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

TO: Randy Pancheco, APWS; Jim Griswold, NMOCD

FROM: Curtis Shuck, Chairman

DATE: December 12, 2022

RE: Twin Lakes San Andres (TLSA) #041 (30-005-60768) Orphan Well Pre-Plugging Methane Monitoring

TECHNICAL MEMORANDUM

The Well Done Foundation, Inc. (WDF) performing contract professional services methane monitoring for A-Plus Well Services, Inc. (APWS) for the State of New Mexico Energy, Minerals and Natural Resources Department – Oil Conservation Division (OCD) under Purchase Order #52100-00000072362 for Orphan Oil & Gas Wells in Chaves County, NM.

The site conditions found at TLSA #041 by the WDF Measure 1 Team on August 22, 2022, at 2:22 P.M. revealed a leaking wellhead with high concentrations of methane gas present and leaking by the production valve at the 2-3/8" tubing and from the 4" casing. The WDF Team performed field gas measurements, collected gas samples and performed a 25.2-hour Methane Emissions Flow Monitoring Test using Ventbuster™ Instruments VB100-021 Ultra-Low Flow Meter with GPS for site location verification.

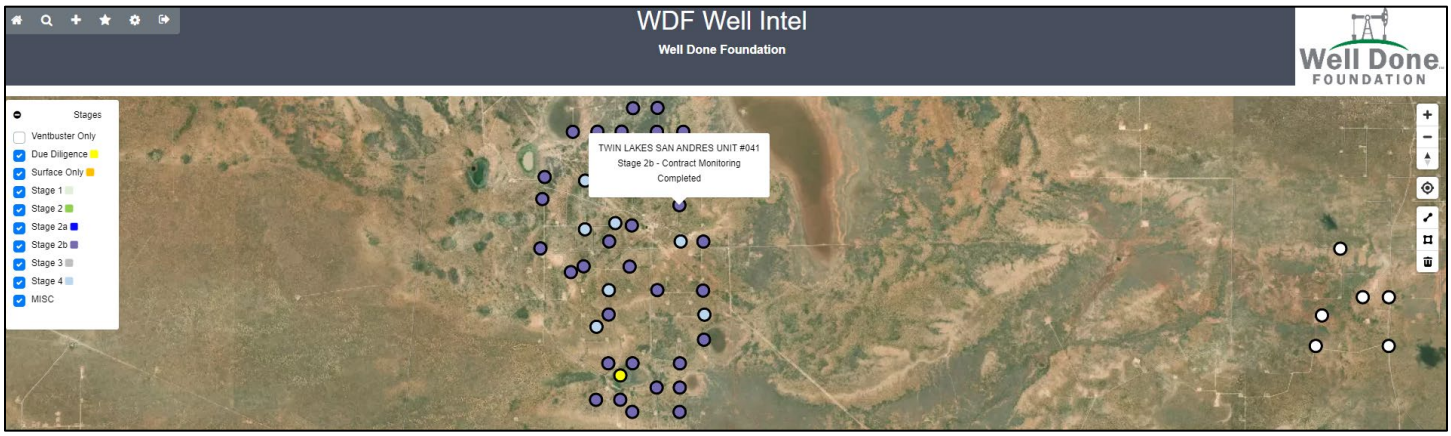

Image 1.1 – TLSA #041 (30-005-60768) Chaves County, New Mexico

The findings from the Pre-Plugging Methane Flow Monitoring Test, using Ventbuster™ Instruments VB100-021 Ultra-Low Flow Meter with GPS, resulted in 0.01 cubic meters per day (m3/day) of total measured wellhead emissions over the 25.2-hour period that established an average methane flow rate of 0.01 grams per hour (g/hour). WDF then isolated a 3.4-hour interval measurement within Test ID: 323332b8, taken during normalized flow, that resulted in an average methane flow rate of 0.57 m3/d and 0.02 g/hour. A composite gas sample was collected at the wellhead by WDF during the methane flow test beginning on August 22, 2022, and at the end of the methane flow test on August 23, 2022, approximately 25.2-hours later. Methane gas concentration levels were measured at 1,680 ppm, pursuant to Test ID 2022057483 performed by Laboratory Services of Hobbs, NM on August 31, 2022, at 12:47 P.M. Therefore, the average methane gas emission measured at this wellhead is calculated at **0.01 grams per hour (g/hour)**.[1] The peak methane gas emission was recorded at 3:04 P.M. on August 23, 2022, well after the flow had stabilized, and would indicate that this orphan well has a higher

