

# ANALYSIS REPORT

Lab #: 375817 Job #: 22656 IS-64384  
 Sample Name/Number: 423097 WD Fed.  
 Company: Colorado Oil & Gas Conservation  
 Date Sampled: 8/21/2013  
 Container: Dissolved Gas Bottle  
 Field/Site Name: TBAL  
 Location:  
 Formation/Depth:  
 Sampling Point:  
 Date Received: 8/26/2013 Date Reported: 9/18/2013

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰
Carbon Monoxide -----	nd			
Helium -----	na			
Hydrogen -----	nd			
Argon -----	0.229			
Oxygen -----	0.092			
Nitrogen -----	14.20			
Carbon Dioxide -----	5.73	19.01		
Methane -----	78.90	-42.32	-204.9	
Ethane -----	0.541	-29.2		
Ethylene -----	nd			
Propane -----	0.193	-25.7		
Propylene -----	nd			
Iso-butane -----	0.0398			
N-butane -----	0.0384			
Iso-pentane -----	0.0191			
N-pentane -----	0.0047			
Hexanes + -----	0.0158			
Water -----			-38.9	-4.64
Dissolved Inorganic Carbon -		27.6		

## Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.57

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

\*\* Ethane and propane 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. %.