TS-NANO

# Pre-Plugging Methane Emissions Monitoring Report

*Jennifer Chaveroo SA Unit 10*

Prepared by TS-Nano, Inc.
For NM Energy, Minerals and Natural Resources Department, Oil Conservation Division
PO# 52100-0000078682

## Well information

*ID #:* 30-041-10611
*Name:* Jennifer Chaveroo SA Unit 10
*Coordinates:* 33.69088, -103.4992
*Surface Location:* Roosevelt County


## Measurement notes

*Device used:* Ventbuster device VB100-0138
*Test operator:* JR Molina

*Gas sample taken from well:* 12/2/24 16:00
*Ventbuster connected to well:* 12/2/24 17:01
Continuous monitoring of well flowrate, pressure, and temperature
Hourly measurement of weather data
*Ventbuster disconnected from well:* 12/3/24 13:19
Notes: No remarkable observations

*Gas sample delivered to laboratory:* 12/6/24
*Laboratory Name/Location:* Laboratory Services / Hobbs, NM

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## Measurement data

*Wellhead pressure (kPa gage)*:* less than detection limit (<10 kPa)

*Average flow rate ($Sm^3/d$):* 0.009

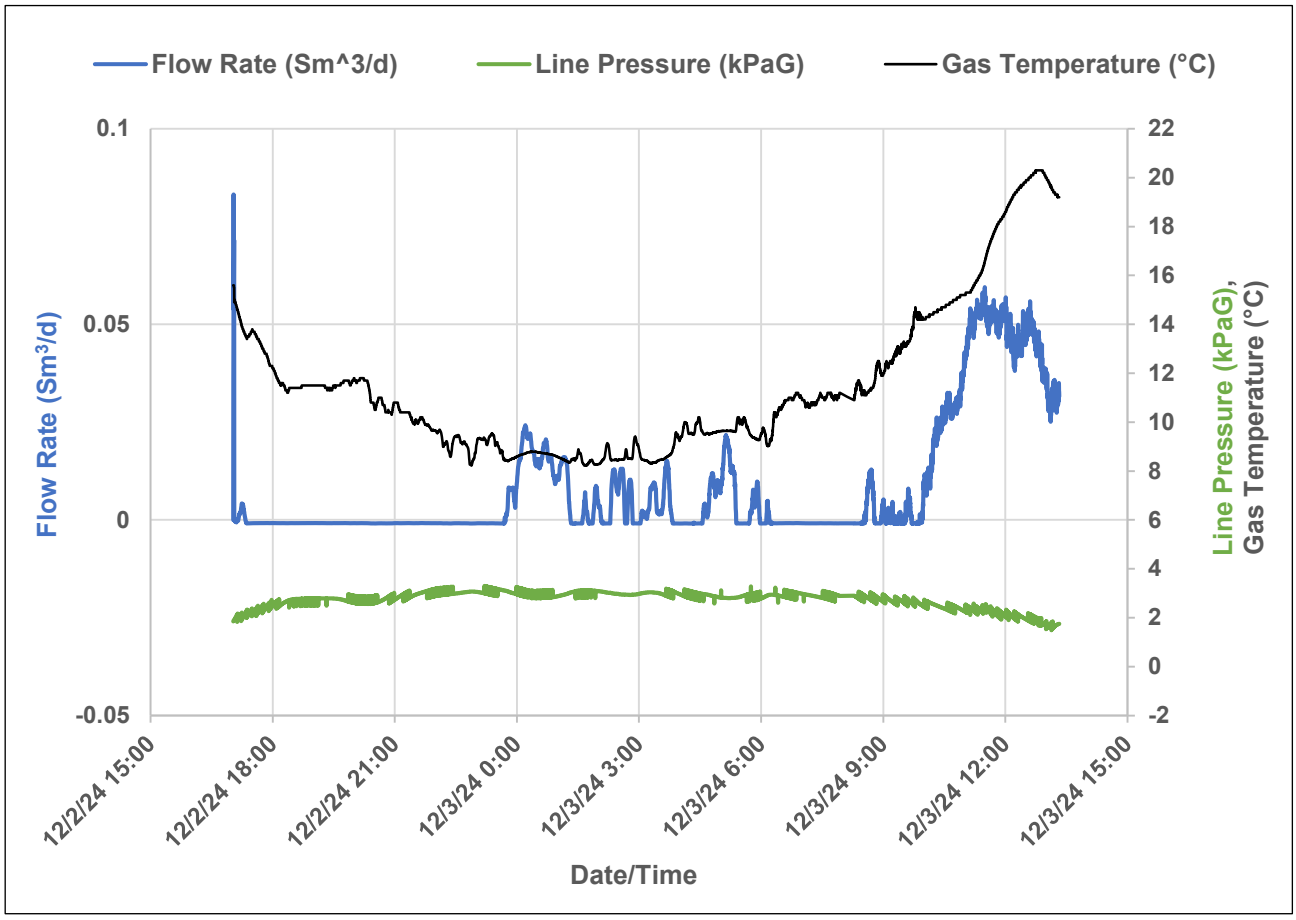
Average methane mass flow rate (g/hr)

