
Propane (C3)	0.025	0.007
Iso-Butane (IC4)	0.004	0.001
N-Butane (NC4)	0.004	0.001
Iso-Pentane (IC5)	0.000	0.000
N-Pentane (NC5)	0.000	0.000
Hexanes Plus (C6+)	0.000	0.000
Total	100.000	

Mol Weight: 16.76 Ethane + GPM: 0.120
 BTU/LB: 22411.11 Propane + GPM: 0.009
 Iso-Pentane + GPM: 0.000

Compressibility Factor: 0.9979
 Specific Gravity @ 60 Deg. F. (Air = 1) : 0.580

BTU/Cuft. (Real) 60 Deg. F. - PSIA:	14.650	14.696	14.730	15.025
Dry:	988.9	992.0	994.3	1014.2
Sat:	971.9	975.0	977.3	996.9

Reviewed By:

Tina Venable, Customer Service Representative

Data Reviewer

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 2129 W. Willow St. Scott, LA 70583 337-232-3568



Gas Analysis Report No: 239444

239444-6 -20

Date: 8/8/2018

For: APPROACH ENVIRONMENTAL

Attn: MARK MOORE
151 FREESTATE BLVD
SUITE B
SHREVEPORT, LA 71107

Sample Identification:
Company: APPROACH ENVIRONMENTAL
Field: COMSTOCK O&G-BETHANY LS
Lease: DERRICK 21 HZ #3 ALT

STA # : 250254

239444-6

CAPILLARY ANALYSIS - METHOD GPA 2286-95
COMPONENT AS % OF TOTAL SAMPLE

COMPONENT NAME	MOL %	WEIGHT %
METHANE	0.0000	0.0000
ETHANE	0.0000	0.0000
PROPANE	0.0000	0.0000
ISO-BUTANE	0.0000	0.0000
N-BUTANE	0.0000	0.0000
2,2-DIMETHYLPROPANE (NEOPENTANE)	0.0000	0.0000
ISOPENTANE	0.0000	0.0000
N-PENTANE	0.0000	0.0000
2,2-DIMETHYLBUTANE (NEOHEXANE)	0.0000	0.0000
2,3-DIMETHYLBUTANE	0.0000	0.0000
CYCLOPENTANE	0.0000	0.0000
2-METHYLPENTANE	0.0000	0.0000
3-METHYLPENTANE	0.0000	0.0000
N-HEXANE	0.0000	0.0000
2,2-DIMETHYLPENTANE	0.0000	0.0000
METHYLCYCLOPENTANE	0.0000	0.0000
2,4-DIMETHYLPENTANE	0.0000	0.0000
2,2,3-TRIMETHYLBUTANE	0.0000	0.0000
BENZENE	0.0000	0.0000
3,3-DIMETHYLPENTANE	0.0000	0.0000
CYCLOHEXANE	0.0000	0.0000
2-METHYLHEXANE	0.0000	0.0000
2,3-DIMETHYLPENTANE	0.0000	0.0000
1,1-DIMETHYLCYCLOPENTANE	0.0000	0.0000
3-METHYLHEXANE	0.0000	0.0000

