



*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 #1 ALT - Serial Number: 242089  
Section 21, Township 13 N, Range 15 W  
SONRIS GPS (Production Well): 32.09469459, -93.91511861

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 800 psi according to Element Lab.

The well tubing gas sample was collected at the tubing at the wellhead with a recorded pressure of approximately 1350 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.



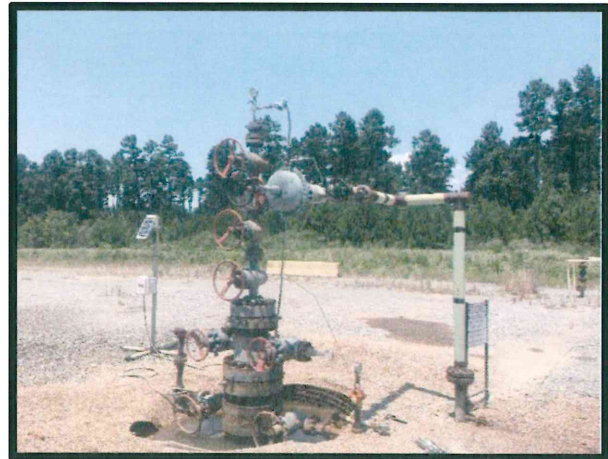
Gauge on well head



Gauge on surface casing



Location Sign



Derrick 21 HZ #1 Well Head

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](mailto: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>	Purchase Order #: _____
Location: <u>DESOUD PARISH</u>	Sampled By: <u>JOHN MACRID</u>

 Select One:  Standard     Priority     Rush

 Well SN# 242089
**Sample Description**

Container Number	Sample Identification	Date Sampled	Time	Analyses Requested			Comments
				NG2 Suite and Gas Comp.	d13C or Meth., eth., prop.	Plus dD or Methane	
<u>2797</u>	<u>(Derrick 21HZ #1 ALT)</u> <u>WELL TUBING</u>	<u>8/2/18</u>	<u>13:20</u>	X	X	X	Meth=methane; Eth=Ethane; Prop=Propane
<u>3052</u>	<u>(Derrick 21HZ #1 ALT)</u> <u>SURFACE CASING</u>	<u>8/2/18</u>	<u>13:50</u>	X	X	X	

**Chain-of-Custody Record**

Signature	Company	Date	Time
Relinquished by <u>John Macrid</u>	<u>APPROACH ENV.</u>	<u>8/3/18</u>	<u>8:30</u>
Received by <u>RNL CARROLL</u>		<u>8/3/18</u>	<u>8:30</u>
Relinquished by	<u>Abby L. Skube / Isotech Laboratories</u>	<u>AUG 08 2018</u>	<u>12:35</u>
Received by			
Relinquished by			
Received by			



Lab #: 676744      Job #: 39164      IS-99404      Co. Job#:  
 Sample Name: Derrick 21HZ #1 ALT Well Tubing      Co. Lab#:  
 Company: Approach Environmental, LLC      Cylinder: 2797  
 API/Well:  
 Container: Cylinder  
 Field/Site Name: Comstock Oil & Gas  
 Location: Desoto Parish  
 Formation:  
 Sampling Point:  
 Date Sampled: 8/02/2018 13:20      Date Received: 8/08/2018      Date Reported: 10/17/2018

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	nd			
Oxygen -----	nd			
Nitrogen -----	0.043			
Carbon Dioxide -----	2.22			
Methane -----	97.27	-36.63	-150.2	
Ethane -----	0.444	-28.10		
Ethylene -----	nd			
Propane -----	0.0210			
Propylene -----	nd			
Iso-butane -----	0.0020			
N-butane -----	0.0027			
Iso-pentane -----	0.0003			
N-pentane -----	0.0002			
Hexanes + -----	0.0008			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 995

Specific gravity, calculated: 0.578

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. %.

