



ISOTOPIC NATURAL GAS ANALYSIS

PRIMARY DB KEY: **05-045-11795** NAME/DESCRIP : **300115023 1D CASS-KNOXS 1-21C**
 LEASE #: **CASING**
 FIELD/AREA:

PROJECT NO. : **202501048** ANALYSIS NO. : **04**
 COMPANY NAME : **QB ENERGY OPERATING, LLC** ANALYSIS DATE: **JANUARY 23, 2025 00:00**
 OFFICE / BRANCH: **PARACHUTE, CO** SAMPLE DATE : **JANUARY 2, 2025**
 CUSTOMER REF: TO:
 PRODUCER : **QB ENERGY OPERATING, LLC** EFFECTIVE DATE:

*****FIELD DATA*****

SAMPLE CYCLE: SAMPLE TYPE: **SPOT**
 SAMPLE PRES. : **95** psig PROBE : **NO**
 FLOW PRES. : psig CYLINDER NO. : **ECA-770**
 LAB PRES: psig SAMPLED BY : **MIKE KELLEY**
 SAMPLE TEMP. : **38** °f SAMPLING COMPANY: **QB ENERGY**
 AMBIENT TEMP.: °f H2S BY STAIN TUBE: - ppm mol
 H2O BY STAIN TUBE: - #/mmcf CO2 BY STAIN TUBE: - Mol %
 FIELD COMMENTS:
 LAB COMMENTS:

COMPONENTS	NORM. MOLE%	GPM @ 14.65	d13C ‰ VPDB	dD ‰ VSMOW
HELIUM	0.00	-	-	-
HYDROGEN	0.11	-	-	-
OXYGEN/ARGON	0.00	-	-	-
NITROGEN	0.13	-	-	-
CO2	0.72	-	-5.6	-
METHANE	90.88	-	-38.7	-177
ETHANE	4.53	1.2074	-26.3	-
PROPANE	1.50	0.4148	-25.4	-
ISOBUTANE	0.36	0.1179	-24.7	-
N-BUTANE	0.46	0.1449	-24.7	-
ISOPENTANE	0.28	0.0949	-23.8	-
N-PENTANE	0.23	0.0870	-24.8	-
HEXANES+	0.79	0.3588	-	-
TOTAL	100.00	2.4257		

BTU @ 60 DEG F

14.65
 GROSS DRY REAL = **1124.8** /scf
 GROSS SATURATED REAL = **1105.1** /scf

RELATIVE DENSITY (AIR=1 @14.696 PSIA 60F) 0.6411
 GRAVITY (LB/SCF) 0.04892
 COMPRESSIBILITY FACTOR : 0.99740

NOTE: REFERENCE GPA 2261(ASTM D1945 & ASME-PTC), 2145, & 2172 CURRENT PUBLICATIONS

Reference: Per GPA 2172-14 sec 9 **The C6+ is derived from the following ratios of C6, C7 & C8+ respectively: 60% 30% 10%**

The NG Composition File #: **202501048-04-A-327**
 The Isotopic Data File #: **DIG-038682**

Note: Stable isotope results based on multi-point laboratory calibration

Precision δ¹³C < 0.5 ‰ Precision δD < 5.0 ‰

Values in red represent low peak heights. Interpret with caution.

The data presented herein has been acquired by means of current analytical techniques and represents the judicious conclusion EMPACT Analytical Systems, Inc. Results of the analysis can be affected by the sampling conditions, therefore, are only warranted through proper lab protocol. EMPACT assumes no responsibility for interpretation or any consequences from application of the reported information and is the sole liability of the user. The reproduction in any media of this reported information may not be made, in portion or as a whole, without the written permission of EMPACT Analytical Systems, Inc.