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 15, 2023

RE: Twin Lakes San Andres Unit #081 (30-005-60993) 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 Chaves County, NM.

The site conditions found at the Twin Lakes San Andres #081 by the WDF Measure 1 Field Team on March 18, 2023, revealed an orphan well site that had been backfilled. The WDF Measure 1Team took site photographs, performed field gas measurements, and collected a gas sample for immediate laboratory analysis.

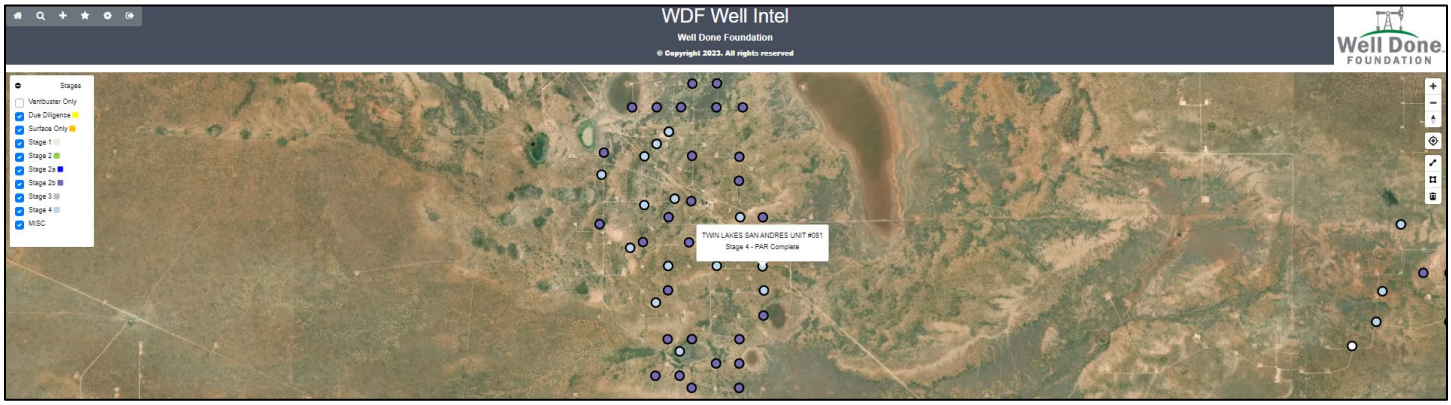

Image 1.1 – Twin Lakes San Andres Unit #081 (30-005-60993) Orphan Well in Chaves County, NM

The Pre-Plugging Methane Flow Monitoring Test on August 22, 2024, using Ventbuster™ Instruments VB100-034 Ultra-Low Flow Meter with GPS, resulted in 0.00 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 170,460 ppm, pursuant to Test ID 2022057512 performed by Laboratory Services of Hobbs, NM. Therefore, the adjusted average methane gas emission measured at this wellhead is calculated at **0.46 grams per hour (g/hour)**.[1]

The State of New Mexico used the methane flow data collected by WDF to prioritize the TLSA #081 orphan well plugging under the IIJA Program and began mobilizing a contractor to location. J A Drake Well Service, Inc. of Farmington, NM was awarded the plugging contract.

WDF arrived at the TLSA #081 location on March 18, 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: 0.46 g/hour.**

- [1] Methane Calculation: 717 grams CH4 per cubic meter (717 x 0.09 m3/day = 64.53 g/day total /24 = 2.69 g/hour x 0.170460 (methane concentration) = **0.46 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 not 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].