[1] Methane Calculation: 554 grams CH4 per cubic meter (554 x 0.01 = 5.54 g/day total /24 = 0.23 g/hour x 0.01680 (methane concentration) = **0.01 g/hour CH4**). **Methane, gas** weighs 0.000554 *gram per cubic centimeter* or 0.554 *kilogram per cubic meter*, i.e. density of *methane, gas* is equal to 0.554 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 0.0346 *pound per cubic foot* [lb/ft^3], or 0.0003202 *ounce per cubic inch* [oz/inch^3] .

emission rate potential of **0.02 grams per hour (g/hour)** however, still below of **1.00 grams per hour (g/hour)** reporting threshold.

This orphan well does 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].

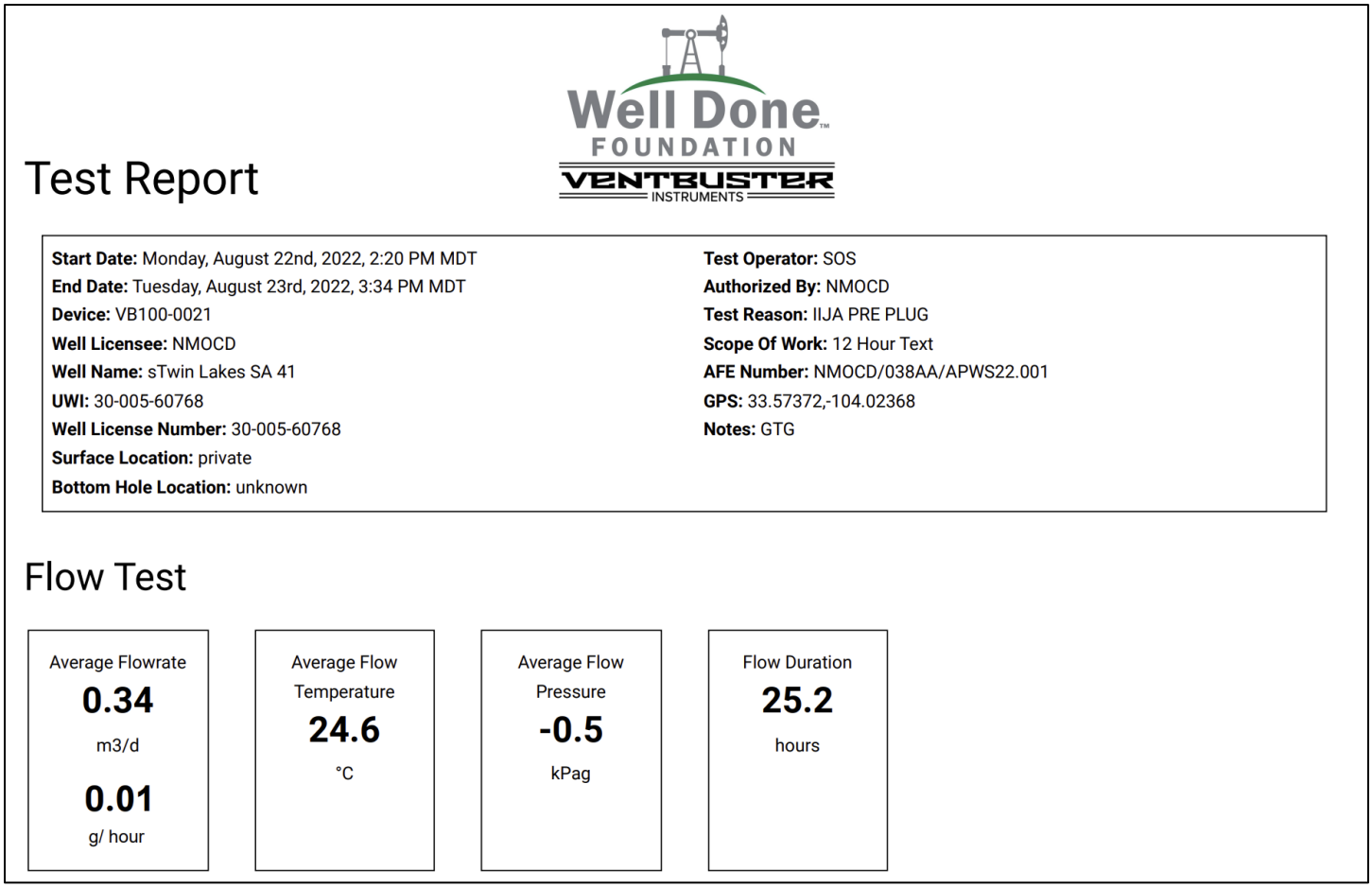

Image 2.1 – TLSA #041 (30-005-60768) Methane Monitoring Dashboard

BACKGROUND

The Twin Lakes San Andres #041 (30-005-60768) Orphan Well is located in Chaves County, NM at Latitude 33.57378457870619, Longitude -104.02367811394792 was measured and monitored by the WDF Field Team on 8/22-23/2022 following a Safety Briefing. Per the WDF protocol, the GPS coordinates were updated and the well was