



## Directional Survey Certification

Survey Company: Native Navigation Survey Company Job #: 23022707

Well Name: WMC 433-19-793 A.P.I.# 05-045-24547 Operator Terra Energy Partners

Latitude: 39.426460 Longitude: -107.822609 County, State: Garfield County, CO

Legal Description (S,TS,R): Sec 19, T7S, R93W

Final Report 3/3/2023 Date of First Survey 2/24/2023 Date of Last Survey: 3/1/2023

Datum: NAD83 Survey MD From: 30.00 FT. To: 11005 FT. Tool Type: MWD + HRGM

Bit to Sensor: 61 FT. Rig (Company & Number): HP 329 RKB Height: 30.00 FT.

Ground Elevation: 8563.00 Northings: 1588604.991 Eastings: 2343982.5

Surveyor Kyle Temple Depth of Final Projection: 11066 FT.

The data and calculations for this survey have been checked by me and conform to the calibration standards and operational procedures set forth by Native Navigation. I am authorized and qualified to review the data, calculations and this report, and that the report represents a true and correct Directional Survey of this well, based on the original data corrected to True North and obtained at the well site. Wellbore coordinates are calculated using the minimum curvature method.

  
Signature

Well Planner  
Title

Native Navigation  
Company

3/3/23  
Date



## **Terra Energy Partners, LLP**

**Garfield County, CO (Nad 83)**

**Honea 19-05 Pad**

**WMC 433-19-793 - Slot WMC 433-19-793**

**Wellbore #1**

**Design: Surveys**

## **Survey Certification Report**

**03 March, 2023**



<b>Company:</b>	Terra Energy Partners, LLP	<b>Local Co-ordinate Reference:</b>	Well WMC 433-19-793 - Slot WMC 433-19-793
<b>Project:</b>	Garfield County, CO (Nad 83)	<b>TVD Reference:</b>	KB @ 8593.0ft
<b>Site:</b>	Honea 19-05 Pad	<b>MD Reference:</b>	KB @ 8593.0ft
<b>Well:</b>	WMC 433-19-793	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	NN

<b>Project</b>	Garfield County, CO (Nad 83)		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Central Zone		

<b>Site</b>	Honea 19-05 Pad				
<b>Site Position:</b>		<b>Northing:</b>	1,588,561.791 usft	<b>Latitude:</b>	39.426341
<b>From:</b>	Map	<b>Easting:</b>	2,343,951.000 usft	<b>Longitude:</b>	-107.822717
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	13-3/16"	<b>Grid Convergence:</b>	-1.46 °

<b>Well</b>	WMC 433-19-793 - Slot WMC 433-19-793					
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,588,604.991 usft	<b>Latitude:</b>	39.426462
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	2,343,982.500 usft	<b>Longitude:</b>	-107.822609
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	0.0 ft	<b>Ground Level:</b>	8,563.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	12/23/2022	8.85	65.35	51,015

<b>Design</b>	Surveys				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>		<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
		0.0	0.0	0.0	95.52

<b>Survey Program</b>	<b>Date</b>	3/1/2023			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
201.0	11,066.0	Surveys (Wellbore #1)	OWSG (REV5) MWD HDGM	OWSG MWD - Standard	

<b>Survey</b>										
<b>MD (ft)</b>	<b>Inc (°)</b>	<b>Azi (azimuth) (°)</b>	<b>TVD (ft)</b>	<b>N/S (ft)</b>	<b>E/W (ft)</b>	<b>Closure Distance (ft)</b>	<b>Closure Azimuth (°)</b>			
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.00		
201.0	0.97	144.73	201.0	-1.4	1.0	1.7	144.73			
<b>First Survey @ 201 MD/ 201 TVD</b>										
295.0	1.85	135.33	295.0	-3.1	2.5	4.0	141.18			
386.0	3.82	102.37	385.9	-4.8	6.5	8.1	126.50			
477.0	5.89	86.98	476.5	-5.2	14.1	15.1	110.26			
568.0	7.65	93.93	566.9	-5.4	24.8	25.4	102.23			
659.0	10.77	99.20	656.7	-7.2	39.3	39.9	100.33			
749.0	13.97	95.42	744.6	-9.5	58.4	59.2	99.27			
840.0	17.58	93.58	832.2	-11.4	83.1	83.8	97.83			
930.0	21.53	93.75	917.0	-13.4	113.1	113.9	96.73			
1,021.0	23.55	93.05	1,001.0	-15.4	147.9	148.7	95.95			

<b>Company:</b>	Terra Energy Partners, LLP	<b>Local Co-ordinate Reference:</b>	Well WMC 433-19-793 - Slot WMC 433-19-793
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<b>Site:</b>	Honea 19-05 Pad	<b>MD Reference:</b>	KB @ 8593.0ft
<b>Well:</b>	WMC 433-19-793	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	NN

