



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 #: 240311476
Lab #: DIG-035103
Client: Olsson
Well Name: SCMW032924
API #:

The analytical results, opinions, or interpretations contained in this report are based upon information and material supplied by the client for whose exclusive and confidential use this report has been made. The analytical results, opinions, or interpretations expressed represent the best judgment of Dolan Integration Group based on its experience, but any interpretation of test or other data, and any recommendation(s) based upon such interpretations, are opinions based upon inferences from measurements and empirical relationships and assumptions which are not infallible, and with respect to which professional engineers and analysts may differ. Accordingly, Dolan Integration Group makes no warranty or representation, expressed or implied, of any type, and expressly disclaims same as to the productivity, proper operations, or profitability of any oil, gas, coal, or other mineral, property, well, or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced, in whole or in part, without the written approval of Dolan Integration Group.

Dolan Integration Group shall use commercially reasonable efforts to maintain the Samples it receives from Customer in the condition in which same were initially received, and shall store, free of charge, any portion(s) of the Sample(s) not consumed or altered in the course of testing and analysis for a period of 60 days after their initial receipt, after which time the Samples will be destroyed. At Customer's written request and expense, Dolan Integration Group shall return unused Samples to Customer. At Customer's written request, Dolan Integration Group will also store and maintain Customer's Samples beyond the Free Storage Period for a monthly fee in accordance with Dolan Integration Group's the current storage rates. If Customer fails to timely pay any applicable storage charges, Dolan Integration Group shall



Client/Well Name: Olsson / SCMW032924
 Job #: 240311476
 Lab #: DIG-035103

| 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 ₂ 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 | |
| 240311476 | DIG-035103 | SCMW032924 Gas | Gas | 03/29/24 | 10:10 | 4/2/2024 | 568643 | 156373 | 2067 | 214626 | 35690 | 14892 | 2000 | 3865 | 843 | 623 | 223 | | | | 78.7 | 13.08 | 5.46 | 0.73 | 1.42 | 0.31 | 0.23 | 0.08 | 344 | |

| 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 ₁ /C ₂ +C ₃ mol/mol | Balance Ratio C ₁ +C ₂ /C ₁ -C ₂ | Mass Spec Date | δ ¹³ C ₁ ‰ VPDB | δ ¹³ C ₂ ‰ VPDB | δ ¹³ C ₃ ‰ VPDB | δ ¹³ iC ₄ ‰ VPDB | δ ¹³ nC ₄ ‰ VPDB | δ ¹³ iC ₅ ‰ VPDB | δ ¹³ nC ₅ ‰ VPDB | δ ¹³ CO ₂ ‰ VPDB | δD ‰ VSMOW | |
| 240311476 | DIG-035103 | SCMW032924 Gas | Gas | 03/29/24 | 10:10 | 272762 | 21.3 | 4.2 | 11.3 | 4/4/2024 | -46.2 | -31.7 | -28.3 | -30.5 | -27.2 | | | | | -257 |

