ISOTECH
ISOTECH LABORATORIES INC

ANALYSIS REPORT

Lab #: 308387 Job #: 19353
Sample Name: 468-AG-092612-I Co. Lab#:
Company: Dept. Nat. Resources - Louisiana
Date Sampled: 9/26/2012
Container: Cali-5-Bond Bag
Field/Site Name: Bayou Corne
Location: Acadian Gas
Formation/Depth:
Sampling Point:
Date Received: 10/01/2012 Date Reported: 10/04/2012

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{15}N$ ‰
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	nd			
Hydrogen	0.0011			
Argon	nd			
Oxygen	0.057			
Nitrogen	0.22			
Carbon Dioxide	1.26			
Methane	98.24	-34.81	-147.3	
Ethane	0.196	-29.57		
Ethylene	nd			
Propane	0.0138			
Propylene	nd			
Iso-butane	0.0025			
N-butane	0.0026			
Iso-pentane	0.0012			
N-pentane	0.0006			
Hexanes +	0.0015			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1000
Specific gravity, calculated: 0.569

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

ISOTECH
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ANALYSIS REPORT

Lab #: 308388 Job #: 19353
Sample Name: 468-C-092612-I Co. Lab#:
Company: Dept. Nat. Resources - Louisiana
Date Sampled: 9/26/2012
Container: Cali-5-Bond Bag
Field/Site Name: Bayou Corne
Location: Chevron
Formation/Depth:
Sampling Point:
Date Received: 10/01/2012 Date Reported: 10/04/2012

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{15}N$ ‰
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	nd			
Hydrogen	nd			
Argon	nd			
Oxygen	0.020			
Nitrogen	0.37			
Carbon Dioxide	0.86			
Methane	97.45	-48.19	-174.1	
Ethane	1.16	-29.95		
Ethylene	nd			
Propane	0.0962	-26.05		
Propylene	nd			
Iso-butane	0.0144			
N-butane	0.0134			
Iso-pentane	0.0051			
N-pentane	0.0032			
Hexanes +	0.0064			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1013
Specific gravity, calculated: 0.571

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

ISOTECH
ISOTECH LABORATORIES INC

ANALYSIS REPORT

Lab #: 308389 Job #: 19353
Sample Name: 468-WH-092612-I Co. Lab#:
Company: Dept. Nat. Resources - Louisiana
Date Sampled: 9/26/2012
Container: Cali-5-Bond Bag
Field/Site Name: Bayou Corne
Location: Well Head
Formation/Depth:
Sampling Point:
Date Received: 10/01/2012 Date Reported: 10/04/2012

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{15}N$ ‰
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	0.0012			
Hydrogen	nd			
Argon	0.177			
Oxygen	3.56			
Nitrogen	14.47			
Carbon Dioxide	0.77			
Methane	77.85	-42.72	-152.2	
Ethane	2.23	-26.87		
Ethylene	nd			
Propane	0.634	-22.90		
Propylene	nd			
Iso-butane	0.167	-23.61		
N-butane	0.0971	-20.42		
Iso-pentane	0.0291			
N-pentane	0.0081			
Hexanes +	0.0073			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 855
Specific gravity, calculated: 0.664

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

ISOTECH
ISOTECH LABORATORIES INC

ANALYSIS REPORT

Lab #: 308390 Job #: 19353
Sample Name: 468-MT-092612-I Co. Lab#:
Company: Dept. Nat. Resources - Louisiana
Date Sampled: 9/26/2012
Container: Cali-5-Bond Bag
Field/Site Name: Bayou Corne
Location: Melissa Tramont
Formation/Depth:
Sampling Point:
Date Received: 10/01/2012 Date Reported: 10/04/2012

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{15}N$ ‰
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	nd			
Hydrogen	nd			
Argon	0.559			
Oxygen	8.18			
Nitrogen	40.62			
Carbon Dioxide	5.45			
Methane	45.19	-60.21	-302.8	
Ethane	0.0003			
Ethylene	nd			
Propane	0.0002			
Propylene	nd			
Iso-butane	0.0001			
N-butane	nd			
Iso-pentane	0.0002			
N-pentane	nd			
Hexanes +	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 458
Specific gravity, calculated: 0.824

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.