



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 #: 260215251
Lab #: DIG-042819 - DIG-042820
Client: Prairie Operating Company, LLC
Well Name: COT West QA-30-25HN
API #: 05-123-50404

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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		
260215251	DIG-042819	COT West QA-30-25HN Bradenhead gas	Bradenhead gas	02/11/26	10:20	2/13/2026	19021	3146	22110	718737	143786	61492	5402	15363	1947	2006	243				75.7	15.18	6.51	0.57	1.62	0.21	0.21	0.03	1229		
260215251	DIG-042820	COT West QA-30-25HN Production gas	Production gas	02/11/26	10:30	2/13/2026	10447	793	23468	727043	145984	62875	5516	15677	1981	2064	201				75.6	15.18	6.56	0.57	1.63	0.21	0.21	0.03	1244		

SAMPLE INFORMATION							HYDROCARBON RATIOS				STABLE ISOTOPE ANALYSIS										Comments	
Job Number	Lab Number	Well Name	Sample Type	Sample Date	Sample Time	Total HC ppm	Wetness % C ₂ to C ₆	C ₂ /C ₁ +C ₂ mol/mol	Balance Ratio C ₂ +C ₃ /C ₄ -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 C _{CO₂} ‰ VPDB	δD ‰ VSMOW				
260215251	DIG-042819	COT West QA-30-25HN Bradenhead gas	Bradenhead gas	02/11/26	10:20	947176	24.3	3.5	10.0	2/19/2026	-51.0	-36.2	-31.8	-32.7	-29.7	-28.9	-29.1	0.3	-285			
260215251	DIG-042820	COT West QA-30-25HN Production gas	Production gas	02/11/26	10:30	961406	24.4	3.5	9.9	2/19/2026	-51.0	-36.1	-31.7	-32.8	-29.6	-29.1	-28.9	0.5	-288			

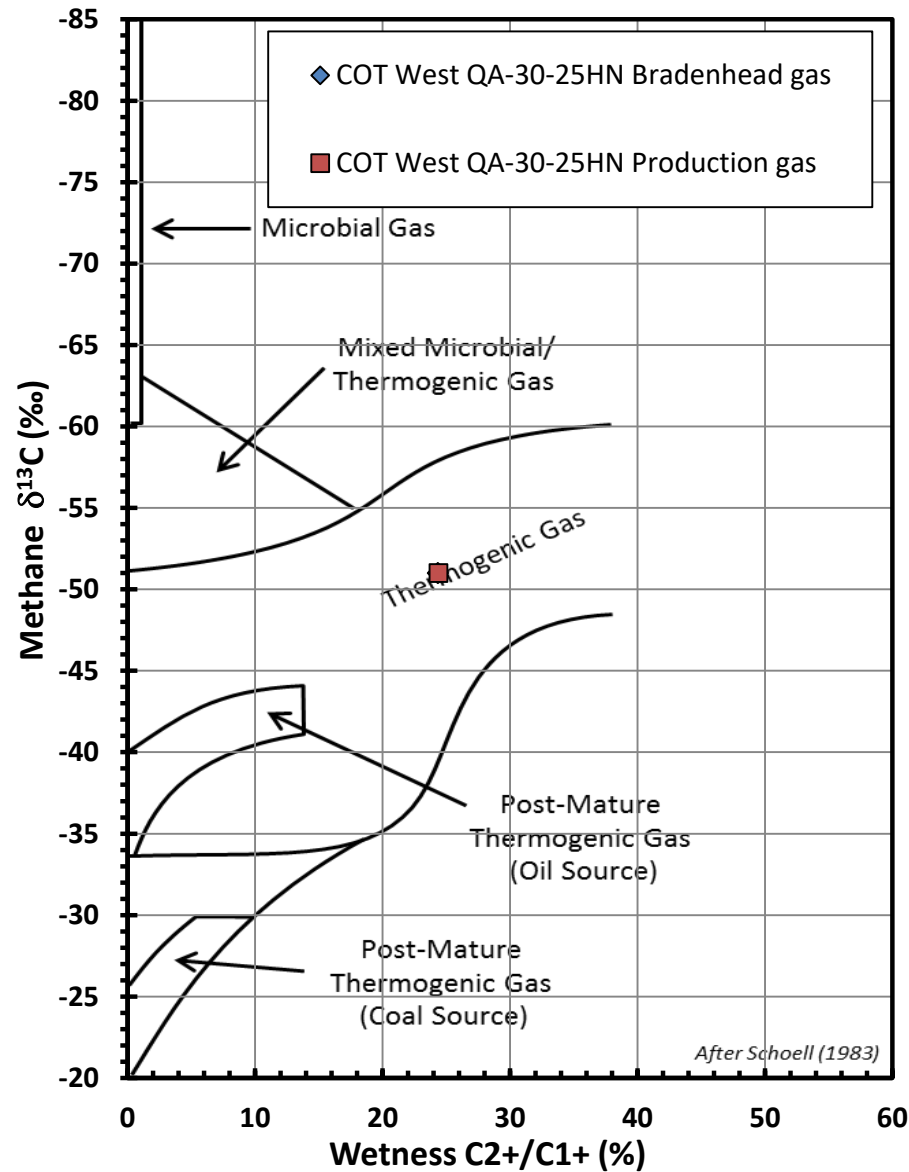
Stable isotope results based on multi-point laboratory calibration
 low signal; interpret with caution
 Precision δ¹³C < 0.5 ‰
 Precision δD < 5 ‰

