

Lab #: 737962 Job #: 43116 IS-69033 Co. Job#:
Sample Name: BW_NGL_78801_F_R Co. Lab#:
Company: Anadarko
API/Well:
Container: 125ml bottle
Field/Site Name: BWSE/GWA_NGL_Water_Well
Location: SESE_30_3N_65W
Formation/Depth: Q4
Sampling Point: 755053
Date Sampled: 10/15/2019 13:12 Date Received: 10/17/2019 Date Reported: 11/07/2019

δ D of water ----- -105.0 ‰ relative to VSMOW

δ^{18} O of water ----- -13.56 ‰ relative to VSMOW

Tritium content of water ----- na

δ^{13} C of DIC ----- -14.9 ‰ relative to VPDB

14 C content of DIC ----- na

δ^{15} N of nitrate ----- na

δ^{18} O of nitrate ----- na

δ^{34} S of sulfate ----- na

δ^{18} O of sulfate ----- na

Vacuum Distilled? * ----- No

Remarks: WO#89225208

nd = not detected. na = not analyzed.

*Indicates if vacuum distillation was utilized for hydrogen and oxygen isotopic analysis of water

Lab #: 737966 Job #: 43118 IS-69033 Co. Job#: _____
 Sample Name: BW_NGL_78801_F_R Co. Lab#: _____
 Company: Anadarko
 API/Well: _____
 Container: IsoFlask
 Field/Site Name: BWSE/GWA_NGL_Water_Well
 Location: SESE_30_3N_65W
 Formation/Depth: Q4
 Sampling Point: 755053
 Date Sampled: 10/15/2019 13:12 Date Received: 10/17/2019 Date Reported: 11/25/2019

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	0.796				0.27	0.45
Oxygen -----	2.18					
Nitrogen -----	36.76				11	13
Carbon Dioxide -----	5.00					
Methane -----	55.15	-73.17	-267.0		19	13
Ethane -----	0.0994	-36.1			0.037	0.046
Ethylene -----	nd					
Propane -----	0.0131				0.0046	0.0084
Propylene -----	nd					
Iso-butane -----	0.0031					
N-butane -----	0.0022					
Iso-pentane -----	0.0004					
N-pentane -----	nd					
Hexanes + -----	nd					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.77

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

Ethane carbon isotope data obtained online via GC-C-IRMS. Insufficient propane, butane and pentane concentrations for isotopic analysis.

WO#89225208

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. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.