Lab #: 676745 Job #: 39164 IS-99404 Co. Job#: \_\_\_\_\_  
 Sample Name: Derrick 21HZ #1 ALT Surface Casing Co. Lab#: \_\_\_\_\_  
 Company: Approach Environmental, LLC Cylinder: 3052  
 API/Well: \_\_\_\_\_  
 Container: Cylinder  
 Field/Site Name: Comstock Oil & Gas  
 Location: Desoto Parish  
 Formation: \_\_\_\_\_  
 Sampling Point: \_\_\_\_\_  
 Date Sampled: 8/02/2018 13:50 Date Received: 8/08/2018 Date Reported: 10/17/2018

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0291			
Hydrogen -----	nd			
Argon -----	0.0067			
Oxygen -----	nd			
Nitrogen -----	2.12			
Carbon Dioxide -----	nd			
Methane -----	93.79	-38.45	-148.0	
Ethane -----	2.45	-24.96		
Ethylene -----	nd			
Propane -----	0.818	-24.13		
Propylene -----	nd			
Iso-butane -----	0.264			
N-butane -----	0.268			
Iso-pentane -----	0.116			
N-pentane -----	0.0663			
Hexanes + -----	0.0747			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1044

Specific gravity, calculated: 0.596

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:

Client Information:

Company Name: **Approach Env.**  
 Contact Name: **MARK MORZE**  
 Address: **151 FREESTATE BLVD. P.O. BOX 7192 SUITE B SHILOH, KY 40155**  
 City, State Zip: **SHILOH, KY 40155**  
 Phone Number: **318-401-0945** Ext: **318-222-2925**  
 Fax Number: **318-222-2925**  
 E-mail: **markm@approachenv.com**

Billing Information: **Same**

PO Number: **Quote Number:**

Project Name/Number: **Constack Oil Hrs**

Sampler's Signature: *[Signature]*

Shipping Method: **UPS / FedEx / NOW**

Required QC Level: **Required**

Bill Monthly:  Yes  No

DHL / Element / Hand / Mail

Matrix Code: **1** of **1**

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

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

Quantity: **1**  
 Type: **PNSTR**  
 P=Plastic, G=Glass, V=Vial

Pres.

HCl, HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, NaOH, Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>

Requested Tests

**Ext Gas Analysis EPA 2261 + 2261**

Comments

Sample ID/Description

**(DRECK 21HZ #1 ACT) 8/6/18 13:20 GRAB NG**  
**WELL TURBIDG**  
**(DRECK 21HZ #1 ACT) 8/6/18 13:50 GRAB NG**  
**SURFACE CASING**

Collection Information

Date	Time	Grab / Composite	Matrix
8/6/18	13:20		NG
8/6/18	13:50		NG

Quantity

Type

Pres.

Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
<i>[Signature]</i>	8/3/18	<i>[Signature]</i>	8-3-18 9:20am	WELL SN# 2420001
<i>[Signature]</i>	8/6/18	<i>[Signature]</i>	8-6-18 0600	

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.

9301 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
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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*

*C6 = 0.185  
 C7 = 0.118  
 0.303*

Trevor Judice Operations Manager



**Gas Analysis Report No:** 239444-3 -25

**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 #1 ALT  
**STA # :** 242089

**Sample Data:** **Date Collected:** 08/02/2018 03:50 PM **Date Received:** 08/06/2018 **By:** JOHN MAGGIO  
**PSIG:** 800 **Temp:** N/P **DEG. F.**

**Remarks:** SURFACE CASING

CYL # 2085

**Sample Type:** SPOT

**Analyst:** GG

**Hydrocarbon Analysis - GPA 2261-13**

Component Name	Mol Percent	GPM @ 14.730 PSIA
Carbon Dioxide (CO2)	0.000	
Nitrogen (N2)	2.119	
Methane (C1)	93.819	
Ethane (C2)	2.430	0.651
Propane (C3)	0.808	0.223
Iso-Butane (IC4)	0.269	0.088
N-Butane (NC4)	0.281	0.089
Iso-Pentane (IC5)	0.120	0.044
N-Pentane (NC5)	0.071	0.026
Hexanes Plus (C6+)	0.083	0.036
<b>Total</b>	<b>100.000</b>	

**Mol Weight:** 17.26 **Ethane + GPM:** 1.157  
**BTU/LB:** 22873.14 **Propane + GPM:** 0.506  
**Iso-Pentane + GPM:** 0.106

