

Lab #: 235490 Job #: 17407  
 Sample Name/Number: HW05  
 Company: TechLaw, Inc.  
 Date Sampled: 1/26/2012  
 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. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰
Carbon Monoxide -----	nd			
Hydrogen Sulfide -----	na			
Helium -----	na			
Hydrogen -----	nd			
Argon -----	1.54			
Oxygen -----	4.82			
Nitrogen -----	84.97			
Carbon Dioxide -----	0.40			
Methane -----	8.24	-33.0	-162.9	
Ethane -----	0.0259			
Ethylene -----	nd			
Propane -----	nd			
Propylene -----	nd			
Iso-butane -----	nd			
N-butane -----	nd			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	nd			
Water -----			-63.2	-9.36

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 84 Specific gravity, calculated: 0.948

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.68  
 \*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.  
 \*\* Methane carbon isotopes obtained online via GC-C-IRMS

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. %.