

Lab #: 778334 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Kats 31-34 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 337   
 Date Sampled: 11/02/2020 10:00 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0148			
Hydrogen -----	0.0693			
Argon -----	0.0313			
Oxygen -----	0.71			
Nitrogen -----	4.00			
Carbon Dioxide -----	0.92	3.2		
Methane -----	75.17	-50.6	-253	
Ethane -----	10.88	-33.4		
Ethylene -----	nd			
Propane -----	5.15	-29.8		
Propylene -----	nd			
Iso-butane -----	0.672	-32.2		
N-butane -----	1.54	-29.0		
Iso-pentane -----	0.354	-28.8		
N-pentane -----	0.353	-28.4		
Hexanes + -----	0.139			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1195

Specific gravity, calculated: 0.735

Remarks: 16192928.1 9728

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 #: 778335 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Vessels 12-30 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 285991   
 Date Sampled: 11/03/2020 5:03 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0083			
Hydrogen -----	0.607			
Argon -----	0.0258			
Oxygen -----	0.61			
Nitrogen -----	3.43			
Carbon Dioxide -----	1.52	2.6		
Methane -----	69.86	-50.2	-244	
Ethane -----	12.19	-32.5		
Ethylene -----	0.0043			
Propane -----	6.64	-29.5		
Propylene -----	0.0001			
Iso-butane -----	1.03	-31.9		
N-butane -----	2.49	-28.6		
Iso-pentane -----	0.677	-28.6		
N-pentane -----	0.715	-28.1		
Hexanes + -----	0.197			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1278

Specific gravity, calculated: 0.790

Remarks: W34687 8503

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 #: 778336 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Kats 6-4-32 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 338   
 Date Sampled: 11/02/2020 8:05 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0153			
Hydrogen -----	0.0395			
Argon -----	0.0054			
Oxygen -----	0.089			
Nitrogen -----	0.61			
Carbon Dioxide -----	2.05	3.0		
Methane -----	78.99	-49.2	-240	
Ethane -----	11.27	-31.6		
Ethylene -----	nd			
Propane -----	4.27	-28.3		
Propylene -----	nd			
Iso-butane -----	0.612	-30.5		
N-butane -----	1.37	-28.0		
Iso-pentane -----	0.320	-27.9		
N-pentane -----	0.286	-27.6		
Hexanes + -----	0.0695			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1203

Specific gravity, calculated: 0.715

Remarks: 16192823.1 9728

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 #: 778337 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Kennedy 4-2-21 Surface Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 301839   
 Date Sampled: 11/03/2020 12:17 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0622			
Hydrogen -----	0.0120			
Argon -----	0.130			
Oxygen -----	2.90			
Nitrogen -----	12.68			
Carbon Dioxide -----	0.017			
Methane -----	73.64	-55.9	-240	
Ethane -----	4.34	-33.8		
Ethylene -----	nd			
Propane -----	3.42	-31.9		
Propylene -----	nd			
Iso-butane -----	0.756	-32.6		
N-butane -----	1.07	-30.9		
Iso-pentane -----	0.315	-28.7		
N-pentane -----	0.273	-29.2		
Hexanes + -----	0.386			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1013

Specific gravity, calculated: 0.725

Remarks: W50113 8503

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 #: 778338 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Kats 41-34 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 321   
 Date Sampled: 11/02/2020 9:24 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.884			
Oxygen -----	19.40			
Nitrogen -----	79.65			
Carbon Dioxide -----	0.068	-11.0		
Methane -----	0.0014			
Ethane -----	0.0001			
Ethylene -----	nd			
Propane -----	0.0002			
Propylene -----	nd			
Iso-butane -----	nd			
N-butane -----	0.0002			
Iso-pentane -----	0.0001			
N-pentane -----	0.0001			
Hexanes + -----	0.0003			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 0