SPECIFIC GRAVITY*	
Total Gas	0.754
HCs only	0.731
Spec Grav	0.752
Spec Grav	0.732

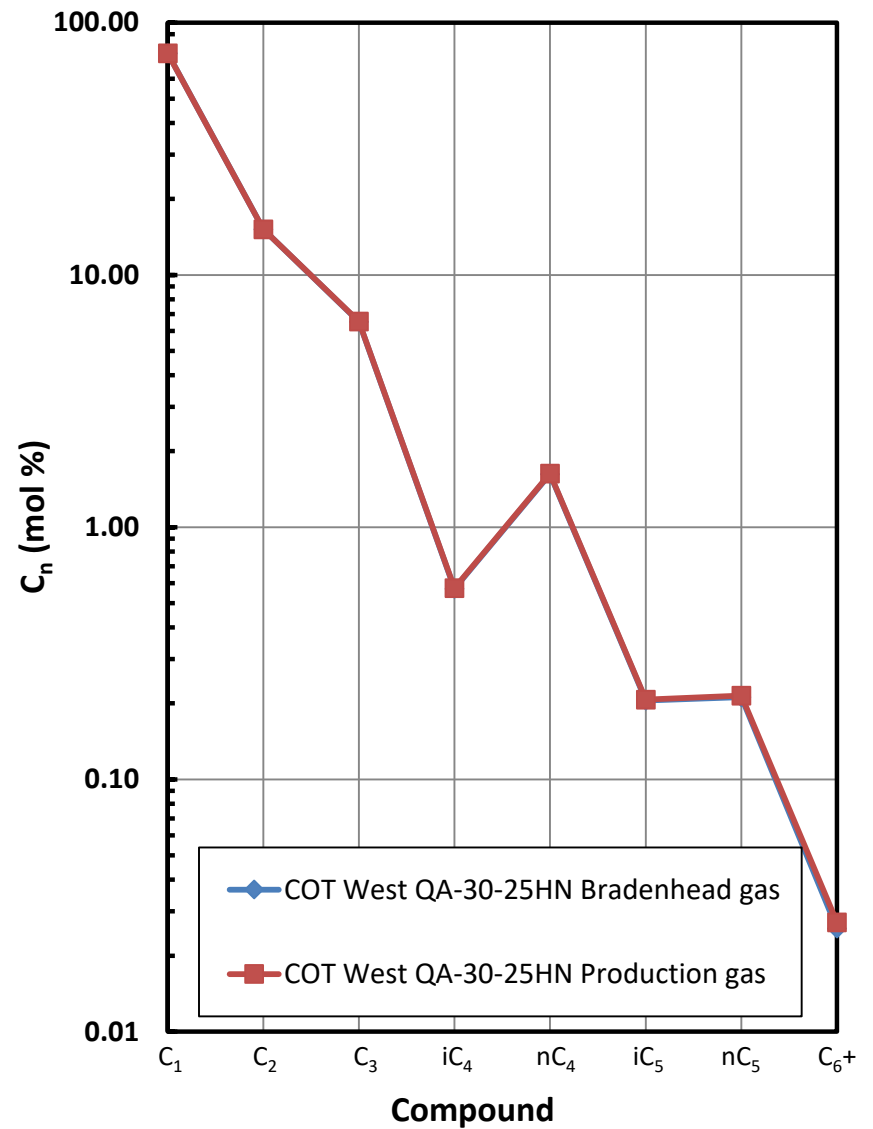
* As ideal gas, with gas concentrations normalized to 100%; calculations based on GPA 2145-09 physical constants.

