



dig
Dolan Integration Group

Geochemistry for Energy

11025 Dover Street Unit 800
Westminster, CO 80021
p: 303.531.2030

Hydrocarbon Gas Composition and Stable Isotopes Data and Interpretation

Job #: 260215231
Lab #: DIG-042774 - DIG-042775
Client: Prairie Operating Company, LLC
Well Name: Waag 23
API #: 05-123-40349

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SAMPLE INFORMATION			COMPLETE GAS ANALYSIS														HYDROCARBON GAS ANALYSIS (normalized to total HC content)										BTU CONTENT*			
Job Number	Lab Number	Well Name	Sample Type	Sample Date	Sample Time	GC Date	N ₂ ppm	O ₂ + Ar ppm	CO ₂ ppm	C ₁ ppm	C ₂ ppm	C ₃ ppm	iC ₄ ppm	nC ₄ ppm	iC ₅ ppm	nC ₅ ppm	C ₆ + ppm	C ₇ H ₄ ppm	He ppm	H ₂ ppm	C ₁ mol%	C ₂ mol%	C ₃ mol%	iC ₄ mol%	nC ₄ mol%	iC ₅ mol%	nC ₅ mol%	C ₆ + mol%	Total Gas BTU/ft ³	
260215231	DIG-042774	Waag 23 Bradenhead gas	Bradenhead gas	02/06/26	9:20	2/9/2026	615955	10064		338289	29102	1207	52	112	73	63	83					92.7	6.88	0.33	0.01	0.03	0.02	0.02	0.02	395
260215231	DIG-042775	Waag 23 Production gas	Production gas	02/06/26	9:30	2/9/2026	18476	3036	27799	697342	134370	77022	7790	21959	3525	3969	1467					74.6	14.17	8.13	0.02	2.32	0.37	0.42	0.15	1280

SAMPLE INFORMATION			HYDROCARBON RATIOS				STABLE ISOTOPE ANALYSIS										Comments		
Job Number	Lab Number	Well Name	Sample Type	Sample Date	Sample Time	Total HC ppm	Wtfrac % C ₁ to C ₆	C ₂ /C ₁ +C ₂ mol/mol	Balance Ratio C ₃ +C ₄ /C ₂ -C ₅	Mass Spec Date	δ ¹³ C ₁ ‰ VPDB	δ ¹³ C ₂ ‰ VPDB	δ ¹³ C ₃ ‰ VPDB	δ ¹³ C ₄ ‰ VPDB	δ ¹³ C ₅ ‰ VPDB	δ ¹³ C ₆ ‰ VPDB	δ ¹³ nC ₆ ‰ VPDB	δ ¹³ CO ₂ ‰ VPDB	δD ‰ VSMOW
260215231	DIG-042774	Waag 23 Bradenhead gas	Bradenhead gas	02/06/26	9:20	364981	7.3	12.8	241.1	2/13/2026	-51.6	-35.6	-29.3						-291
260215231	DIG-042775	Waag 23 Production gas	Production gas	02/06/26	9:30	947164	26.4	3.3	7.3	2/13/2026	-51.3	-36.2	-31.3	-32.1	-29.3	-28.3	-28.5	0.2	-291