Specific gravity, calculated: 0.998

Remarks: 16192929.1 9728

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 #: 778339 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Salisbury 2-4-11 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 418434   
 Date Sampled: 11/03/2020 9:19 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0204			
Hydrogen -----	nd			
Argon -----	0.0058			
Oxygen -----	0.12			
Nitrogen -----	0.79			
Carbon Dioxide -----	2.53	2.8		
Methane -----	80.60	-48.7	-225	
Ethane -----	10.21	-30.3		
Ethylene -----	nd			
Propane -----	3.44	-26.9		
Propylene -----	nd			
Iso-butane -----	0.584	-29.2		
N-butane -----	0.959	-26.8		
Iso-pentane -----	0.317	-27.6		
N-pentane -----	0.251	-27.3		
Hexanes + -----	0.176			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1169

Specific gravity, calculated: 0.703

Remarks: W65841 8503

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 #: 778340 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Williams 23-18 Surface Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 270919   
 Date Sampled: 11/04/2020 11:17 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.936			
Oxygen -----	20.79			
Nitrogen -----	78.19			
Carbon Dioxide -----	0.078	-11.8		
Methane -----	0.0032			
Ethane -----	0.0001			
Ethylene -----	nd			
Propane -----	nd			
Propylene -----	nd			
Iso-butane -----	nd			
N-butane -----	nd			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 0

Specific gravity, calculated: 1.000

Remarks: W13321 8503

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 #: 778341 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Federal NOAA 11-32 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 264390   
 Date Sampled: 11/03/2020 2:50 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0140			
Hydrogen -----	nd			
Argon -----	0.0054			
Oxygen -----	0.099			
Nitrogen -----	0.55			
Carbon Dioxide -----	2.00	2.7		
Methane -----	76.42	-48.2	-230	
Ethane -----	11.67	-31.0		
Ethylene -----	nd			
Propane -----	5.18	-28.4		
Propylene -----	nd			
Iso-butane -----	0.947	-30.9		
N-butane -----	2.15	-28.1		
Iso-pentane -----	0.515	-28.1		
N-pentane -----	0.445	-27.1		
Hexanes + -----	0.0086			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1256

Specific gravity, calculated: 0.747

Remarks: C763241 8503

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 #: 778342 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Rasmussen 19-14 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 251140   
 Date Sampled: 11/04/2020 10:00 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0195			
Hydrogen -----	nd			
Argon -----	0.0073			
Oxygen -----	0.095			
Nitrogen -----	0.89			
Carbon Dioxide -----	0.66	-1.1		
Methane -----	83.24	-49.3	-246	
Ethane -----	9.56	-32.6		
Ethylene -----	nd			
Propane -----	3.43	-29.1		
Propylene -----	nd			
Iso-butane -----	0.438	-31.4		
N-butane -----	0.940	-28.4		
Iso-pentane -----	0.234	-28.3		
N-pentane -----	0.244	-27.9		
Hexanes + -----	0.242			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1178

Specific gravity, calculated: 0.679

Remarks: W46960 8503

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 #: 778343 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Ross 2-4-19 Surface Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 422594   
 Date Sampled: 11/02/2020 12:45 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.883			
Oxygen -----	19.36			
Nitrogen -----	79.69			
Carbon Dioxide -----	0.058	-12.6		
Methane -----	0.0018			
Ethane -----	0.0004			
Ethylene -----	nd			
Propane -----	0.0004			
Propylene -----	nd			
Iso-butane -----	0.0001			
N-butane -----	0.0004			
Iso-pentane -----	0.0002			
N-pentane -----	0.0003			
Hexanes + -----	0.0005			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 0

Specific gravity, calculated: 0.998

Remarks: 16192850 8503

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 #: 778344 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Frances Arens 4-6-15 Surface Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 286620   
 Date Sampled: 11/03/2020 8:00 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0093			
Hydrogen -----	nd			
Argon -----	0.0970			
Oxygen -----	2.32			
Nitrogen -----	8.65			
Carbon Dioxide -----	0.052	-3.8		
Methane -----	73.68	-49.3	-237	
Ethane -----	7.31	-32.6		
Ethylene -----	nd			
Propane -----	4.53	-29.0		
Propylene -----	nd			
Iso-butane -----	0.858	-31.4		
N-butane -----	1.56	-27.7		
Iso-pentane -----	0.406	-28.3		
N-pentane -----	0.302	-27.0		
Hexanes + -----	0.224			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1111

