

Lab #: 310969 Job #: 19490
 Sample Name/Number: 007-098-100912
 Company: Shaw Environmental & Infrastructure
 Date Sampled: 10/09/2012
 Container: Dissolved Gas Bottle
 Field/Site Name: LDNR - Bayou Corne (Industrial Water Wells)
 Location: LDNR Well #4
 Formation/Depth:
 Sampling Point:
 Date Received: 10/11/2012 Date Reported: 10/22/2012

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰
Carbon Monoxide -----	nd			
Hydrogen Sulfide -----	na			
Helium -----	na			
Hydrogen -----	nd			
Argon -----	0.473			
Oxygen -----	1.64			
Nitrogen -----	28.42			
Carbon Dioxide -----	1.82			
Methane -----	67.64	-77.62	-203.1	
Ethane -----	0.0025			
Ethylene -----	nd			
Propane -----	nd			
Propylene -----	nd			
Iso-butane -----	nd			
N-butane -----	nd			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 685

Specific gravity, calculated: 0.702

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.09

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which 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. %.

Lab #: 310970 Job #: 19490
 Sample Name/Number: 007-131-100912
 Company: Shaw Environmental & Infrastructure
 Date Sampled: 10/09/2012
 Container: Dissolved Gas Bottle
 Field/Site Name: LDNR - Bayou Corne (Industrial Water Wells)
 Location: LDNR Well #5
 Formation/Depth:
 Sampling Point:
 Date Received: 10/11/2012 Date Reported: 10/22/2012

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰
Carbon Monoxide -----	nd			
Hydrogen Sulfide -----	na			
Helium -----	na			
Hydrogen -----	nd			
Argon -----	0.521			
Oxygen -----	3.99			
Nitrogen -----	31.32			
Carbon Dioxide -----	2.11			
Methane -----	62.00	-71.93	-194.5	
Ethane -----	0.0603	-27.9		
Ethylene -----	nd			
Propane -----	0.0006			
Propylene -----	nd			
Iso-butane -----	nd			
N-butane -----	nd			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 629

Specific gravity, calculated: 0.730

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.28

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which 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. %.

Lab #: 310971 Job #: 19490
 Sample Name/Number: 007-089-100912
 Company: Shaw Environmental & Infrastructure
 Date Sampled: 10/09/2012
 Container: Dissolved Gas Bottle
 Field/Site Name: LDNR - Bayou Corne (Industrial Water Wells)
 Location: LDNR Well #7
 Formation/Depth:
 Sampling Point:
 Date Received: 10/11/2012 Date Reported: 10/22/2012

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰
Carbon Monoxide -----	nd			
Hydrogen Sulfide -----	na			
Helium -----	0.0014			
Hydrogen -----	nd			
Argon -----	0.604			
Oxygen -----	8.01			
Nitrogen -----	44.44			
Carbon Dioxide -----	1.40			
Methane -----	44.97	-65.03	-183.0	
Ethane -----	0.471	-25.7		
Ethylene -----	nd			
Propane -----	0.0725	-23.1		
Propylene -----	nd			
Iso-butane -----	0.0134	-24.0		
N-butane -----	0.0092	-22.7		
Iso-pentane -----	0.0030			
N-pentane -----	0.0006			
Hexanes + -----	0.0012			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 467

Specific gravity, calculated: 0.804

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which 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. %.