*using methane % from lab analysis:* 0.001

Methane mass flowrate calculation

| Variable | Unit | Value |
|---|---|---|
| Pressure (P) | kPaA | Std pressure, 101.3 KPaA |
| Volumetric flow (V) | Std m^3/day | Measured from the Unit |
| % methane | % (methane/gas) | Measured from lab sample |
| Temperature (T) | Kelvin | Std temperature, 288.13 K |
| Gas constant (R) | m^3 Pa/(K mol) | 8.3144626 |
| Molecular weight of methane (Mw) | g/mole | 16.04 |

$$Mass\ flow\ of\ methane\ \left(\frac{g}{hr}\right) = \frac{\%, methane}{100\%} * V * P * \frac{Mw}{R\,T} * \frac{1000}{24}$$



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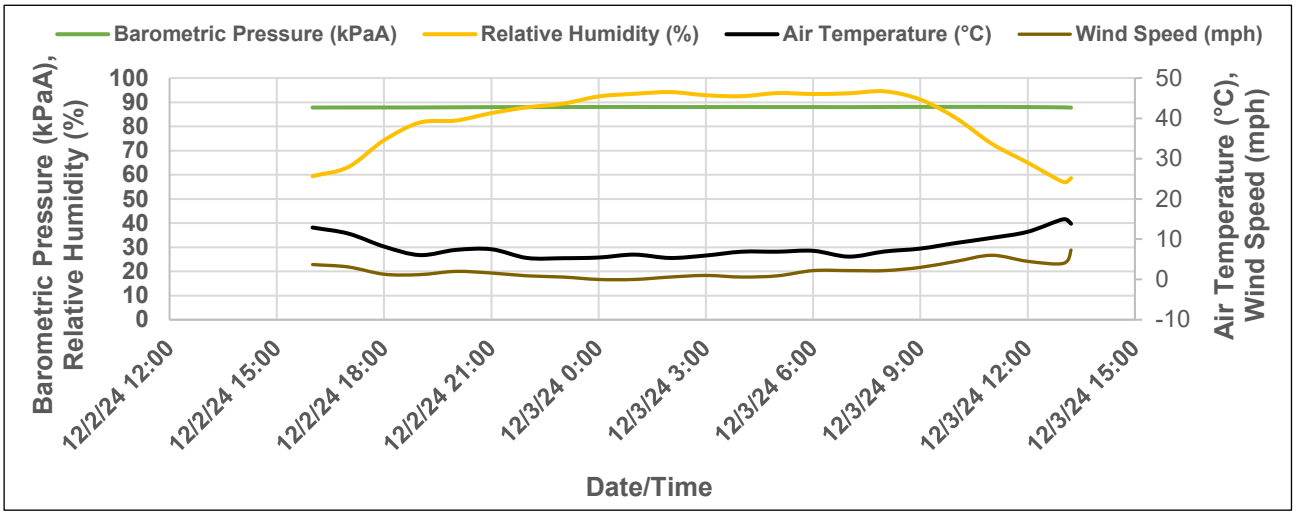
*Jennifer Chaveroo SA Unit 10*

