



P.O. Box 10640 Bozeman, Montana 59719

(406) 460-0903

TO: Jim Griswold, NMOCD

FROM: Curtis Shuck, Chairman

DATE: April 15, 2023

RE: O'Brien Fee 18 #004 (30-005-60902) 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 O'Brien Fee 18 #004 by the WDF Measure 1 Field Team on March 18, 2023, revealed a cement plugged orphan well, cutoff to -3' below the surface with a welded monument. The WDF Measure 1 Team took site photographs, performed field gas measurements and collected a gas sample for immediate laboratory analysis.

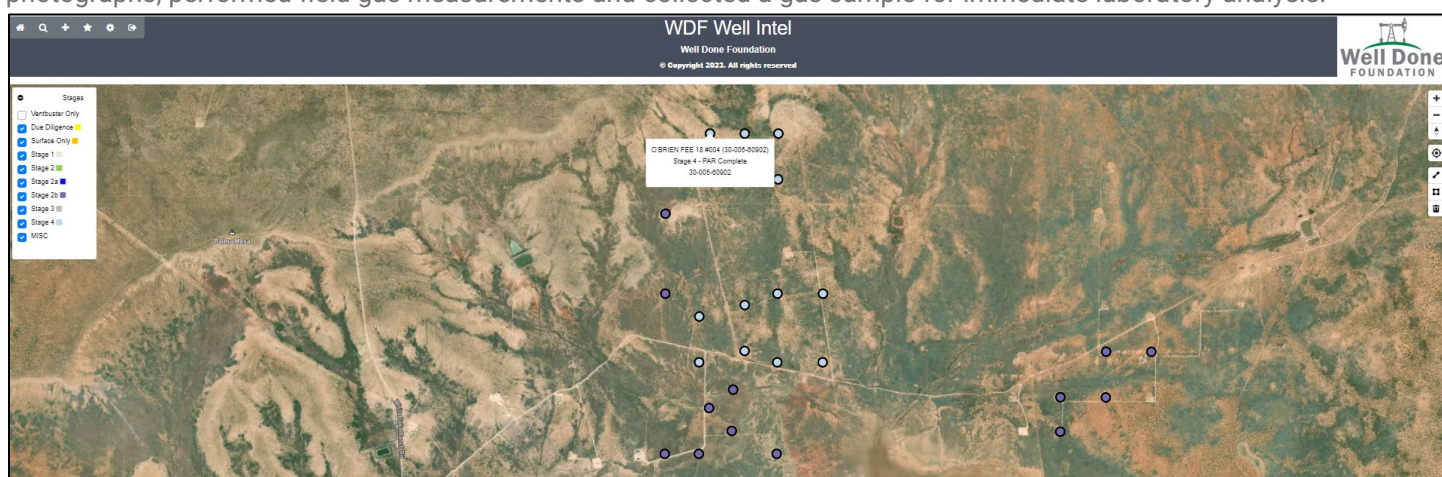


Image 1.1 – O'Brien Fee 18 #004 (30-005-60902) Orphan Well in Chaves County, NM

The Pre-Plugging Methane Flow Monitoring Test on February 19, 2023, using Ventbuster™ Instruments VB100-040 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 0.00 ppm, pursuant to Test ID 2023064651 performed by Laboratory Services of Hobbs, NM. Therefore, the adjusted average methane gas emission measured at this wellhead is calculated at **<0.00 grams per hour (g/hour)**.<sup>1</sup>

The State of New Mexico used the methane flow data collected by WDF to prioritize the O'Brien Fee 18 #004 orphan well plugging under the IJA 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 O'Brien Fee 18 #004 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 H<sub>2</sub>s gasses. The post plugging collected gas samples, analyzed by Laboratory Services, Inc. confirmed 0.00 ppm or methane gas and 0.00 ppm of H<sub>2</sub>s gas. THEREFORE, the total Methane Gas Emissions Reduction is: 0.00 g/hour.**

<sup>1</sup> Methane Calculation: 717 grams CH<sub>4</sub> per cubic meter (717 x 0.00 m<sup>3</sup>/day = 0.00 g/day total /24 = 0.00 g/hour x 0.00 (methane concentration) = **0.00 g/hour CH<sub>4</sub>**). **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<sup>3</sup>; 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<sup>3</sup>].