photographed from four (4) compass point aspects and closeups capturing the wellhead, field gas analysis results and gas sampling and uploaded to the WDF Well Intel™ IoT site. A Field Gas Analysis was conducted to detect Methane and H2s gas presence and concentration levels using a Honeywell BW Quattro Multi Gas Meter, serial number: QA121-012211.

[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).

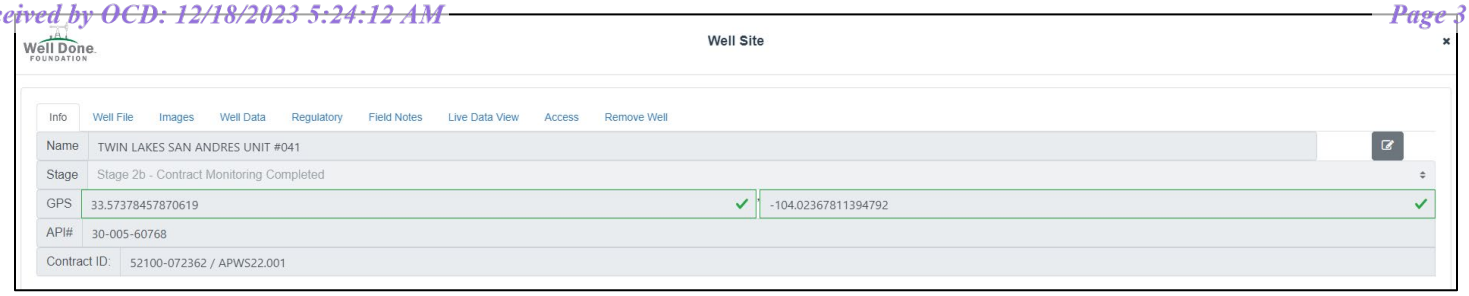

Image 3.1 – WDF Well Intel™ Orphan Well Project Management IoT

The WDF Field Team collected Gas Sample #1 and #2 using a 1 Liter Tedlar/TO-Plus Gas Sampling Bag from the casing vent which was flowing gas past the broken off valve and at the casing port at the beginning of the Flow Test at approximately 5:08 P.M MDT on 8.23.2022 as the well was being prepared for the Preliminary Flow Measurement. Gas Sample #2 was collected in the same 1 Liter Tedlar Bag on 8.24.2022 before the Preliminary Flow Test was concluded 12:50 P.M. MDT. The collected Gas Sample was secured and placed in a storage cooler for transport to Laboratory Services, Inc. in Hobbs, NM.

