



Isotech Gas Data

Job 48751 and 48785

CoreTrac IS-107457

Isotech Lab No.	Sample Name	Sample Date	Sample Time	Field Name	Location	GC Date	He %	H ₂ %	Ar %	O ₂ %	CO ₂ %	N ₂ %	CO %	C ₁ %	C ₂ %	C ₂ H ₄ %	C ₃ %	C ₃ H ₆ %	iC ₄ %	nC ₄ %	iC ₅ %	nC ₅ %	C ₆ + %	MS Date	δ ¹³ CO ₂ ‰	δ ¹³ C ₁ ‰	δDC ₁ ‰	δ ¹³ C ₂ ‰	Specific Gravity	BTU	Comments		
803070	SVP01-0908-1039	9/8/2021	10:39	State 30-16	Erie, CO	9/20/2021	nd	nd	0.949	19.23	1.61	78.21	nd	0.0007	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.007	0	
803071	SVP02-0908-1051	9/8/2021	10:51	State 30-16	Erie, CO	9/20/2021	nd	nd	1.01	10.84	5.28	82.87	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.015	0	
803072	SVP03-0908-1059	9/8/2021	10:59	State 30-16	Erie, CO	9/20/2021	nd	nd	1.06	6.89	5.00	87.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.009	0	
803073	SVP04-0908-1104	9/8/2021	11:04	State 30-16	Erie, CO	9/20/2021	nd	nd	1.06	4.38	7.29	87.27	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.018	0	
803074	SVP05-0908-1108	9/8/2021	11:08	State 30-16	Erie, CO	9/20/2021	nd	nd	0.989	12.13	5.65	81.23	nd	0.0007	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.019	0	
803075	SVP06-0908-1233	9/8/2021	12:33	State 30-16	Erie, CO	9/20/2021	nd	nd	0.993	11.31	6.24	81.45	nd	0.0060	0.0031	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.021	0	
803076	SVP07-0908-1224	9/8/2021	12:24	State 30-16	Erie, CO	9/13/2021	nd	nd	0.927	0.33	10.89	76.16	nd	9.84	1.85	nd	0.0015	nd	0.0007	0.0004	0.0002	0.0002	0.0027	9/14/2021	-29.71	-32.77	-224.5	-23.71	0.992	133	Insufficient C3-C5 concentrations for isotopic analysis.		
803077	SVP08-0908-1257	9/8/2021	12:57	State 30-16	Erie, CO	9/20/2021	nd	nd	1.06	11.09	0.91	86.94	nd	0.0010	0.0010	nd	nd	nd	nd	nd	nd	nd	nd	nd							0.992	0	
803078	SVP09-0908-1255	9/8/2021	12:55	State 30-16	Erie, CO	9/20/2021	nd	nd	0.975	16.62	2.42	79.98	nd	0.0005	0.0005	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.007	0	
803079	SVP10-0908-1305	9/8/2021	13:05	State 30-16	Erie, CO	9/20/2021	nd	nd	0.984	17.04	1.08	80.90	nd	0.0006	0.0003	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.001	0	
803080	SVP11-0908-1121	9/8/2021	11:21	State 30-16	Erie, CO	9/20/2021	nd	nd	1.04	11.83	0.69	86.44	nd	0.0003	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd							0.992	0	
803081	SVP12-0908-1125	9/8/2021	11:25	State 30-16	Erie, CO	9/20/2021	nd	nd	1.05	10.81	1.41	86.73	nd	0.0005	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd							0.994	0	
803082	SVP13-0908-1219	9/8/2021	12:19	State 30-16	Erie, CO	9/20/2021	nd	nd	0.981	14.70	3.39	80.93	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.010	0	
803083	SVP14-0908-1215	9/8/2021	12:15	State 30-16	Erie, CO	9/20/2021	nd	nd	0.952	19.69	0.72	78.64	nd	0.0006	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.002	0	
803084	SVP15-0908-1129	9/8/2021	11:29	State 30-16	Erie, CO	9/20/2021	nd	nd	0.989	16.39	1.44	81.18	nd	0.0004	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.002	0	
803085	SVP16-0908-1113	9/8/2021	11:13	State 30-16	Erie, CO	9/20/2021	nd	nd	0.960	19.63	0.51	78.90	nd	0.0004	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.001	0	
803086	SVP17-0908-1117	9/8/2021	11:17	State 30-16	Erie, CO	9/20/2021	nd	nd	1.10	2.51	5.86	90.53	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.008	0	
803087	SVP18-0908-1146	9/8/2021	11:46	State 30-16	Erie, CO	9/20/2021	nd	nd	0.952	19.83	0.65	78.57	nd	0.0012	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.002	0	
803088	SVP19-0908-1142	9/8/2021	11:42	State 30-16	Erie, CO	9/20/2021	nd	nd	1.09	1.95	7.10	89.86	nd	0.0003	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.014	0	