Specific gravity, calculated: 0.737

Remarks: W31522 8503

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 #: 778345 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Rasmussen 19-14 Surface Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 251140   
 Date Sampled: 11/04/2020 10:00 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.936			
Oxygen -----	20.81			
Nitrogen -----	78.17			
Carbon Dioxide -----	0.087	-11.2		
Methane -----	0.0007			
Ethane -----	nd			
Ethylene -----	nd			
Propane -----	nd			
Propylene -----	nd			
Iso-butane -----	nd			
N-butane -----	nd			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 0

Specific gravity, calculated: 1.000

Remarks: W46960 8503

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 #: 778346 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Kats 42-34 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 322   
 Date Sampled: 11/02/2020 8:45 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0129			
Hydrogen -----	0.194			
Argon -----	0.205			
Oxygen -----	3.56			
Nitrogen -----	16.85			
Carbon Dioxide -----	0.38	-6.7		
Methane -----	61.18	-50.4	-255	
Ethane -----	10.70	-33.4		
Ethylene -----	nd			
Propane -----	4.85	-30.0		
Propylene -----	nd			
Iso-butane -----	0.528	-31.8		
N-butane -----	1.20	-28.6		
Iso-pentane -----	0.157	-28.3		
N-pentane -----	0.148	-28.0		
Hexanes + -----	0.0378			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1005

Specific gravity, calculated: 0.778

Remarks: 16192930.1 9728

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 #: 778347 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Bickler 4-6-34 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 293770   
 Date Sampled: 10/27/2020 1:30 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0189			
Hydrogen -----	0.0685			
Argon -----	0.0093			
Oxygen -----	0.17			
Nitrogen -----	0.81			
Carbon Dioxide -----	1.59	2.1		
Methane -----	75.74	-49.1	-253	
Ethane -----	12.56	-33.1		
Ethylene -----	nd			
Propane -----	5.81	-29.6		
Propylene -----	nd			
Iso-butane -----	0.759	-32.0		
N-butane -----	1.76	-28.8		
Iso-pentane -----	0.328	-28.5		
N-pentane -----	0.304	-28.1		
Hexanes + -----	0.0758			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1252

Specific gravity, calculated: 0.741

Remarks: 16192852.1 9728

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 #: 778348 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Herman 34-8 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 89443   
 Date Sampled: 10/26/2020 11:15 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.161			
Oxygen -----	3.64			
Nitrogen -----	96.08			
Carbon Dioxide -----	0.055	-6.7		
Methane -----	0.0123			
Ethane -----	0.0050			
Ethylene -----	nd			
Propane -----	0.0057			
Propylene -----	nd			
Iso-butane -----	0.0023			
N-butane -----	0.0055			
Iso-pentane -----	0.0044			
N-pentane -----	0.0050			
Hexanes + -----	0.0200			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 2

Specific gravity, calculated: 0.974

Remarks: 16192843.1 8503

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 #: 778349 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Kats 8-2-34 Surface Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 339   
 Date Sampled: 11/02/2020 2:04 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.886			
Oxygen -----	19.42			
Nitrogen -----	79.63			
Carbon Dioxide -----	0.059	-12.5		
Methane -----	0.0005			
Ethane -----	nd			
Ethylene -----	nd			
Propane -----	nd			
Propylene -----	nd			
Iso-butane -----	nd			
N-butane -----	nd			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 0