WDF rigged up the Ventbuster™ Instruments VB100-021 Continuous Ultra-Low Flow Meter with GPS for testing site confirmation for a minimum 12-Hour Methane Emission Test and began Test ID: 2bc6c5cc, verifying a cellular signal, cloud link and GPS coordinates on August 23, 2022.

WDF returned to location on 8.24.2022 (approximately 25.2-hours) to conclude the Pre-Plugging Methane Emission Flow Test and rig the VB100-021 down and secure the wellhead. A “Green Ribbon” was placed at the Wellhead indicating that WDF had concluded the Pre-Plugging Methane Flow testing.

TECHNICAL FINDINGS

Twin Lakes San Andres #041 (30-005-60768):

- **Total C1 through C6 Gas Concentration: 8,920 ppm**
- **Total Measured Wellhead Gas Emissions: 0.01 m3/day**
- **Methane Gas Concentration: 1,680 ppm**
- **Calculated Wellhead Emissions: 0.01 g/hour**
- **Peak Methane Flow Measured at: 0.02 g/hour**

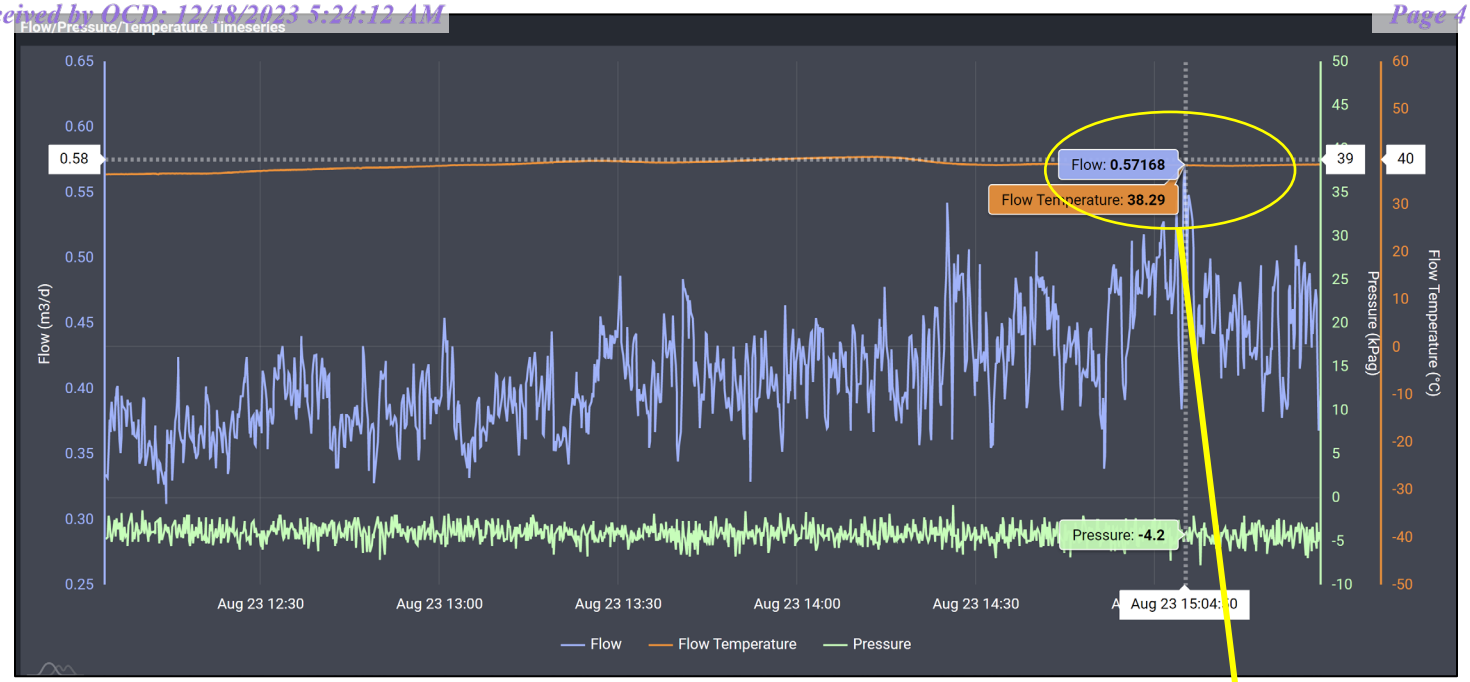

Image 4.1 – TLSA #041 (30-005-60768) Methane Flow/Pressure/Temperature Timeseries & Peak Flow at Interval #1 testing period of 3.4-hours.