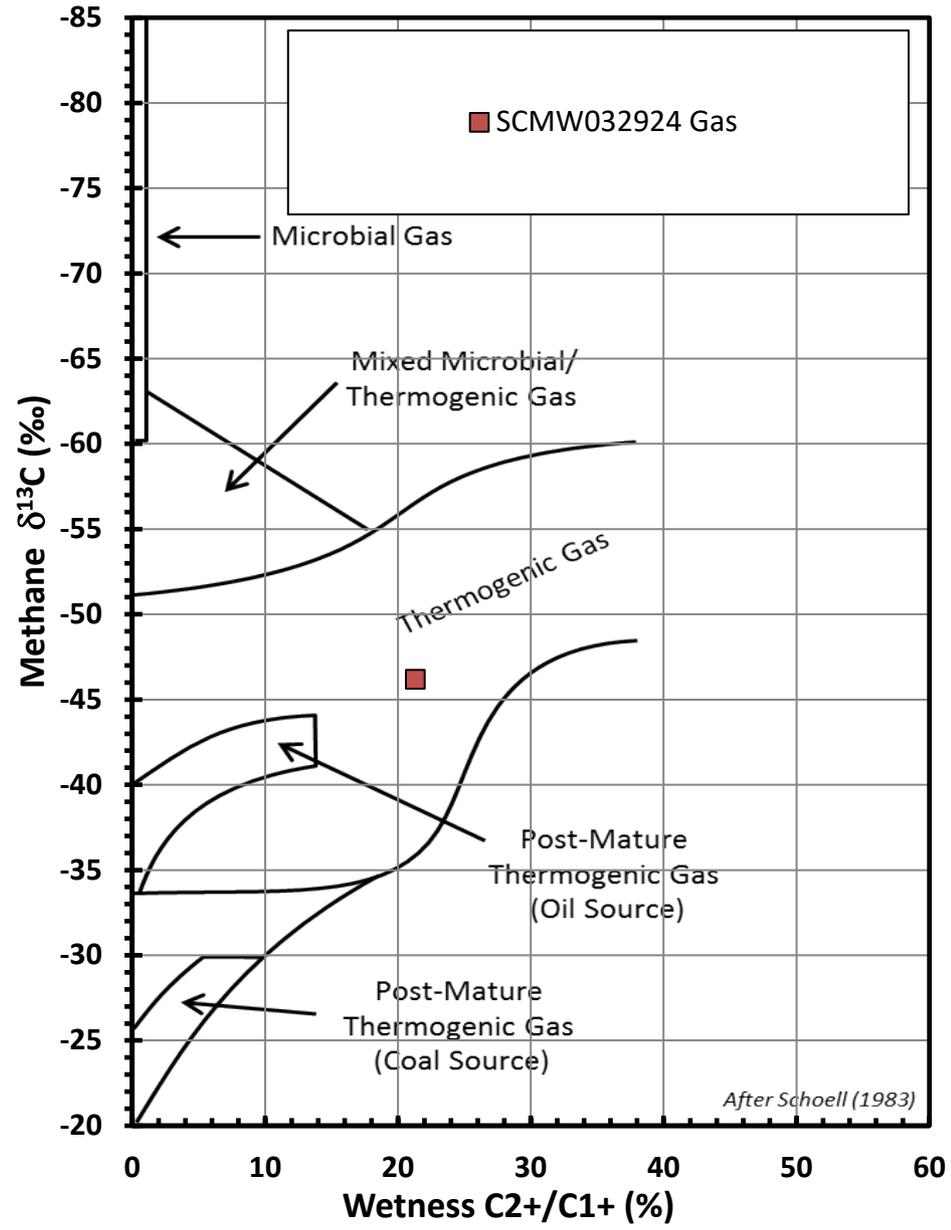
Stable isotope results based on multi-point laboratory calibration
 Values in red represent low signal; interpret with caution
 Precision δ13C < 0.5 ‰
 Precision δD < 5 ‰

| SPECIFIC GRAVITY* | |
|---------------------|--------------------|
| Total Gas Spec Grav | HCs only Spec Grav |
| 0.921 | 0.714 |