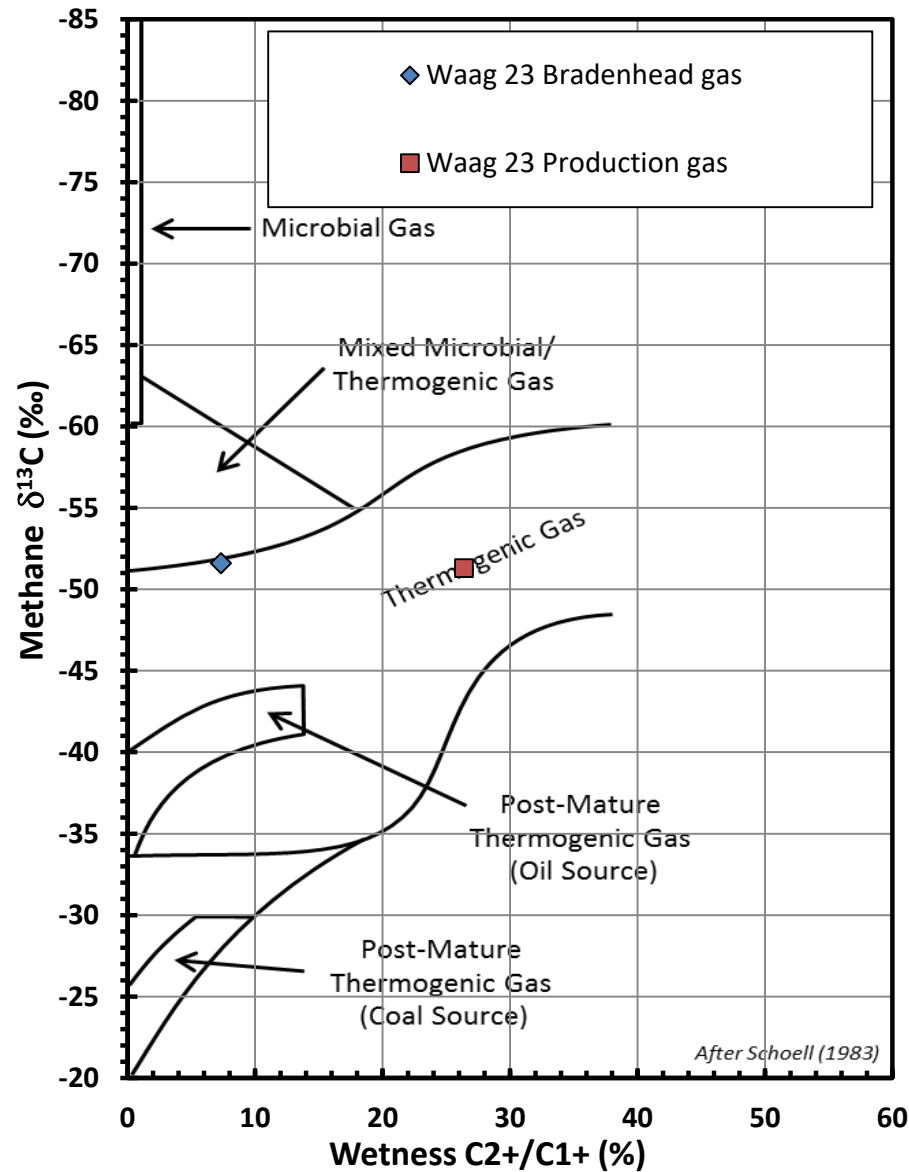
Stable isotope results based on multi-point laboratory calibration
 low signal; interpret with caution
 Precision δ¹³C < 0.5 ‰
 Precision δD < 5 ‰

* As ideal gas, with gas concentrations normalized to 100%;
 calculations based on GPA 1145-09 physical constants.