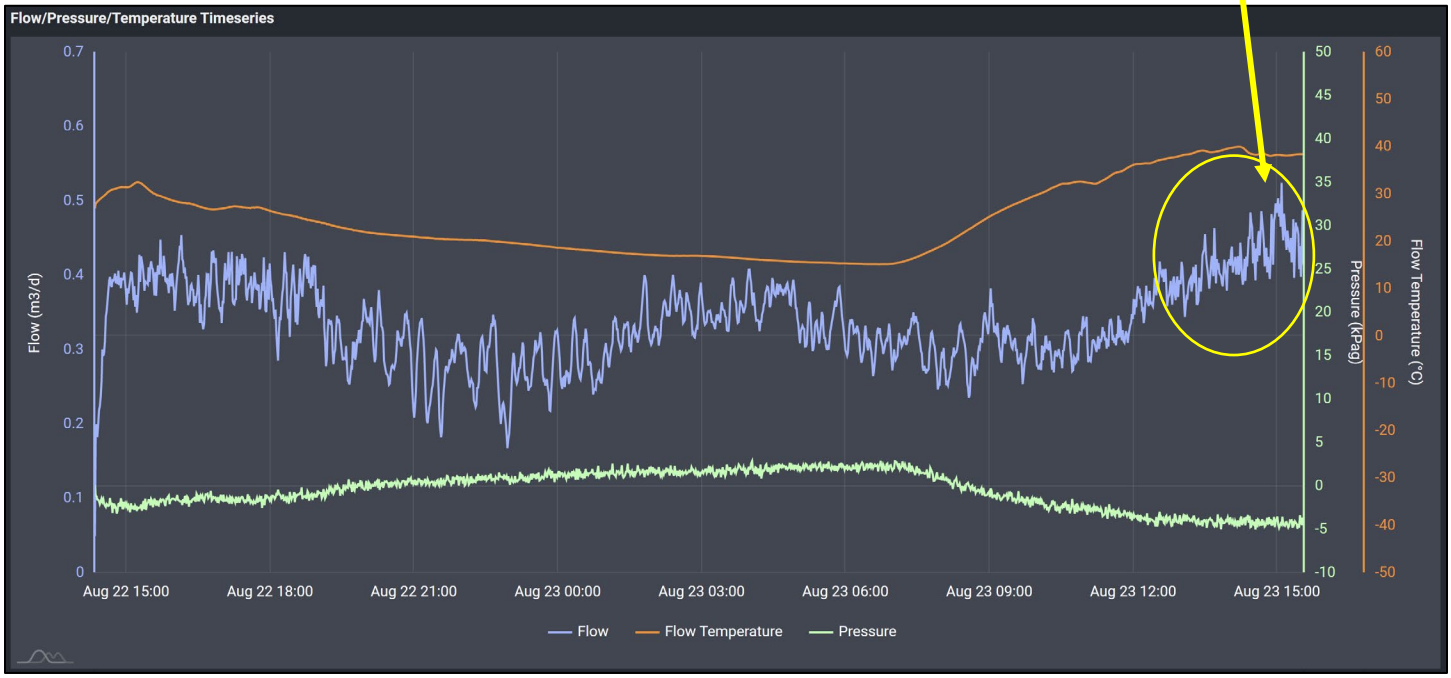

Image 4.2 – TLSA #041 (30-005-60768) Methane Flow/Pressure/Temperature Timeseries & Peak Flow for entire testing period or 25.2-hours.

CONCLUSIONS

- The Twin Lakes San Andres #041 (30-005-60768) is currently emitting trace amounts of Methane at the average rate of 0.01 g/hour, which is 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.