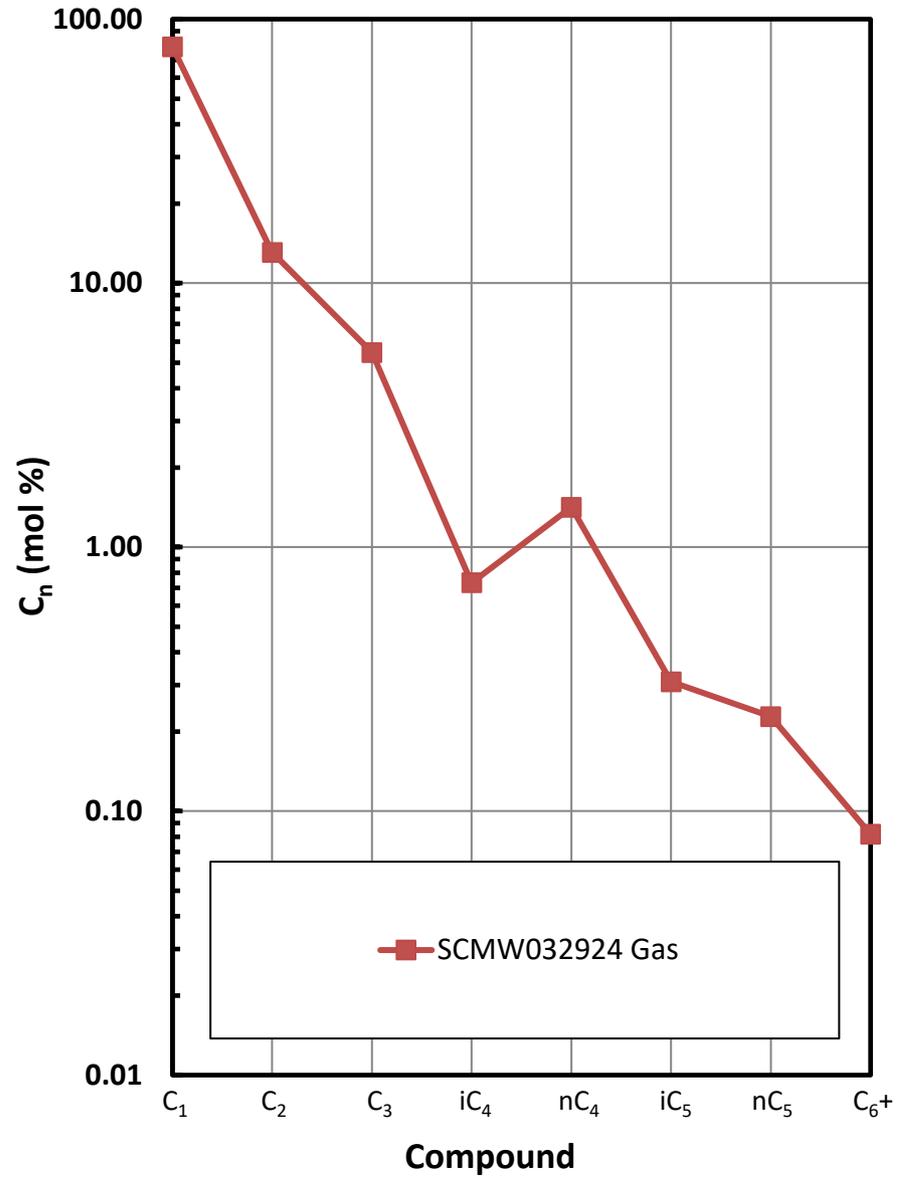
* As ideal gas, with gas concentrations normalized to 100%; calculations based on GPA 2145-09 physical constants.