803089	SVP20-0908-1137	9/8/2021	11:37	State 30-16	Erie, CO	9/20/2021	nd	nd	1.04	9.35	4.11	85.50	nd	0.0003	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.007	0	
803090	SVP21-0908-1133	9/8/2021	11:33	State 30-16	Erie, CO	9/20/2021	nd	nd	0.953	19.69	0.60	78.76	nd	0.0005	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.002	0	
803091	SVP22-0908-1210	9/8/2021	12:10	State 30-16	Erie, CO	9/20/2021	nd	nd	0.943	21.20	0.10	77.76	nd	0.0009	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.001	0	
803092	SVP23-0908-1201	9/8/2021	12:01	State 30-16	Erie, CO	9/20/2021	nd	nd	0.972	17.53	1.48	80.02	nd	0.0005	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.004	0	
803093	SVP24-0908-1156	9/8/2021	11:56	State 30-16	Erie, CO	9/20/2021	nd	nd	1.04	5.55	8.32	85.09	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.025	0	
803094	SVP25-0908-1157	9/8/2021	11:57	State 30-16	Erie, CO	9/20/2021	nd	nd	1.00	7.85	8.32	82.83	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.028	0	
803469	SVP07-0910-0832	9/10/2021	8:32	State 30-16	Erie, CO	9/21/2021	nd	nd	0.945	1.20	10.59	76.37	nd	9.15	1.74	nd	0.0011	nd	0.0005	nd	nd	nd	0.0026							0.995	124		
803470	SVP30-0910-0839	9/10/2021	8:39	State 30-16	Erie, CO	9/16/2021	nd	nd	0.931	7.76	8.41	76.74	nd	5.24	0.915	nd	0.0004	nd	0.0002	0.0001	nd	nd	0.0004	9/17/2021	-30.74	-33.57	-219.3	-23.24	1.007	69	Insufficient C3-C5 concentrations for isotopic analysis.		
803471	SVP31-0910-0845	9/10/2021	8:45	State 30-16	Erie, CO	9/16/2021	nd	nd	0.887	4.03	9.90	73.52	nd	9.71	1.93	nd	0.0125	nd	0.0037	0.0012	0.0010	0.0004	0.0014	9/17/2021	-30.80	-32.26	-215.8	-23.59	0.992	133	Insufficient C3-C5 concentrations for isotopic analysis.		
803472	SVP32-0910-0852	9/10/2021	8:52	State 30-16	Erie, CO	9/16/2021	nd	nd	0.960	11.12	2.88	79.92	nd	4.22	0.889	nd	0.0083	nd	0.0022	0.0005	0.0008	0.0001	0.0011	9/17/2021	-29.04	-27.34	-224.3	-22.07	0.986	59	Insufficient C3-C5 concentrations for isotopic analysis.		
803473	SVP35-0910-0905	9/10/2021	9:05	State 30-16	Erie, CO	9/21/2021	nd	nd	0.966	18.98	1.71	78.34	nd	0.0020	0.0017	nd	nd	nd	nd	nd	nd	nd	0.0018							1.007	0		
803474	SVP36-0910-0911	9/10/2021	9:11	State 30-16	Erie, CO	9/21/2021	nd	nd	0.955	20.75	0.65	77.64	nd	0.0015	0.0010	nd	nd	nd	nd	nd	nd	nd	0.0016							1.003	0		
803475	SVP38-0910-0915	9/10/2021	9:15	State 30-16	Erie, CO	9/21/2021	nd	nd	0.965	16.86	3.13	79.04	nd	0.0011	0.0007	nd	nd	nd	nd	nd	nd	nd	0.0014							1.012	0		
803476	SVP26-0910-1001	9/10/2021	10:01	State 30-16	Erie, CO	9/21/2021	nd	nd	0.954	20.47	0.95	77.62	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.0013							1.005	0		
803477	SVP27-0910-0942	9/10/2021	9:42	State 30-16	Erie, CO	9/21/2021	nd	nd	0.968	17.01	3.33	78.69	nd	nd	0.0001	nd	nd	nd	nd	nd	nd	nd	0.0014							1.013	0		
803478	SVP28-0910-0930	9/10/2021	9:30	State 30-16	Erie, CO	9/22/2021	nd	nd	1.03	5.26	9.46	84.25	nd	0.0004	0.0002	nd	nd	nd	nd	nd	nd	nd	nd							1.031	0		
803479	SVP29-0910-0926	9/10/2021	9:26	State 30-16	Erie, CO	9/22/2021	nd	nd	1.02	7.24	8.35	83.39	nd	0.0004	0.0003	nd	nd	nd	nd	nd	nd	nd	nd							1.028	0		
803480	SVP33-0910-0948	9/10/2021	9:48	State 30-16	Erie, CO	9/22/2021	nd	nd	1.03	8.99	5.46	84.52	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.014	0		
803481	SVP34-0910-0959	9/10/2021	9:59	State 30-16	Erie, CO	9/22/2021	nd	nd	0.980	15.81	3.17	80.04	nd	0.0005	nd	nd	nd	nd	nd	nd	nd	nd	nd							1.011	0		
803482	SVP37-0910-0921	9/10/2021	9:21	State 30-16	Erie, CO	9/22/2021	nd	nd	1.00	10.04	6.66	82.30	nd	0.0005	0.0004	nd	nd	nd	nd	nd	nd	nd	nd							1.022	0		