Specific gravity, calculated: 0.998

Remarks: 16192933.1 9728

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 #: 778350 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Kats B unit 2 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 250774   
 Date Sampled: 11/02/2020 10:21 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0168			
Hydrogen -----	0.0371			
Argon -----	0.0320			
Oxygen -----	0.73			
Nitrogen -----	3.01			
Carbon Dioxide -----	2.47	0.9		
Methane -----	76.43	-48.5	-235	
Ethane -----	10.42	-31.5		
Ethylene -----	nd			
Propane -----	4.07	-28.4		
Propylene -----	nd			
Iso-butane -----	0.621	-30.6		
N-butane -----	1.28	-28.3		
Iso-pentane -----	0.350	-28.1		
N-pentane -----	0.363	-28.1		
Hexanes + -----	0.167			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1163

Specific gravity, calculated: 0.730

Remarks: 16192931.1 9728

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 #: 778351 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: lone 4-6-8 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 416495   
 Date Sampled: 10/26/2020 10:35 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0068			
Hydrogen -----	nd			
Argon -----	0.467			
Oxygen -----	10.49			
Nitrogen -----	37.27			
Carbon Dioxide -----	1.08	3.3		
Methane -----	38.30	-49.7	-253	
Ethane -----	7.03	-33.4		
Ethylene -----	nd			
Propane -----	3.24	-29.1		
Propylene -----	nd			
Iso-butane -----	0.444	-31.3		
N-butane -----	1.10	-28.1		
Iso-pentane -----	0.271	-28.1		
N-pentane -----	0.223	-27.5		
Hexanes + -----	0.0797			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 669

Specific gravity, calculated: 0.879

Remarks: 16192847.1 8503

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 #: 778352 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Baker 32-27 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 301840   
 Date Sampled: 10/26/2020 1:30 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0129			
Hydrogen -----	0.0409			
Argon -----	0.0783			
Oxygen -----	1.85			
Nitrogen -----	6.90			
Carbon Dioxide -----	1.28	2.5		
Methane -----	72.10	-49.0	-250	
Ethane -----	10.56	-32.3		
Ethylene -----	nd			
Propane -----	4.53	-28.8		
Propylene -----	nd			
Iso-butane -----	0.582	-31.8		
N-butane -----	1.34	-28.2		
Iso-pentane -----	0.284	-28.5		
N-pentane -----	0.304	-27.8		
Hexanes + -----	0.142			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1128

Specific gravity, calculated: 0.743

Remarks: 16192824.1 8503

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 #: 778353 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Rasmussen H1 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 244563   
 Date Sampled: 10/27/2020 13:18 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0334			
Hydrogen -----	0.136			
Argon -----	0.368			
Oxygen -----	7.57			
Nitrogen -----	29.05			
Carbon Dioxide -----	0.030			
Methane -----	47.82	-56.1	-233	
Ethane -----	5.88	-35.2		
Ethylene -----	nd			
Propane -----	4.29	-30.9		
Propylene -----	0.0001			
Iso-butane -----	0.695	-32.7		
N-butane -----	1.99	-29.5		
Iso-pentane -----	0.711	-28.6		
N-pentane -----	0.739	-28.2		
Hexanes + -----	0.689			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 878

Specific gravity, calculated: 0.872

Remarks: 16190726 9728

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 #: 778354 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Baker 31-27 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 301841   
 Date Sampled: 10/26/2020 1:35 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.938			
Oxygen -----	20.81			
Nitrogen -----	78.17			
Carbon Dioxide -----	0.081	-12.1		
Methane -----	0.0023			
Ethane -----	0.0001			
Ethylene -----	nd			
Propane -----	nd			
Propylene -----	nd			
Iso-butane -----	nd			
N-butane -----	nd			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	0.0001			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 0

Specific gravity, calculated: 1.000

Remarks: 16192822.1 8503

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 #: 778355 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Baker 6-4-27 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 416082   
 Date Sampled: 10/26/2020 1:45 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0106			
Hydrogen -----	0.0355			
Argon -----	0.107			
Oxygen -----	2.55			
Nitrogen -----	9.57			
Carbon Dioxide -----	1.17	3.1		
Methane -----	69.80	-49.2	-253	
Ethane -----	9.85	-32.4		
Ethylene -----	nd			
Propane -----	4.16	-29.0		
Propylene -----	nd			
Iso-butane -----	0.534	-31.7		
N-butane -----	1.34	-28.3		
Iso-pentane -----	0.319	-28.6		
N-pentane -----	0.374	-28.2		
Hexanes + -----	0.178			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1087