INTERPRETIVE PLOTS

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

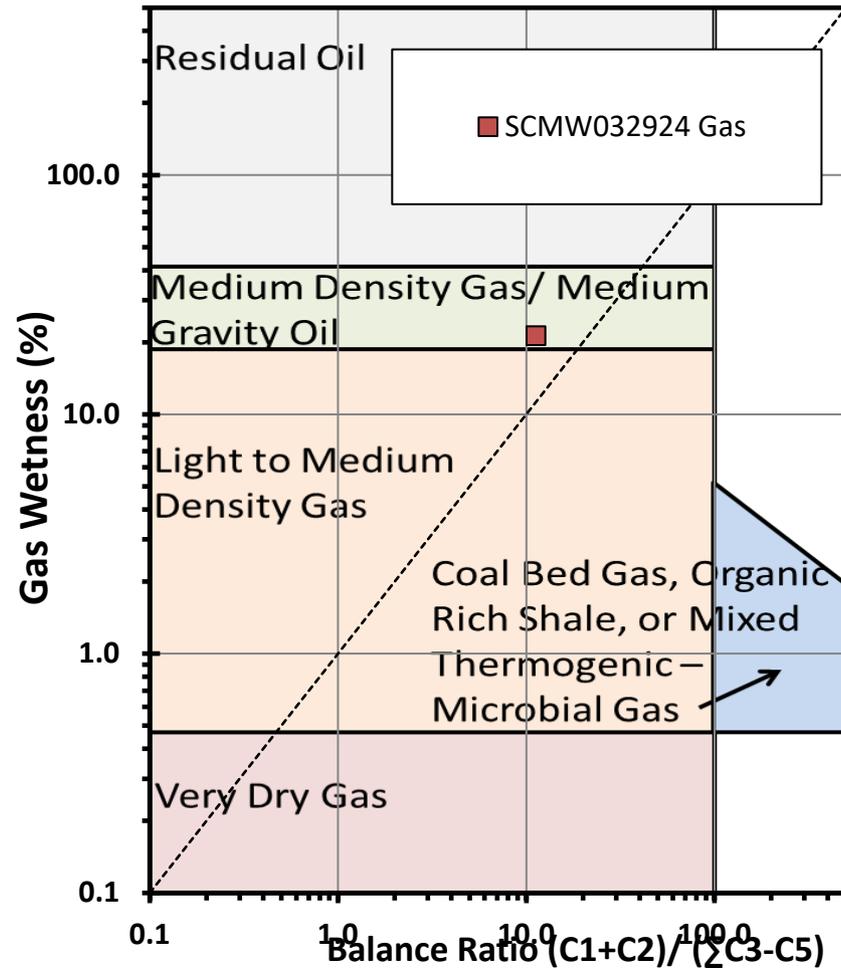


Hydrocarbon Composition Plot

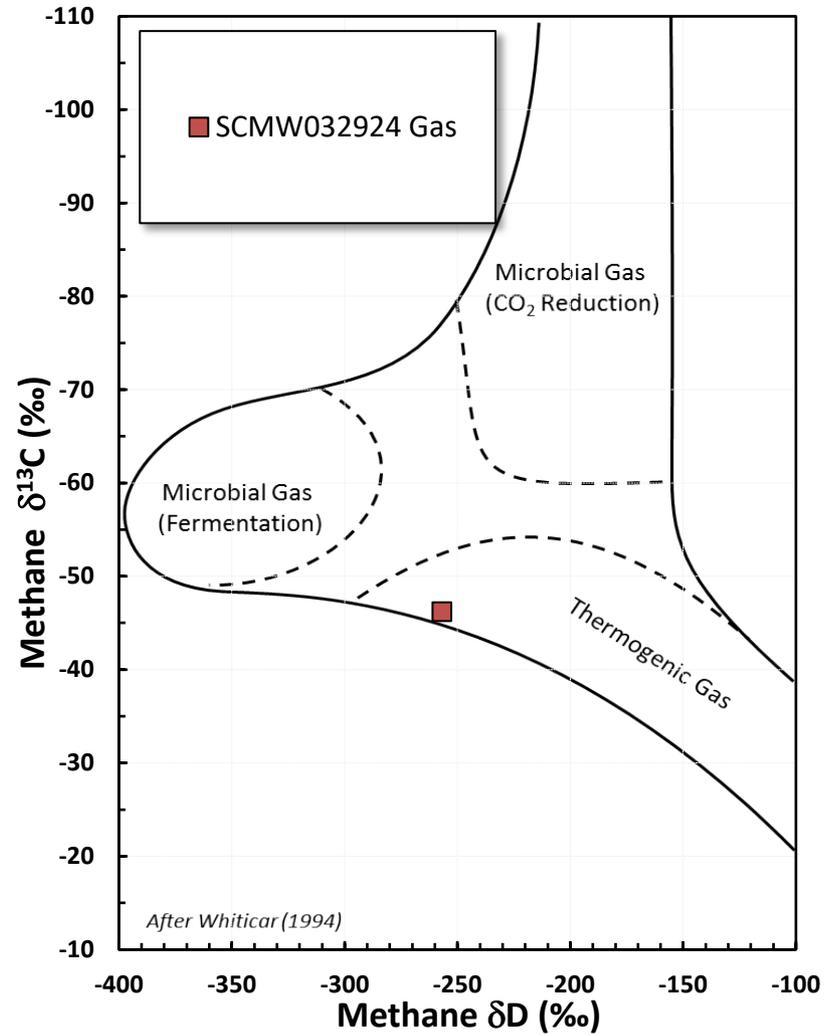


INTERPRETIVE PLOTS

Haworth Ratio Plot - Characterization of Hydrocarbon Type

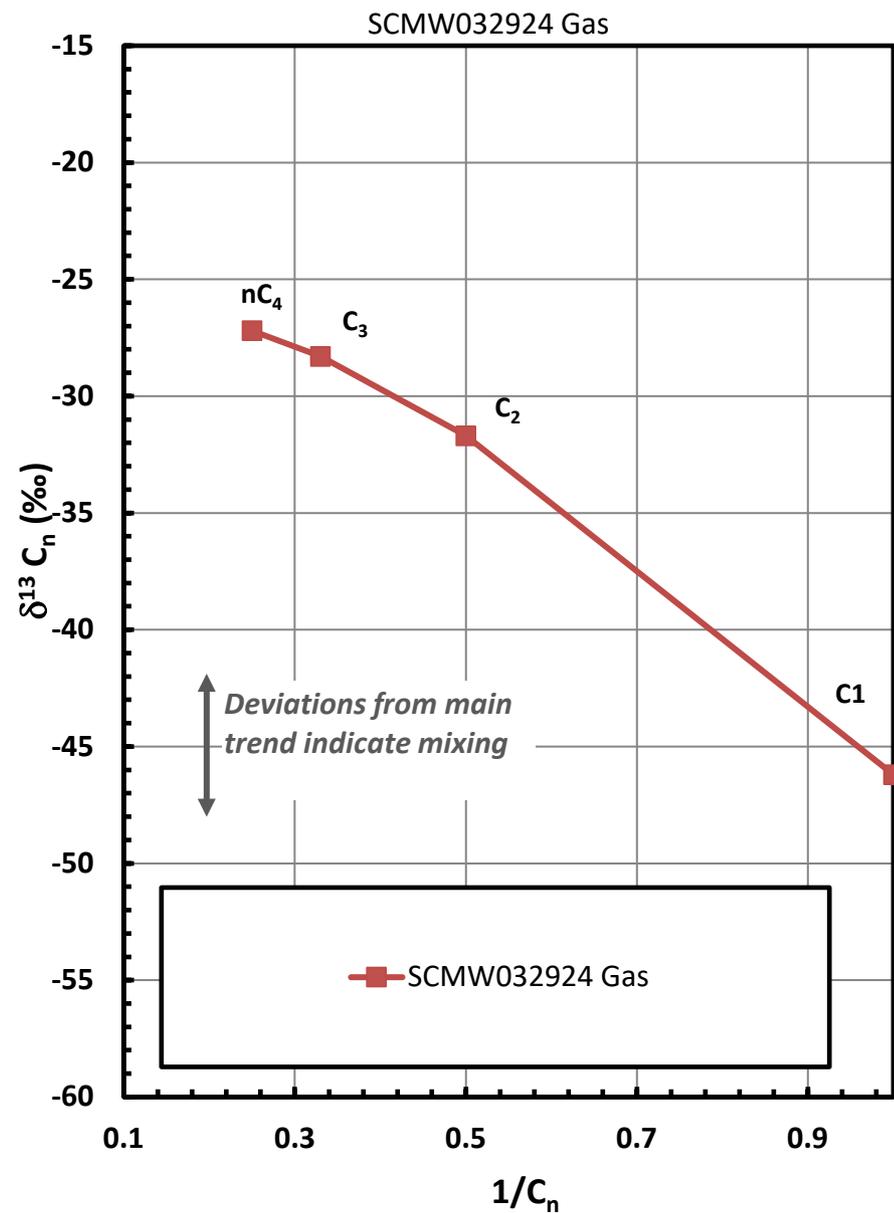


Methane $\delta^{13}C$ vs δD Genetic Classification Plot

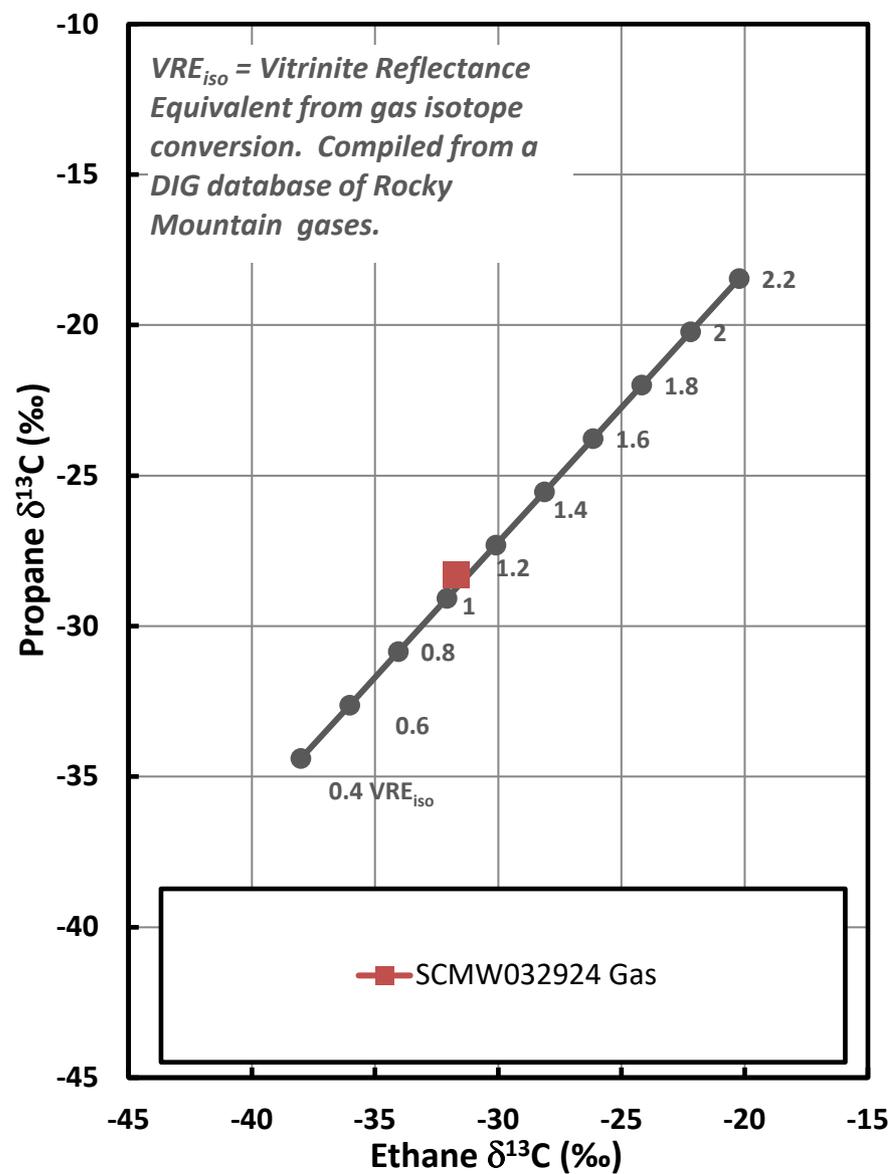


INTERPRETIVE PLOTS

Mixing Plot

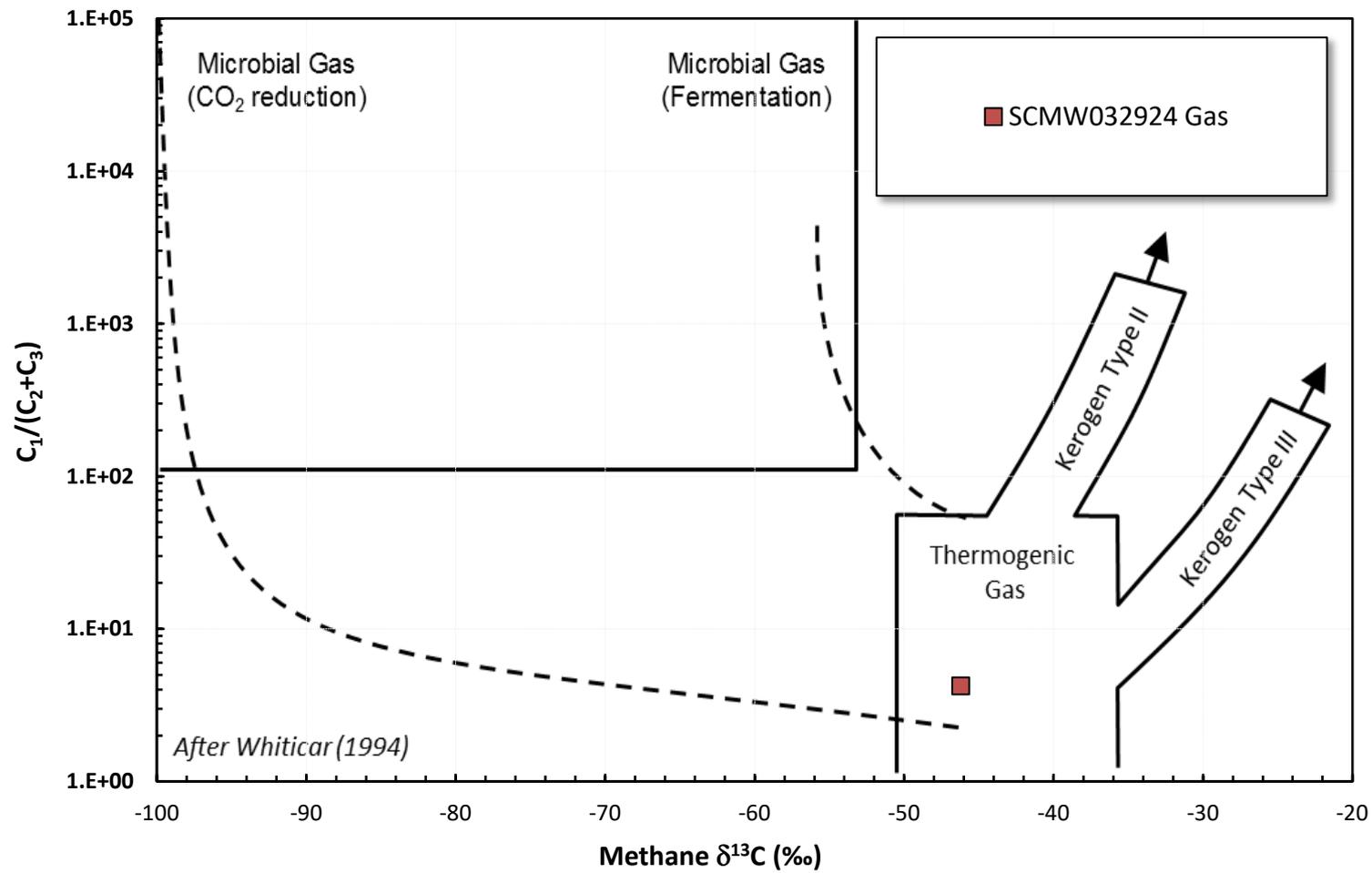


Ethane - Propane Maturity Plot



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: Trent Watne | Name: | AFE #: BLDJ21330 |
| Company: Olsson | Company: | Project: Sand Creek Monitoring Well |
| Address: 1525 Raleigh St. #400 | Address: | PO #: |
| City, State: Denver, CO | City, State: | Location: Greeley, CO |
| Phone: 303-503-5140 | Phone: | Sampled By: Brock H. |
| Email: twatne@olsson.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 |
|------------------|-----------------------|--------------|-------|--------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|------------------------------|-------------------------------|--------------------------------------|
| | SCMW032924 | 3/29/24 | 10:10 | Other | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | Other | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | Other | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | Other | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | Other | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | Other | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | Other | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | Other | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | Other | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | Other | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | Other | <input 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 |
|---------------------------|---------|------|-------|-----------------------|---------|---------|------|
| <i>[Signature]</i> | Olsson | 3/29 | 14:48 | <i>[Signature]</i> | DIG | 3/29/24 | 1448 |
| | | | | | | | |

*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.