



**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 #:** 260215252  
**Lab #:** DIG-042821 - DIG-042822  
**Client:** Prairie Operating Company, LLC  
**Well Name:** COT West T-30-25HC  
**API #:** 05-123-50405

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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	Sample Date	GC Date	N <sub>2</sub> ppm	O <sub>2</sub> + Ar ppm	CO <sub>2</sub> ppm	C <sub>1</sub> ppm	C <sub>2</sub> ppm	C <sub>3</sub> ppm	iC <sub>4</sub> ppm	nC <sub>4</sub> ppm	iC <sub>5</sub> ppm	nC <sub>5</sub> ppm	C <sub>6</sub> + ppm	C <sub>6</sub> H <sub>6</sub> ppm	He ppm	H <sub>2</sub> ppm	C <sub>1</sub> mol%	C <sub>2</sub> mol%	C <sub>3</sub> mol%	iC <sub>4</sub> mol%	nC <sub>4</sub> mol%	iC <sub>5</sub> mol%	nC <sub>5</sub> mol%	C <sub>6</sub> + mol%	Total Gas BTU/R <sup>3</sup>	
260215252	DIG-042821	COT West T-30-25HC Bradenhead gas	Bradenhead gas	02/11/26	10:50	2/19/2026	2/19/2026	19134	3158	21596	709945	144033	71959	6324	16852	1997	1981	185					74.4	15.17	7.58	0.67	1.78	0.21	0.21	0.02	1250
260215252	DIG-042822	COT West T-30-25HC Production gas	Production gas	02/11/26	11:00	2/19/2026	2/19/2026	9668	606	21895	716170	140584	75117	6456	17355	2101	2118	213					76.3	15.15	7.59	0.67	1.80	0.22	0.22	0.02	1267

SAMPLE INFORMATION							HYDROCARBON RATIOS				STABLE ISOTOPE ANALYSIS										Comments
Job Number	Lab Number	Well Name	Sample Type	Sample Date	Sample Time	Sample Date	Total HC ppm	Wetness % C <sub>2</sub> to C <sub>3</sub>	C <sub>2</sub> /C <sub>1</sub> +C <sub>2</sub> mol/mol	Balance Ratio C <sub>3</sub> +C <sub>4</sub> /C <sub>2</sub> -C <sub>3</sub>	Mass Spec Date	δ <sup>13</sup> C <sub>1</sub> ‰ VPDB	δ <sup>13</sup> C <sub>2</sub> ‰ VPDB	δ <sup>13</sup> C <sub>3</sub> ‰ VPDB	δ <sup>13</sup> C <sub>4</sub> ‰ VPDB	δ <sup>13</sup> C <sub>5</sub> ‰ VPDB	δ <sup>13</sup> C <sub>6</sub> ‰ VPDB	δ <sup>13</sup> C <sub>CO<sub>2</sub></sub> ‰ VPDB	δD ‰ VSMOW		
260215252	DIG-042821	COT West T-30-25HC Bradenhead gas	Bradenhead gas	02/11/26	10:50	949777	25.6	3.3	8.6	2/19/2026	-46.4	-34.9	-31.0	-32.0	-29.2	-28.4	-28.6	0.9	-285		
260215252	DIG-042822	COT West T-30-25HC Production gas	Production gas	02/11/26	11:00	963694	25.7	3.3	8.5	2/19/2026	-51.2	-36.3	-31.8	-32.8	-29.6	-28.9	-29.5	0.2	-287		