Lab #: 310972 Job #: 19490
 Sample Name/Number: 007-073-100912
 Company: Shaw Environmental & Infrastructure
 Date Sampled: 10/09/2012
 Container: Dissolved Gas Bottle
 Field/Site Name: LDNR - Bayou Corne (Industrial Water Wells)
 Location: LDNR Well #2
 Formation/Depth:
 Sampling Point:
 Date Received: 10/11/2012 Date Reported: 10/22/2012

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰
Carbon Monoxide -----	nd			
Hydrogen Sulfide -----	na			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.337			
Oxygen -----	1.76			
Nitrogen -----	20.18			
Carbon Dioxide -----	1.33			
Methane -----	75.42	-61.84	-179.7	
Ethane -----	0.804	-26.35		
Ethylene -----	nd			
Propane -----	0.123	-23.9		
Propylene -----	nd			
Iso-butane -----	0.0196	-24.2		
N-butane -----	0.0147	-23.4		
Iso-pentane -----	0.0039			
N-pentane -----	0.0014			
Hexanes + -----	0.0015			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 783

Specific gravity, calculated: 0.668

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which 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. %.

Lab #: 310973 Job #: 19490
 Sample Name/Number: 007-072-100912
 Company: Shaw Environmental & Infrastructure
 Date Sampled: 10/09/2012
 Container: Dissolved Gas Bottle
 Field/Site Name: LDNR - Bayou Corne (Industrial Water Wells)
 Location: LDNR Well #16
 Formation/Depth:
 Sampling Point:
 Date Received: 10/11/2012 Date Reported: 10/22/2012

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰
Carbon Monoxide -----	nd			
Hydrogen Sulfide -----	na			
Helium -----	0.0011			
Hydrogen -----	nd			
Argon -----	0.531			
Oxygen -----	5.04			
Nitrogen -----	38.05			
Carbon Dioxide -----	1.44			
Methane -----	54.56	-72.84	-193.7	
Ethane -----	0.299	-27.1		
Ethylene -----	nd			
Propane -----	0.0592	-22.9		
Propylene -----	nd			
Iso-butane -----	0.0091			
N-butane -----	0.0052			
Iso-pentane -----	0.0005			
N-pentane -----	nd			
Hexanes + -----	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 560

Specific gravity, calculated: 0.759

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which 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. %.

Lab #: 310974 Job #: 19490
 Sample Name/Number: 007-081-100912
 Company: Shaw Environmental & Infrastructure
 Date Sampled: 10/09/2012
 Container: Dissolved Gas Bottle
 Field/Site Name: LDNR - Bayou Corne (Industrial Water Wells)
 Location: LDNR Well #12
 Formation/Depth:
 Sampling Point:
 Date Received: 10/11/2012 Date Reported: 10/22/2012

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰
Carbon Monoxide -----	nd			
Hydrogen Sulfide -----	na			
Helium -----	na			
Hydrogen -----	nd			
Argon -----	0.471			
Oxygen -----	3.26			
Nitrogen -----	27.71			
Carbon Dioxide -----	2.20			
Methane -----	66.04	-69.97	-193.2	
Ethane -----	0.318	-28.5		
Ethylene -----	nd			
Propane -----	0.0050			
Propylene -----	nd			
Iso-butane -----	nd			
N-butane -----	0.0003			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	0.0003			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 675

Specific gravity, calculated: 0.713

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.27

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which 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. %.

Lab #: 310975 Job #: 19490
 Sample Name/Number: 007-080-100912
 Company: Shaw Environmental & Infrastructure
 Date Sampled: 10/09/2012
 Container: Dissolved Gas Bottle
 Field/Site Name: LDNR - Bayou Corne (Industrial Water Wells)
 Location: LDNR Well #10
 Formation/Depth:
 Sampling Point:
 Date Received: 10/11/2012 Date Reported: 10/22/2012

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰
Carbon Monoxide -----	nd			
Hydrogen Sulfide -----	na			
Helium -----	0.0013			
Hydrogen -----	nd			
Argon -----	0.488			
Oxygen -----	0.72			
Nitrogen -----	27.76			
Carbon Dioxide -----	1.68			
Methane -----	69.34	-81.26	-205.6	
Ethane -----	0.0138			
Ethylene -----	nd			
Propane -----	0.0006			
Propylene -----	nd			
Iso-butane -----	nd			
N-butane -----	nd			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 703

Specific gravity, calculated: 0.693

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which 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. %.