CAPILLARY ANALYSIS - METHOD GPA 2286-95
COMPONENT AS % OF TOTAL SAMPLE

COMPONENT NAME	MOL %	WEIGHT %
1,t3-DIMETHYLCYCLOPENTANE	0.0000	0.0000
1,c3-DIMETHYLCYCLOPENTANE 3-ETHYLPENTANE	0.0000	0.0000
1,t2-DIMETHYLCYCLOPENTANE 2,2,4-TRIMETHYLPENTANE	0.0000	0.0000
N-HEPTANE	0.0000	0.0000
METHYLCYCLOHEXANE 1,1,3-TRIMETHYLCYCLOPENTANE 2,2-DIMETHYLHEXANE	0.0000	0.0000
1,C2-DIMETHYLCYCLOPENTANE	0.0000	0.0000
2,5-DIMETHYLHEXANE	0.0000	0.0000
2,4-DIMETHYLHEXANE 2,2,3-TRIMETHYLPENTANE ETHYLCYCLOPENTANE	0.0000	0.0000
1,t2,c4-TRIMETHYLCYCLOPENTANE 3,3-DIMETHYLHEXANE	0.0000	0.0000
1,t2,C3-TRIMETHYLCYCLOPENTANE	0.0000	0.0000
2,3,4-TRIMETHYLPENTANE	0.0000	0.0000
TOLUENE	0.0000	0.0000
2,3-DIMETHYLHEXANE	0.0000	0.0000
1,1,2-TRIMETHYLCYCLOPENTANE	0.0000	0.0000
2-METHYLHEPTANE	0.0000	0.0000
4-METHYLHEPTANE	0.0000	0.0000
3,4-DIMETHYLHEXANE	0.0000	0.0000
3-METHYLHEPTANE 3-ETHYLHEXANE	0.0000	0.0000
1,c3-DIMETHYLCYCLOHEXANE 1,c2,t3-TRIMETHYLCYCLOPENTANE	0.0000	0.0000
1,c2,t4-TRIMETHYLCYCLOPENTANE		
1,t4-DIMETHYLCYCLOHEXANE	0.0000	0.0000
2,2,5-TRIMETHYLHEXANE	0.0000	0.0000
1,1-DIMETHYLCYCLOHEXANE 1,methyl-t3-ETHYLCYCLOPENTANE	0.0000	0.0000
1-methyl-C3-ETHYLCYCLOPENTANE	0.0000	0.0000
1-methyl-t2-ETHYLCYCLOPENTANE 2,2,4-TRIMETHYLHEXANE	0.0000	0.0000
1-methyl-1-ETHYLCYCLOPENTANE CYCLOHEPTANE	0.0000	0.0000
N-OCTANE		
1,T2-DIMETHYLCYCLOCHEXANE	0.0000	0.0000
UNKNOWN	0.0000	0.0000
1,t3-DIMETHYLCYCLOHEXANE 1,c4-DIMETHYLCYCLOHEXANE	0.0000	0.0000
1,c2,c3-TRIMETHYLCYCLOPENTANE		
2,4,4-TRIMETHYLHEXANE	0.0000	0.0000
ISOPROPYLCYCLOPENTANE	0.0000	0.0000

CAPILLARY ANALYSIS - METHOD GPA 2286-95
COMPONENT AS % OF TOTAL SAMPLE

COMPONENT NAME	MOL %	WEIGHT %
UNKNOWN	0.0000	0.0000
2,2-DIMETHYLHEPTANE	0.0000	0.0000
2,4-DIMETHYLHEPTANE	0.0000	0.0000
1-methyl-c2-ETHYLCYCLOPENTANE	0.0000	0.0000
2,2,3-TRIMETHYLHEXANE	0.0000	0.0000
1,c2-DIMETHYLCYCLOHEXANE	0.0000	0.0000
2,6-DIMETHYLHEPTANE	0.0000	0.0000
N-PROPYLCYCLOPENTANE	0.0000	0.0000
1,c3,c5-TRIMETHYLCYCLOHEXANE	0.0000	0.0000
2,5-DIMETHYLHEPTANE	0.0000	0.0000
3,5-DIMETHYLHEPTANE	0.0000	0.0000
ETHYLCYCLOHEXANE	0.0000	0.0000
1,1,3-TRIMETHYLCYCLOHEXANE	0.0000	0.0000
2,3,3-TRIMETHYLHEXANE	0.0000	0.0000
3,3-DIMETHYLHEPTANE	0.0000	0.0000
1,1,4-TRIMETHYLCYCLOHEXANE	0.0000	0.0000
UNKNOWN	0.0000	0.0000
2,3,4-TRIMETHYLHEXANE	0.0000	0.0000
ETHYLBENZENE	0.0000	0.0000
1,t2,t4-TRIMETHYLCYCLOHEXANE	0.0000	0.0000
1,c3,t5-TRIMETHYLCYCLOHEXANE	0.0000	0.0000
2,3-DIMETHYLHEPTANE	0.0000	0.0000
M-XYLENE	0.0000	0.0000
P-XYLENE	0.0000	0.0000
3,4-DIMETHYLHEPTANE	0.0000	0.0000
2-METHYLOCTANE	0.0000	0.0000
4-METHYLOCTANE	0.0000	0.0000
UNKNOWN	0.0000	0.0000
3-METHYLOCTANE	0.0000	0.0000
UNKNOWN	0.0000	0.0000
1,t2,c3-TRIMETHYLCYCLOHEXANE	0.0000	0.0000
1,t2,c4-TRIMETHYLCYCLOHEXANE	0.0000	0.0000
O-XYLENE	0.0000	0.0000
1,1,2-TRIMETHYLCYCLOHEXANE	0.0000	0.0000
UNKNOWN	0.0000	0.0000
ISOBUTYLCYCLOPENTANE	0.0000	0.0000
N-NONANE	0.0000	0.0000
UNKNOWN	0.0000	0.0000
1,c2,c3-TRIMETHYLCYCLOHEXANE	0.0000	0.0000
1,c2,t3-TRIMETHYLCYCLOHEXANE	0.0000	0.0000
UNKNOWN	0.0000	0.0000
ISOPROPYLBENZENE	0.0000	0.0000
2,2-DIMETHYLOCTANE	0.0000	0.0000
ISOPROPYLCYCLOHEXANE	0.0000	0.0000
CYCLOOCTANE	0.0000	0.0000
UNKNOWN	0.0000	0.0000