Specific gravity, calculated: 0.752

Remarks: 16192823 8503

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 #: 778356 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Kats 31-34 Surface Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 337   
 Date Sampled: 11/02/2020 10:00 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.938			
Oxygen -----	20.83			
Nitrogen -----	78.16			
Carbon Dioxide -----	0.068	-12.5		
Methane -----	0.0013			
Ethane -----	nd			
Ethylene -----	nd			
Propane -----	nd			
Propylene -----	nd			
Iso-butane -----	nd			
N-butane -----	nd			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 0

Specific gravity, calculated: 1.000

Remarks: 16192928.1 9728

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 #: 778357 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Rasmussen H1 Surface Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 244563   
 Date Sampled: 10/27/2020 13:15 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0184			
Hydrogen -----	0.0517			
Argon -----	0.0267			
Oxygen -----	0.52			
Nitrogen -----	2.45			
Carbon Dioxide -----	0.010			
Methane -----	74.38	-52.5	-254	
Ethane -----	11.17	-35.1		
Ethylene -----	nd			
Propane -----	5.76	-30.4		
Propylene -----	nd			
Iso-butane -----	0.955	-32.2		
N-butane -----	2.58	-29.0		
Iso-pentane -----	0.788	-28.4		
N-pentane -----	0.753	-28.3		
Hexanes + -----	0.535			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1304

Specific gravity, calculated: 0.771

Remarks: 16190726 9728

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 #: 778358 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Ione 6-8-8 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 301808   
 Date Sampled: 10/02/6200 11:05 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.865			
Oxygen -----	19.07			
Nitrogen -----	72.91			
Carbon Dioxide -----	0.19	-3.6		
Methane -----	5.13	-48.0	-251	
Ethane -----	0.901	-32.6		
Ethylene -----	nd			
Propane -----	0.458	-28.8		
Propylene -----	nd			
Iso-butane -----	0.0735	-31.6		
N-butane -----	0.189	-28.2		
Iso-pentane -----	0.0689	-28.7		
N-pentane -----	0.0872	-28.0		
Hexanes + -----	0.0569			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 97

Specific gravity, calculated: 0.986

Remarks: 16192848.1 8503

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 #: 778359 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: North Rinn 0-8-9 Surface Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 424115   
 Date Sampled: 11/03/2020 10:57 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0230			
Hydrogen -----	0.134			
Argon -----	0.0325			
Oxygen -----	0.77			
Nitrogen -----	2.81			
Carbon Dioxide -----	1.80	1.1		
Methane -----	80.15	-48.0	-222	
Ethane -----	9.49	-29.6		
Ethylene -----	nd			
Propane -----	2.79	-25.9		
Propylene -----	nd			
Iso-butane -----	0.500	-28.8		
N-butane -----	0.846	-26.8		
Iso-pentane -----	0.280	-27.9		
N-pentane -----	0.218	-27.2		
Hexanes + -----	0.157			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1125

Specific gravity, calculated: 0.693

Remarks: W73382 8503

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 #: 778360 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Kennedy 4-2-21 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 301839   
 Date Sampled: 11/03/2020 12:17 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0102			
Hydrogen -----	nd			
Argon -----	0.0108			
Oxygen -----	0.24			
Nitrogen -----	0.86			
Carbon Dioxide -----	1.90	2.9		
Methane -----	72.89	-50.0	-254	
Ethane -----	13.32	-33.7		
Ethylene -----	nd			
Propane -----	6.22	-29.6		
Propylene -----	nd			
Iso-butane -----	0.842	-31.9		
N-butane -----	2.15	-28.4		
Iso-pentane -----	0.562	-28.6		
N-pentane -----	0.679	-28.1		
Hexanes + -----	0.314			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1298