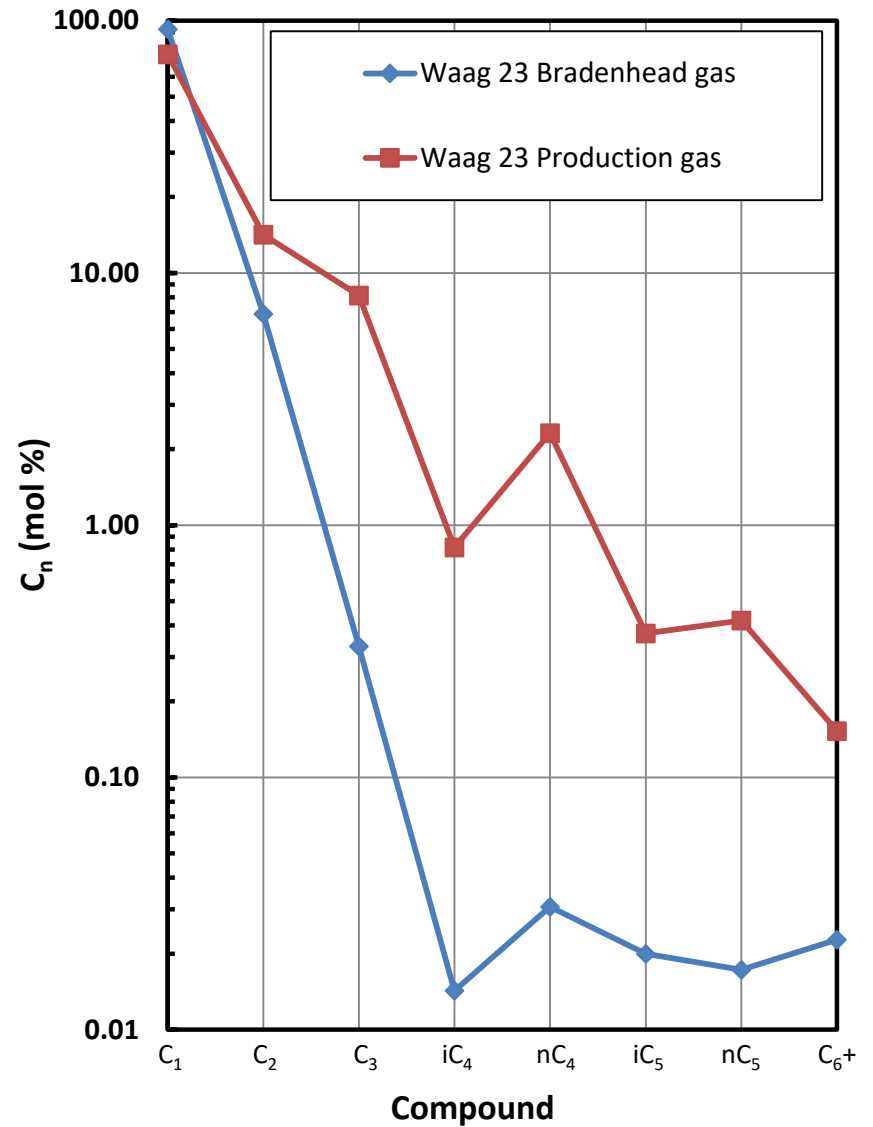
SPECIFIC GRAVITY*	
Total Gas Spec Grav	HCs only Spec Grav
0.811	0.592
0.787	0.766