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)<sup>2</sup>.

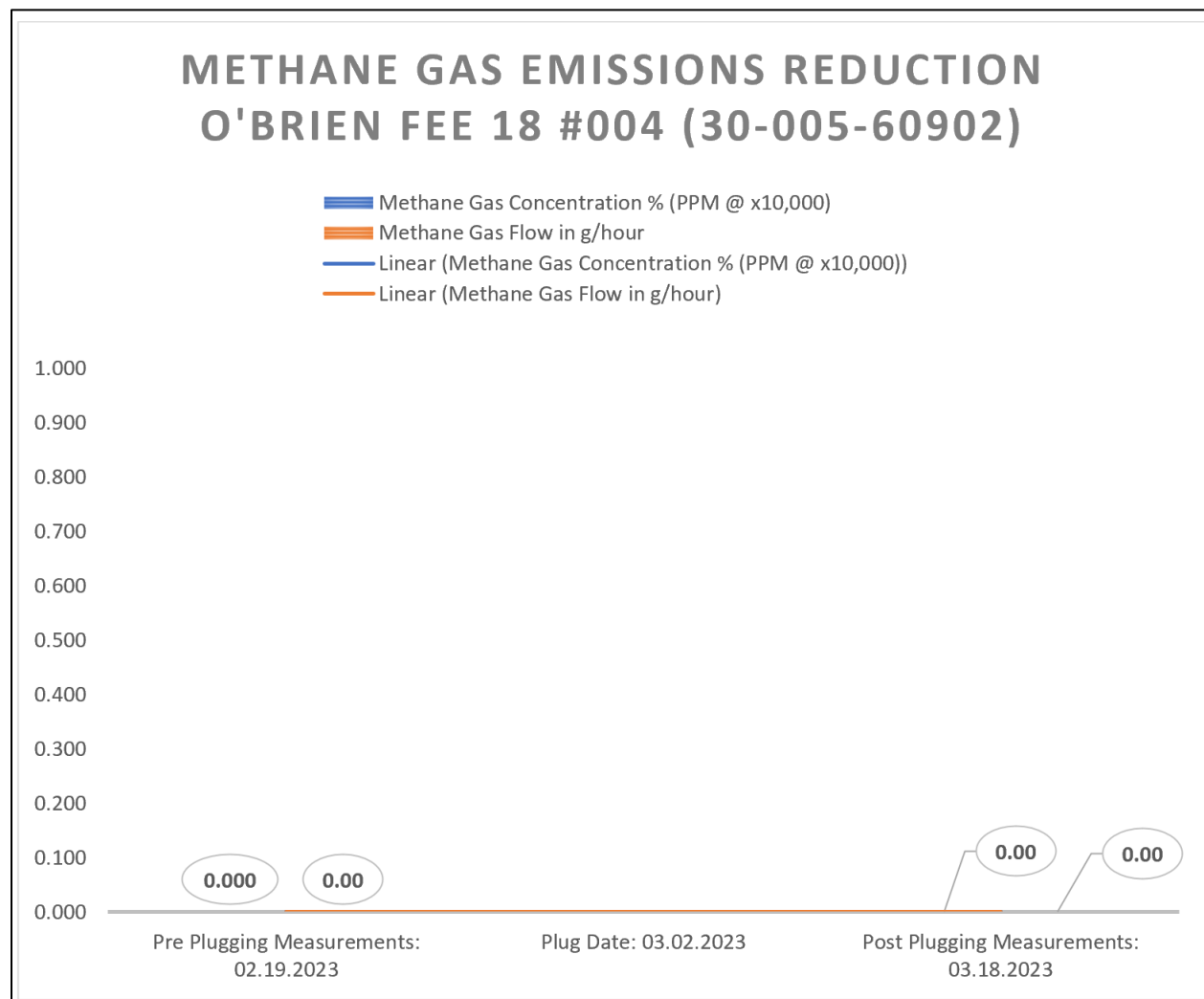


Image 2.1 – O'Brien Fee 18 #004 (30-005-60902) Methane Gas Emissions Reduction Pre Plugging to Post Plugging

