

Lab #: 721246 Job #: 41737 IS-94649 Co. Job#:
 Sample Name: East Rinn 3-6-15 / Production CSG Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location: W63524
 Formation:
 Sampling Point: 420203
 Date Sampled: 5/20/2019 14:15 Date Received: 5/31/2019 Date Reported: 7/08/2019

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0104			
Hydrogen -----	0.490			
Argon -----	nd			
Oxygen -----	0.023			
Nitrogen -----	0.46			
Carbon Dioxide -----	1.68	2.2		
Methane -----	74.95	-49.1	-246	
Ethane -----	13.06	-33.6		
Ethylene -----	0.0006			
Propane -----	5.87	-29.9		
Propylene -----	nd			
Iso-butane -----	0.745	-31.9		
N-butane -----	1.79	-28.3		
Iso-pentane -----	0.344	-28.5		
N-pentane -----	0.365	-27.9		
Hexanes + -----	0.208			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1266

Specific gravity, calculated: 0.745

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. %.

Lab #: 721247 Job #: 41737 IS-94649 Co. Job#:
 Sample Name: East Rinn 3-6-15 / Surface CSG Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location: W63524
 Formation:
 Sampling Point: 420203
 Date Sampled: 5/20/2019 14:15 Date Received: 5/31/2019 Date Reported: 7/08/2019

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0335			
Hydrogen -----	nd			
Argon -----	0.0096			
Oxygen -----	0.093			
Nitrogen -----	1.34			
Carbon Dioxide -----	0.006			
Methane -----	81.44	-51.1	-246	
Ethane -----	9.57	-34.5		
Ethylene -----	0.0002			
Propane -----	4.73	-29.9		
Propylene -----	0.0001			
Iso-butane -----	0.603	-32.1		
N-butane -----	1.34	-28.6		
Iso-pentane -----	0.326	-28.7		
N-pentane -----	0.293	-28.4		
Hexanes + -----	0.211			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1215

Specific gravity, calculated: 0.697

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. %.

Lab #: 721248 Job #: 41737 IS-94649 Co. Job#:
 Sample Name: East Rinn 23-15 / Production CSG Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location: W20698
 Formation:
 Sampling Point: 275921
 Date Sampled: 5/22/2019 Date Received: 5/31/2019 Date Reported: 7/08/2019

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0122			
Hydrogen -----	nd			
Argon -----	0.0188			
Oxygen -----	0.41			
Nitrogen -----	1.95			
Carbon Dioxide -----	1.57	2.0		
Methane -----	76.27	-48.3	-244	
Ethane -----	12.08	-33.2		
Ethylene -----	0.0002			
Propane -----	5.13	-29.5		
Propylene -----	nd			
Iso-butane -----	0.640	-31.6		
N-butane -----	1.46	-28.2		
Iso-pentane -----	0.223	-28.4		
N-pentane -----	0.186	-27.7		
Hexanes + -----	0.0522			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1207

Specific gravity, calculated: 0.727

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. %.

Lab #: 721249 Job #: 41737 IS-94649 Co. Job#:
 Sample Name: East Rinn 23-15 / Surface CSG Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location: W20698
 Formation:
 Sampling Point: 275921
 Date Sampled: 5/22/2019 Date Received: 5/31/2019 Date Reported: 7/08/2019

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.126			
Hydrogen -----	nd			
Argon -----	0.134			
Oxygen -----	2.73			
Nitrogen -----	15.31			
Carbon Dioxide -----	0.011			
Methane -----	71.25	-54.9	-238	
Ethane -----	5.55	-33.8		
Ethylene -----	nd			
Propane -----	3.35	-29.3		
Propylene -----	nd			
Iso-butane -----	0.542	-31.7		
N-butane -----	0.735	-28.2		
Iso-pentane -----	0.131	-28.2		
N-pentane -----	0.0845	-27.9		
Hexanes + -----	0.0498			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 959

Specific gravity, calculated: 0.716

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. %.

Lab #: 721250 Job #: 41737 IS-94649 Co. Job#:
 Sample Name: East Rinn 2-8-15 / Production CSG Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location: W63526
 Formation:
 Sampling Point: 420204
 Date Sampled: 5/20/2019 14:10 Date Received: 5/31/2019 Date Reported: 7/08/2019

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0098			
Hydrogen -----	0.481			
Argon -----	0.0066			
Oxygen -----	0.12			
Nitrogen -----	0.70			
Carbon Dioxide -----	1.78	2.42		
Methane -----	74.79	-48.96	-242.9	
Ethane -----	13.30	-33.03		
Ethylene -----	0.0008			
Propane -----	5.70	-29.25		
Propylene -----	nd			
Iso-butane -----	0.706	-31.50		
N-butane -----	1.61	-28.2		
Iso-pentane -----	0.313	-28.5		
N-pentane -----	0.308	-27.9		
Hexanes + -----	0.175			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1251

Specific gravity, calculated: 0.742

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. %.