**Compressibility Factor:** 0.9978  
**Specific Gravity @ 60 Deg. F. (Air = 1) :** 0.597

BTU/Cuft. (Real) 60 Deg. F. - PSIA:	14.650	14.696	14.730	15.025
<b>Dry:</b>	1039.7	1042.9	1045.3	1066.3
<b>Sat:</b>	1021.9	1025.1	1027.5	1048.1

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

239444-3 -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 #1 ALT

STA # : 242089

239444-3

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)	0.0075	0.0381
2,3-DIMETHYLBUTANE CYCLOPENTANE	0.0060	0.0276
2-METHYLPENTANE	0.0195	0.0988
3-METHYLPENTANE	0.0095	0.0480
N-HEXANE	0.0156	0.0791
2,2-DIMETHYLPENTANE	0.0012	0.0070
METHYLCYCLOPENTANE	0.0022	0.0107
2,4-DIMETHYLPENTANE	0.0013	0.0075
2,2,3-TRIMETHYLBUTANE	0.0003	0.0020
BENZENE	0.0001	0.0004
3,3-DIMETHYLPENTANE	0.0004	0.0023
CYCLOHEXANE	0.0010	0.0050
2-METHYLHEXANE	0.0034	0.0200
2,3-DIMETHYLPENTANE	0.0008	0.0050
1,1-DIMETHYLCYCLOPENTANE 3-METHYLHEXANE	0.0029	0.0168

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

<b>COMPONENT NAME</b>	<b>MOL %</b>	<b>WEIGHT %</b>
1,t3-DIMETHYLCYCLOPENTANE	0.0002	0.0013
1,c3-DIMETHYLCYCLOPENTANE 3-ETHYLPENTANE	0.0003	0.0019
1,t2-DIMETHYLCYCLOPENTANE 2,2,4-TRIMETHYLPENTANE	0.0004	0.0021
N-HEPTANE	0.0035	0.0204
METHYLCYCLOHEXANE 1,1,3-TRIMETHYLCYCLOPENTANE 2,2-DIMETHYLHEXANE	0.0011	0.0061
1,C2-DIMETHYLCYCLOPENTANE	0.0000	0.0002
2,5-DIMETHYLHEXANE	0.0003	0.0019
2,4-DIMETHYLHEXANE 2,2,3-TRIMETHYLPENTANE ETHYLCYCLOPENTANE	0.0004	0.0024
1,t2,c4-TRIMETHYLCYCLOPENTANE 3,3-DIMETHYLHEXANE	0.0002	0.0010
1,t2,C3-TRIMETHYLCYCLOPENTANE	0.0001	0.0004
2,3,4-TRIMETHYLPENTANE	0.0000	0.0002
TOLUENE	0.0002	0.0008
2,3-DIMETHYLHEXANE	0.0001	0.0007
1,1,2-TRIMETHYLCYCLOPENTANE	0.0000	0.0002
2-METHYLHEPTANE	0.0008	0.0051
4-METHYLHEPTANE	0.0002	0.0011
3,4-DIMETHYLHEXANE	0.0001	0.0003
3-METHYLHEPTANE 3-ETHYLHEXANE	0.0006	0.0039
1,c3-DIMETHYLCYCLOHEXANE 1,c2,t3-TRIMETHYLCYCLOPENTANE	0.0001	0.0007
1,c2,t4-TRIMETHYLCYCLOPENTANE		
1,t4-DIMETHYLCYCLOHEXANE	0.0001	0.0004
2,2,5-TRIMETHYLHEXANE	0.0000	0.0003
1,1-DIMETHYLCYCLOHEXANE 1,methyl-t3-ETHYLCYCLOPENTANE	0.0000	0.0002
1-methyl-C3-ETHYLCYCLOPENTANE	0.0000	0.0000
1-methyl-t2-ETHYLCYCLOPENTANE 2,2,4-TRIMETHYLHEXANE	0.0000	0.0002
1-methyl-1-ETHYLCYCLOPENTANE CYCLOHEPTANE	0.0007	0.0047
N-OCTANE		
1,T2-DIMETHYLCYCLOCHEXANE	0.0000	0.0001
UNKNOWN	0.0000	0.0002
1,t3-DIMETHYLCYCLOHEXANE 1,c4-DIMETHYLCYCLOHEXANE	0.0000	0.0003
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**

