



Orphan Well Pre Plugging Methane Quantification Report

Start Date: Tue Aug 22 2023 20:23:25 GMT+0000 (Coordinated Universal Time)
 End Date: Tue Aug 29 2023 18:36:22 GMT+0000 (Coordinated Universal Time)
 Device: VB100-0024
 Well Licensee: NMOCD
 Well Name: EF KING 003
 UW: 30-025-09235
 Well License Number: 30-025-09335
 Surface Location: unknown
 Bottom Hole Location: unknown

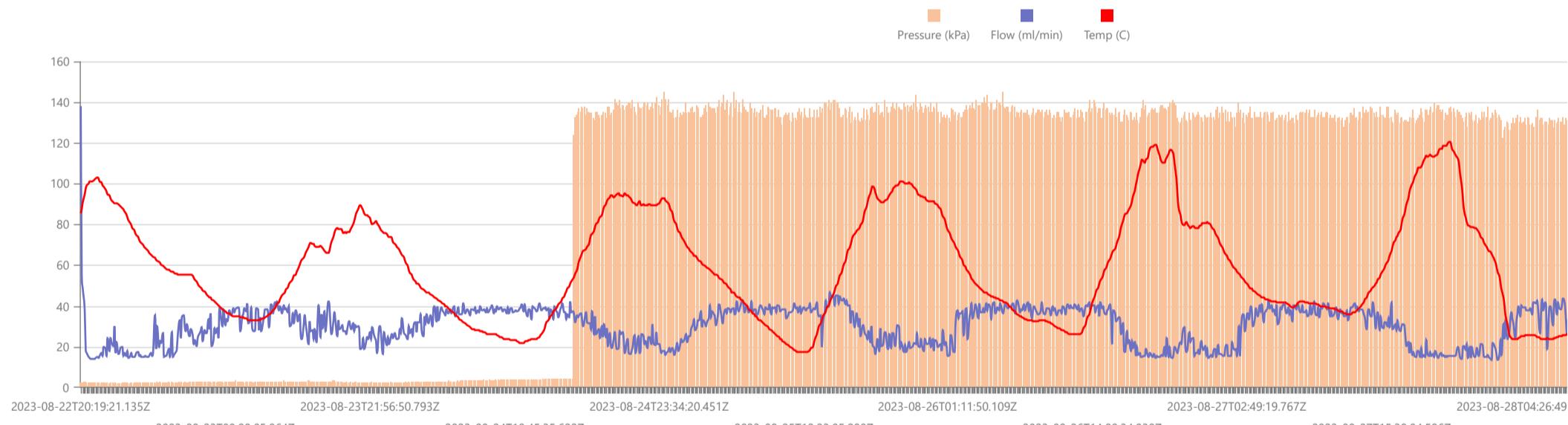
Test Operator: ces
 Authorized By: NMOCD
 Test Reason: IIHA PRE PLUG
 Scope Of Work: 12- hour
 AFE Number: 23.02.091
 GPS: 32.31349,-103.21361
 Notes: Casing
 Prepared By: Curtis Shuck, QMS

