

Lab #: 750215 Job #: 43908 IS-94649 Co. Job#:   
 Sample Name: Vogl Geist 2B-5H / Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location: C74814   
 Formation:   
 Sampling Point: 433850   
 Date Sampled: 12/19/2019 12:40 Date Received: 1/09/2020 Date Reported: 1/29/2020

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0309			
Hydrogen -----	2.43			
Argon -----	0.0076			
Oxygen -----	0.11			
Nitrogen -----	1.04			
Carbon Dioxide -----	0.34	0.0		
Methane -----	85.14	-52.1	-253	
Ethane -----	8.70	-34.0		
Ethylene -----	0.0088			
Propane -----	1.97	-28.6		
Propylene -----	0.0002			
Iso-butane -----	0.105	-30.6		
N-butane -----	0.111	-26.9		
Iso-pentane -----	0.0033			
N-pentane -----	0.0017			
Hexanes + -----	0.0049			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1084

Specific gravity, calculated: 0.615

Remarks: Isotopes obtained online via GC-C-IRMS/GC-P-IRMS. Insufficient C5 concentrations for isotopic analysis.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.