All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19

nd = not detected, na = not analyzed

Lab #: 803070 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP01-0908-1039 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 10:39 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.949			
Oxygen -----	19.23			
Nitrogen -----	78.21			
Carbon Dioxide -----	1.61			
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: 1.007

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 #: 803071 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP02-0908-1051 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 10:51 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	1.01			
Oxygen -----	10.84			
Nitrogen -----	82.87			
Carbon Dioxide -----	5.28			
Methane -----	nd			
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: 1.015

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 #: 803072 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP03-0908-1059 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 10:59 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	1.06			
Oxygen -----	6.89			
Nitrogen -----	87.05			
Carbon Dioxide -----	5.00			
Methane -----	nd			
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: 1.009

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 #: 803073 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP04-0908-1104 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 11:04 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	1.06			
Oxygen -----	4.38			
Nitrogen -----	87.27			
Carbon Dioxide -----	7.29			
Methane -----	nd			
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: 1.018

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 #: 803074 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP05-0908-1108 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 11:08 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.989			
Oxygen -----	12.13			
Nitrogen -----	81.23			
Carbon Dioxide -----	5.65			
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: 1.019

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 #: 803075 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP06-0908-1233 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 12:33 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.993			
Oxygen -----	11.31			
Nitrogen -----	81.45			
Carbon Dioxide -----	6.24			
Methane -----	0.0060			
Ethane -----	0.0031			
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: 1.021

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 #: 803076 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP07-0908-1224 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 12:24 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.927			
Oxygen -----	0.33			
Nitrogen -----	76.16			
Carbon Dioxide -----	10.89	-29.71		
Methane -----	9.84	-32.77	-224.5	
Ethane -----	1.85	-23.71		
Ethylene -----	nd			
Propane -----	0.0015			
Propylene -----	nd			
Iso-butane -----	0.0007			
N-butane -----	0.0004			
Iso-pentane -----	0.0002			
N-pentane -----	0.0002			
Hexanes + -----	0.0027			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 133

Specific gravity, calculated: 0.992

Remarks: Insufficient C3-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. %.