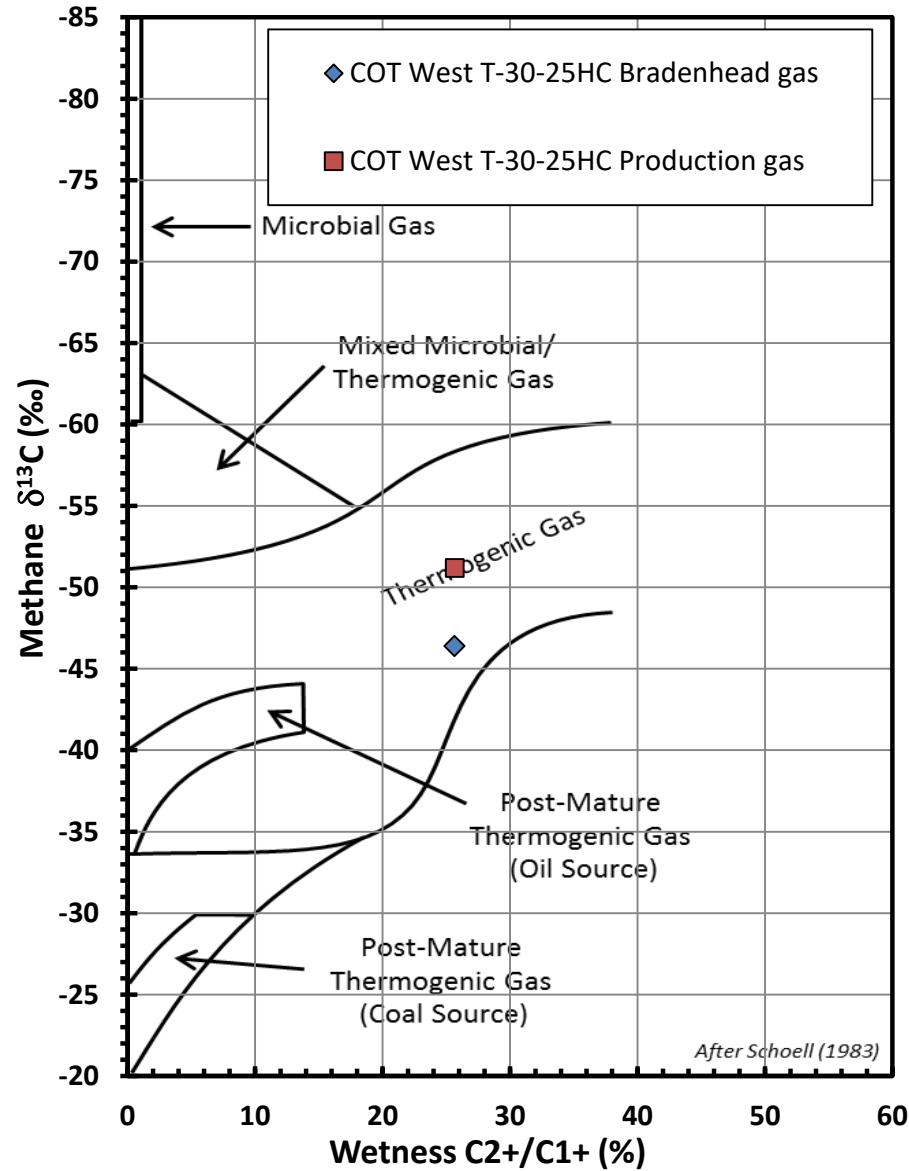
Stable isotope results based on multi-point laboratory calibration  
 low signal, interpret with caution  
 Precision δ<sup>13</sup>C < 0.5 ‰  
 Precision δD < 5 ‰

SPECIFIC GRAVITY*	
Total Gas Spec Grav	HCs only Spec Grav
0.767	0.745
0.765	0.746