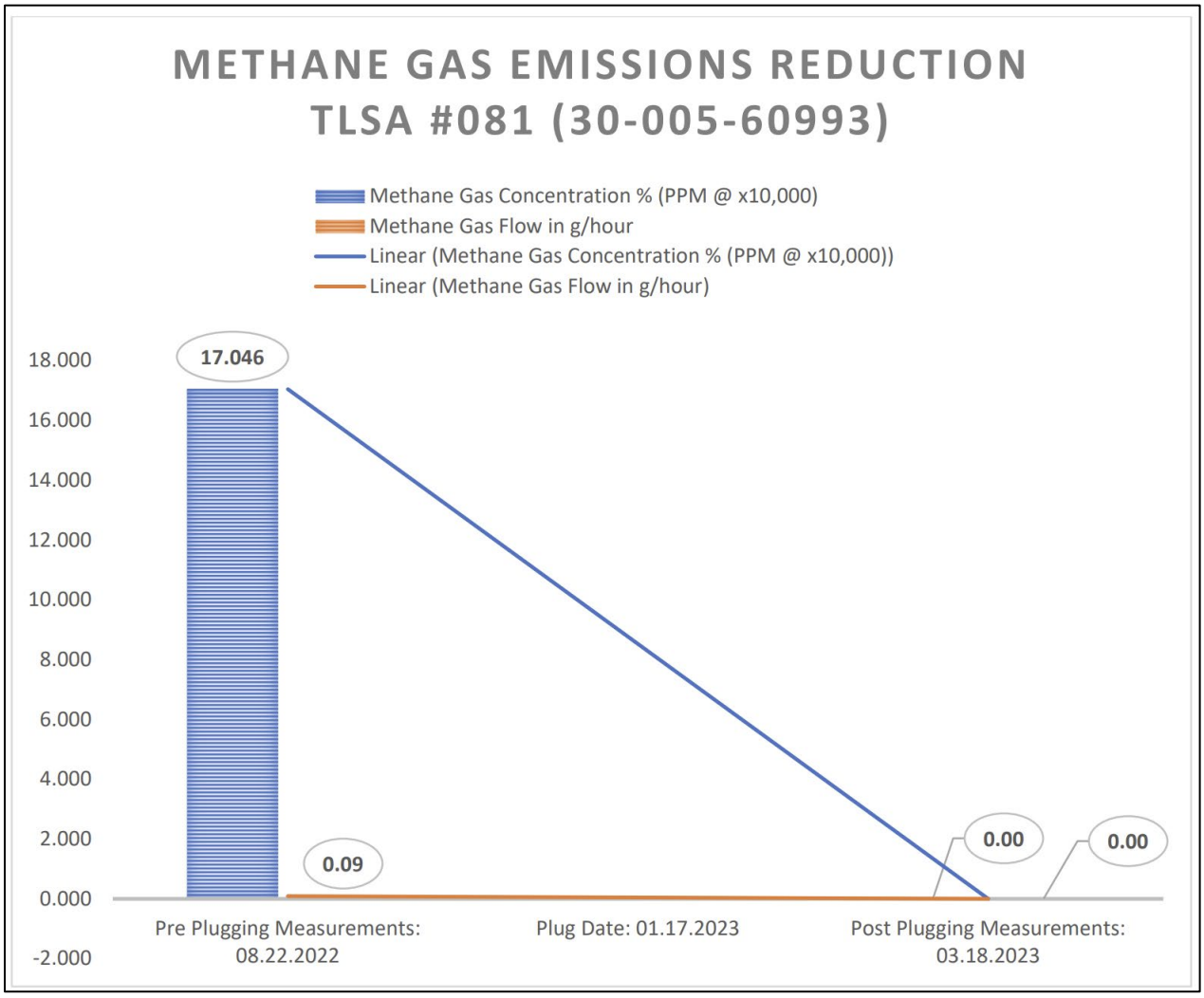

Image 2.1 – Twin Lakes San Andres #081 (30-005-60993) Methane Gas Emissions Reduction Pre Plugging to Post Plugging

TECHNICAL FINDINGS

Twin Lakes San Andres #081 (30-005-60993):

- **Total C1 through C6 Gas Concentration: 521,820 ppm**
- **Total Measured Wellhead Gas Emissions: 0.09 m3/day**
- **Methane Gas Concentration: 170,460 ppm**
- **Calculated Average Wellhead Methane Gas Emissions: 0.46 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 Twin Lakes San Andres #081 (30-005-60993) was emitting Methane gas pre-plugging at the average rate of 0.00 g/hour, which was below 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 Twin Lakes San Andres #081 (30-005-60995) presented 0.00 ppm of Methane gas emissions from field gas tests and laboratory analysis of WDF collected gas samples.

