



## Pre-Plugging Methane Emissions Monitoring Report

*James McFarland A#002*

Prepared by TS-Nano, Inc.

For NM Energy, Minerals and Natural Resources Department, Oil Conservation Division

PO# 52100-0000077175

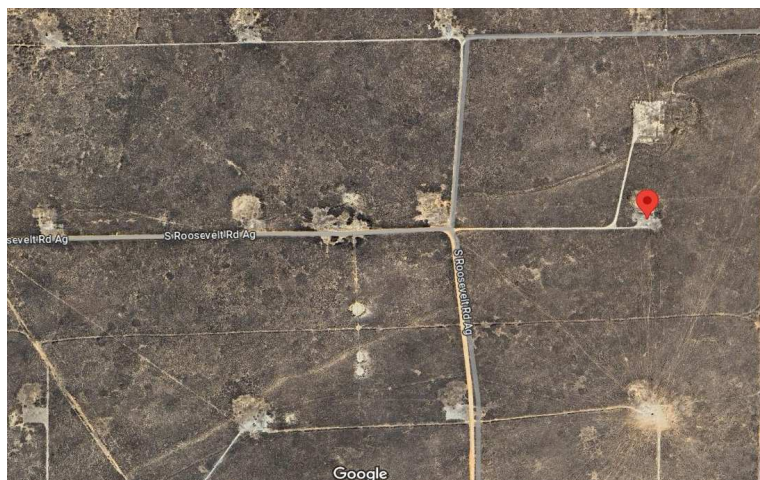
### Well information

ID #: 30-041-10447

Coordinates: 33.68781, -103.58162

Name: James McFarland A#002

Surface Location: Roosevelt County



### Measurement notes

Device used: VentMedic #DC9447

Test operator: Jay Kitowski

Gas sample taken from well: 6/12/24 11:59

VentMedic connected to well: 6/17/24 13:29

Continuous monitoring of well flowrate, pressure,  
and temperature

Hourly measurement of weather data

VentMedic disconnected from well: 6/18/24 11:16

Notes: Well had initial pressure of 500 psi (3450 kPa); when venting well, some liquid (< a few liters) produced so subsequently used trap with VentMedic; well was vented to zero pressure upon shutting in before beginning flow test; flow rate strong for about 2 hours before dropping to near zero.

Gas sample delivered to laboratory: 6/18/24

Laboratory Name/Location: Laboratory Services / Hobbs, NM



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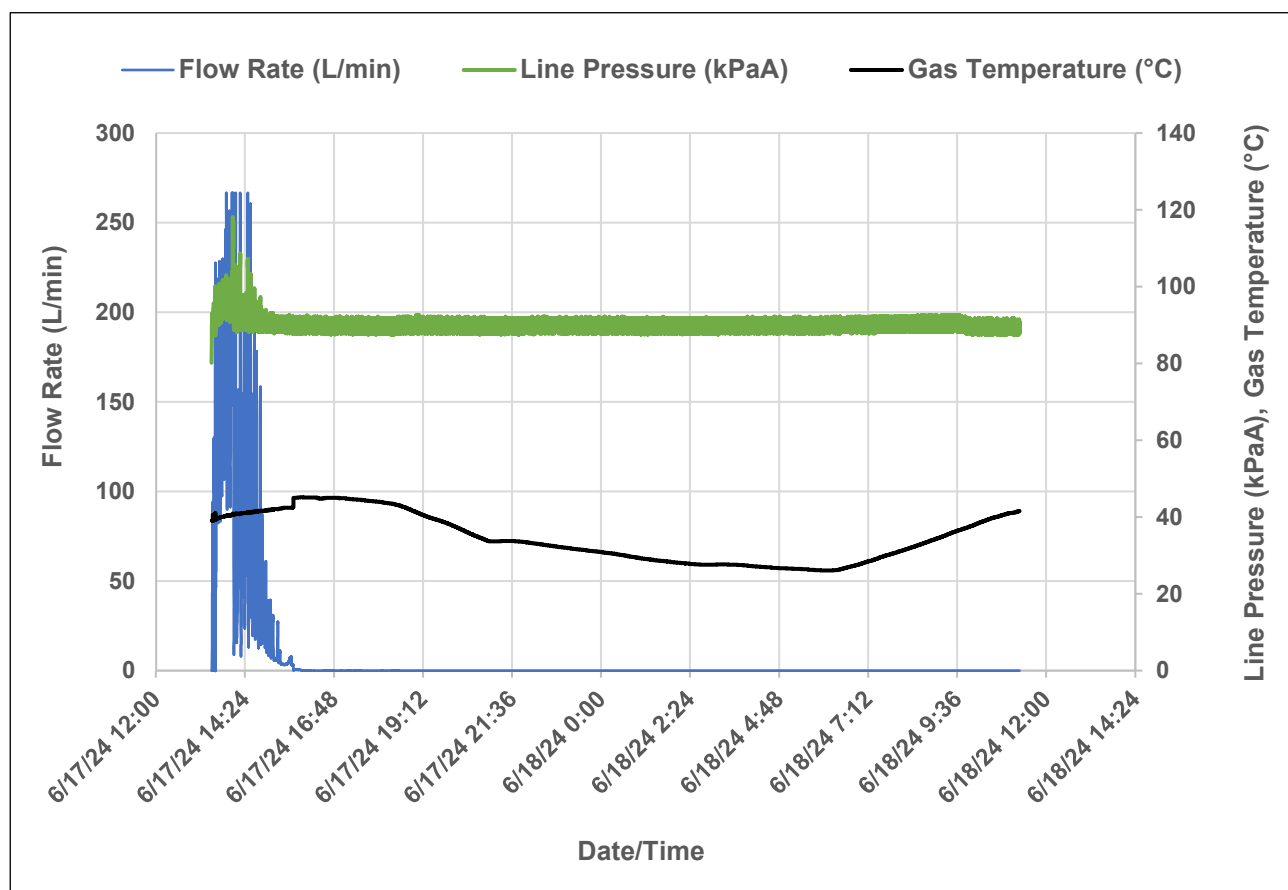
### Measurement data