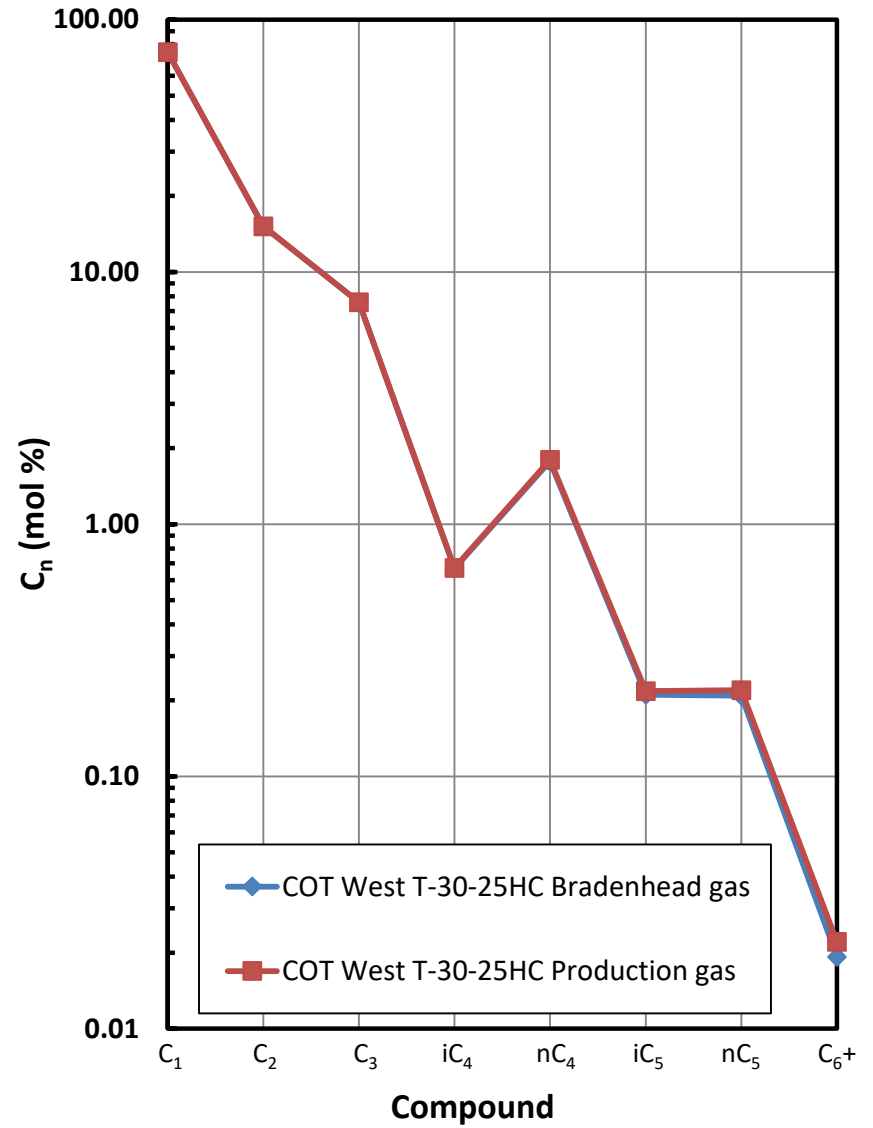
\* As ideal gas, with gas concentrations normalized to 100%, calculations based on GPA 2145-09 physical constants.