## TECHNICAL FINDINGS

O'Brien Fee 18 #004 (30-005-60902):


- **Total C1 through C6 Gas Concentration: 4,100 ppm**
- **Total Measured Wellhead Gas Emissions: 0.00 m3/day**
- **Methane Gas Concentration: 0.00 ppm**
- **Calculated Average Wellhead Methane Gas Emissions: 0.00 g/hour**
- **Post Plugging Methane Gas Concentration: 0.00 ppm**
- **Post Plugging Methane Flow: 0.00 g/hour**

<sup>2</sup> 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 O’Brien Fee 18 #004 (30-005-60902) 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 O’Brien Fee 18 #004 (30-005-60902) presented 0.00 ppm of Methane gas emissions from field gas tests and laboratory analysis of WDF collected gas samples.

FIELD NOTES



Well Site

InfoWell FileImagesWell DataRegulatoryField NotesLive Data ViewAccessRemove Well

Date03/18/2023

New Noteces: WDF Measure1 Team on location to perform Field Gas Analysis, collect Gas Sample for Lab Analysis and Photo Document Site. WILDCAT OUT!

Add

#	Date	Note
1	2023-02-21	Arrived 10:18am 2/21/2023. Rigged down flow test.
2	2023-02-19	Arrived 2:18pm 2/19/2023. Rigged up Ventbuster #40 for flow testing.

Image 3.1 – O’Brien Fee 18 #004 (30-005-60902) Field Notes from WDF Well Intel™ Orphan Well Project Management IoT





1) O'Brien Fee 18 #004 – Pre Plug Methane Measurement



2) O'Brien Fee 18 #004 – Pre Plug Gas Sample



3) O'Brien Fee 18 #004 – Post Plug Gas Sample



4) O'Brien Fee 18 #002 – Post Plug Green Ribbon



## C6+ Gas Analysis Report

16089G	OBrien Fee 18 #004	OBrien Fee 18 #004	
Sample Point Code	Sample Point Name	Sample Point Location	
Laboratory Services	2023066033	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 12:57	Mar 18, 2023 12:57	Mar 24, 2023 08:37	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)	99.7720	99.772	
CO2 (CO2)	0.0530	0.053	
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+)	0.1750	0.175	0.0760
TOTAL	100.0000	100.0000	0.0760

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

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

Source	Date	Notes
Brooke Rush	Mar 27, 2023 2:31 pm	Methane = 0 PPM

Gross Heating Values (Real, BTU/ft³)			
14.696 PSI @ 60.00 Å°F		14.73 PSI @ 60.00 Å°F	
Dry	Saturated	Dry	Saturated
9.0	9.7	9.0	9.7

Calculated Total Sample Properties	
GPA2145-16 *Calculated at Contract Conditions	
Relative Density Real	Relative Density Ideal
0.9713	0.9714
Molecular Weight	
28.1359	

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:

Close enough to be considered reasonable.

## VALIDATOR:

Brooke Rush

## VALIDATOR COMMENTS:

OK

**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 211698

DEFINITIONS

Operator: CANYON E & P COMPANY 251 O'Connor Ridge Blvd. Irving, TX 75038	OGRID: 269864
	Action Number: 211698
	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 211698

**QUESTIONS**

Operator: CANYON E & P COMPANY 251 O'Connor Ridge Blvd. Irving, TX 75038	OGRID: 269864
	Action Number: 211698
	Action Type: [UF-OMA] Post-Plug Methane Monitoring (UF-OMA-MMB)

**QUESTIONS**

<b>Prerequisites</b>	
[OGRID] Well Operator	[269864] CANYON E & P COMPANY
[API] Well Name and Number	[30-005-60902] O'BRIEN FEE 18 #004
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	33.617359
Longitude	-104.0296478

**Monitoring Event Details**

Please answer all the questions in this group.

Flow rate in cubic meters per day (m³/day)	0.00
Test duration in hours (hr)	1.0
Average flow temperature in degrees Celsius (°C)	10.0
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
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