<b>COMPONENT NAME</b>	<b>MOL %</b>	<b>WEIGHT %</b>
UNKNOWN	0.0000	0.0003
2,2-DIMETHYLHEPTANE	0.0000	0.0000
2,4-DIMETHYLHEPTANE	0.0001	0.0004
1-methyl-c2-ETHYLCYCLOPENTANE		
2,2,3-TRIMETHYLHEXANE	0.0000	0.0000
1,c2-DIMETHYLCYCLOHEXANE	0.0001	0.0008
2,6-DIMETHYLHEPTANE		
N-PROPYLCYCLOPENTANE	0.0000	0.0002
1,c3,c5-TRIMETHYLCYCLOHEXANE		
2,5-DIMETHYLHEPTANE	0.0002	0.0012
3,5-DIMETHYLHEPTANE		
ETHYLCYCLOHEXANE		
1,1,3-TRIMETHYLCYCLOHEXANE	0.0000	0.0003
2,3,3-TRIMETHYLHEXANE		
3,3-DIMETHYLHEPTANE		
1,1,4-TRIMETHYLCYCLOHEXANE	0.0000	0.0002
UNKNOWN	0.0000	0.0000
2,3,4-TRIMETHYLHEXANE	0.0000	0.0000
ETHYLBENZENE	0.0001	0.0004
1,t2,t4-TRIMETHYLCYCLOHEXANE	0.0001	0.0005
1,c3,t5-TRIMETHYLCYCLOHEXANE		
2,3-DIMETHYLHEPTANE		
M-XYLENE	0.0002	0.0013
P-XYLENE		
3,4-DIMETHYLHEPTANE		
2-METHYLOCTANE	0.0002	0.0017
4-METHYLOCTANE		
UNKNOWN	0.0000	0.0000
3-METHYLOCTANE	0.0001	0.0011
UNKNOWN	0.0000	0.0000
1,t2,c3-TRIMETHYLCYCLOHEXANE	0.0000	0.0001
1,t2,c4-TRIMETHYLCYCLOHEXANE		
O-XYLENE	0.0001	0.0004
1,1,2-TRIMETHYLCYCLOHEXANE	0.0000	0.0003
UNKNOWN	0.0000	0.0002
ISOBUTYLCYCLOPENTANE	0.0000	0.0001
N-NONANE	0.0002	0.0018
UNKNOWN	0.0000	0.0000
1,c2,c3-TRIMETHYLCYCLOHEXANE	0.0000	0.0001
1,c2,t3-TRIMETHYLCYCLOHEXANE		
UNKNOWN	0.0000	0.0000
ISOPROPYLBENZENE	0.0000	0.0000
2,2-DIMETHYLOCTANE	0.0000	0.0000
ISOPROPYLCYCLOHEXANE	0.0000	0.0000
CYCLOOCTANE		
UNKNOWN	0.0000	0.0000

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

<b>COMPONENT NAME</b>	<b>MOL %</b>	<b>WEIGHT %</b>
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	0.0002	0.0013
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**

<b>COMPONENT NAME</b>	<b>MOL %</b>	<b>WEIGHT %</b>
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	0.0002	0.0017
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
<b>Total:</b>	0.0830	0.4399

TOTAL HEXANES	0.0583	0.2917
TOTAL HEPTANES	0.0179	0.1024
TOTAL OCTANES	0.0048	0.0310
TOTAL NONANES	0.0016	0.0116
TOTAL DECANES PLUS	0.0004	0.0033