Lab #: 721251 Job #: 41737 IS-94649 Co. Job#:
 Sample Name: East Rinn 2-8-15 / Surface CSG Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location: W63526
 Formation:
 Sampling Point: 420204
 Date Sampled: 5/20/2019 14:10 Date Received: 5/31/2019 Date Reported: 7/08/2019

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0228			
Hydrogen -----	0.418			
Argon -----	0.0080			
Oxygen -----	0.093			
Nitrogen -----	1.13			
Carbon Dioxide -----	nd			
Methane -----	78.36	-50.1	-248	
Ethane -----	11.08	-33.4		
Ethylene -----	0.0002			
Propane -----	5.38	-29.0		
Propylene -----	nd			
Iso-butane -----	0.765	-31.7		
N-butane -----	1.67	-28.0		
Iso-pentane -----	0.437	-28.8		
N-pentane -----	0.395	-27.7		
Hexanes + -----	0.239			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1255

Specific gravity, calculated: 0.720

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. %.

Lab #: 721252 Job #: 41737 IS-94649 Co. Job#:
 Sample Name: Wandell 11-7 / Production CSG Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location: W10376
 Formation:
 Sampling Point: 265566
 Date Sampled: 5/22/2019 Date Received: 5/31/2019 Date Reported: 7/08/2019

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0091			
Hydrogen -----	0.274			
Argon -----	0.0324			
Oxygen -----	0.74			
Nitrogen -----	3.09			
Carbon Dioxide -----	1.87	2.5		
Methane -----	70.82	-48.8	-249	
Ethane -----	13.35	-33.3		
Ethylene -----	0.0003			
Propane -----	6.30	-29.9		
Propylene -----	nd			
Iso-butane -----	0.815	-31.8		
N-butane -----	1.99	-28.4		
Iso-pentane -----	0.370	-28.7		
N-pentane -----	0.332	-27.8		
Hexanes + -----	0.0048			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1238

Specific gravity, calculated: 0.768

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. %.

Lab #: 721253 Job #: 41737 IS-94649 Co. Job#: _____
 Sample Name: Wandell 11-7 / Surface CSG Co. Lab#: _____
 Company: Crestone Peak Resources
 API/Well: _____
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location: W10376
 Formation: _____
 Sampling Point: 265566
 Date Sampled: 5/22/2019 Date Received: 5/31/2019 Date Reported: 7/08/2019

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0065			
Hydrogen -----	nd			
Argon -----	0.0940			
Oxygen -----	2.28			
Nitrogen -----	8.75			
Carbon Dioxide -----	0.010			
Methane -----	69.46	-49.6	-250	
Ethane -----	11.87	-34.1		
Ethylene -----	nd			
Propane -----	4.90	-29.2		
Propylene -----	nd			
Iso-butane -----	0.605	-31.2		
N-butane -----	1.16	-27.2		
Iso-pentane -----	0.372	-28.8		
N-pentane -----	0.312	-27.6		
Hexanes + -----	0.182			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1134

Specific gravity, calculated: 0.752

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. %.

Lab #: 721254 Job #: 41737 IS-94649 Co. Job#:
 Sample Name: Parker 21-33 / Surface CSG Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location: W762514
 Formation:
 Sampling Point: 263245
 Date Sampled: 5/23/2019 Date Received: 5/31/2019 Date Reported: 7/08/2019

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0214			
Hydrogen -----	0.0147			
Argon -----	0.0109			
Oxygen -----	0.18			
Nitrogen -----	1.46			
Carbon Dioxide -----	nd			
Methane -----	81.46	-51.2	-248	
Ethane -----	9.71	-35.4		
Ethylene -----	nd			
Propane -----	4.94	-30.7		
Propylene -----	nd			
Iso-butane -----	0.554	-32.3		
N-butane -----	1.16	-29.2		
Iso-pentane -----	0.214	-28.9		
N-pentane -----	0.188	-29.0		
Hexanes + -----	0.0891			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1201

Specific gravity, calculated: 0.691

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. %.