Specific gravity, calculated: 0.777

Remarks: W50113 8503

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 #: 778361 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Ruegge 3O-4H Surface Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 454445   
 Date Sampled: 11/06/2020 7:50 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.974			
Oxygen -----	21.94			
Nitrogen -----	77.00			
Carbon Dioxide -----	0.088	-11.0		
Methane -----	0.0005			
Ethane -----	nd			
Ethylene -----	nd			
Propane -----	nd			
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: 0

Specific gravity, calculated: 1.002

Remarks: C10127 8503

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 #: 778362 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Mason Gas Unit 3-8 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 242285   
 Date Sampled: 10/26/2020 10:15 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0088			
Hydrogen -----	0.438			
Argon -----	0.0086			
Oxygen -----	0.18			
Nitrogen -----	0.62			
Carbon Dioxide -----	2.38	2.9		
Methane -----	73.72	-49.8	-251	
Ethane -----	14.44	-33.2		
Ethylene -----	0.0004			
Propane -----	6.00	-29.6		
Propylene -----	nd			
Iso-butane -----	0.604	-31.8		
N-butane -----	1.28	-28.3		
Iso-pentane -----	0.157	-28.2		
N-pentane -----	0.140	-28.0		
Hexanes + -----	0.0259			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1234

Specific gravity, calculated: 0.740

Remarks: 16192846.1 9728

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 #: 778363 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: North Rinn 0-8-9 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 424115   
 Date Sampled: 11/03/2020 10:57 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0223			
Hydrogen -----	nd			
Argon -----	0.0074			
Oxygen -----	0.12			
Nitrogen -----	0.62			
Carbon Dioxide -----	2.31	2.5		
Methane -----	81.85	-48.2	-222	
Ethane -----	9.83	-29.1		
Ethylene -----	nd			
Propane -----	2.91	-26.2		
Propylene -----	nd			
Iso-butane -----	0.532	-28.3		
N-butane -----	0.905	-26.7		
Iso-pentane -----	0.351	-28.1		
N-pentane -----	0.291	-27.6		
Hexanes + -----	0.255			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1164

Specific gravity, calculated: 0.695

Remarks: W73382 8503

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 #: 778364 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Bickler 23-43 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 293771   
 Date Sampled: 10/26/2020 2:00 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0077			
Hydrogen -----	0.0183			
Argon -----	0.297			
Oxygen -----	6.76			
Nitrogen -----	24.54			
Carbon Dioxide -----	0.55	1.5		
Methane -----	54.71	-48.5	-250	
Ethane -----	8.45	-32.6		
Ethylene -----	0.0004			
Propane -----	3.17	-29.0		
Propylene -----	nd			
Iso-butane -----	0.389	-31.4		
N-butane -----	0.789	-28.4		
Iso-pentane -----	0.147	-28.5		
N-pentane -----	0.124	-28.5		
Hexanes + -----	0.0446			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 837

Specific gravity, calculated: 0.795

Remarks: 16192853.1 9728

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 #: 778365 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Herman 33-8 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 262771   
 Date Sampled: 10/26/2020 11:57 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0062			
Hydrogen -----	0.0463			
Argon -----	0.253			
Oxygen -----	5.80			
Nitrogen -----	22.16			
Carbon Dioxide -----	1.73	3.6		
Methane -----	52.57	-49.2	-249	
Ethane -----	10.21	-32.6		
Ethylene -----	0.0001			
Propane -----	4.89	-29.2		
Propylene -----	nd			
Iso-butane -----	0.635	-31.5		
N-butane -----	1.43	-28.3		
Iso-pentane -----	0.157	-28.1		
N-pentane -----	0.108	-27.6		
Hexanes + -----	0.0060			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 917