BTEX COMPONENTS

N-HEXANE	0.0156	0.0791
BENZENE	0.0001	0.0004
TOLUENE	0.0002	0.0008
ETHYLBENZENE	0.0001	0.0004
XYLENE	0.0003	0.0017

**239444-3**
**CAPILLARY ANALYSIS - METHOD GPA 2286-95  
 HEAVY END FRACTION**

<b>COMPONENT NAME</b>	<b>MOL %</b>	<b>WEIGHT %</b>
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)	9.075	8.663
2,3-DIMETHYLBUTANE	7.239	6.267
CYCLOPENTANE		
2-METHYLPENTANE	23.526	22.458
3-METHYLPENTANE	11.438	10.918
N-HEXANE	18.846	17.990
2,2-DIMETHYLPENTANE	1.428	1.585
METHYLCYCLOPENTANE	2.616	2.439
2,4-DIMETHYLPENTANE	1.543	1.712
2,2,3-TRIMETHYLBUTANE	0.409	0.454
BENZENE	0.116	0.101
3,3-DIMETHYLPENTANE	0.466	0.517
CYCLOHEXANE	1.215	1.133
2-METHYLHEXANE	4.094	4.545
2,3-DIMETHYLPENTANE	1.019	1.131
1,1-DIMETHYLCYCLOPENTANE	3.440	3.811
3-METHYLHEXANE		
1,t3-DIMETHYLCYCLOPENTANE	0.264	0.288
1,c3-DIMETHYLCYCLOPENTANE	0.399	0.435
3-ETHYLPENTANE		
1,t2-DIMETHYLCYCLOPENTANE	0.431	0.476
2,2,4-TRIMETHYLPENTANE		
N-HEPTANE	4.180	4.640
METHYLCYCLOHEXANE	1.265	1.397
1,1,3-TRIMETHYLCYCLOPENTANE		



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

COMPONENT NAME	MOL %	WEIGHT %
2,2-DIMETHYLHEXANE		
1,C2-DIMETHYLCYCLOPENTANE	0.036	0.039
2,5-DIMETHYLHEXANE	0.344	0.436
2,4-DIMETHYLHEXANE	0.482	0.550
2,2,3-TRIMETHYLPENTANE		
ETHYLCYCLOPENTANE		
1,t2,c4-TRIMETHYLCYCLOPENTANE	0.188	0.233
3,3-DIMETHYLHEXANE		
1,t2,C3-TRIMETHYLCYCLOPENTANE	0.080	0.099
2,3,4-TRIMETHYLPENTANE	0.032	0.040
TOLUENE	0.189	0.193
2,3-DIMETHYLHEXANE	0.119	0.150
1,1,2-TRIMETHYLCYCLOPENTANE	0.031	0.038
2-METHYLHEPTANE	0.911	1.153
4-METHYLHEPTANE	0.203	0.257
3,4-DIMETHYLHEXANE	0.061	0.077
3-METHYLHEPTANE	0.693	0.877
3-ETHYLHEXANE		
1,c3-DIMETHYLCYCLOHEXANE	0.134	0.166
1,c2,t3-TRIMETHYLCYCLOPENTANE		
1,c2,t4-TRIMETHYLCYCLOPENTANE		
1,t4-DIMETHYLCYCLOHEXANE	0.067	0.083
2,2,5-TRIMETHYLHEXANE	0.043	0.061
1,1-DIMETHYLCYCLOHEXANE	0.041	0.051
1,methyl-t3-ETHYLCYCLOPENTANE		
1-methyl-C3-ETHYLCYCLOPENTANE	0.000	0.000
1-methyl-t2-ETHYLCYCLOPENTANE	0.038	0.050
2,2,4-TRIMETHYLHEXANE		
1-methyl-1-ETHYLCYCLOPENTANE	0.845	1.069
CYCLOHEPTANE		
N-OCTANE		
1,T2-DIMETHYLCYCLOCHEXANE	0.017	0.021
UNKNOWN	0.028	0.039
1,t3-DIMETHYLCYCLOHEXANE	0.052	0.065
1,c4-DIMETHYLCYCLOHEXANE		
1,c2,c3-TRIMETHYLCYCLOPENTANE		
2,4,4-TRIMETHYLHEXANE	0.000	0.000
ISOPROPYLCYCLOPENTANE	0.000	0.000
UNKNOWN	0.043	0.061
2,2-DIMETHYLHEPTANE	0.000	0.000
2,4-DIMETHYLHEPTANE	0.077	0.102
1-methyl-c2-ETHYLCYCLOPENTANE		
2,2,3-TRIMETHYLHEXANE	0.000	0.000