Lab #: 803077 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP08-0908-1257 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 12:57 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	1.06			
Oxygen -----	11.09			
Nitrogen -----	86.94			
Carbon Dioxide -----	0.91			
Methane -----	0.0010			
Ethane -----	0.0010			
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: 0.992

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 #: 803078 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP09-0908-1255 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 12:55 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.975			
Oxygen -----	16.62			
Nitrogen -----	79.98			
Carbon Dioxide -----	2.42			
Methane -----	0.0005			
Ethane -----	0.0005			
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: 1.007

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 #: 803079 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP10-0908-1305 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 13:05 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.984			
Oxygen -----	17.04			
Nitrogen -----	80.90			
Carbon Dioxide -----	1.08			
Methane -----	0.0006			
Ethane -----	0.0003			
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: 1.001

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 #: 803080 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP11-0908-1121 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 11:21 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	1.04			
Oxygen -----	11.83			
Nitrogen -----	86.44			
Carbon Dioxide -----	0.69			
Methane -----	0.0003			
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: 0.992

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 #: 803081 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP12-0908-1125 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 11:25 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	1.05			
Oxygen -----	10.81			
Nitrogen -----	86.73			
Carbon Dioxide -----	1.41			
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: 0.994

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 #: 803082 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP13-0908-1219 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 12:19 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.981			
Oxygen -----	14.70			
Nitrogen -----	80.93			
Carbon Dioxide -----	3.39			
Methane -----	nd			
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: 1.010

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 #: 803083 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP14-0908-1215 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 12:15 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.952			
Oxygen -----	19.69			
Nitrogen -----	78.64			
Carbon Dioxide -----	0.72			
Methane -----	0.0006			
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: 1.002

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 #: 803084 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP15-0908-1129 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 11:29 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.989			
Oxygen -----	16.39			
Nitrogen -----	81.18			
Carbon Dioxide -----	1.44			
Methane -----	0.0004			
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: 1.002

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 #: 803085 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP16-0908-1113 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 11:13 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.960			
Oxygen -----	19.63			
Nitrogen -----	78.90			
Carbon Dioxide -----	0.51			
Methane -----	0.0004			
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: 1.001

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 #: 803086 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP17-0908-1117 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 11:17 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	1.10			
Oxygen -----	2.51			
Nitrogen -----	90.53			
Carbon Dioxide -----	5.86			
Methane -----	nd			
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: 1.008

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 #: 803087 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP18-0908-1146 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 11:46 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.952			
Oxygen -----	19.83			
Nitrogen -----	78.57			
Carbon Dioxide -----	0.65			
Methane -----	0.0012			
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: 1.002

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 #: 803088 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP19-0908-1142 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 11:42 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	1.09			
Oxygen -----	1.95			
Nitrogen -----	89.86			
Carbon Dioxide -----	7.10			
Methane -----	0.0003			
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: 1.014

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 #: 803089 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP20-0908-1137 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 11:37 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	1.04			
Oxygen -----	9.35			
Nitrogen -----	85.50			
Carbon Dioxide -----	4.11			
Methane -----	0.0003			
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: 1.007

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 #: 803090 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP21-0908-1133 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 11:33 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.953			
Oxygen -----	19.69			
Nitrogen -----	78.76			
Carbon Dioxide -----	0.60			
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: 1.002

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 #: 803091 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP22-0908-1210 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 12:10 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.943			
Oxygen -----	21.20			
Nitrogen -----	77.76			
Carbon Dioxide -----	0.10			
Methane -----	0.0009			
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: 1.001

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 #: 803092 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP23-0908-1201 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 12:01 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.972			
Oxygen -----	17.53			
Nitrogen -----	80.02			
Carbon Dioxide -----	1.48			
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: 1.004

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 #: 803093 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP24-0908-1156 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 11:56 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	1.04			
Oxygen -----	5.55			
Nitrogen -----	85.09			
Carbon Dioxide -----	8.32			
Methane -----	nd			
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: 1.025

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 #: 803094 Job #: 48751 IS-107457 Co. Job#:
 Sample Name: SVP25-0908-1157 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/08/2021 11:57 Date Received: 9/10/2021 Date Reported: 9/21/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	1.00			
Oxygen -----	7.85			
Nitrogen -----	82.83			
Carbon Dioxide -----	8.32			
Methane -----	nd			
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: 1.028