- WDF did capture a Methane Flow Peak at 0.02 g/hour recorded at 3:04 P.M on August 23, 2022, which indicates a higher potential for Methane Emissions that could exceed the Federal minimum threshold, therefore plugging of this well however should be a priority in the NMOCD schedule.

FIELD NOTES

#	Date	Note
1	2022-08-22	ces: Rig up VB100-021 and pull Gas Sample.
2	2022-08-23	ces: Arrive at TLSA #041 Location. Pull gas sample #2. Rig down VB100-021. Update GPS coordinates. Secure location. Place green ribbon at wellhead. WILDCAT OUT!

Image 5.1 – TLSA #041 (30-005-60) Field Notes from WDF Well Intel™ Orphan Well Project Management IoT

Appendix A – Site Photos for Twin Lakes San Andres #041 (30-005-60768)

1) TLSA #041 (30-005-60768) – North Facing

2) TLSA #041 (30-005-60768) – East Facing

3) TLSA #041 (30-005-60768) – Field Gas

4) TLSA #041 (30-005-60768) – Gas Sample

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

C6+ Gas Analysis Report

14792G	Twin Lakes SA #41	Twin Lakes SA #41
Sample Point Code	Sample Point Name	Sample Point Location

Laboratory Services	2022057483	Tedlar Bag	Stacy - Spot
Source Laboratory	Lab File No	Container Identity	Sampler

USA	USA	USA	Default
District	Area Name	Field Name	Facility Name

Aug 22, 2022 14:15	Aug 22, 2022 14:15	Aug 30, 2022 08:33	Aug 30, 2022
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	Mol %	GPM
H2S (H2S)	0.0000	
Nitrogen (N2)	99.0600	
CO2 (CO2)	0.0480	
Methane (C1)	0.1680	
Ethane (C2)	0.1360	0.0360
Propane (C3)	0.1050	0.0290
I-Butane (IC4)	0.0120	0.0040
N-Butane (NC4)	0.0530	0.0170
I-Pentane (IC5)	0.0380	0.0140
N-Pentane (NC5)	0.0600	0.0220
Hexanes Plus (C6+)	0.3200	0.1390
TOTAL	100.0000	0.2610

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
29.3	29.7	29.4	29.8

Calculated Total Sample Properties

GPA2145-16 *Calculated at Contract Conditions

Relative Density Real	Relative Density Ideal
0.9766	0.9767

Molecular Weight: 28.2920

C6+ Group Properties

Assumed Composition: C6 - 60.000% C7 - 30.000% C8 - 10.000%

Field H2S: 0 PPM

PROTREND STATUS:
Passed By Validator on Aug 31, 2022

DATA SOURCE:
Imported

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

VALIDATOR:
Brooke Rush

VALIDATOR COMMENTS:
OK

Source	Date	Notes
Brooke Rush	Aug 31, 2022 12:47 pm	Methane= 1,680 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: 295411
	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 295411

QUESTIONS

Operator: BLUE SKY NM, INC. 7941 Katy Freeway Houston, TX 77024	OGRID: 300825
	Action Number: 295411
	Action Type: [UF-OMA] Pre-Plug Methane Monitoring (UF-OMA-MMA)

QUESTIONS

Prerequisites	
[OGRID] Well Operator	**[300825] BLUE SKY NM, INC.**
[API] Well Name and Number	**[30-005-60768] TWIN LAKES SAN ANDRES UNIT #041**
Well Status	**Plugged (not released)**

Monitoring Event Information *Please answer all the questions in this group.*	
Reason For Filing	**Pre-Plug Methane Monitoring**
Date of monitoring	08/22/2022
Latitude	33.57372
Longitude	-104.02368

Monitoring Event Details *Please answer all the questions in this group.*	
Flow rate in cubic meters per day (m^3/day)	0.34
Test duration in hours (hr)	25.2
Average flow temperature in degrees Celsius (°C)	24.6
Average gauge flow pressure in kilopascals (kPag)	0.0
Methane concentration in part per million (ppm)	1,680
Methane emission rate in grams per hour (g/hr)	0.01
Testing Method	Steady State

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