Flow / Pressure Test

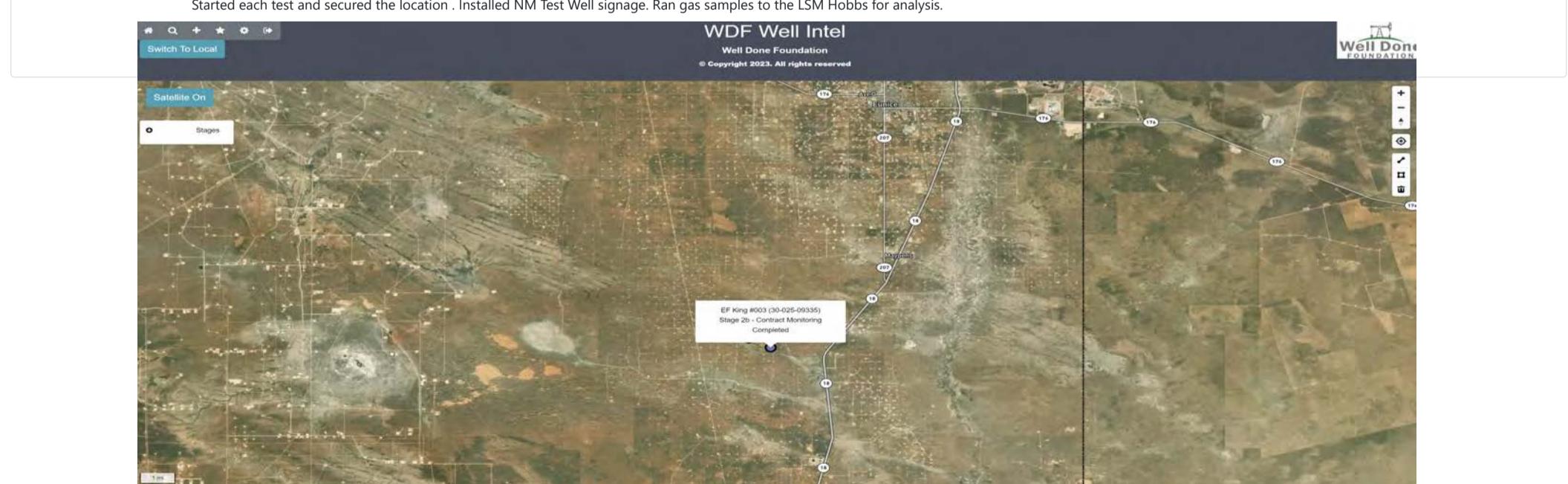
Flow Duration	Average Flowrate	Average Pressure	Average Flow Temperature	Average CH4 Mass
166 hrs 12 minutes Duration	29.9854 m ³ /d	124.7878 kPag	29.3586 °C	723.99 g/hr

Methane Calculation: 717 grams CH4 per cubic meter ($717 \text{ g/m}^3 \times 29.9854 \text{ m}^3/\text{day} = 21499.53 \text{ g/day}$ total /24 = 895.81 g/hour x 0.80819 (methane concentration) = **723.99 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/m³; at 0°C (32°F or 273.15K) at standard atmospheric pressure. In imperial or US customary measurement system, the density is equal to 0.0448 pound per cubic foot [lb/ft³], or 0.0004144 ounce per cubic inch [oz/inch³].

Flow / Pressure / Temperature Timeseries



#	Date	Note
1	2023-10-22	After reviewing the data, it is Well Done New Mexico's opinion that this orphan well while leaking, was likely not the cause of the plume spotted by NASA. There was however evidence of recent pipeline work in the area that may have been the contributing culprit.
2	2023-08-29	ces: On location to stop the tests and rig the units down. No fluid is present at the location and the casing leak is the most persistent. Tightened the valve at the casing to improve the seal and reduce the emissions until this well can be scheduled for plugging by the NMOCD. WILDCAT OUT!
3	2023-08-22	ces: On location today with Measure 1. Found gas leaking at both the tubing valve and from the casing assembly. Pulled gas samples from each. Rig up VB100-64 at the tubing valve and VB100-24 at the casing port. Started each test and secured the location. Installed NM Test Well signage. Ran gas samples to the LSM Hobbs for analysis.





Weather in Hobbs, August 22

Weather Forecast for August 22 in Hobbs, New Mexico - temperature, wind, atmospheric pressure, humidity and precipitations. Detailed hourly weather chart.

	August 20	August 21	Select date: <input type="button" value="22"/>	August 23	August 24
August 22, 2023					
Night		+81°	+81°	26.5	Wind speed mph: 9.2
Morning		+73°	+73°	26.5	Wind speed mph: 6.5
Day		+90°	+90°	26.6	Wind speed mph: 12.3
Evening		+90°	+90°	26.5	Wind speed mph: 11.2

Weather in Hobbs, August 23

Weather Forecast for August 23 in Hobbs, New Mexico - temperature, wind, atmospheric pressure, humidity and precipitations. Detailed hourly weather chart.

	August 21	August 22	Select date: <input type="button" value="23"/>	August 24	August 25
August 23, 2023					
Night		+81°	+81°	26.5	Wind speed mph: 6.5
Morning		+73°	+73°	26.5	Wind speed mph: 7.4
Day		+84°	+84°	26.5	Wind speed mph: 17.7
Evening		+84°	+84°	26.5	Wind speed mph: 13

Weather in Hobbs, August 24

Weather Forecast for August 24 in Hobbs, New Mexico - temperature, wind, atmospheric pressure, humidity and precipitations. Detailed hourly weather chart.