## Weather data

Precipitation during measurement period (in): 0.000




| Date and Time | Air Temperature (°C) | Relative Humidity (%) | Barometric Pressure (kPaA) | Wind Speed (mph) |
|---|---|---|---|---|
| 12/2/2024 16:00 | 12.9 | 59.4 | 87.81 | 3.7 |
| 12/2/2024 17:00 | 11.4 | 63.2 | 87.84 | 3.1 |
| 12/2/2024 18:00 | 8.2 | 74.3 | 87.84 | 1.3 |
| 12/2/2024 19:00 | 6.1 | 81.6 | 87.84 | 1.2 |
| 12/2/2024 20:00 | 7.3 | 82.4 | 87.91 | 2.0 |
| 12/2/2024 21:00 | 7.5 | 85.5 | 87.98 | 1.6 |
| 12/2/2024 22:00 | 5.3 | 87.9 | 87.98 | 0.9 |
| 12/2/2024 23:00 | 5.3 | 89.4 | 88.01 | 0.6 |
| 12/3/2024 0:00 | 5.4 | 92.4 | 88.05 | 0.0 |
| 12/3/2024 1:00 | 6.2 | 93.5 | 88.05 | 0.0 |
| 12/3/2024 2:00 | 5.3 | 94.2 | 88.01 | 0.6 |
| 12/3/2024 3:00 | 5.9 | 92.9 | 88.01 | 1.0 |
| 12/3/2024 4:00 | 6.9 | 92.5 | 88.01 | 0.6 |
| 12/3/2024 5:00 | 6.9 | 93.8 | 88.01 | 0.9 |
| 12/3/2024 6:00 | 7.1 | 93.4 | 88.01 | 2.2 |
| 12/3/2024 7:00 | 5.7 | 93.7 | 87.98 | 2.2 |
| 12/3/2024 8:00 | 6.9 | 94.5 | 88.05 | 2.2 |
| 12/3/2024 9:00 | 7.7 | 91.1 | 88.08 | 3.0 |
| 12/3/2024 10:00 | 9.1 | 83.4 | 88.08 | 4.5 |
| 12/3/2024 11:00 | 10.3 | 72.8 | 88.08 | 6.0 |
| 12/3/2024 12:00 | 11.8 | 65.0 | 88.01 | 4.5 |
| 12/3/2024 13:00 | 14.9 | 57.0 | 87.88 | 4.0 |
| 12/3/2024 13:12 | 13.8 | 58.6 | 87.78 | 7.3 |

LABORATORY SERVICES Natural Gas Analysis
www.permianls.com
575.397.3713 2609 W Marland Hobbs NM 88240

# C6+ Gas Analysis Report

| Sample Point Code | Sample Point Name | Sample Point Location |
|---|---|---|
| 23022G | Jennifer Chaveroo SA Unit #10 | Jennifer Chaveroo SA Unit #10 |

| Source Laboratory | Lab File No | Container Identity | Sampler |
|---|---|---|---|
| Laboratory Services | 2024102512 | BAG | JR Molina - Spot |

| District | Area Name | Field Name | Facility Name |
|---|---|---|---|
| USA | USA | USA | New Mexico |

| Date Sampled | Date Effective | Date Received | Date Reported |
|---|---|---|---|
| Dec 2, 2024 | Dec 1, 2024 | Dec 6, 2024 10:45 | Dec 9, 2024 |

| Ambient Temp (°F) | Flow Rate (Mcf) | Analyst | Press PSI @ Temp °F Source Conditions |
|---|---|---|---|
| | | System Administrator | |

