Well Done NEW MEXICO LLC

P.O. Box 10640 Bozeman, Montana 59719 (406) 460-0903

TO: Jim Griswold, NMOCD

FROM: Curtis Shuck, Chairman

DATE: April 29, 2023

RE: Judy #001 (30-025-24641) Orphan Well Post-Plugging Methane Monitoring

TECHNICAL MEMORANDUM

Well Done New Mexico LLC and the Well Done Foundation, Inc. (WDF) performing contract professional services methane monitoring for the State of New Mexico Energy, Minerals and Natural Resources Department – Oil Conservation Division (OCD) under Purchase Order #52100-00000073985 for Orphan Oil & Gas Wells in Lea County, NM.

The site conditions found at the Judy #001 by the WDF Measure 1 Field Team on March 1, 2023, revealed a cement plugged orphan well with the cement to within -3'-6" of the top of casing. The WDF Measure 1Team took site photographs, performed field gas measurements and collected a gas sample for immediate laboratory analysis.

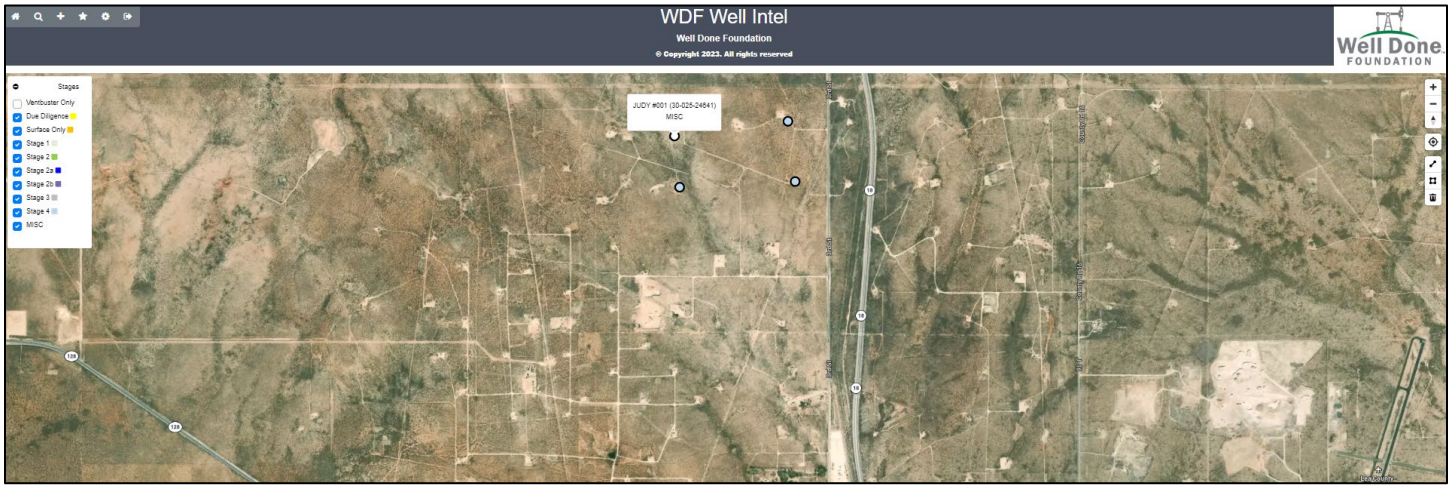

Image 1.1 – Judy #001 (30-025-24641) Orphan Well in Lea County, NM

The Pre-Plugging Methane Flow Monitoring Test on September 17, 2022, using Ventbuster™ Instruments VB100-034 Ultra-Low Flow Meter with GPS, resulted in 2.25 cubic meters per day of total measured wellhead emissions. A composite gas sample collected at the wellhead by WDF during the flow test established a methane gas concentration level measured at 399,350 ppm, pursuant to Test ID 2022058119 performed by Laboratory Services of Hobbs, NM. Therefore, the adjusted average methane gas emission measured at this wellhead is calculated at **26.84 grams per hour (g/hour)**.[1]

The State of New Mexico used the methane flow data collected by WDF to prioritize the Judy #001 orphan well plugging under the IIJA Program and began mobilizing a contractor to location. A-Plus Well Service, Inc. of Farmington, NM was awarded the plugging contract.

WDF arrived at the Judy #001 location on March 1, 2023, to perform post-plugging orphan well methane testing and sampling on behalf of the State of New Mexico. **WDF post plugging field gas tests revealed 0.00% of methane or H2s gasses. The post plugging collected gas samples, analyzed by Laboratory Services, Inc. confirmed 0.00 ppm or methane gas and 0.00 ppm of H2s gas. THEREFORE, the total Methane Gas Emissions Reduction is: 26.84 g/hour.**

- [1] Methane Calculation: 717 grams CH4 per cubic meter (717 x 2.25 m3/day = 1,613.25 g/day total /24 = 67.22 g/hour x 0.399350 (methane concentration) = **26.84 g/hour CH4**). **Methane, gas** weighs 0.000717 *gram per cubic centimeter* or 0.717 *kilogram per cubic meter*, i.e. density of *methane, gas* is equal to 0.717 kg/m^3; at 0°C (32°F or 273.15K) at standard atmospheric pressure. In Imperial or US customary measurement system, the density is equal to 0.044 *pound per cubic foot* [lb/ft^3].