INTERPRETIVE PLOTS

Methane $\delta^{13}\text{C}$ vs Wetness Genetic Classification Plot

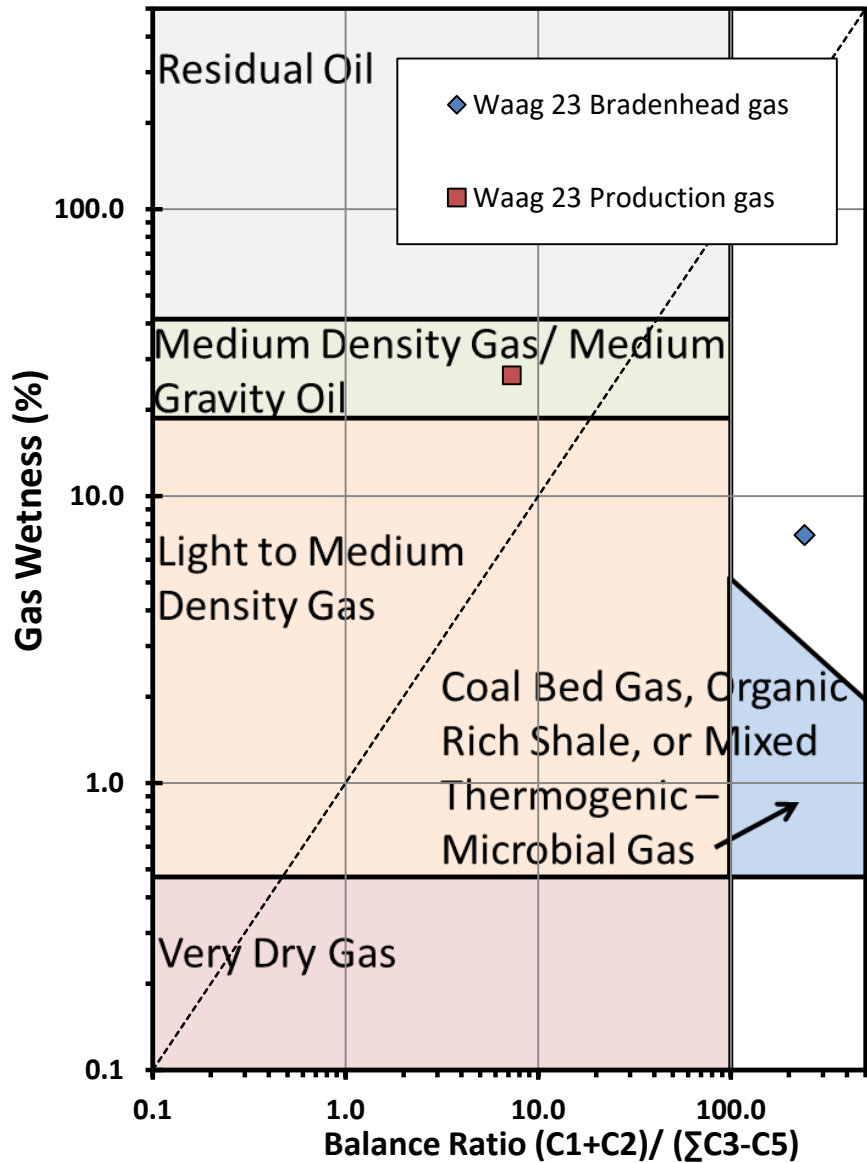


Hydrocarbon Composition Plot

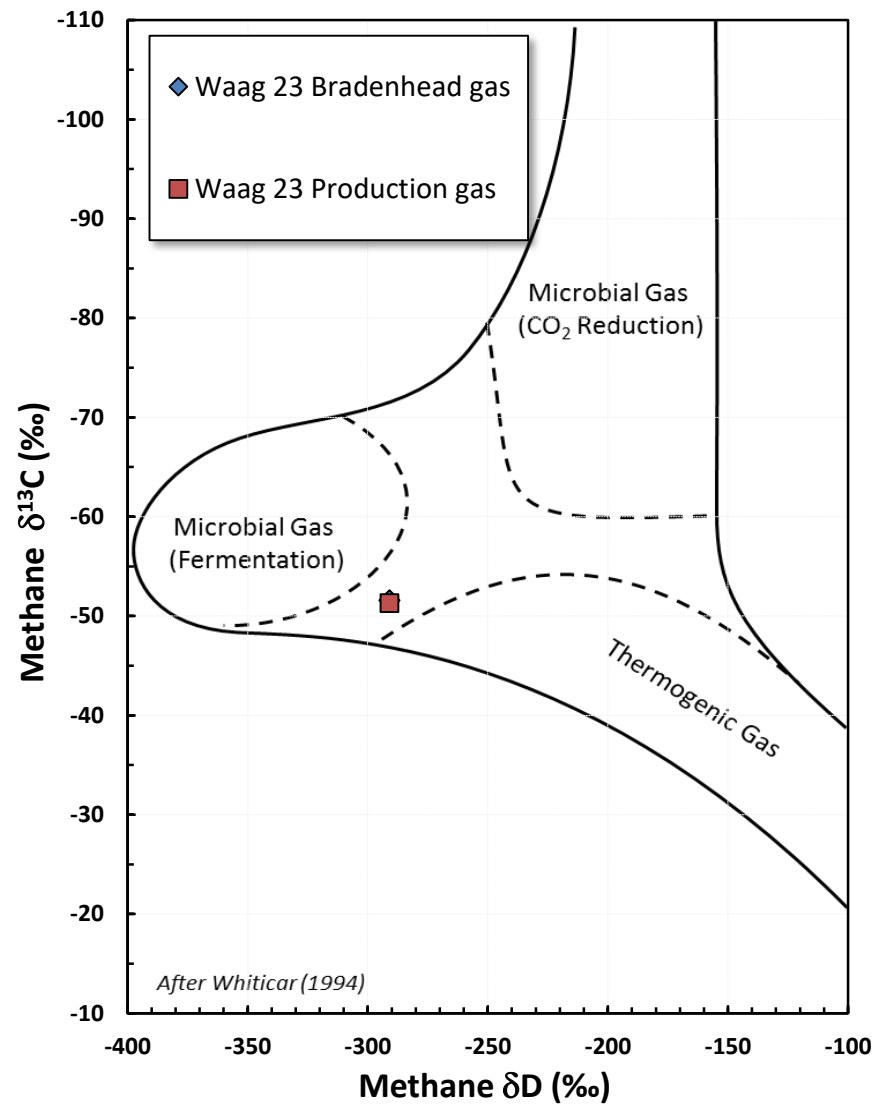


INTERPRETIVE PLOTS

Haworth Ratio Plot - Characterization of Hydrocarbon Type

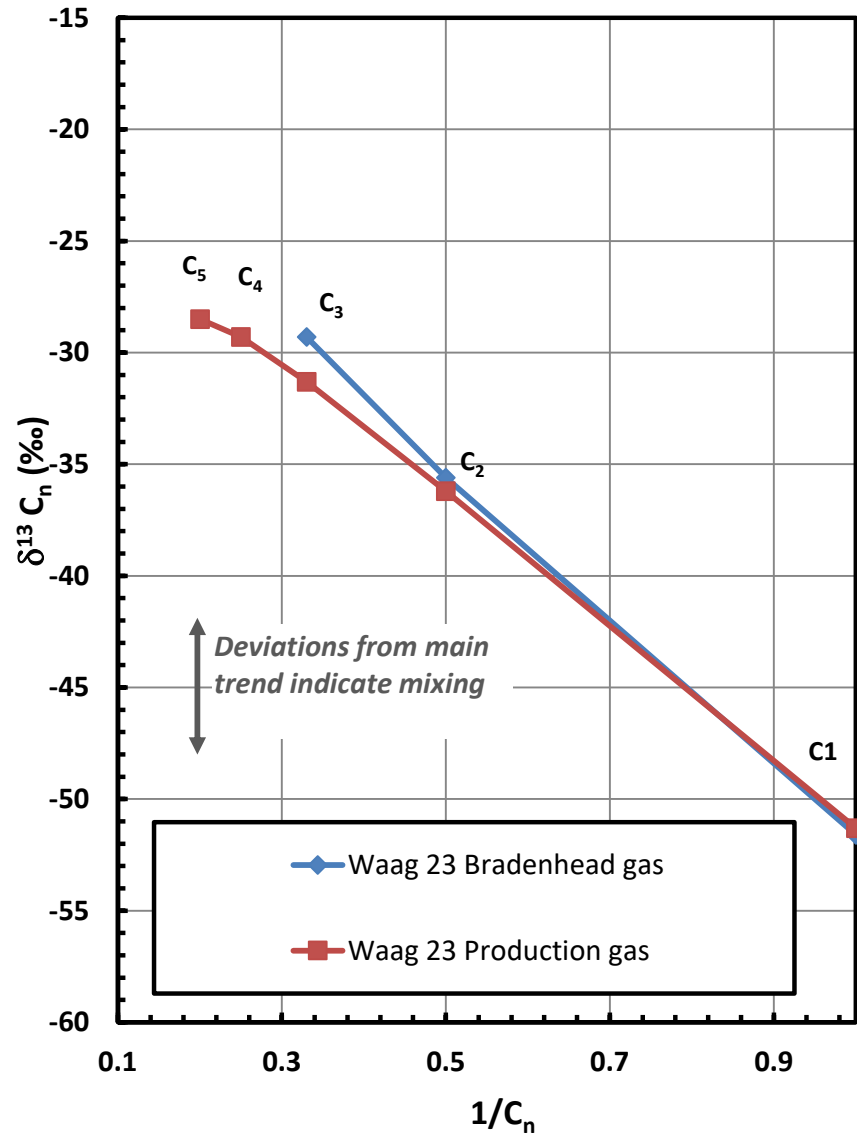


Methane $\delta^{13}\text{C}$ vs δD Genetic Classification Plot

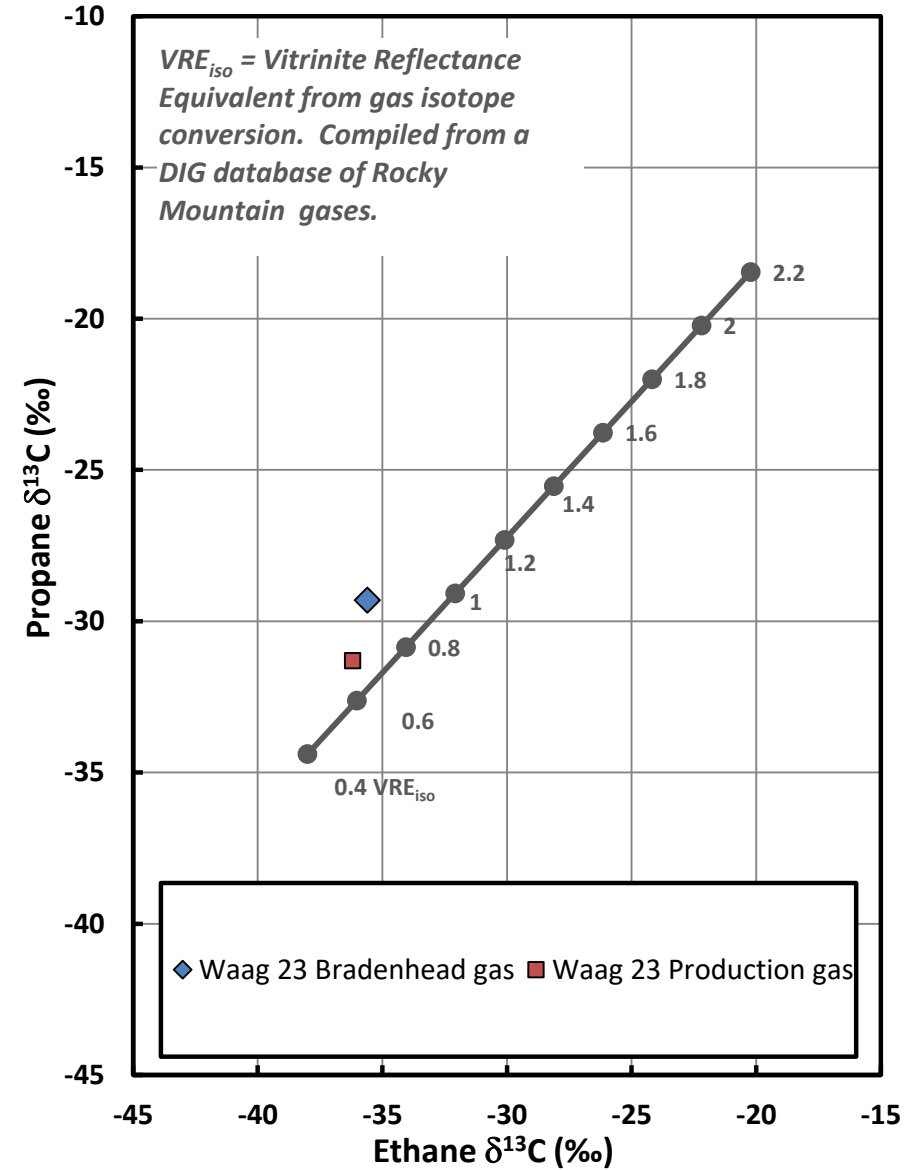


INTERPRETIVE PLOTS

Mixing Plot

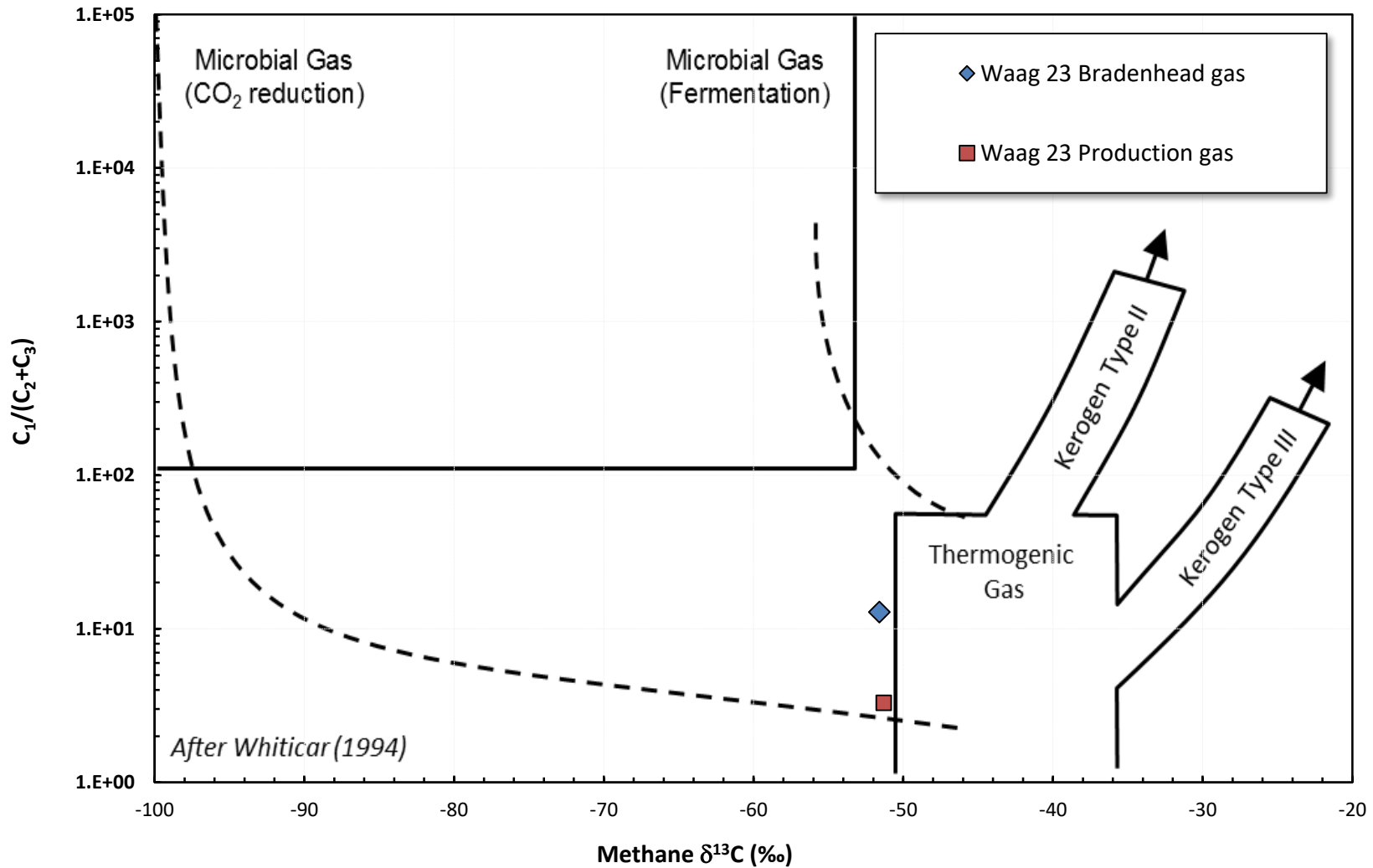


Ethane - Propane Maturity Plot



INTERPRETIVE PLOTS

Methane $\delta^{13}\text{C}$ vs $C_1/(C_2+C_3)$ Genetic Classification Plot



Send Data to:	Send Invoice to (if different):	Additional Information:
Name: Dana Hanneman	Name:	AFE #:
Company: Prairie Operating Company	Company:	Project: Bradenhead Sampling
Address: 44 Cook Street Suite 1000	Address:	PO #: 09F4045007
City, State: Denver, CO 80206	City, State:	Location: Waag South SESW Pad #1
Phone: 832.744.1484	Phone:	Sampled By: Jeff Braden
Email: dana.hanneman@prairieopco.com	Email:	API #:

Turnaround Time**:

Standard (≤ 10 Business days)
 Rush (≤ 5 Business days)
 Expedited Rush (≤ 3 Business days)

Container Number	Sample Identification	Date Sampled	Time	Sample Type*	Gas Composition	d13C of Methane (C1)	d13C of Ethane (C2)	d13C of Propane+ (C3+)	d13C of Carbon Dioxide (CO2)	δD of Methane (C1)	Whole Oil Gas Chromatography	d18O and dD Isotopes of Water	RSK-175 Dissolved Gas Quantification
F029KG	Waag 19 bh	2/6/26	0820	Bradenhead Gas	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F029KH	Waag 19 pr	2/6/26	0830	Production gas	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F029KK	Waag 21 bh	2/6/26	0850	Bradenhead gas	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F029KL	Waag 21 pr	2/6/26	0900	Production gas	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F029KP	Waag 23 bh	2/6/26	0920	Bradenhead gas	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F029KR	Waag 23 pr	2/6/26	0930	Production gas	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F029KZ	Waag 25 bh	2/6/26	0950	Bradenhead gas	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F029MN	Waag 25 pr	2/6/26	1000	Production gas	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				Bradenhead gas	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				Production gas	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Chain of Custody Record

Comments:

Relinquished by Signature	Company	Date	Time	Received by Signature	Company	Date	Time
Jeffrey D Braden <small>Digitally signed by Jeffrey D Braden Date: 2026.02.06 11:49:42 -0700</small>	Ensolum, LLC	2/6/26	1200	Abigail Hollmann <small>Digitally signed by Abigail Hollmann Date: 2026.02.06 13:26:55 -0700</small>	DIG	2/6/26	1200

*Gas composition vs RSK-175 - Gas composition is a basic analysis of the concentration (ppm) of gases within the headspace of the sample (headspace is created at the lab). RSK-175 is a specific analysis technique combined with calculations to give the total dissolved gas of each species in the water sample (mg/L). Why one or the other? Gas composition gives us a quick, general look at relative concentrations and ratios (e.g., gas wetness). RSK-175 gives us an exact total of gas present in the sample (headspace and dissolved in the water). Questions? Give us a call at 303-531-2030.

** Rush and Expedited Rush turnaround time analysis will incur additional costs at 2x and 3x the standard turnaround time pricing.