INTERPRETIVE PLOTS

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

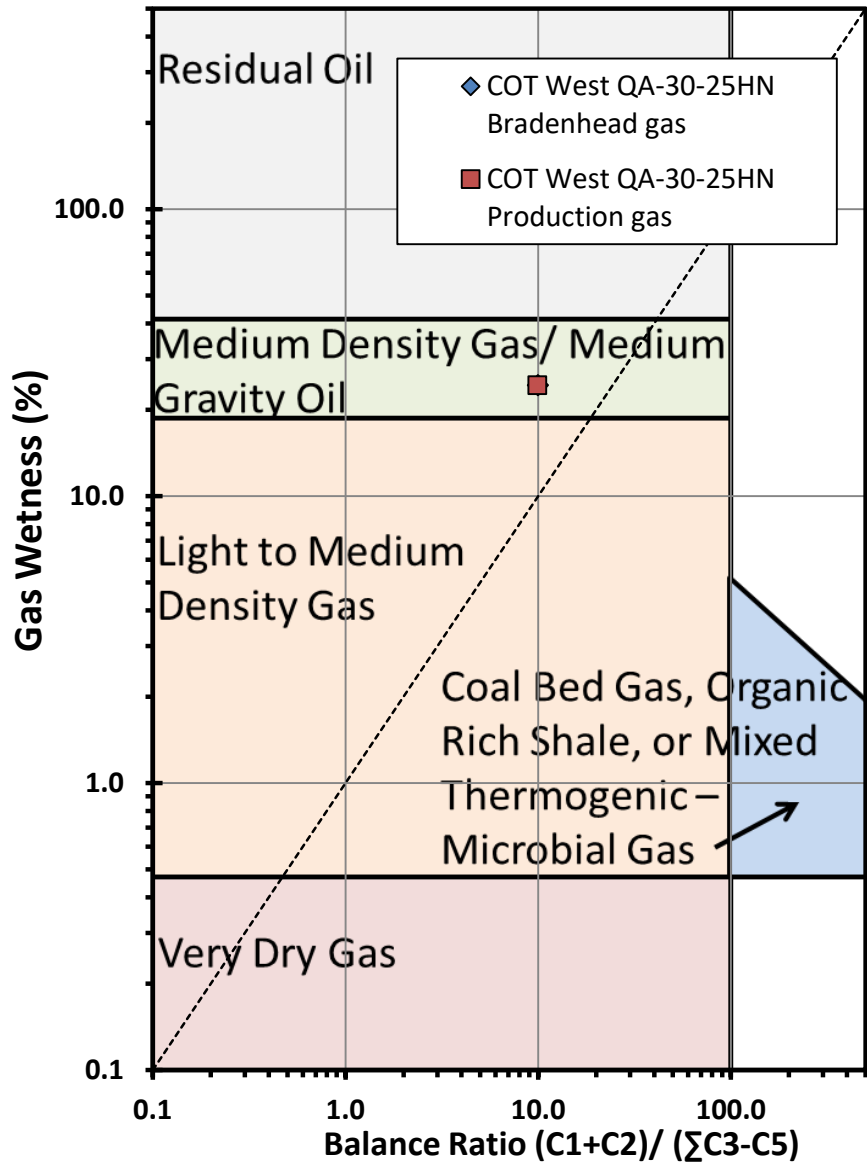


Hydrocarbon Composition Plot

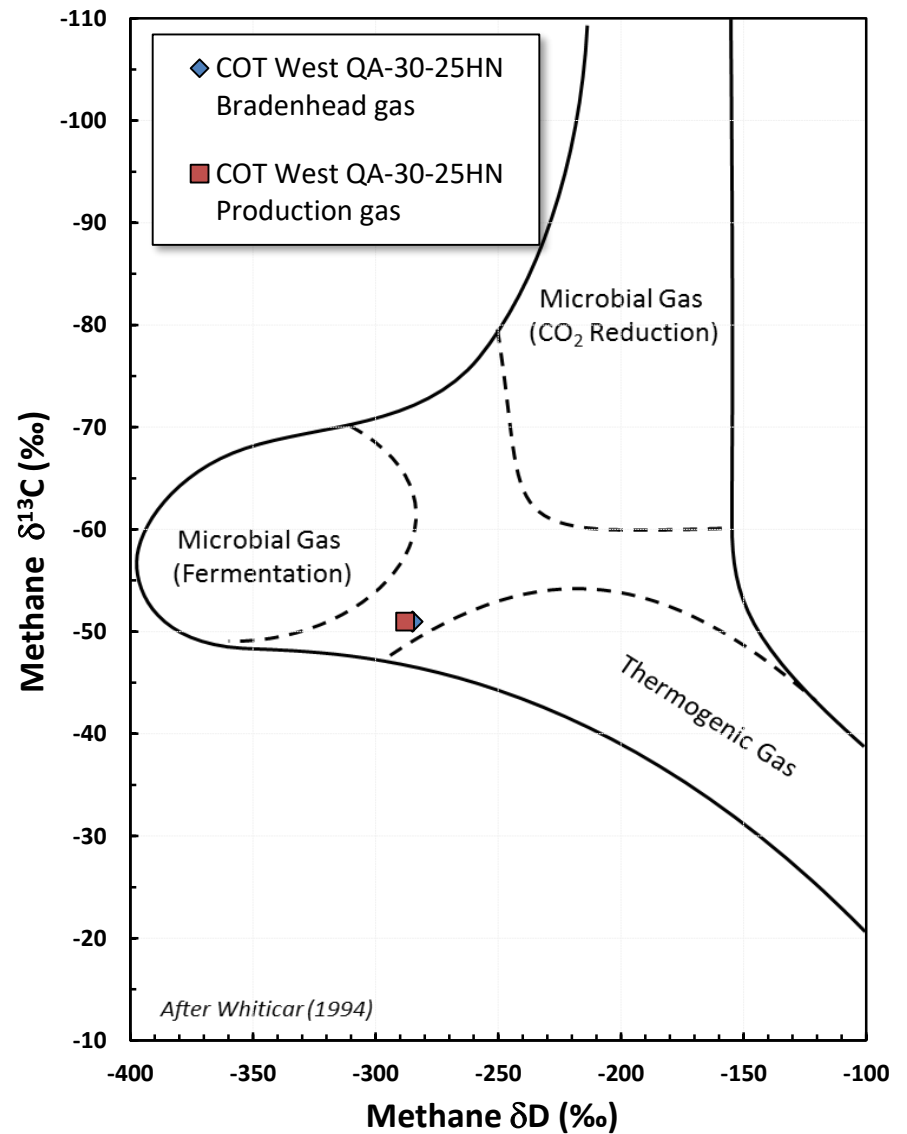


INTERPRETIVE PLOTS

Haworth Ratio Plot - Characterization of Hydrocarbon Type

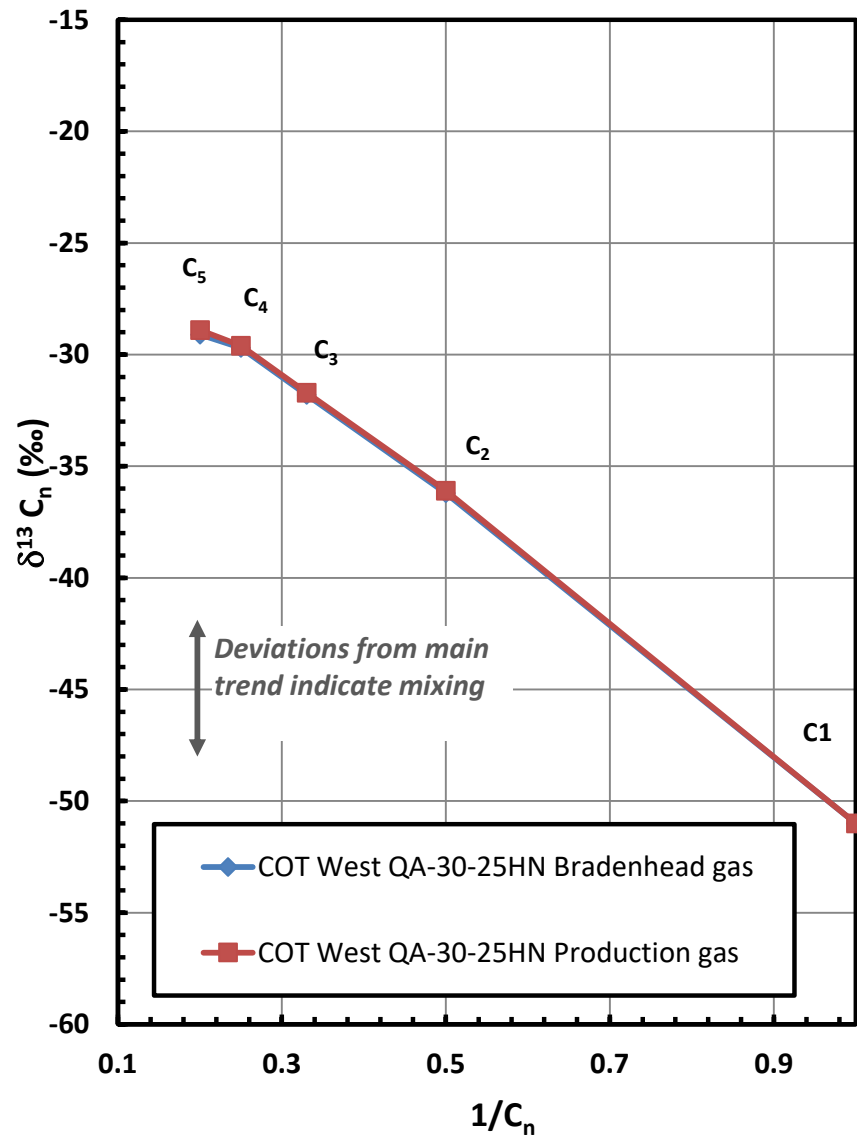


Methane $\delta^{13}\text{C}$ vs δD Genetic Classification Plot