Lab #: 721255 Job #: 41737 IS-94649 Co. Job#:
 Sample Name: East Rinn 0-4-15 / Surface CSG Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location: W63525
 Formation:
 Sampling Point: 420131
 Date Sampled: 5/22/2019 Date Received: 5/31/2019 Date Reported: 7/08/2019

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0676			
Hydrogen -----	nd			
Argon -----	0.497			
Oxygen -----	10.66			
Nitrogen -----	54.54			
Carbon Dioxide -----	0.056	-12.1		
Methane -----	33.46	-78.8	-282	
Ethane -----	0.238	-34.8		
Ethylene -----	0.0002			
Propane -----	0.262	-29.0		
Propylene -----	0.0003			
Iso-butane -----	0.0622	-31.6		
N-butane -----	0.0822	-28.2		
Iso-pentane -----	0.0291	-28.6		
N-pentane -----	0.0301	-28.7		
Hexanes + -----	0.0181			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 358

Specific gravity, calculated: 0.850

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. %.

Lab #: 721256 Job #: 41737 IS-94649 Co. Job#:
 Sample Name: East Rinn 0-4-15 / Production CSG Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location: W63525
 Formation:
 Sampling Point: 420131
 Date Sampled: 5/22/2019 Date Received: 5/31/2019 Date Reported: 7/08/2019

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0115			
Hydrogen -----	0.0326			
Argon -----	0.0097			
Oxygen -----	0.20			
Nitrogen -----	1.06			
Carbon Dioxide -----	1.66	1.8		
Methane -----	75.33	-48.6	-245	
Ethane -----	12.54	-33.4		
Ethylene -----	0.0002			
Propane -----	5.83	-29.6		
Propylene -----	nd			
Iso-butane -----	0.817	-31.9		
N-butane -----	2.03	-28.3		
Iso-pentane -----	0.287	-28.5		
N-pentane -----	0.192	-27.3		
Hexanes + -----	0.0046			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1249

Specific gravity, calculated: 0.743

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. %.

Lab #: 721257 Job #: 41737 IS-94649 Co. Job#:
 Sample Name: East Rinn 13-15 / Surface CSG Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location: W62521
 Formation:
 Sampling Point: 420205
 Date Sampled: 5/20/2019 14:20 Date Received: 5/31/2019 Date Reported: 7/08/2019

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0163			
Hydrogen -----	nd			
Argon -----	0.569			
Oxygen -----	12.92			
Nitrogen -----	48.52			
Carbon Dioxide -----	0.037			
Methane -----	31.63	-50.2	-248	
Ethane -----	3.20	-33.9		
Ethylene -----	nd			
Propane -----	1.96	-29.6		
Propylene -----	nd			
Iso-butane -----	0.276	-31.7		
N-butane -----	0.621	-28.3		
Iso-pentane -----	0.0987	-28.8		
N-pentane -----	0.0968	-28.6		
Hexanes + -----	0.0556			

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

Specific gravity, calculated: 0.883

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. %.

Lab #: 721258 Job #: 41737 IS-94649 Co. Job#:
 Sample Name: East Rinn 13-15 / Production CSG Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location: W62521
 Formation:
 Sampling Point: 420205
 Date Sampled: 5/20/2019 14:20 Date Received: 5/31/2019 Date Reported: 7/08/2019

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0170			
Hydrogen -----	0.245			
Argon -----	nd			
Oxygen -----	0.058			
Nitrogen -----	0.53			
Carbon Dioxide -----	2.11	1.9		
Methane -----	79.18	-47.2	-224	
Ethane -----	10.99	-30.6		
Ethylene -----	0.0004			
Propane -----	4.09	-27.9		
Propylene -----	nd			
Iso-butane -----	0.670	-30.0		
N-butane -----	1.33	-27.3		
Iso-pentane -----	0.470	-28.9		
N-pentane -----	0.285	-25.4		
Hexanes + -----	0.0204			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1201

Specific gravity, calculated: 0.713

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. %.

ANALYSIS REPORT

Lab #: 721259 Job #: 41737 IS-94649 Co. Job#:
 Sample Name: East Rinn 24-15 / Surface CSG Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location: W63522
 Formation:
 Sampling Point: 420129
 Date Sampled: 5/22/2019 Date Received: 5/31/2019 Date Reported: 7/08/2019

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0708			
Hydrogen -----	nd			
Argon -----	0.220			
Oxygen -----	4.35			
Nitrogen -----	23.08			
Carbon Dioxide -----	0.015			
Methane -----	68.98	-65.0	-287	
Ethane -----	1.59	-33.7		
Ethylene -----	0.0004			
Propane -----	1.02	-30.0		
Propylene -----	0.0003			
Iso-butane -----	0.195	-31.8		
N-butane -----	0.295	-28.5		
Iso-pentane -----	0.0735	-29.1		
N-pentane -----	0.0584	-29.1		
Hexanes + -----	0.0472			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 777

Specific gravity, calculated: 0.703

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. %.