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

COMPONENT NAME	MOL %	WEIGHT %
1,c2-DIMETHYLCYCLOHEXANE	0.136	0.173
2,6-DIMETHYLHEPTANE		
N-PROPYLCYCLOPENTANE	0.030	0.039
1,c3,c5-TRIMETHYLCYCLOHEXANE		
2,5-DIMETHYLHEPTANE	0.211	0.266
3,5-DIMETHYLHEPTANE		
ETHYLCYCLOHEXANE		
1,1,3-TRIMETHYLCYCLOHEXANE	0.044	0.062
2,3,3-TRIMETHYLHEXANE		
3,3-DIMETHYLHEPTANE		
1,1,4-TRIMETHYLCYCLOHEXANE	0.027	0.038
UNKNOWN	0.000	0.000
2,3,4-TRIMETHYLHEXANE	0.000	0.000
ETHYLBENZENE	0.070	0.082
1,t2,t4-TRIMETHYLCYCLOHEXANE	0.082	0.115
1,c3,t5-TRIMETHYLCYCLOHEXANE		
2,3-DIMETHYLHEPTANE		
M-XYLENE	0.241	0.285
P-XYLENE		
3,4-DIMETHYLHEPTANE		
2-METHYLOCTANE	0.271	0.385
4-METHYLOCTANE		
UNKNOWN	0.000	0.000
3-METHYLOCTANE	0.175	0.248
UNKNOWN	0.000	0.000
1,t2,c3-TRIMETHYLCYCLOHEXANE	0.024	0.034
1,t2,c4-TRIMETHYLCYCLOHEXANE		
O-XYLENE	0.079	0.093
1,1,2-TRIMETHYLCYCLOHEXANE	0.054	0.076
UNKNOWN	0.023	0.036
ISOBUTYLCYCLOPENTANE	0.015	0.021
N-NONANE	0.294	0.418
UNKNOWN	0.000	0.000
1,c2,c3-TRIMETHYLCYCLOHEXANE	0.021	0.029
1,c2,t3-TRIMETHYLCYCLOHEXANE		
UNKNOWN	0.001	0.001
ISOPROPYLBENZENE	0.005	0.007
2,2-DIMETHYLOCTANE	0.000	0.000
ISOPROPYLCYCLOHEXANE	0.000	0.000
CYCLOOCTANE		
UNKNOWN	0.000	0.000
N-BUTYLCYCLOPENTANE	0.000	0.000
N-PROPYLCYCLOHEXANE		
3,3-DIMETHYLOCTANE	0.000	0.000

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

COMPONENT NAME	MOL %	WEIGHT %
UNKNOWN	0.007	0.011
N-PROPYLBENZENE	0.000	0.000
UNKNOWN	0.000	0.000
M-ETHYLTOLUENE	0.000	0.000
P-ETHYLTOLUENE	0.000	0.000
2,3-DIMETHYLOCTANE		
4-METHYLNONANE	0.000	0.000
5-METHYLNONANE		
1,3,5-TRIMETHYLBENZENE		
2-METHYLNONANE	0.000	0.000
3-ETHYLOCTANE	0.000	0.000
O-ETHYLTOLUENE	0.000	0.000
3-METHYLNONANE		
UNKNOWN	0.000	0.000
1,2,4-TRIMETHYLBENZENE	0.000	0.000
t-BUTYLBENZENE		
METHYLCYCLOOCTANE		
tert-BUTYLCYCLOHEXANE	0.000	0.000
ISO-BUTYLCYCLOHEXANE	0.000	0.000
N-DECANE	0.191	0.302
ISOBUTYLBENZENE	0.006	0.009
sec-BUTYLBENZENE	0.000	0.000
UNKNOWN	0.000	0.000
1-METHYL-3-ISOPROPYLBENZENE	0.000	0.000
1,2,3-TRIMETHYLBENZENE	0.000	0.000
1-METHYL-4-ISOPROPYLBENZENE		
UNKNOWN	0.000	0.000
1-METHYL-2-ISOPROPYLBENZENE	0.000	0.000
UNKNOWN	0.000	0.000
N-BUTYLCYCLOHEXANE	0.000	0.000
UNKNOWN	0.000	0.000
1,3-DIETHYLBENZENE	0.000	0.000
1-METHYL-3-PROPYLBENZENE		
1,2-DIETHYLBENZENE	0.000	0.000
N-BUTYLBENZENE		
1-METHYL-4-PROPYLBENZENE		
1,4-DIETHYLBENZENE	0.000	0.000
1-METHYL-2-PROPYLBENZENE	0.000	0.000
1,4-DIMETHYL-2-ETHYLBENZENE	0.001	0.002
UNKNOWN	0.000	0.000
1,2-DIMETHYL-4-ETHYLBENZENE	0.000	0.000