CAPILLARY ANALYSIS - METHOD GPA 2286-95
COMPONENT AS % OF TOTAL SAMPLE

COMPONENT NAME	MOL %	WEIGHT %
N-BUTYLCYCLOPENTANE	0.0000	0.0000
N-PROPYLCYCLOHEXANE		
3,3-DIMETHYLOCTANE	0.0000	0.0000
UNKNOWN	0.0000	0.0000
N-PROPYLBENZENE	0.0000	0.0000
UNKNOWN	0.0000	0.0000
M-ETHYLTOLUENE	0.0000	0.0000
P-ETHYLTOLUENE	0.0000	0.0000
2,3-DIMETHYLOCTANE		
4-METHYLNONANE	0.0000	0.0000
5-METHYLNONANE		
1,3,5-TRIMETHYLBENZENE		
2-METHYLNONANE	0.0000	0.0000
3-ETHYLOCTANE	0.0000	0.0000
O-ETHYLTOLUENE	0.0000	0.0000
3-METHYLNONANE		
UNKNOWN	0.0000	0.0000
1,2,4-TRIMETHYLBENZENE	0.0000	0.0000
t-BUTYLBENZENE		
METHYLCYCLOOCTANE		
tert-BUTYLCYCLOHEXANE	0.0000	0.0000
ISO-BUTYLCYCLOHEXANE	0.0000	0.0000
N-DECANE	0.0000	0.0000
ISOBUTYLBENZENE	0.0000	0.0000
sec-BUTYLBENZENE	0.0000	0.0000
UNKNOWN	0.0000	0.0000
1-METHYL-3-ISOPROPYLBENZENE	0.0000	0.0000
1,2,3-TRIMETHYLBENZENE	0.0000	0.0000
1-METHYL-4-ISOPROPYLBENZENE		
UNKNOWN	0.0000	0.0000
1-METHYL-2-ISOPROPYLBENZENE	0.0000	0.0000
UNKNOWN	0.0000	0.0000
N-BUTYLCYCLOHEXANE	0.0000	0.0000
UNKNOWN	0.0000	0.0000
1,3-DIETHYLBENZENE	0.0000	0.0000
1-METHYL-3-PROPYLBENZENE		
1,2-DIETHYLBENZENE	0.0000	0.0000
N-BUTYLBENZENE		
1-METHYL-4-PROPYLBENZENE		
1,4-DIETHYLBENZENE	0.0000	0.0000
1-METHYL-2-PROPYLBENZENE	0.0000	0.0000
1,4-DIMETHYL-2-ETHYLBENZENE	0.0000	0.0000
UNKNOWN	0.0000	0.0000

CAPILLARY ANALYSIS - METHOD GPA 2286-95
COMPONENT AS % OF TOTAL SAMPLE

COMPONENT NAME	MOL %	WEIGHT %
1,2-DIMETHYL-4-ETHYLBENZENE	0.0000	0.0000
1,3-DIMETHYL-2-ETHYLBENZENE	0.0000	0.0000
UNKNOWN	0.0000	0.0000
1,2-DIMETHYL-3-ETHYLBENZENE	0.0000	0.0000
UNKNOWN	0.0000	0.0000
N-UNDECANE	0.0000	0.0000
UNKNOWN	0.0000	0.0000
1,2,4,5-TETRAMETHYLBENZENE	0.0000	0.0000
1,2,3,5-TETRAMETHYLBENZENE	0.0000	0.0000
UNKNOWN	0.0000	0.0000
1,2,3,4-TETRAMETHYLBENZENE CYCLODECANE	0.0000	0.0000
UNKNOWN	0.0000	0.0000
NAPHTHALENE	0.0000	0.0000
N-DODECANE	0.0000	0.0000
ISOTRIDECANES PLUS	0.0000	0.0000
Total:	0.0000	0.0000

TOTAL HEXANES	0.0000	0.0000
TOTAL HEPTANES	0.0000	0.0000
TOTAL OCTANES	0.0000	0.0000
TOTAL NONANES	0.0000	0.0000
TOTAL DECANES PLUS	0.0000	0.0000

BTEX COMPONENTS

N-HEXANE	0.0000	0.0000
BENZENE	0.0000	0.0000
TOLUENE	0.0000	0.0000
ETHYLBENZENE		
XYLENE	0.0000	0.0000