TS-NANO

Pre-Plugging Methane Emissions Monitoring Report

Morgan C Federal 001

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

Well information

ID #: 30-041-10647
Name: Morgan C Federal 001
Coordinates: 33.69138, -103.55106
Surface Location: Roosevelt County

Measurement notes

Device used: Ventbuster device VB100-0139
Test operator: JR Molina

Gas sample taken from well: 1/2/25 15:05
Ventbuster connected to well: 1/2/25 15:37
Continuous monitoring of well flowrate, pressure, and temperature
Hourly measurement of weather data
Ventbuster disconnected from well: 1/3/25 11:48
Notes: No remarkable observations

Gas sample delivered to laboratory: 1/9/25
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): 0.034

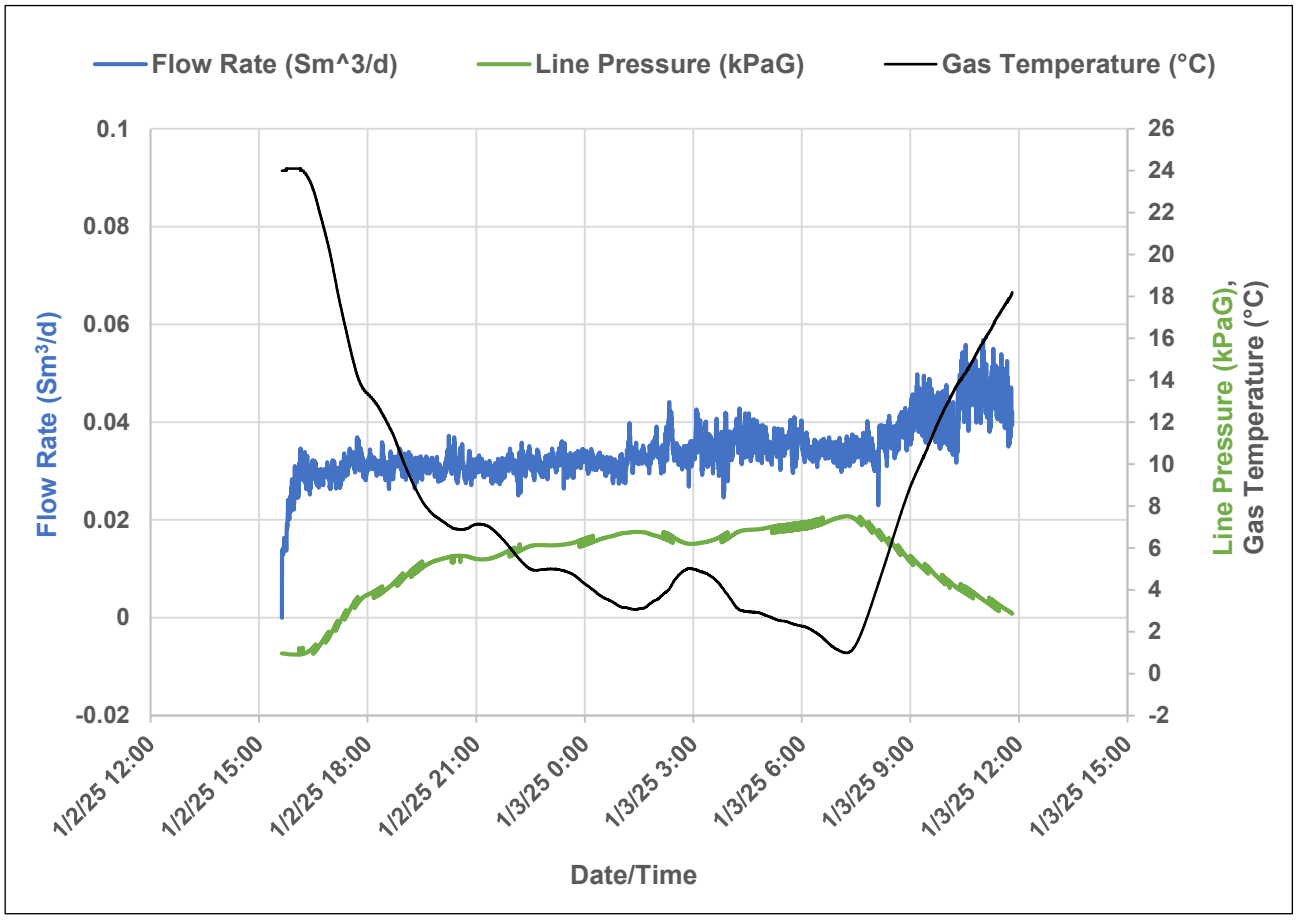
Average methane mass flow rate (g/hr)