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

<b>COMPONENT NAME</b>	<b>MOL %</b>	<b>WEIGHT %</b>
1,3-DIMETHYL-2-ETHYLBENZENE	0.000	0.000
UNKNOWN	0.000	0.000
1,2-DIMETHYL-3-ETHYLBENZENE	0.000	0.000
UNKNOWN	0.000	0.000
N-UNDECANE	0.229	0.397
UNKNOWN	0.000	0.000
1,2,4,5-TETRAMETHYLBENZENE	0.000	0.000
1,2,3,5-TETRAMETHYLBENZENE	0.000	0.000
UNKNOWN	0.000	0.000
1,2,3,4-TETRAMETHYLBENZENE	0.000	0.000
CYCLODECANE	0.000	0.000
UNKNOWN	0.000	0.000
NAPHTHALENE	0.000	0.000
N-DODECANE	0.000	0.000
ISOTRIDECANES PLUS	0.000	0.000
<b>Total:</b>	100.000	100.000

<b>Specific Gravity @ 60 Deg. F. (Air = 1)</b>	3.1045
<b>Molecular Weight</b>	90.30
<b>Compressibility Factor</b>	0.8909
<b>Summation Factor</b>	0.0862
<b>Cu. Ft. Vapor/Gal @ 14.696 &amp; 60 Deg. F.</b>	24.124
<b>Cu. Ft. Vapor/Gal @ 14.730 &amp; 60 Deg. F.</b>	24.068
<b>Cu. Ft. Vapor/Gal @ 14.650 &amp; 60 Deg. F.</b>	24.199
<b>Btu/cu. Ft. @ 14.696 PSIA, Dry</b>	4945.55
<b>Btu/cu. Ft. @ 14.730 PSIA, Dry</b>	4956.99
<b>BTU/LB</b>	20800

Gas Analysis Report No: 239444-4 -25

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 #1 ALT  
 STA # : 242089

Sample Data: Date Collected: 08/02/2018 03:20 PM Date Received: 08/06/2018 By: JOHN MAGGIO  
 PSIG: 1350 Temp: N/P DEG. F.

Remarks: WELL TUBING

CYL # 2324

Sample Type: SPOT

Analyst: GG

Hydrocarbon Analysis - GPA 2261-13

Component Name	Mol Percent	GPM @ 14.730 PSIA
Carbon Dioxide (CO2)	2.222	
Nitrogen (N2)	0.041	
Methane (C1)	97.284	
Ethane (C2)	0.424	0.113
Propane (C3)	0.022	0.006
Iso-Butane (IC4)	0.002	0.001
N-Butane (NC4)	0.005	0.002
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: 16.74 Ethane + GPM: 0.122  
 BTU/LB: 22464.95 Propane + GPM: 0.009  
 Iso-Pentane + GPM: 0.000

Compressibility Factor: 0.9979  
 Specific Gravity @ 60 Deg. F. (Air = 1) : 0.579

BTU/Cuft. (Real) 60 Deg. F. - PSIA:	14.650	14.696	14.730	15.025
Dry:	989.8	992.9	995.2	1015.2
Sat:	972.8	975.9	978.2	997.8

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

239444-4 -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 #1 ALT

STA # : 242089

239444-4

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