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 #: 803469 Job #: 48785 IS-107457 Co. Job#:
 Sample Name: SVP07-0910-0832 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/10/2021 8:32 Date Received: 9/15/2021 Date Reported: 9/22/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.945			
Oxygen -----	1.20			
Nitrogen -----	76.37			
Carbon Dioxide -----	10.59			
Methane -----	9.15			
Ethane -----	1.74			
Ethylene -----	nd			
Propane -----	0.0011			
Propylene -----	nd			
Iso-butane -----	0.0005			
N-butane -----	nd			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	0.0026			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 124

Specific gravity, calculated: 0.995

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 #: 803470 Job #: 48785 IS-107457 Co. Job#:
 Sample Name: SVP30-0910-0839 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/10/2021 8:39 Date Received: 9/15/2021 Date Reported: 9/22/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.931			
Oxygen -----	7.76			
Nitrogen -----	76.74			
Carbon Dioxide -----	8.41	-30.74		
Methane -----	5.24	-33.57	-219.3	
Ethane -----	0.915	-23.24		
Ethylene -----	nd			
Propane -----	0.0004			
Propylene -----	nd			
Iso-butane -----	0.0002			
N-butane -----	0.0001			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	0.0004			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 69

Specific gravity, calculated: 1.007

Remarks: Insufficient C3-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. %.

Lab #: 803471 Job #: 48785 IS-107457 Co. Job#:
 Sample Name: SVP31-0910-0845 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/10/2021 8:45 Date Received: 9/15/2021 Date Reported: 9/22/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.887			
Oxygen -----	4.03			
Nitrogen -----	73.52			
Carbon Dioxide -----	9.90	-30.80		
Methane -----	9.71	-32.26	-215.8	
Ethane -----	1.93	-23.59		
Ethylene -----	nd			
Propane -----	0.0125			
Propylene -----	nd			
Iso-butane -----	0.0037			
N-butane -----	0.0012			
Iso-pentane -----	0.0010			
N-pentane -----	0.0004			
Hexanes + -----	0.0014			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 133

Specific gravity, calculated: 0.992

Remarks: Insufficient C3-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. %.

Lab #: 803472 Job #: 48785 IS-107457 Co. Job#:
 Sample Name: SVP32-0910-0852 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/10/2021 8:52 Date Received: 9/15/2021 Date Reported: 9/22/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.960			
Oxygen -----	11.12			
Nitrogen -----	79.92			
Carbon Dioxide -----	2.88	-29.04		
Methane -----	4.22	-27.34	-224.3	
Ethane -----	0.889	-22.07		
Ethylene -----	nd			
Propane -----	0.0083			
Propylene -----	nd			
Iso-butane -----	0.0022			
N-butane -----	0.0005			
Iso-pentane -----	0.0008			
N-pentane -----	0.0001			
Hexanes + -----	0.0011			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 59

Specific gravity, calculated: 0.986

Remarks: Insufficient C3-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. %.

Lab #: 803473 Job #: 48785 IS-107457 Co. Job#:
 Sample Name: SVP35-0910-0905 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/10/2021 9:05 Date Received: 9/15/2021 Date Reported: 9/22/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.966			
Oxygen -----	18.98			
Nitrogen -----	78.34			
Carbon Dioxide -----	1.71			
Methane -----	0.0020			
Ethane -----	0.0017			
Ethylene -----	nd			
Propane -----	nd			
Propylene -----	nd			
Iso-butane -----	nd			
N-butane -----	nd			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	0.0018			

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

Specific gravity, calculated: 1.007

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 #: 803474 Job #: 48785 IS-107457 Co. Job#:
 Sample Name: SVP36-0910-0911 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/10/2021 9:11 Date Received: 9/15/2021 Date Reported: 9/22/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.955			
Oxygen -----	20.75			
Nitrogen -----	77.64			
Carbon Dioxide -----	0.65			
Methane -----	0.0015			
Ethane -----	0.0010			
Ethylene -----	nd			
Propane -----	nd			
Propylene -----	nd			
Iso-butane -----	nd			
N-butane -----	nd			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	0.0016			