using methane % from lab analysis: 0.55

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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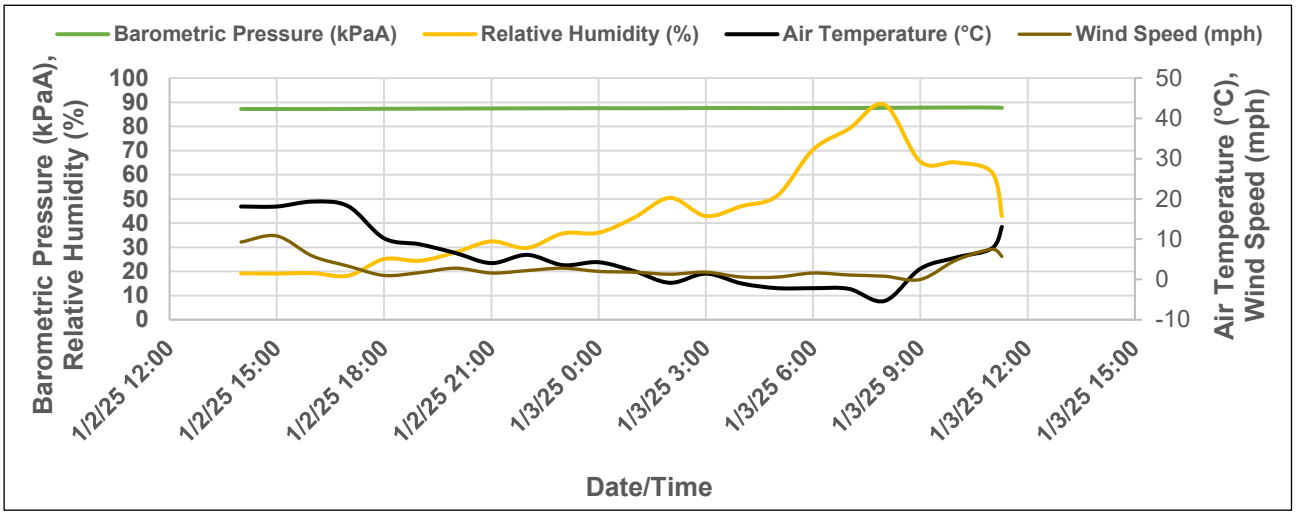
Weather data

Precipitation during measurement period (in): 0.000



Date and Time	Air Temperature (°C)	Relative Humidity (%)	Barometric Pressure (kPaA)	Wind Speed (mph)
1/2/2025 14:00	18.1	19.2	87.20	9.3
1/2/2025 15:00	18.1	19.1	87.20	10.8
1/2/2025 16:00	19.3	19.3	87.20	5.8
1/2/2025 17:00	18.2	18.2	87.23	3.3
1/2/2025 18:00	10.2	25.1	87.30	1.0
1/2/2025 19:00	8.7	24.4	87.33	1.7
1/2/2025 20:00	6.6	27.9	87.37	2.8
1/2/2025 21:00	4.1	32.4	87.44	1.6
1/2/2025 22:00	6.1	29.7	87.47	2.2
1/2/2025 23:00	3.6	35.7	87.50	2.8
1/3/2025 0:00	4.3	36.0	87.54	2.0
1/3/2025 1:00	2.1	42.3	87.50	1.8
1/3/2025 2:00	-0.8	50.4	87.54	1.3
1/3/2025 3:00	1.4	42.9	87.61	1.8
1/3/2025 4:00	-1.0	47.0	87.61	0.6
1/3/2025 5:00	-2.2	51.4	87.57	0.6
1/3/2025 6:00	-2.2	70.4	87.61	1.6
1/3/2025 7:00	-2.3	79.0	87.61	1.1
1/3/2025 8:00	-5.3	89.0	87.67	0.8
1/3/2025 9:00	2.7	65.4	87.78	0.0
1/3/2025 10:00	5.4	65.1	87.81	4.8
1/3/2025 11:00	7.7	61.0	87.81	7.5
1/3/2025 11:16	13.1	42.9	87.71	5.7

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
23310G	Morgan C Federal #001	Morgan C Federal #001

Source Laboratory	Lab File No	Container Identity	Sampler
Laboratory Services	2025104469	BAG	JR Molina - Spot