This orphan well did exceed the >1 g/hour federal program reporting requirements for methane emissions reductions as described in Section 40601 (Orphaned well site plugging, remediation, and restoration) of Title V (Methane Reduction Infrastructure) of the 2021 Bipartisan Infrastructure Law (BIL; Public Law 117-58)[2].

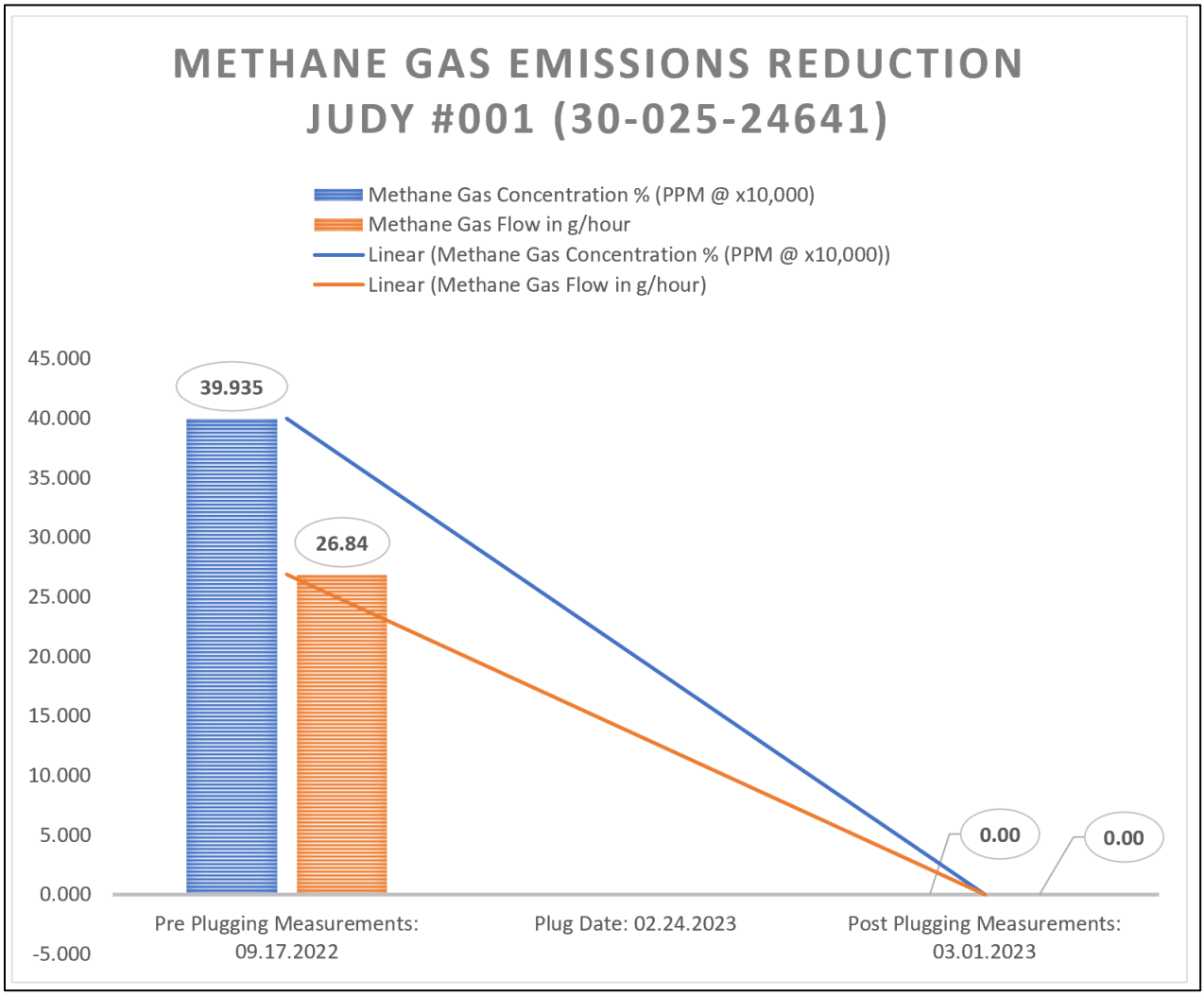

Image 2.1 – Judy #001 (30-025-24641) Methane Gas Emissions Reduction Pre Plugging to Post Plugging

TECHNICAL FINDINGS

Judy #001 (30-025-24641):

- **Total C1 through C6 Gas Concentration: 497,850 ppm**
- **Total Measured Wellhead Gas Emissions: 2.25 m3/day**
- **Methane Gas Concentration: 399,350 ppm**
- **Calculated Average Wellhead Methane Gas Emissions: 26.84 g/hour**
- **Post Plugging Methane Gas Concentration: 0.00 ppm**
- **Post Plugging Methane Flow: 0.00 g/hour**

[2] These April 11, 2022 Guidelines were developed to meet the federal program reporting requirements for methane emissions reductions as described in Section 40601 (Orphaned well site plugging, remediation, and restoration) of Title V (Methane Reduction Infrastructure) of the 2021 Bipartisan Infrastructure Law (BIL; Public Law 117-58).

