

Lab #: 235489 Job #: 17407
 Sample Name/Number: HW04
 Company: TechLaw, Inc.
 Date Sampled: 1/24/2012
 Container: Dissolved Gas Bottle
 Field/Site Name: A3TA
 Location:
 Formation/Depth:
 Sampling Point:
 Date Received: 2/03/2012 Date Reported: 2/20/2012

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰
Carbon Monoxide -----	nd			
Hydrogen Sulfide -----	na			
Helium -----	na			
Hydrogen -----	nd			
Argon -----	1.50			
Oxygen -----	2.28			
Nitrogen -----	84.37			
Carbon Dioxide -----	2.01			
Methane -----	9.76	-24.98	-121.8	
Ethane -----	0.0796	-31.2	-187	
Ethylene -----	nd			
Propane -----	0.0004			
Propylene -----	nd			
Iso-butane -----	nd			
N-butane -----	nd			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	nd			
Water -----			-63.2	-9.48

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 100

Specific gravity, calculated: 0.947

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.74

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

** Ethane isotopes obtained online via GC-C-IRMS. Added to the report on 4/26/2012.

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. %.