FIELD NOTES

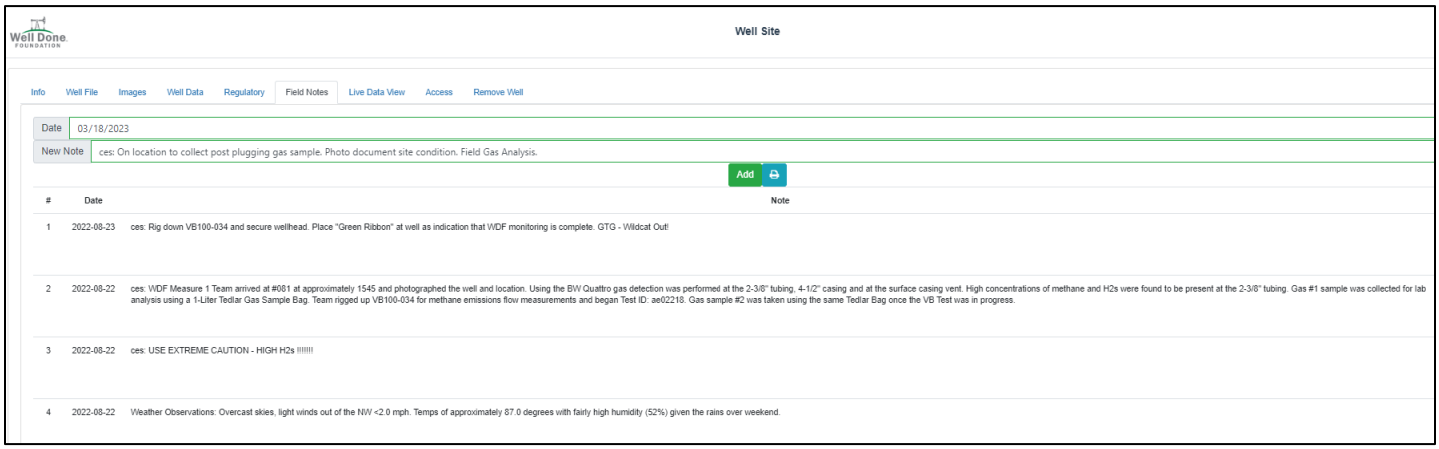

Image 3.1 – TLSA #081 (30-005-60995) Field Notes from WDF Well Intel™ Orphan Well Project Management IoT

Appendix A – Site Photos for Twin Lakes San Andres Unit #081 (30-005-60993)

1) TLSA #081 – Wellhead

2) TLSA #081 – Orphan Well Methane Measurement

3) TLSA #081 – Post Plug Gas Sample

4) TLSA #081 – Post Plug Field Gas Sample

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

C6+ Gas Analysis Report

16399G	TLSA #81	TLSA #81
Sample Point Code	Sample Point Name	Sample Point Location

Laboratory Services	2023066031	Tedlar Bag	CES - Spot
Source Laboratory	Lab File No	Container Identity	Sampler

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

Mar 18, 2023 16:30	Mar 18, 2023 16:30	Mar 24, 2023 08:33	Mar 24, 2023
Date Sampled	Date Effective	Date Received	Date Reported

		System Administrator	
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)	99.8630	99.863	
CO2 (CO2)	0.0400	0.04	
Methane (C1)	0.0000	0	
Ethane (C2)	0.0000	0	0.0000
Propane (C3)	0.0000	0	0.0000
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+)	0.0970	0.097	0.0420
TOTAL	100.0000	100.0000	0.0420

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
5.0	5.8	5.0	5.8

Calculated Total Sample Properties

GPA2145-16 *Calculated at Contract Conditions

Relative Density Real	Relative Density Ideal
0.9695	0.9696

Molecular Weight: 28.0830

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 27, 2023

DATA SOURCE:
Imported

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

VALIDATOR:
Brooke Rush

VALIDATOR COMMENTS:
OK

Analyzer Information

Device Type: Device Make:
Device Model: Last Cal Date:

Source	Date	Notes
Brooke Rush	Mar 27, 2023 2:41 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: BLUE SKY NM, INC. 7941 Katy Freeway Houston, TX 77024	OGRID: 300825
	Action Number: 209927
	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 209927

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	Action Number: 209927
	Action Type: [UF-OMA] Post-Plug Methane Monitoring (UF-OMA-MMB)

QUESTIONS

Prerequisites	
[OGRID] Well Operator	**[300825] BLUE SKY NM, INC.**
[API] Well Name and Number	**[30-005-60993] TWIN LAKES SAN ANDRES UNIT #081**
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	03/18/2023
Latitude	33.56107
Longitude	-104.01944

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