Specific gravity, calculated: 0.828

Remarks: 16192844.1 9728

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 #: 778366 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Mason 44-8 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 265535   
 Date Sampled: 10/26/2020 10:45 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0076			
Hydrogen -----	0.0784			
Argon -----	0.0160			
Oxygen -----	0.37			
Nitrogen -----	1.45			
Carbon Dioxide -----	2.24	3.7		
Methane -----	72.55	-49.8	-253	
Ethane -----	14.38	-33.0		
Ethylene -----	0.0001			
Propane -----	6.33	-29.8		
Propylene -----	nd			
Iso-butane -----	0.674	-31.7		
N-butane -----	1.46	-28.7		
Iso-pentane -----	0.196	-28.5		
N-pentane -----	0.192	-28.0		
Hexanes + -----	0.0572			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1242

Specific gravity, calculated: 0.754

Remarks: 16192845.1 9728

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 #: 778367 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Ross 12-19 Surface Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 422591   
 Date Sampled: 11/02/2020 12:48 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0193			
Hydrogen -----	nd			
Argon -----	0.0332			
Oxygen -----	0.78			
Nitrogen -----	3.25			
Carbon Dioxide -----	1.07	2.7		
Methane -----	74.02	-50.8	-246	
Ethane -----	11.50	-33.0		
Ethylene -----	nd			
Propane -----	5.50	-29.7		
Propylene -----	nd			
Iso-butane -----	0.814	-31.6		
N-butane -----	1.81	-28.6		
Iso-pentane -----	0.459	-28.7		
N-pentane -----	0.493	-28.2		
Hexanes + -----	0.253			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1232

Specific gravity, calculated: 0.754

Remarks: W68762 8503

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 #: 778368 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Ross 0-2-19 Surface Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 422598   
 Date Sampled: 11/02/2020 12:30 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.936			
Oxygen -----	20.79			
Nitrogen -----	78.20			
Carbon Dioxide -----	0.072	-12.4		
Methane -----	0.0017			
Ethane -----	0.0001			
Ethylene -----	nd			
Propane -----	nd			
Propylene -----	nd			
Iso-butane -----	nd			
N-butane -----	0.0001			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 0

Specific gravity, calculated: 1.000

Remarks: W69080 8503

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 #: 778369 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Baker 4-2-27 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 416079   
 Date Sampled: 10/26/2020 1:40 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0164			
Hydrogen -----	0.0531			
Argon -----	0.330			
Oxygen -----	7.45			
Nitrogen -----	26.61			
Carbon Dioxide -----	0.58	1.5		
Methane -----	53.26	-49.9	-243	
Ethane -----	6.60	-32.2		
Ethylene -----	nd			
Propane -----	3.15	-29.3		
Propylene -----	nd			
Iso-butane -----	0.433	-31.7		
N-butane -----	0.934	-28.3		
Iso-pentane -----	0.223	-28.6		
N-pentane -----	0.223	-28.2		
Hexanes + -----	0.135			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 806

Specific gravity, calculated: 0.807

Remarks: W62315 8503

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 #: 778370 Job #: 46479 IS-94649 Co. Job#:   
 Sample Name: Bickler 4-4-34 Production Casing Co. Lab#:   
 Company: Crestone Peak Resources   
 API/Well:   
 Container: IsoTube®   
 Field/Site Name: Bradenhead Testing   
 Location:   
 Formation:   
 Sampling Point: 293772   
 Date Sampled: 10/26/2020 2:05 Date Received: 12/04/2020 Date Reported: 1/13/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	0.0080			
Hydrogen -----	0.0553			
Argon -----	0.302			
Oxygen -----	6.86			
Nitrogen -----	24.15			
Carbon Dioxide -----	1.07	2.0		
Methane -----	53.87	-48.8	-252	
Ethane -----	8.84	-32.9		
Ethylene -----	0.0003			
Propane -----	3.44	-29.3		
Propylene -----	nd			
Iso-butane -----	0.356	-31.6		
N-butane -----	0.765	-28.5		
Iso-pentane -----	0.121	-28.5		
N-pentane -----	0.113	-28.3		
Hexanes + -----	0.0469			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 839

Specific gravity, calculated: 0.802

Remarks: 16192854.1 9728

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. %.