



ISOTOPIC NATURAL GAS ANALYSIS

PRIMARY DB KEY: **05-045-10944** NAME/DESCRIP : **1B CASS-GARBER 1-31B**
 LEASE #: **300115019** CASING
 FIELD/AREA:
 PROJECT NO. : **202409058** ANALYSIS NO. : **02**
 COMPANY NAME : **QB ENERGY OPERATING, LLC** ANALYSIS DATE: **SEPTEMBER 26, 2024 00:00**
 OFFICE / BRANCH: **PARACHUTE, CO** SAMPLE DATE : **AUGUST 28, 2024 14:30**
 CUSTOMER REF: TO:
 PRODUCER : **QB ENERGY OPERATING, LLC** EFFECTIVE DATE:

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

SAMPLE CYCLE: SAMPLE TYPE: **SPOT**
 SAMPLE PRES. : **537** psig PROBE : **NO**
 FLOW PRES. : psig CYLINDER NO. : **ECA-764**
 LAB PRES: psig SAMPLED BY : **MIKE KELLEY**
 SAMPLE TEMP. : **79** °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	0.01	-	-	-
HYDROGEN	0.00	-	-	-
OXYGEN/ARGON	0.00	-	-	-
NITROGEN	0.15	-	-	-
CO2	0.02	-	0.0	-
METHANE	94.57	-	-36.4	-171
ETHANE	3.67	0.9782	-26.0	-
PROPANE	0.89	0.2448	-24.9	-
ISOBUTANE	0.20	0.0649	-24.6	-
N-BUTANE	0.18	0.0530	-25.9	-
ISOPENTANE	0.08	0.0260	-25.4	-
N-PENTANE	0.05	0.0180	-27.5	-
HEXANES+	0.18	0.0819	-	-
TOTAL	100.00	1.4668		

BTU @ 60 DEG F

14.65
 GROSS DRY REAL = **1068.2** /scf
 GROSS SATURATED REAL = **1049.5** /scf

RELATIVE DENSITY (AIR=1 @14.696 PSIA 60F) **0.5938**
 GRAVITY (LB/SCF) **0.04532**
 COMPRESSIBILITY FACTOR : **0.99770**

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 #: **202409058-02-A-234**
 The Isotopic Data File #: **DIG-037081**

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.

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