CONCLUSIONS

- The Judy #001 (30-025-24641) was emitting Methane gas pre-plugging at the average rate of 26.84 g/hour, which was above the Federal minimum threshold for reporting described in Section 40601 (Orphaned well site plugging, remediation, and restoration) of Title V (Methane Reduction Infrastructure) of the 2021 Bipartisan Infrastructure Law (BIL; Public Law 117-58) which is >1g/hour.

- Post Plugging, the Judy #001 (30-025-24641) presented 0.00 ppm of Methane gas emissions from field gas tests and laboratory analysis of WDF collected gas samples.

FIELD NOTES

Image 3.1 – Judy #001 (30-025-24641) Field Notes from WDF Well Intel™ Orphan Well Project Management IoT

Appendix A – Site Photos for Judy #001 (30-025-24641)

1) Judy #001 – Pre Plugging Methane Measurement

2) Judy #001 – Cement Elevation

3) Judy #001 – Post Plug Gas Sample

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

C6+ Gas Analysis Report

16151G	Judy #001 Post Plug Sample	Judy #001 Post Plug Sample
Sample Point Code	Sample Point Name	Sample Point Location

Laboratory Services	2023064930	Tedlar Bag	SOJ - Spot
Source Laboratory	Lab File No	Container Identity	Sampler

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

Mar 1, 2023 11:25	Mar 1, 2023 11:25	Mar 2, 2023 07:35	Mar 6, 2023
Date Sampled	Date Effective	Date Received	Date Reported

		Torrance	
Ambient Temp (°F)	Flow Rate (Mcf)	Analyst	Press PSI @ Temp °F Source Conditions

Well Done Foundation	NG
Operator	Lab Source Description

Component	Normalized Mol %	Un-Normalized Mol %	GPM
H2S (H2S)	0.0000	0	
Nitrogen (N2)	99.5610	99.56173	
CO2 (CO2)	0.0590	0.05901	
Methane (C1)	0.0000	0	
Ethane (C2)	0.0180	0.01827	0.0050
Propane (C3)	0.0220	0.02185	0.0060
I-Butane (IC4)	0.0000	0	0.0000
N-Butane (NC4)	0.0150	0.01469	0.0050
I-Pentane (IC5)	0.0000	0	0.0000
N-Pentane (NC5)	0.0070	0.0069	0.0030
Hexanes Plus (C6+)	0.3180	0.31755	0.1380
TOTAL	100.0000	100.0000	0.1570

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

Gross Heating Values (Real, BTU/ft³)

14.696 PSI @ 60.00 Â°F		14.73 PSI @ 60.00 Â°F	
Dry	Saturated	Dry	Saturated
18.1	18.6	18.1	18.6

Calculated Total Sample Properties

GPA2145-16 *Calculated at Contract Conditions

Relative Density Real	Relative Density Ideal
0.9750	0.9751

Molecular Weight: 28.2416

C6+ Group Properties

Assumed Composition

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

Field H2S: 0 PPM

PROTREND STATUS:
Passed By Validator on Mar 7, 2023

DATA SOURCE:
Imported

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

VALIDATOR:
Brooke Rush

VALIDATOR COMMENTS:
OK

Analyzer Information

Device Type:	Gas Chromatograph	Device Make:	Shimadzu
Device Model:	GC-2014	Last Cal Date:	Feb 13, 2023

Source	Date	Notes
Brooke Rush	Mar 7, 2023 2:08 pm	Methane = 0 PPM

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

Operator: PRIMAL ENERGY CORPORATION 211 Highland Cross Houston, TX 77073	OGRID: 154303
	Action Number: 211935
	Action Type: [UF-OMA] Post-Plug Methane Monitoring (UF-OMA-MMB)

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 211935

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QUESTIONS

Prerequisites	
[OGRID] Well Operator	**[154303] PRIMAL ENERGY CORPORATION**
[API] Well Name and Number	**[30-025-24641] JUDY #001**
Well Status	**Plugged (not released)**

Monitoring Event Information	
Please answer all the questions in this group.	
Reason For Filing	**Post-Plug Methane Monitoring**
Date of monitoring	03/01/2023
Latitude	32.14937
Longitude	-103.20399

Monitoring Event Details	
Please answer all the questions in this group.	
Flow rate in cubic meters per day (m^3/day)	0.00
Test duration in hours (hr)	1.0
Average flow temperature in degrees Celsius (°C)	7.2
Average gauge flow pressure in kilopascals (kPag)	0.0
Methane concentration in part per million (ppm)	0
Methane emission rate in grams per hour (g/hr)	0.00
Testing Method	Steady State

Monitoring Contractor	
Please answer all the questions in this group.	
Name of monitoring contractor	Well Done New Mexico LLC