**INTERPRETIVE PLOTS**

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

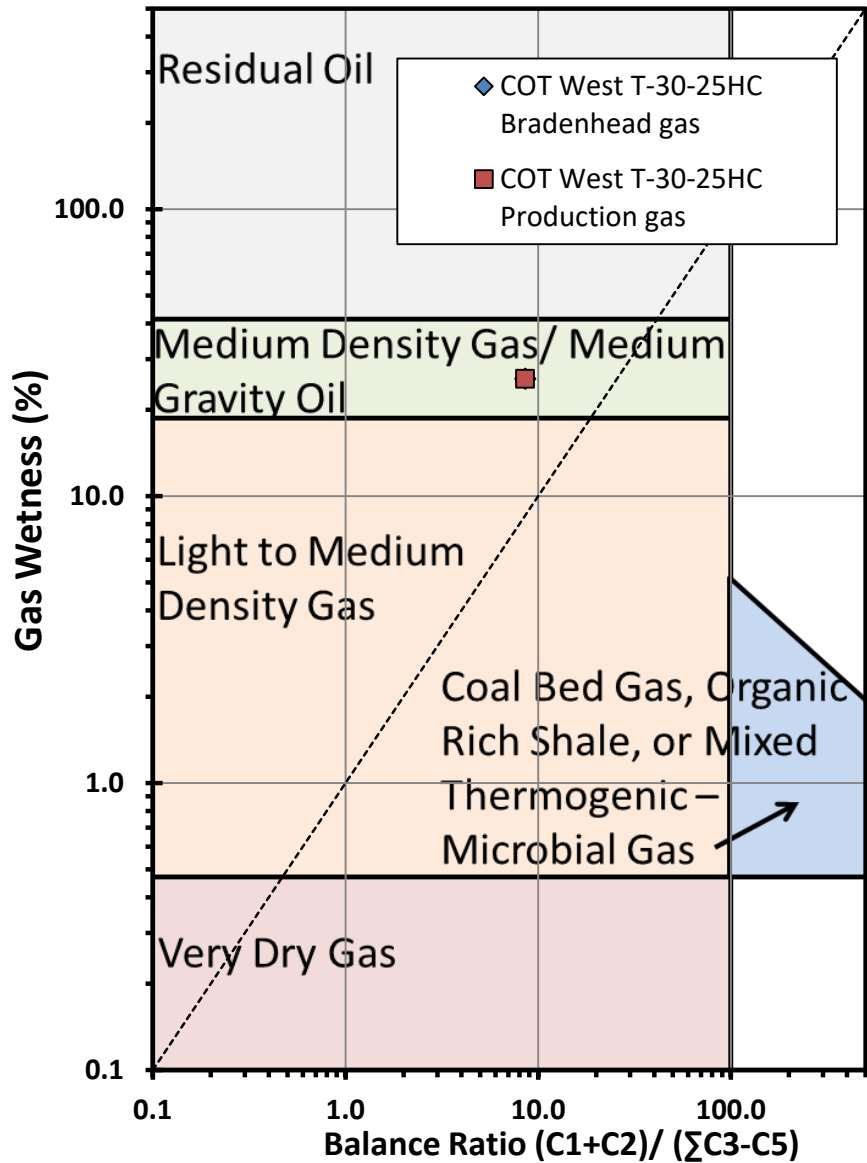


**Hydrocarbon Composition Plot**

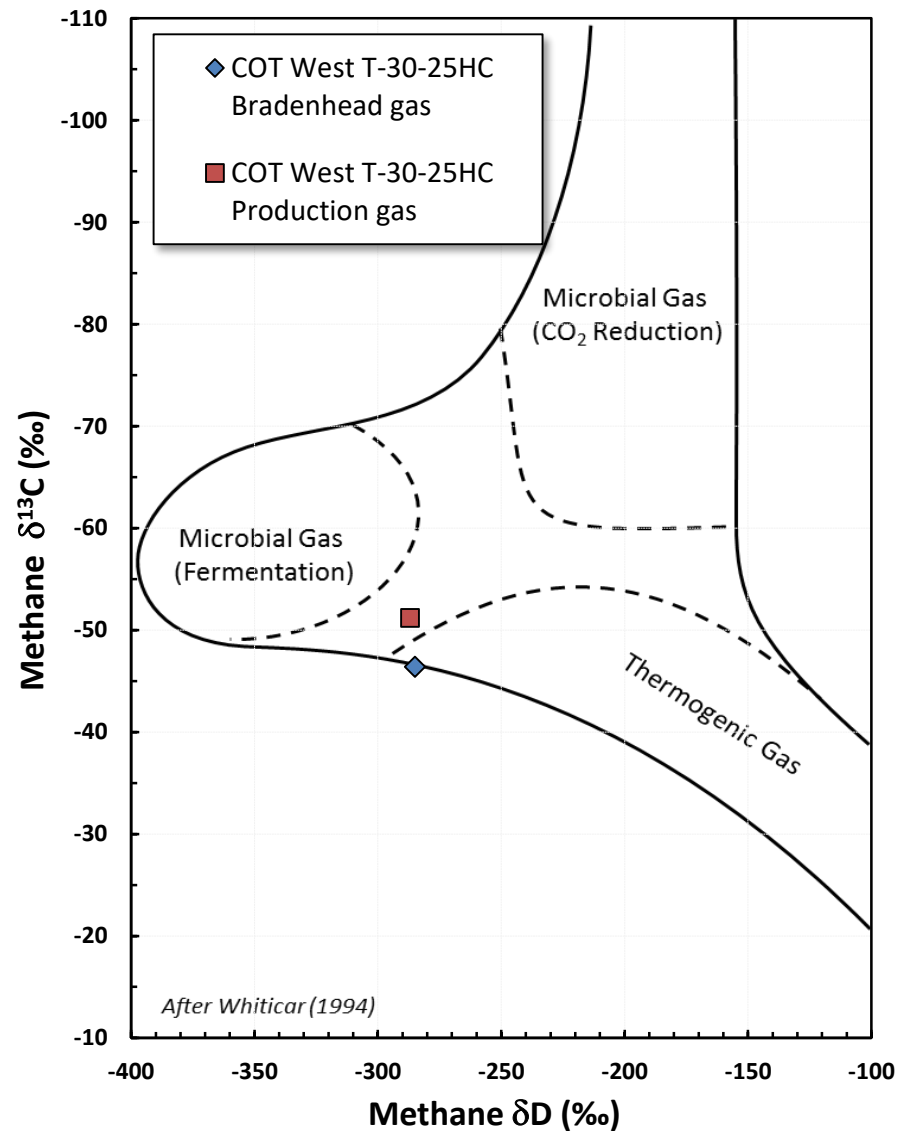


**INTERPRETIVE PLOTS**

**Haworth Ratio Plot - Characterization of Hydrocarbon Type**

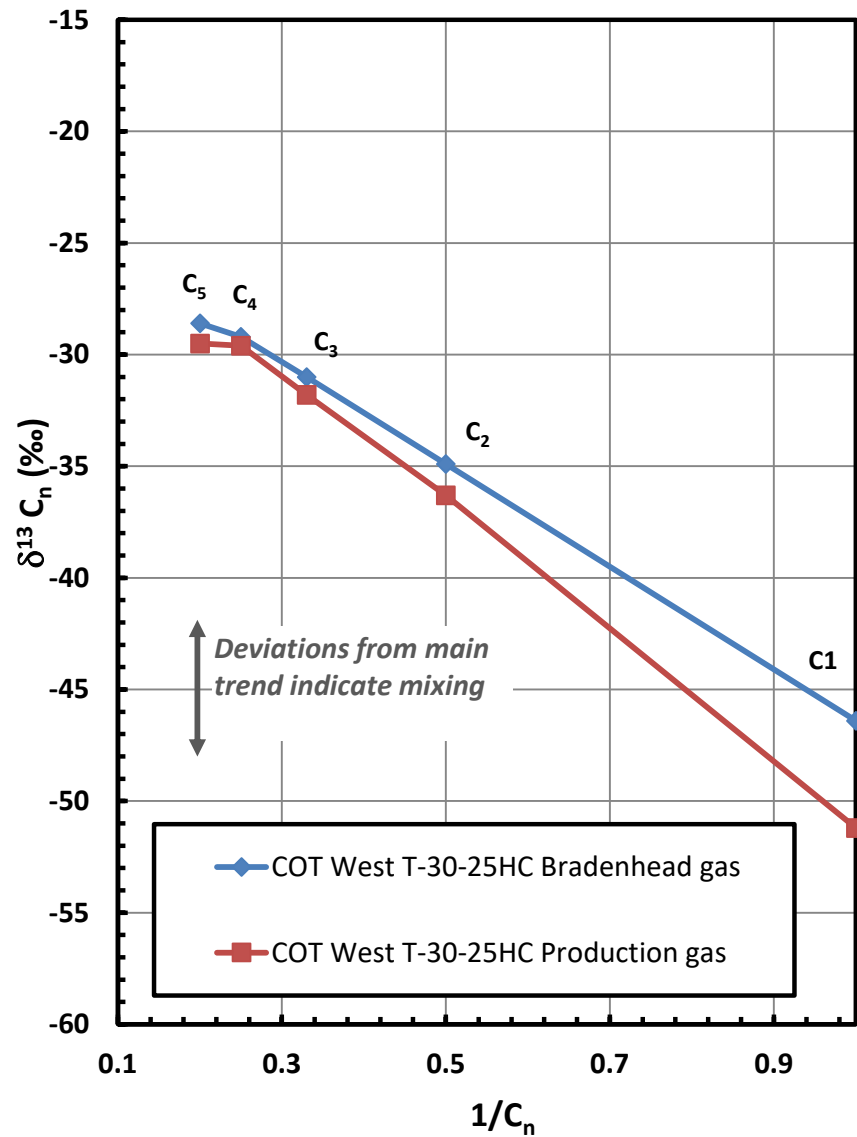