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

Date Sampled	Date Effective	Date Received	Date Reported
Jan 2, 2025	Jan 1, 2025	Jan 9, 2025 14:09	Jan 11, 2025

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)	27.6900	27.69	
CO2 (CO2)	6.4810	6.481	
Methane (C1)	57.0510	57.05	
Ethane (C2)	5.3580	5.358	1.4330
Propane (C3)	2.2090	2.209	0.6080
I-Butane (IC4)	0.2840	0.284	0.0930
N-Butane (NC4)	0.4810	0.481	0.1520
I-Pentane (IC5)	0.1570	0.157	0.0570
N-Pentane (NC5)	0.1050	0.105	0.0380
Hexanes Plus (C6+)	0.1840	0.184	0.0800
TOTAL	100.0000	99.9990	2.4610

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
774.2	761.9	776.0	763.7

Calculated Total Sample Properties

GPA2145-16 *Calculated at Contract Conditions

Relative Density Real	Relative Density Ideal
0.8007	0.7993

Molecular Weight
23.1519

C6+ Group Properties

Assumed Composition

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

PROTREND STATUS:
Passed By Validator on Jan 13, 2025

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

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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

				Matrix						Preserve			Sampling		Analysis Request												
Lab I.D.	**Sample I.D.**	(S)POT or (C)OMP	# Container	Groudwater	Wastewater	GAS	Oil	Solid	Other	Acid/Base	Ice/Cool	Other	Date	Time	C-6+ RGA	C-10+ Ext											
	Morgan A Fed. #008	S	1 Tedlar			X							01.09.25	11:30AM	X												
	Morgan B Fed. #003	S	1 Tedlar			X							01.09.25	11:30AM	X												
	Morgan B Fed. #006	S	1 Tedlar			X							01.09.25	11:30AM	X												
	Morgan C Fed. #001	S	1 Tedlar			X							01.09.25	11:30AM	X												
	Morgan C Fed. #002	S	1 Tedlar			X							01.09.25	11:30AM	X												
	Morgan B Fed. #005	S	1 Tedlar			X							01.09.25	11:30AM	X												
	Morgan A Fed. #004	S	1 Tedlar			X							01.09.25	11:30AM	X												
	Morgan B Fed. #001	S	1 Tedlar			X							01.09.25	11:30AM	X												
	Morgan B Fed. #004	S	1 Tedlar			X							01.09.25	11:30AM	X												
	Morgan A Fed. #005	S	1 Tedlar			X							01.09.25	11:30AM	X												

Relinquished by JR Molina	**Date:** Jan 9, 2025	**Received by:**	**Phone Result:** ☐ Yes ☐ No **Add'l Phone:**
	Time: 11:30 am		**Email Result:** ☐ Yes ☐ No
Relinquished by	**Date:**	**Received by:**	**REMARKS:**
	Time:		

Deliver by: (circle one)	**Sample Condition**		**Checked by**
	Cool	**Intact**	**(Initials)**
Sampler - UPS - Bus - other:	**Yes** ☐	**Yes** ☐	
	No ☐	**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: RIDGEWAY ARIZONA OIL CORP. 575 N. Dairy Ashford Houston, TX 77079	OGRID: 164557
	Action Number: 422184
	Action Type: [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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QUESTIONS

Operator: RIDGEWAY ARIZONA OIL CORP. 575 N. Dairy Ashford Houston, TX 77079	OGRID: 164557
	Action Number: 422184
	Action Type: [UF-OMA] Pre-Plug Methane Monitoring (UF-OMA-MMA)

QUESTIONS

Prerequisites	
[OGRID] Well Operator	**[164557] RIDGEWAY ARIZONA OIL CORP.**
[API] Well Name and Number	**[30-041-10647] MORGAN C FEDERAL #001**
Well Status	**Active**

Monitoring Event Information *Please answer all the questions in this group.*	
Reason For Filing	**Pre-Plug Methane Monitoring**
Date of monitoring	01/02/2025
Latitude	33.69138
Longitude	-103.55100

Monitoring Event Details *Please answer all the questions in this group.*	
Flow rate in cubic meters per day (m^3/day)	0.03
Test duration in hours (hr)	20.2
Average flow temperature in degrees Celsius (°C)	8.0
Average gauge flow pressure in kilopascals (kPag)	5.4
Methane concentration in part per million (ppm)	570,510
Methane emission rate in grams per hour (g/hr)	0.55
Testing Method	Steady State

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