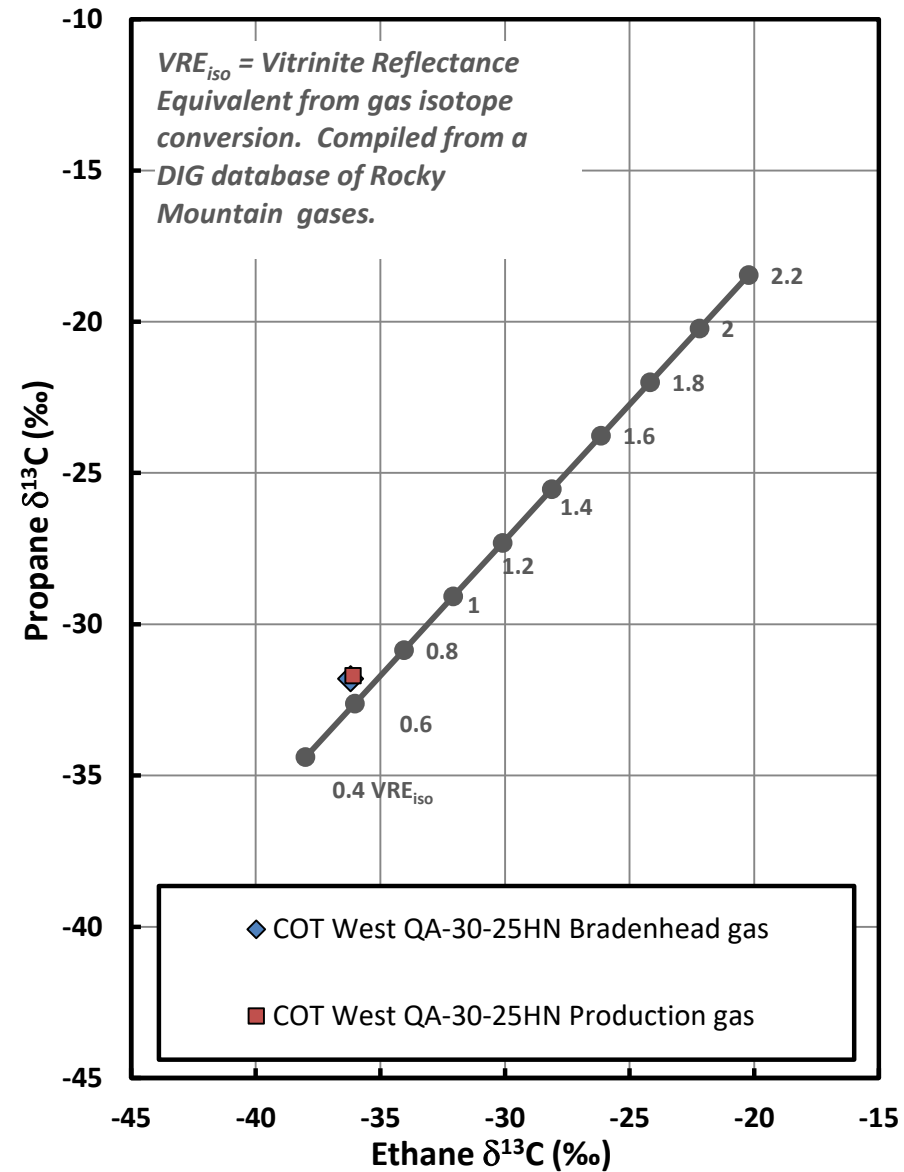


INTERPRETIVE PLOTS

Mixing Plot

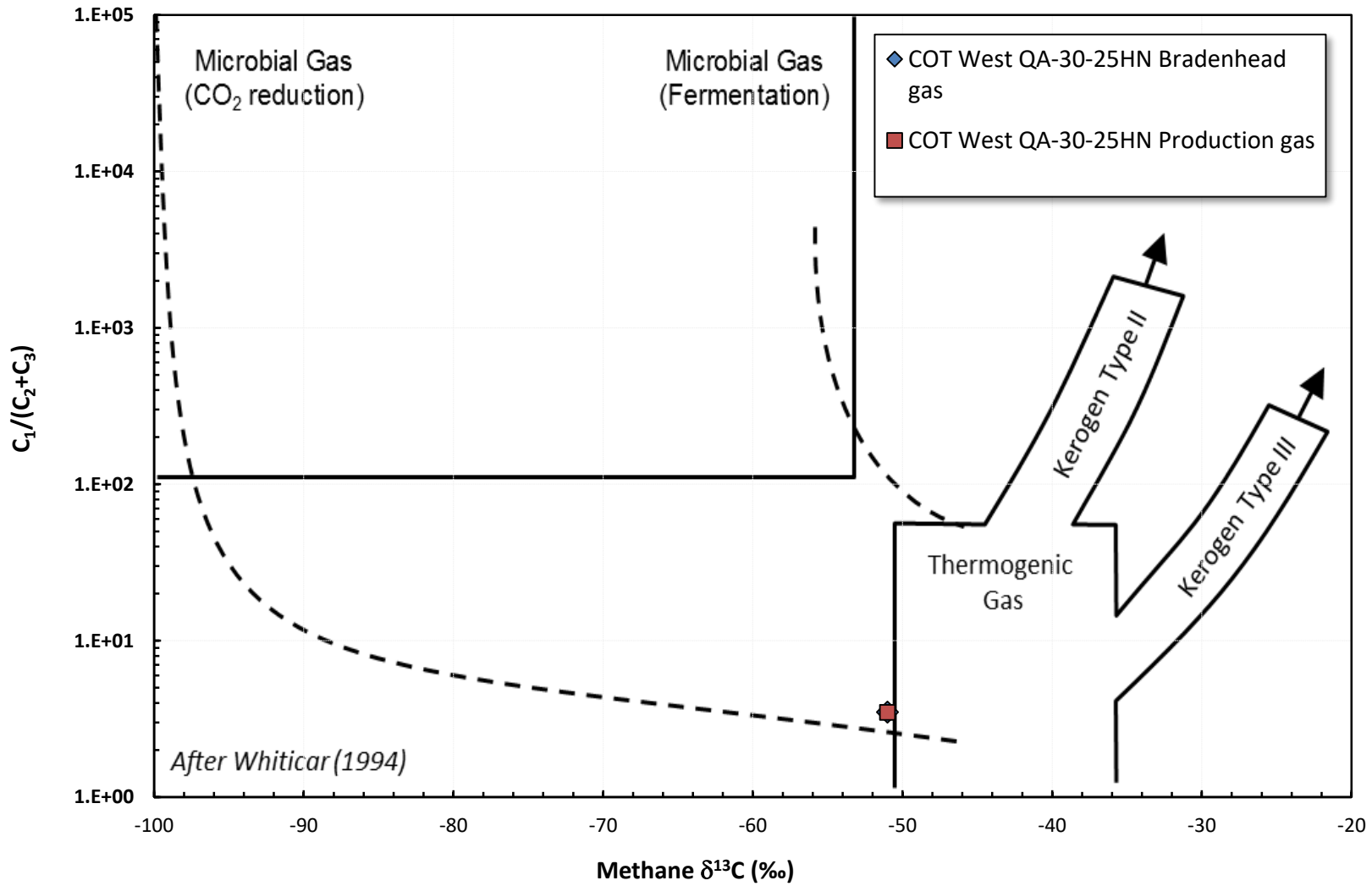


Ethane - Propane Maturity Plot



INTERPRETIVE PLOTS

Methane $\delta^{13}\text{C}$ vs $\text{C}_1/(\text{C}_2+\text{C}_3)$ Genetic Classification Plot





main 303.531.2030 • info@digforenergy.com • digforenergy.com

Office and Lab 11025 Dover St • Ste 800 • Westminster, CO 80021

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 #: 09F4045003
City, State: Denver, CO 80206	City, State:	Location: COT 30-J Pad
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 δD Isotopes of Water	RSK-175 Dissolved Gas Quantification
F02ASK	COT West QA-30-25HN bh	2/11/26	1020	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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F023HG	COT West QA-30-25HN pr	2/11/26	1030	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"/>
F023HH	COT West T-30-25HC bh	2/11/26	1050	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"/>
F027J4	COT West T-30-25HC pr	2/11/26	1100	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"/>
				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"/>
				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: 2026.02.12 12:22:31 -0700</small>	Ensolum, LLC	2/12/26	1230	Katy Dang <small>Digitally signed by Katy Dang Date: 2026.02.12 14:36:13 -0700</small>	DIG	2/12/26	1430

*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.