**Methane  $\delta^{13}\text{C}$  vs  $\delta\text{D}$  Genetic Classification Plot**

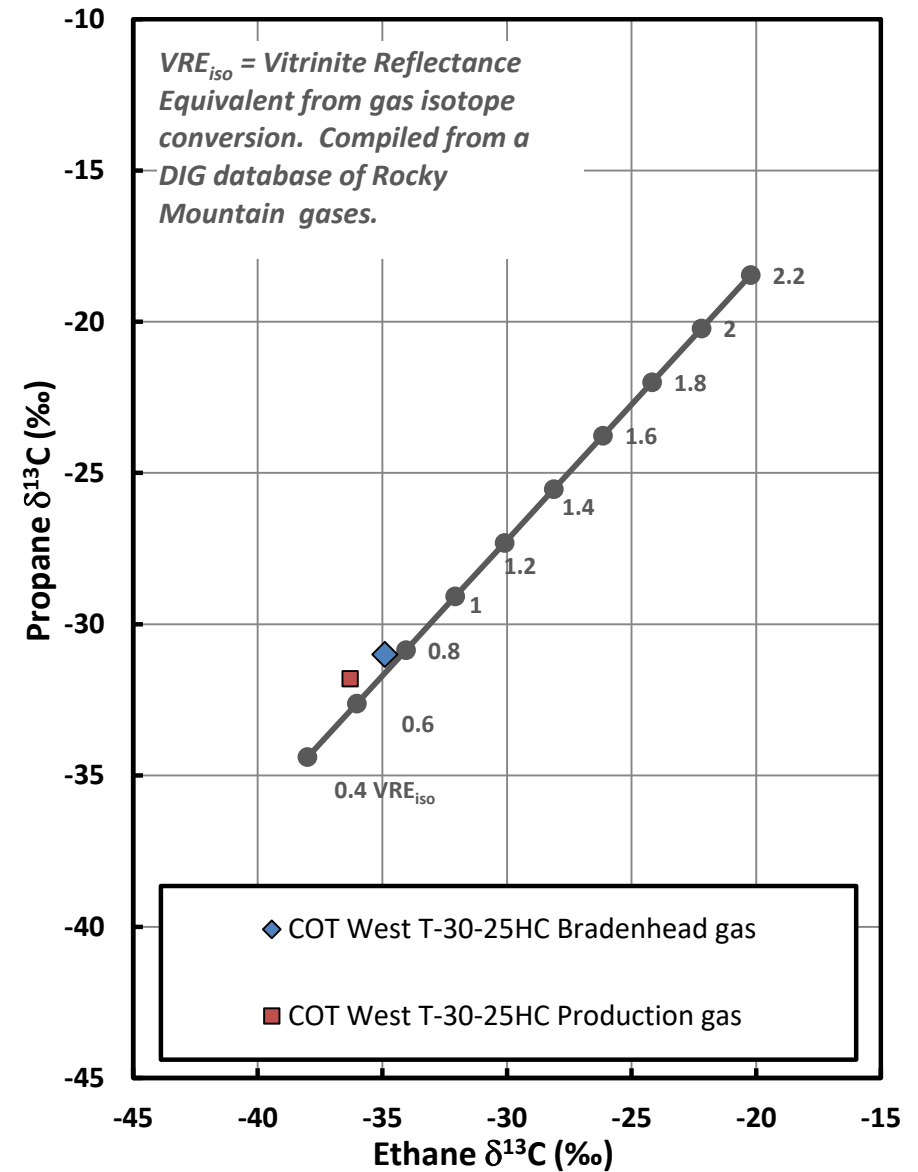


**INTERPRETIVE PLOTS**

**Mixing Plot**

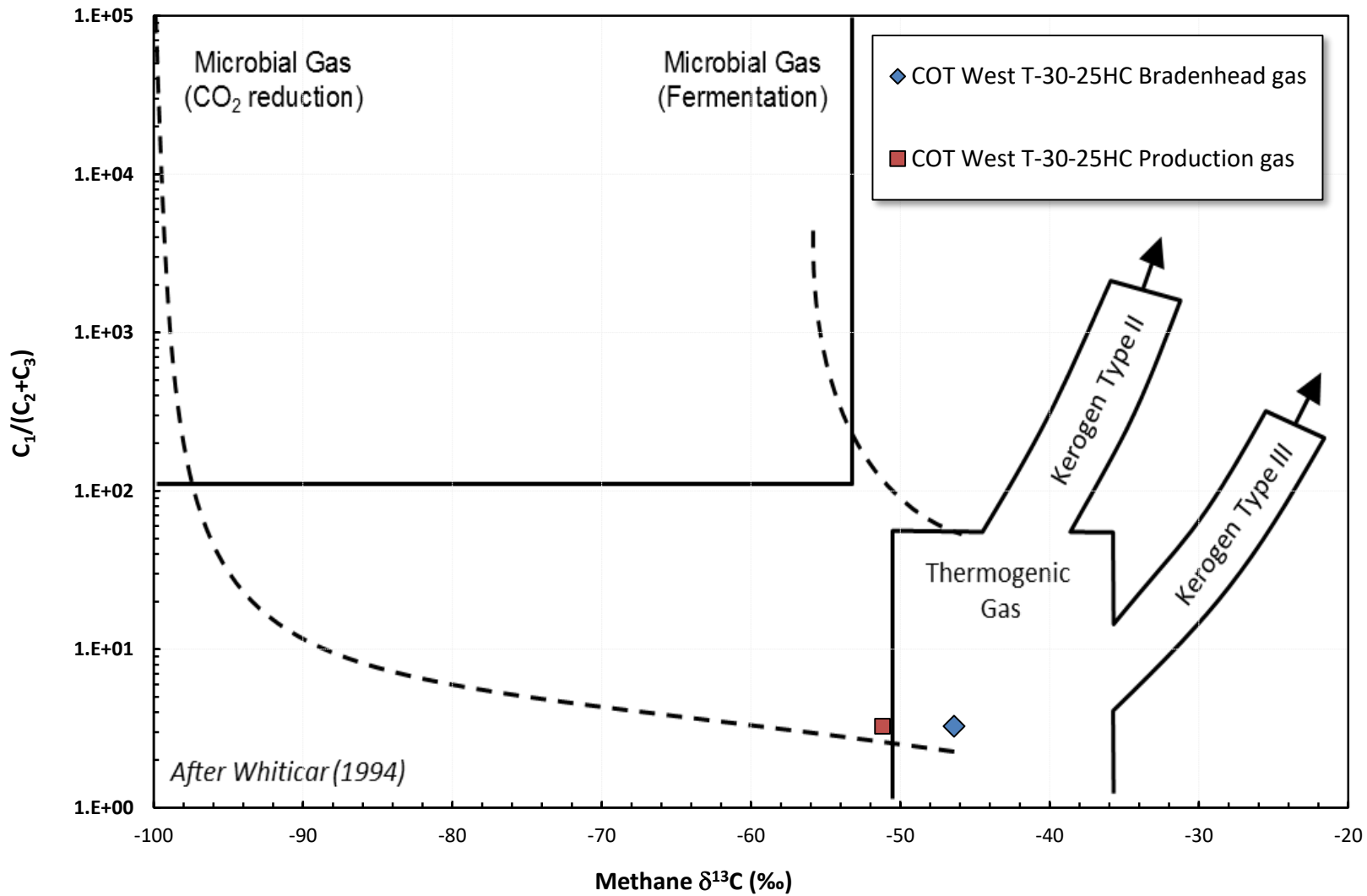


**Ethane - Propane Maturity Plot**



**INTERPRETIVE PLOTS**

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









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Send Data to:	Send Invoice to (if different):	Additional Information:
Name: Dana Hanneman	Name:	AFE #:
Company: Prairie Operating Company	Company:	Project: Bradenhead Sampling
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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)	DD of Methane (C1)	Whole Oil Gas Chromatography	d18O and dD 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 12:22:37 -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.