Wellhead pressure (kPa gage)\*: 3450 kPa (500 psi)  
 Average flow rate (L/min): 6.673  
Average methane mass flow rate (g/hr)  
 using methane % from lab analysis: 1.92

### Methane mass flowrate calculation

Variable	Unit	Value
Pressure (P)	kPaA	Measured from the Unit
Volumetric flow (V)	L gas/min	Measured from the Unit
% methane	% (methane/gas)	Measured from Unit or sample
Temperature (T)	Kelvin	Measured from the Unit
Gas constant (R)	Atmosphere·L/(mole·Kelvin)	0.0821
Molecular weight of methane (Mw)	g/mole	16.04

$$\text{Mass flow of methane } \left( \frac{g}{hr} \right) = \frac{\%, \text{methane}}{100\%} * V * P * \frac{Mw}{R T} * \frac{60}{101.3}$$



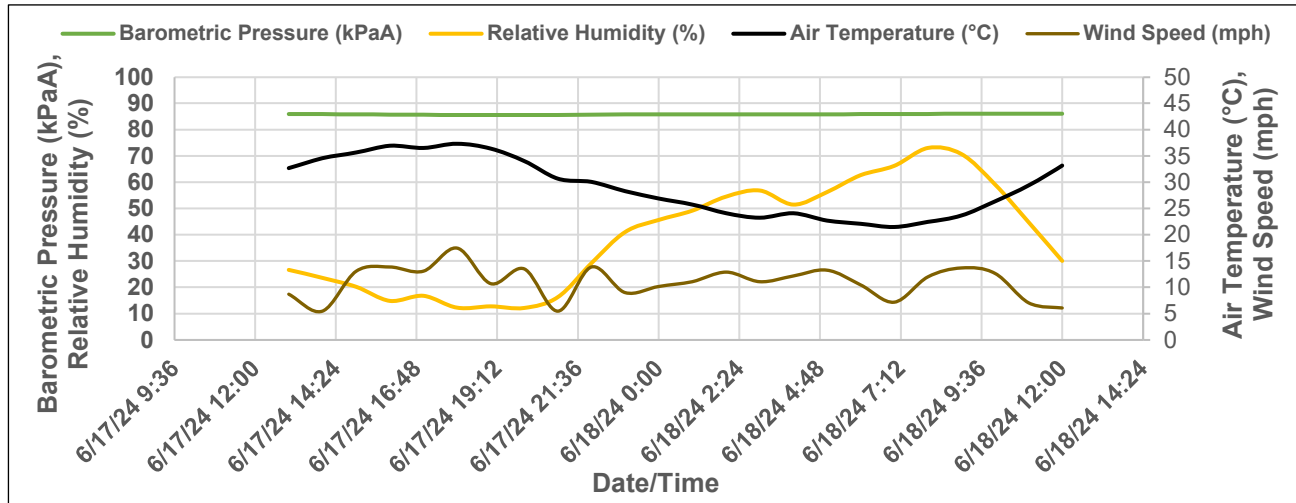


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### Weather data

Precipitation during measurement period (in): 0.0



Date and Time	Air Temperature (°C)	Relative Humidity (%)	Barometric Pressure (kPaA)	Wind Speed (mph)
6/17/2024 13:00	32.7	26.7	85.98	8.7
6/17/2024 14:00	34.6	23.6	85.91	5.5
6/17/2024 15:00	35.7	20.2	85.84	13.1
6/17/2024 16:00	36.9	14.9	85.78	13.9
6/17/2024 17:00	36.6	16.8	85.68	13.1
6/17/2024 18:00	37.3	12.3	85.64	17.5
6/17/2024 19:00	36.4	12.8	85.61	10.7
6/17/2024 20:00	34.1	12.2	85.64	13.5
6/17/2024 21:00	30.7	16.3	85.64	5.5
6/17/2024 22:00	30.1	29.2	85.71	13.9
6/17/2024 23:00	28.3	41.1	85.81	9.0
6/18/2024 0:00	26.9	45.7	85.88	10.2
6/18/2024 1:00	25.8	49.2	85.88	11.1
6/18/2024 2:00	24.1	54.6	85.84	12.9
6/18/2024 3:00	23.3	56.9	85.84	11.1
6/18/2024 4:00	24.1	51.5	85.84	12.2
6/18/2024 5:00	22.7	56.3	85.88	13.3
6/18/2024 6:00	22.1	62.7	85.91	10.5
6/18/2024 7:00	21.5	66.2	85.98	7.2
6/18/2024 8:00	22.4	73.0	86.01	12.0
6/18/2024 9:00	23.7	70.7	86.05	13.7
6/18/2024 10:00	26.4	59.2	86.08	12.7
6/18/2024 11:00	29.4	44.8	86.05	7.1
6/18/2024 12:00	33.2	30.1	86.12	6.1