| Operator | Lab Source Description |
|---|---|
| TS-Nano | NG |

| Component | Normalized Mol % | Un-Normalized Mol % | GPM |
|---|---|---|---|
| H2S (H2S) | 0.0000 | 0 | |
| Nitrogen (N2) | 98.8350 | 98.835 | |
| CO2 (CO2) | 0.0690 | 0.069 | |
| Methane (C1) | 0.2450 | 0.245 | |
| Ethane (C2) | 0.2550 | 0.255 | 0.0680 |
| Propane (C3) | 0.2550 | 0.255 | 0.0700 |
| I-Butane (IC4) | 0.0400 | 0.04 | 0.0130 |
| N-Butane (NC4) | 0.0970 | 0.097 | 0.0310 |
| I-Pentane (IC5) | 0.0460 | 0.046 | 0.0170 |
| N-Pentane (NC5) | 0.0420 | 0.042 | 0.0150 |
| Hexanes Plus (C6+) | 0.1160 | 0.116 | 0.0500 |
| TOTAL | 100.0000 | 100.0000 | 0.2640 |

Method(s): Gas C6+ - GPA 2261, Extended Gas - GPA 2286, Calculations - GPA 2172

### Analyzer Information

| | | | |
|---|---|---|---|
| Device Type: | Gas Chromatograph | Device Make: | Shimadzu |
| Device Model: | GC-2014 | Last Cal Date: | Sep 9, 2024 |

### Gross Heating Values (Real, BTU/ft³)

| 14.696 PSI @ 60.00 Â°F | | 14.73 PSI @ 60.00 Â°F | |
|---|---|---|---|
| Dry | Saturated | Dry | Saturated |
| 27.4 | 27.8 | 27.5 | 27.9 |

### Calculated Total Sample Properties

GPA2145-16 *Calculated at Contract Conditions

| Relative Density Real | Relative Density Ideal |
|---|---|
| 0.9732 | 0.9733 |

Molecular Weight
28.1971

### C6+ Group Properties

Assumed Composition

C6 - 60.000% C7 - 30.000% C8 - 10.000%

**PROTREND STATUS:**
Passed By Validator on Dec 10, 2024

**DATA SOURCE:**
Imported

**PASSED BY VALIDATOR REASON:**
First sample taken @ this point, composition looks reasonable

**VALIDATOR:**
Ashley Russell

**VALIDATOR COMMENTS:**
OK

LABORATORY SERVICES
Natural Gas Analysis

www.permianls.com
575.397.3713 2609 W Marland Hobbs, NM 88240

# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

| | | | |
|---|---|---|---|
| Company Name: TS- Nano, Inc. | | **BILL TO** | |
| Project Manager: John Stormont | | PO #: | |
| Address: 5901 Indian School Rd. NE | | Company: TS- Nano, Inc. | |
| City: Albuquerque | State: NM Zip: 87110 | Attn: Jay Kitowski | |
| Phone #: 505-907-4095 | Email: jstormont@ts-nano.com | Address: Same | |
| Project #: | Project Owner: | City: | |
| Project Name: | | State: Zip: | |
| Project Location: | | Phone #: 505-464-4836 | |
| Sampler Name: | | Email: jkitowski@ts-nano.com | |

| Lab I.D. | Sample I.D. | (S)POT or (C)OMP | # Container | Matrix: Groudwater | Wastewater | GAS | Oil | Solid | Other | Preserve: Acid/Base | Ice/Cool | Other | Sampling: Date | Time | Analysis Request: C-6+ RGA | C-10+ Ext |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J.C. SA Unit #9 | S | 1 Tedlar | | | X | | | | | | | 12.6.24 | 10:00AM | X | |
| | J.C. SA Unit #10 | S | 1 Tedlar | | | X | | | | | | | 12.6.24 | 10:00AM | X | |
| | J.C. SA Unit #12 | S | 1 Tedlar | | | X | | | | | | | 12.6.24 | 10:00AM | X | |
| | J.C. SA Unit #13 | S | 1 Tedlar | | | X | | | | | | | 12.6.24 | 10:00AM | X | |
| | J.C. SA Unit #14 | S | 1 Tedlar | | | X | | | | | | | 12.6.24 | 10:00AM | X | |
| | J.C. SA Unit #15 | S | 1 Tedlar | | | X | | | | | | | 12.6.24 | 10:00AM | X | |
| | J.C. SA Unit #17 | S | 1 Tedlar | | | X | | | | | | | 12.6.24 | 10:00AM | X | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