Lab #: 721260 Job #: 41737 IS-94649 Co. Job#:
 Sample Name: East Rinn 24-15 / Production CSG Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location: W63522
 Formation:
 Sampling Point: 420129
 Date Sampled: 5/22/2019 Date Received: 5/31/2019 Date Reported: 7/08/2019

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0116			
Hydrogen -----	0.0386			
Argon -----	0.0281			
Oxygen -----	0.60			
Nitrogen -----	2.63			
Carbon Dioxide -----	1.59	2.2		
Methane -----	73.54	-48.2	-249	
Ethane -----	12.41	-33.2		
Ethylene -----	0.0003			
Propane -----	5.77	-29.6		
Propylene -----	nd			
Iso-butane -----	0.792	-31.8		
N-butane -----	1.90	-28.4		
Iso-pentane -----	0.337	-29.0		
N-pentane -----	0.326	-28.8		
Hexanes + -----	0.0253			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1230

Specific gravity, calculated: 0.752

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. %.

Lab #: 721261 Job #: 41737 IS-94649 Co. Job#:
 Sample Name: Shaffer Newman 0-6-13 / Production CSG Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location: W49985
 Formation:
 Sampling Point: 296096
 Date Sampled: 5/15/2019 Date Received: 5/31/2019 Date Reported: 7/08/2019

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0072			
Hydrogen -----	0.187			
Argon -----	0.352			
Oxygen -----	8.13			
Nitrogen -----	30.20			
Carbon Dioxide -----	1.06	1.7		
Methane -----	44.23	-47.3	-239	
Ethane -----	8.41	-31.4		
Ethylene -----	0.0002			
Propane -----	4.11	-28.3		
Propylene -----	nd			
Iso-butane -----	0.688	-31.2		
N-butane -----	1.64	-27.4		
Iso-pentane -----	0.426	-28.7		
N-pentane -----	0.446	-27.8		
Hexanes + -----	0.114			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 819

Specific gravity, calculated: 0.870

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. %.

Lab #: 721262 Job #: 41737 IS-94649 Co. Job#:
 Sample Name: Shaffer Newman 0-6-13 / Surface CSG Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location: W49985
 Formation:
 Sampling Point: 296096
 Date Sampled: 5/15/2019 Date Received: 5/31/2019 Date Reported: 7/08/2019

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0699			
Hydrogen -----	nd			
Argon -----	0.0444			
Oxygen -----	0.75			
Nitrogen -----	5.46			
Carbon Dioxide -----	0.008			
Methane -----	85.67	-55.7	-224	
Ethane -----	4.33	-33.4		
Ethylene -----	nd			
Propane -----	2.46	-30.1		
Propylene -----	0.0001			
Iso-butane -----	0.399	-31.7		
N-butane -----	0.547	-28.8		
Iso-pentane -----	0.120	-28.9		
N-pentane -----	0.0842	-29.1		
Hexanes + -----	0.0560			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1050

Specific gravity, calculated: 0.645

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. %.

Lab #: 721263 Job #: 41737 IS-94649 Co. Job#:
 Sample Name: Parker 11-33 / Surface CSG Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location: W762512
 Formation:
 Sampling Point: 263106
 Date Sampled: 5/22/2019 12:00 Date Received: 5/31/2019 Date Reported: 7/08/2019

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	0.102			
Argon -----	0.861			
Oxygen -----	9.51			
Nitrogen -----	87.18			
Carbon Dioxide -----	0.029			
Methane -----	2.12	-49.9	-295	
Ethane -----	0.0961	-33.2		
Ethylene -----	nd			
Propane -----	0.0524	-29.4		
Propylene -----	nd			
Iso-butane -----	0.0087			
N-butane -----	0.0253	-28.5		
Iso-pentane -----	0.0048			
N-pentane -----	0.0043			
Hexanes + -----	0.0070			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 27

Specific gravity, calculated: 0.975

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. %.

Lab #: 721264 Job #: 41737 IS-94649 Co. Job#:
 Sample Name: Parker 4-2-33 / Surface CSG Co. Lab#:
 Company: Crestone Peak Resources
 API/Well:
 Container: IsoTube®
 Field/Site Name: Bradenhead Testing
 Location: W23311
 Formation:
 Sampling Point: 276994
 Date Sampled: 5/22/2019 12:30 Date Received: 5/31/2019 Date Reported: 7/08/2019

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0306			
Hydrogen -----	0.574			
Argon -----	0.126			
Oxygen -----	3.01			
Nitrogen -----	11.44			
Carbon Dioxide -----	0.30	-0.6		
Methane -----	81.38	-50.3	-249	
Ethane -----	3.11	-33.0		
Ethylene -----	0.0008			
Propane -----	0.0251	-27.2		
Propylene -----	nd			
Iso-butane -----	nd			
N-butane -----	nd			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	0.0002			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 883

Specific gravity, calculated: 0.634

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. %.