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C6+ Gas Analysis Report

21414G		30-041-10447		JAME MCFARLAND #A002	
Sample Point Code		Sample Point Name		Sample Point Location	
Laboratory Services		2024092596		TEDLAR BAG	
Source Laboratory		Lab File No		Container Identity	
USA		USA		USA	
District		Area Name		Field Name	
Jun 12, 2024 11:59		Jun 1, 2024		Jun 18, 2024 10:31	
Date Sampled		Date Effective		Date Received	
Ambient Temp (°F)		Flow Rate (Mcf)		Luis	
Operator		Analyst		Press PSI @ Temp °F	
TS-Nano		NG		Source Conditions	
Operator		Lab Source Description			

Component	Normalized Mol %	Un-Normalized Mol %	GPM
H2S (H2S)	0.0000	0	
Nitrogen (N2)	98.9670	98.96692	
CO2 (CO2)	0.0000	0	
Methane (C1)	0.8460	0.84554	
Ethane (C2)	0.1060	0.10608	0.0280
Propane (C3)	0.0300	0.03043	0.0080
I-Butane (IC4)	0.0000	0	0.0000
N-Butane (NC4)	0.0000	0	0.0000
I-Pentane (IC5)	0.0000	0	0.0000
N-Pentane (NC5)	0.0000	0	0.0000
Hexanes Plus (C6+)	0.0510	0.05104	0.0220
TOTAL	100.0000	100.0000	0.0580

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:	Jun 3, 2024

Gross Heating Values (Real, BTU/ft³)

14.696 PSI @ 60.00 Å°F	14.73 PSI @ 60.00 Å°F
Dry	Saturated
13.8	14.5

Calculated Total Sample Properties

GPA2145-16 \*Calculated at Contract Conditions

Relative Density Real	Relative Density Ideal
0.9650	0.9651
Molecular Weight	
27.9524	

C6+ Group Properties

Assumed Composition

C6 - 60.000%	C7 - 30.000%	C8 - 10.000%
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Field H2S

0 PPM

**PROTREND STATUS:**  
Passed By Validator on Jun 18, 2024

**DATA SOURCE:**  
Imported

**PASSED BY VALIDATOR REASON:**  
Close enough to be considered reasonable.

**VALIDATOR:**  
Ashley Russell

**VALIDATOR COMMENTS:**  
OK





**LABORATORY SERVICES**  
Natural Gas Analysis

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## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]

Relinquished by Jay Kitowski <i>Jay Kitowski</i>	Date: 6/18/24 Time: 10:31	Received by: Jess Shepker	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Phone: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No jstormont@ts-nano.com
Relinquished by	Date: Time:	Received by:	REMARKS:
Deliver by: (circle one) <u>Sampler</u> - UPS - Bus - other:	Sample Condition Cool Intact Yes <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No <input type="checkbox"/>	Checked by (Initials)	

**District I**  
1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720  
**District II**  
811 S. First St., Artesia, NM 88210  
Phone:(575) 748-1283 Fax:(575) 748-9720  
**District III**  
1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170  
**District IV**  
1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

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

DEFINITIONS

Action 370127

DEFINITIONS

Operator: RIDGEWAY ARIZONA OIL CORP. 575 N. Dairy Ashford Houston, TX 77079	OGRID: 164557
	Action Number: 370127
	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  
  
Action 370127

QUESTIONS

Operator: RIDGEWAY ARIZONA OIL CORP. 575 N. Dairy Ashford Houston, TX 77079	OGRID: 164557
	Action Number: 370127
	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	[30-041-10447] JAMES MCFARLAM D A #002
Well Status	Active

Monitoring Event Information	
Please answer all the questions in this group.	
Reason For Filing	Pre-Plug Methane Monitoring
Date of monitoring	06/17/2024
Latitude	33.68781
Longitude	-103.58162

Monitoring Event Details	
Please answer all the questions in this group.	
Flow rate in cubic meters per day (m³/day)	9.61
Test duration in hours (hr)	21.8
Average flow temperature in degrees Celsius (°C)	34.6
Average gauge flow pressure in kilopascals (kPag)	4.5
Methane concentration in part per million (ppm)	8,460
Methane emission rate in grams per hour (g/hr)	1.92
Testing Method	Steady State

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