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

Specific gravity, calculated: 1.003

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 #: 803475 Job #: 48785 IS-107457 Co. Job#:
 Sample Name: SVP38-0910-0915 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/10/2021 9:15 Date Received: 9/15/2021 Date Reported: 9/22/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.965			
Oxygen -----	16.86			
Nitrogen -----	79.04			
Carbon Dioxide -----	3.13			
Methane -----	0.0011			
Ethane -----	0.0007			
Ethylene -----	nd			
Propane -----	nd			
Propylene -----	nd			
Iso-butane -----	nd			
N-butane -----	nd			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	0.0014			

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

Specific gravity, calculated: 1.012

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 #: 803476 Job #: 48785 IS-107457 Co. Job#:
 Sample Name: SVP26-0910-1001 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/10/2021 10:01 Date Received: 9/15/2021 Date Reported: 9/22/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.954			
Oxygen -----	20.47			
Nitrogen -----	77.62			
Carbon Dioxide -----	0.95			
Methane -----	nd			
Ethane -----	nd			
Ethylene -----	nd			
Propane -----	nd			
Propylene -----	nd			
Iso-butane -----	nd			
N-butane -----	nd			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	0.0013			

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

Specific gravity, calculated: 1.005

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 #: 803477 Job #: 48785 IS-107457 Co. Job#:
 Sample Name: SVP27-0910-0942 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/10/2021 9:42 Date Received: 9/15/2021 Date Reported: 9/22/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.968			
Oxygen -----	17.01			
Nitrogen -----	78.69			
Carbon Dioxide -----	3.33			
Methane -----	nd			
Ethane -----	0.0001			
Ethylene -----	nd			
Propane -----	nd			
Propylene -----	nd			
Iso-butane -----	nd			
N-butane -----	nd			
Iso-pentane -----	nd			
N-pentane -----	nd			
Hexanes + -----	0.0014			

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

Specific gravity, calculated: 1.013

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 #: 803478 Job #: 48785 IS-107457 Co. Job#:
 Sample Name: SVP28-0910-0930 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/10/2021 9:30 Date Received: 9/15/2021 Date Reported: 9/22/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	1.03			
Oxygen -----	5.26			
Nitrogen -----	84.25			
Carbon Dioxide -----	9.46			
Methane -----	0.0004			
Ethane -----	0.0002			
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: 1.031

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 #: 803479 Job #: 48785 IS-107457 Co. Job#:
 Sample Name: SVP29-0910-0926 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/10/2021 9:26 Date Received: 9/15/2021 Date Reported: 9/22/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	1.02			
Oxygen -----	7.24			
Nitrogen -----	83.39			
Carbon Dioxide -----	8.35			
Methane -----	0.0004			
Ethane -----	0.0003			
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: 1.028

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 #: 803480 Job #: 48785 IS-107457 Co. Job#:
 Sample Name: SVP33-0910-0948 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/10/2021 9:48 Date Received: 9/15/2021 Date Reported: 9/22/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	1.03			
Oxygen -----	8.99			
Nitrogen -----	84.52			
Carbon Dioxide -----	5.46			
Methane -----	nd			
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: 1.014

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 #: 803481 Job #: 48785 IS-107457 Co. Job#:
 Sample Name: SVP34-0910-0959 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/10/2021 9:59 Date Received: 9/15/2021 Date Reported: 9/22/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.980			
Oxygen -----	15.81			
Nitrogen -----	80.04			
Carbon Dioxide -----	3.17			
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: 1.011

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 #: 803482 Job #: 48785 IS-107457 Co. Job#:
 Sample Name: SVP37-0910-0921 Co. Lab#:
 Company: Anadarko
 API/Well:
 Container: IsoTube®
 Field/Site Name: State 30-16
 Location: Erie, CO
 Formation:
 Sampling Point:
 Date Sampled: 9/10/2021 9:21 Date Received: 9/15/2021 Date Reported: 9/22/2021

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	1.00			
Oxygen -----	10.04			
Nitrogen -----	82.30			
Carbon Dioxide -----	6.66			
Methane -----	0.0005			
Ethane -----	0.0004			
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: 1.022

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. %.