ISOTECH
ISOTECH LABORATORIES INC

ANALYSIS REPORT

Lab #: 265760 Job #: 19337
Sample Name: 468-BS7-092512-I Co. Lab#:
Company: Dept. Nat. Resources - Louisiana
Date Sampled: 9/25/2012
Container: Cali-5-Bond Bag
Field/Site Name: Bayou Corne Bubble Sites
Location: BS #7
Formation/Depth:
Sampling Point:
Date Received: 9/28/2012 Date Reported: 10/02/2012

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{15}N$ ‰
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	0.0013			
Hydrogen	nd			
Argon	0.106			
Oxygen	0.54			
Nitrogen	5.08			
Carbon Dioxide	1.76			
Methane	90.21	-47.43	-165.9	
Ethane	1.72	-26.50		
Ethylene	nd			
Propane	0.400	-23.01		
Propylene	nd			
Iso-butane	0.0952	-23.69		
N-butane	0.0537			
Iso-pentane	0.0175			
N-pentane	0.0066			
Hexanes +	0.0084			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 962
Specific gravity, calculated: 0.611

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. %.

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ANALYSIS REPORT

Lab #: 265761 Job #: 19337
Sample Name: 468-BS6-092512-I Co. Lab#:
Company: Dept. Nat. Resources - Louisiana
Date Sampled: 9/25/2012
Container: Cali-5-Bond Bag
Field/Site Name: Bayou Corne Bubble Sites
Location: BS #6
Formation/Depth:
Sampling Point:
Date Received: 9/28/2012 Date Reported: 10/02/2012

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{15}N$ ‰
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	0.0011			
Hydrogen	nd			
Argon	0.108			
Oxygen	0.58			
Nitrogen	5.03			
Carbon Dioxide	1.80			
Methane	90.81	-51.81	-176.1	
Ethane	1.24	-26.55		
Ethylene	nd			
Propane	0.302	-22.74		
Propylene	nd			
Iso-butane	0.0733	-23.47		
N-butane	0.0325			
Iso-pentane	0.0101			
N-pentane	0.0038			
Hexanes +	0.0060			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 955
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. 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 #: 265762 Job #: 19337
Sample Name: 468-BS5-092512-I Co. Lab#:
Company: Dept. Nat. Resources - Louisiana
Date Sampled: 9/25/2012
Container: Cali-5-Bond Bag
Field/Site Name: Bayou Corne Bubble Sites
Location: BS #5
Formation/Depth:
Sampling Point:
Date Received: 9/28/2012 Date Reported: 10/02/2012

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{15}N$ ‰
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	nd			
Hydrogen	nd			
Argon	0.0925			
Oxygen	0.20			
Nitrogen	4.66			
Carbon Dioxide	2.53			
Methane	91.86	-55.61	-196.8	
Ethane	0.499	-26.10		
Ethylene	nd			
Propane	0.108	-22.99		
Propylene	nd			
Iso-butane	0.0294			
N-butane	0.0143			
Iso-pentane	0.0062			
N-pentane	0.0019			
Hexanes +	0.0022			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 945
Specific gravity, calculated: 0.604

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 #: 265763 Job #: 19337
Sample Name: 468-BS3-092512-I Co. Lab#:
Company: Dept. Nat. Resources - Louisiana
Date Sampled: 9/25/2012
Container: Cali-5-Bond Bag
Field/Site Name: Bayou Corne Bubble Sites
Location: BS #3
Formation/Depth:
Sampling Point:
Date Received: 9/28/2012 Date Reported: 10/02/2012

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{15}N$ ‰
Carbon Monoxide	nd			
Hydrogen Sulfide	na			
Helium	0.0011			
Hydrogen	nd			
Argon	0.0723			
Oxygen	0.16			
Nitrogen	3.54			
Carbon Dioxide	3.60			
Methane	89.48	-40.07	-151.6	
Ethane	2.37	-26.27		
Ethylene	nd			
Propane	0.462	-23.86		
Propylene	nd			
Iso-butane	0.106	-24.23		
N-butane	0.0975	-23.72		
Iso-pentane	0.0453			
N-pentane	0.0240			
Hexanes +	0.0374			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 972
Specific gravity, calculated: 0.626

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. %.