	August 22	August 23	Select date: <input type="button" value="24"/>	August 25	August 26
August 24, 2023					
Night		+72°	+72°	26.5	Wind speed mph: 6.9
Morning		+70°	+70°	26.5	Wind speed mph: 6.9
Day		+88°	+90°	26.6	Wind speed mph: 12.3
Evening		+88°	+90°	26.5	Wind speed mph: 10.3

Weather in Hobbs, August 25

Weather Forecast for August 25 in Hobbs, New Mexico - temperature, wind, atmospheric pressure, humidity and precipitations. Detailed hourly weather chart.

	August 23	August 24	Select date: <input type="button" value="25"/>	August 26	August 27
August 25, 2023					
Night		+79°	+79°	26.5	Wind speed mph: 8.1
Morning		+68°	+68°	26.5	Wind speed mph: 5.4
Day		+91°	+91°	26.5	Wind speed mph: 13
Evening		+90°	+90°	26.5	Wind speed mph: 11.6

Weather in Hobbs, August 26

Weather Forecast for August 26 in Hobbs, New Mexico - temperature, wind, atmospheric pressure, humidity and precipitations. Detailed hourly weather chart.

	August 24	August 25	Select date: <input type="button" value="26"/>	August 27	August 28
August 26, 2023					
Night		+77°	+77°	26.5	Wind speed mph: 5.4
Morning		+72°	+73°	26.5	Wind speed mph: 3.8
Day		+93°	+93°	26.6	Wind speed mph: 5.8
Evening		+90°	+90°	26.5	Wind speed mph: 6.7

Weather in Hobbs, August 27

Weather Forecast for August 27 in Hobbs, New Mexico - temperature, wind, atmospheric pressure, humidity and precipitations. Detailed hourly weather chart.

	August 25	August 26	Select date: <input type="button" value="27"/>	August 28	August 29
August 27, 2023					
Night		+79°	+79°	26.5	Wind speed mph: 3.6
Morning		+70°	+70°	26.5	Wind speed mph: 9.2
Day		+88°	+88°	26.5	Wind speed mph: 6.5
Evening		+88°	+95°	26.5	Wind speed mph: 11.2

Weather in Hobbs, August 28

Weather Forecast for August 28 in Hobbs, New Mexico - temperature, wind, atmospheric pressure, humidity and precipitations. Detailed hourly weather chart.

	August 26	August 27	Select date: <input type="button" value="28"/>	August 29	August 30
August 28, 2023					
Night		+70°	+70°	26.4	Wind speed mph: 4.3
Morning		+70°	+70°	26.5	Wind speed mph: 6.3
Day		+81°	+81°	26.5	Wind speed mph: 8.1
Evening		+81°	+81°	26.5	Wind speed mph: 7.6

Weather in Hobbs, August 29

Weather Forecast for August 29 in Hobbs, New Mexico - temperature, wind, atmospheric pressure, humidity and precipitations. Detailed hourly weather chart.

	August 27	August 28	Select date: <input type="button" value="29"/>	August 30	August 31
August 29, 2023					
Night		+73°	+73°	26.5	Wind speed mph: 4.5
Morning		+68°	+68°	26.5	Wind speed mph: 6.9
Day		+86°	+86°	26.5	Wind speed mph: 6.7
Evening		+84°	+84°	26.5	Wind speed mph: 8.9

EF King Pre Plug Casing

Sample Point Code: 18090G

Sample Point Name: www.permians.com
575.397.3713 2609 W Maryland Hobbs NM 88240

C6+ Gas Analysis Report

Sample Point Location:

Laboratory Services

Source Laboratory: USA

Sampler: CES - Spot

Date Sampled: Aug 22, 2023 13:50

Lab File No: 2023074240

Container Identity: USA

Date Effective: Aug 22, 2023 13:50

Date Received: Aug 24, 2023 08:28

Field Name: New Mexico

Analyst: Admin

Date Reported: Aug 29, 2023

Facility Name: Facility

Ambient Temp (°F): 14.696 PSI @ 60.00 °F

Flow Rate (McF): Press PSI @ Temp °F

Source Conditions: Source Conditions

Well Done Foundation

Lab Source Description: NG

Operator:

Lab Source Description:

Well Done Foundation

Component:

Normalized Mol %:

Lab Source Description:

H2S (H2S): 0.0000

Un-Normalized Mol %:

Well Done Foundation



18090G

EF King Pre Plug Casing

EF King Pre Plug Casing

Sample Point Code

Sample Point Name

Sample Point Location

Laboratory Services	2023074240	BAG	CES - Spot
Source Laboratory	Lab File No	Container Identity	Sampler
USA	USA	USA	New Mexico
District	Area Name	Field Name	Facility Name
Aug 22, 2023 13:50	Aug 22, 2023 13:50	Aug 24, 2023 08:28	Aug 29, 2023
Date Sampled	Date Effective	Date Received	Date Reported
Admin			
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)	3.9720	3.9724	
CO2 (CO2)	0.0000	0	
Methane (C1)	80.8190	80.81984	
Ethane (C2)	8.1240	8.12367	2.1720
Propane (C3)	3.9050	3.90501	1.0760
I-Butane (IC4)	0.5050	0.50476	0.1650
N-Butane (NC4)	1.1540	1.15386	0.3640
I-Pentane (IC5)	0.3590	0.3586	0.1310
N-Pentane (NC5)	0.3430	0.34312	0.1240
Hexanes Plus (C6+)	0.8190	0.81873	0.3550
TOTAL	100.0000	100.0000	4.3870

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

Gross Heating Values (Real, BTU/ft³)			
14.696 PSI @ 60.00 °F		14.73 PSI @ 60.00 °F	
Dry	Saturated	Dry	Saturated
1,186.7	1,167.4	1,189.4	1,170.1

Calculated Total Sample Properties			
GPA2145-16 *Calculated at Contract Conditions			
Relative Density Real		Relative Density Ideal	
0.7090		0.7070	
Molecular Weight			
20.4768			

C6+ Group Properties		
Assumed Composition	C6 - 60.000%	C7 - 30.000%

PROTREND STATUS:
 Passed By Validator on Sep 1, 2023

DATA SOURCE:
 Imported

PASSED BY VALIDATOR REASON:

First sample taken @ this point, composition looks reasonable

VALIDATOR:
 Rush


VALIDATOR COMMENTS:
 OK

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

Source	Date	Notes
Sep 1, 2023	3:08 pm	Methane: 80.819%

Sep 1, 2023 3:08 pm Methane: 80.819%

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
<https://www.emnrd.nm.gov/ocd/contact-us>

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

DEFINITIONS

Action 535168

DEFINITIONS

Operator:	OGRID:
Well Done New Mexico LLC (OPG Vendor) 333 Main St Shelby, MT 59474	333567
	Action Number: 535168
	Action Type: [UF-OMA] Pre-Plug Methane Monitoring (UF-OMA-MMA)

DEFINITIONS

The OCD Mitigation Activity (OMA) forms are a subset of the OCD's forms exclusively designed for activities related to State of New Mexico's contracted evaluation, plugging, decommissioning, remediation, salvage and reclamation activities. Specifically, these forms are typically used where the OCD has acquired a hearing order allowing the OCD to perform mitigation activities on wells and associated facilities that no longer have an authorized or viable operator to perform the necessary work. These forms are not to be utilized for any other purpose.

Sante Fe Main Office
Phone: (505) 476-3441

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

QUESTIONS

Action 535168

QUESTIONS

Operator: Well Done New Mexico LLC (OPG Vendor) 333 Main St Shelby, MT 59474	OGRID: 333567 Action Number: 535168 Action Type: [UF-OMA] Pre-Plug Methane Monitoring (UF-OMA-MMA)
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QUESTIONS

Prerequisites	
[OGRID] Well Operator	[142624] ROCA PRODUCTION INC.
[API] Well Name and Number	[30-025-09335] E F KING #003
Well Status	Reclamation Fund Approved

Monitoring Event Information*Please answer all the questions in this group.*

Reason For Filing	Pre-Plug Methane Monitoring
Date of monitoring	08/22/2023
Latitude	32.3134842
Longitude	-103.2134628

Monitoring Event Details*Please answer all the questions in this group.*

Flow rate in cubic meters per day (m ³ /day)	29.98
Test duration in hours (hr)	96.0
Average flow temperature in degrees Celsius (°C)	29.3
Average gauge flow pressure in kilopascals (kPag)	100.0
Methane concentration in part per million (ppm)	808,190
Methane emission rate in grams per hour (g/hr)	723.99
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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