| | | | |
|---|---|---|---|
| Relinquished by JR Molina | Date: Dec 6, 2024<br>Time: 10:00 am | Received by: | Phone Result: ☐ Yes ☐ No Add'l Phone: |
| Relinquished by | Date:<br>Time: | Received by: | Email Result: ☐ Yes ☐ No<br>REMARKS: |

| Deliver by: (circle one) | Sample Condition: Cool | Sample Condition: Intact | Checked by (Initials) |
|---|---|---|---|
| Sampler - UPS - Bus - other: | Yes ☐ No ☐ | Yes ☐ No ☐ | |

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

# State of New Mexico
# Energy, Minerals and Natural Resources
# Oil Conservation Division
# 1220 S. St Francis Dr.
# Santa Fe, NM 87505



## DEFINITIONS

| | |
|---|---|
| Operator:<br>RIDGEWAY ARIZONA OIL CORP.<br>575 N. Dairy Ashford<br>Houston, TX 77079 | OGRID:<br>164557 |
| | Action Number:<br>418660 |
| | Action Type:<br>[UF-OMA] Pre-Plug Methane Monitoring (UF-OMA-MMA) |

**DEFINITIONS**

The Orphan Well Mitigation Activity (OMA) forms are a subset of the OCD's forms exclusively designed for activities related to State of New Mexico's contracted plugging and reclamation activities. Specifically, these forms are used for orphan wells or associated facilities which are in a "Reclamation Fund Approved" status. This status represents wells or facilities where the OCD has acquired a hearing order allowing the OCD to perform plugging or reclamation on wells and associated facilities that no longer have a viable operator to perform the necessary work. These forms are not to be utilized for any other purpose.

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# State of New Mexico
# Energy, Minerals and Natural Resources
# Oil Conservation Division
# 1220 S. St Francis Dr.
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QUESTIONS

Action 418660

## QUESTIONS

| | |
|---|---|
| Operator:<br>RIDGEWAY ARIZONA OIL CORP.<br>575 N. Dairy Ashford<br>Houston, TX 77079 | OGRID:<br>164557 |
| | Action Number:<br>418660 |
| | Action Type:<br>[UF-OMA] Pre-Plug Methane Monitoring (UF-OMA-MMA) |

**QUESTIONS**

| **Prerequisites** | |
|---|---|
| [OGRID] Well Operator | **[164557] RIDGEWAY ARIZONA OIL CORP.** |
| [API] Well Name and Number | **[30-041-10611] JENNIFER CHAVEROO SA UNIT #010** |
| Well Status | **Active** |

| **Monitoring Event Information**<br>*Please answer all the questions in this group.* | |
|---|---|
| Reason For Filing | **Pre-Plug Methane Monitoring** |
| Date of monitoring | 12/03/2024 |
| Latitude | 33.69088 |
| Longitude | -103.49920 |

| **Monitoring Event Details**<br>*Please answer all the questions in this group.* | |
|---|---|
| Flow rate in cubic meters per day ($m^3$/day) | 0.01 |
| Test duration in hours (hr) | 20.3 |
| Average flow temperature in degrees Celsius (°C) | 11.5 |
| Average gauge flow pressure in kilopascals (kPag) | 2.7 |
| Methane concentration in part per million (ppm) | 2,450 |
| Methane emission rate in grams per hour (g/hr) | 0.00 |
| Testing Method | Steady State |

| **Monitoring Contractor**<br>*Please answer all the questions in this group.* | |
|---|---|
| Name of monitoring contractor | TS-Nano, Inc. |