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Azimuth (°)
1,073.0	24.30	91.99	1,048.5	-16.3	169.0	169.8	95.52
1,232.0	24.35	89.62	1,193.4	-17.3	234.5	235.1	94.21
1,323.0	23.03	89.01	1,276.7	-16.8	271.0	271.6	93.55
1,413.0	22.85	89.27	1,359.6	-16.3	306.1	306.5	93.05
1,504.0	23.60	90.15	1,443.3	-16.1	342.0	342.4	92.70
1,595.0	23.33	89.53	1,526.7	-16.0	378.2	378.6	92.43
1,687.0	22.98	89.27	1,611.3	-15.6	414.4	414.7	92.16
1,778.0	22.76	88.65	1,695.2	-15.0	449.8	450.0	91.91
1,868.0	22.02	88.48	1,778.4	-14.1	484.0	484.2	91.67
1,959.0	22.37	91.38	1,862.6	-14.1	518.4	518.6	91.56
2,050.0	22.02	89.71	1,946.9	-14.4	552.8	553.0	91.50
2,140.0	21.84	88.57	2,030.4	-13.9	586.4	586.5	91.36
2,231.0	20.87	89.71	2,115.1	-13.4	619.5	619.7	91.24
2,322.0	22.63	91.73	2,199.7	-13.9	653.2	653.4	91.22
2,412.0	22.15	93.31	2,282.9	-15.4	687.5	687.6	91.28
2,503.0	21.14	93.05	2,367.5	-17.2	721.0	721.2	91.37
2,593.0	20.43	92.70	2,451.6	-18.8	752.9	753.1	91.43
2,684.0	21.80	92.70	2,536.5	-20.4	785.6	785.9	91.49
2,775.0	21.05	93.05	2,621.2	-22.1	818.8	819.1	91.54
2,865.0	24.04	94.10	2,704.3	-24.2	853.2	853.6	91.63
2,956.0	22.72	93.66	2,787.8	-26.7	889.3	889.7	91.72
3,046.0	22.24	92.96	2,871.0	-28.7	923.6	924.1	91.78
3,136.0	21.45	92.87	2,954.5	-30.4	957.1	957.6	91.82
3,227.0	24.08	92.52	3,038.4	-32.0	992.2	992.8	91.85
3,318.0	23.03	93.23	3,121.9	-33.8	1,028.6	1,029.1	91.88
3,409.0	22.19	92.87	3,205.9	-35.7	1,063.5	1,064.1	91.92
3,499.0	23.86	88.57	3,288.7	-36.1	1,098.7	1,099.3	91.88
3,590.0	22.85	89.71	3,372.2	-35.6	1,134.7	1,135.3	91.79
3,680.0	22.63	89.62	3,455.2	-35.3	1,169.5	1,170.1	91.73
3,771.0	22.32	90.06	3,539.3	-35.2	1,204.3	1,204.8	91.68
3,861.0	21.49	89.18	3,622.8	-35.0	1,237.9	1,238.4	91.62
3,951.0	23.69	86.90	3,705.9	-33.8	1,272.4	1,272.9	91.52
4,042.0	22.85	86.98	3,789.5	-31.9	1,308.3	1,308.7	91.40
4,132.0	22.32	86.11	3,872.6	-29.8	1,342.8	1,343.2	91.27
4,223.0	21.45	86.11	3,957.1	-27.5	1,376.7	1,377.0	91.15
4,313.0	23.64	89.71	4,040.2	-26.3	1,411.1	1,411.4	91.07
4,404.0	23.12	90.06	4,123.7	-26.2	1,447.3	1,447.5	91.04
4,494.0	22.85	88.04	4,206.6	-25.7	1,482.4	1,482.6	90.99
4,585.0	22.10	87.95	4,290.7	-24.4	1,517.2	1,517.4	90.92
4,675.0	24.39	89.80	4,373.3	-23.8	1,552.7	1,552.8	90.88
4,766.0	23.51	87.95	4,456.5	-23.1	1,589.6	1,589.8	90.83
4,856.0	23.03	88.92	4,539.2	-22.1	1,625.1	1,625.3	90.78
4,947.0	22.50	88.13	4,623.1	-21.2	1,660.3	1,660.5	90.73
5,037.0	22.06	88.04	4,706.4	-20.0	1,694.4	1,694.6	90.68

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<b>Site:</b>	Honea 19-05 Pad	<b>MD Reference:</b>	KB @ 8593.0ft
<b>Well:</b>	WMC 433-19-793	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	NN

Survey								
MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Azimuth (°)	
5,128.0	24.17	93.66	4,790.1	-20.6	1,730.1	1,730.2	90.68	
5,218.0	23.42	93.58	4,872.4	-22.9	1,766.4	1,766.5	90.74	
5,309.0	22.68	94.54	4,956.2	-25.5	1,801.9	1,802.1	90.81	
5,400.0	22.24	94.63	5,040.3	-28.2	1,836.6	1,836.8	90.88	
5,490.0	21.67	95.69	5,123.7	-31.3	1,870.1	1,870.3	90.96	
5,581.0	22.59	90.76	5,208.0	-33.2	1,904.3	1,904.6	91.00	
5,671.0	22.10	90.76	5,291.3	-33.6	1,938.5	1,938.8	90.99	
5,762.0	21.45	92.08	5,375.8	-34.4	1,972.2	1,972.5	91.00	
5,852.0	20.39	92.26	5,459.8	-35.7	2,004.3	2,004.7	91.02	
5,943.0	20.00	91.64	5,545.3	-36.7	2,035.7	2,036.1	91.03	
6,033.0	21.05	83.80	5,629.6	-35.4	2,067.2	2,067.5	90.98	
6,124.0	19.95	82.77	5,714.8	-31.7	2,098.8	2,099.1	90.87	
6,214.0	22.19	83.38	5,798.8	-27.8	2,131.0	2,131.1	90.75	
6,304.0	21.84	82.33	5,882.2	-23.6	2,164.4	2,164.6	90.63	
6,395.0	22.72	87.42	5,966.4	-20.6	2,198.8	2,198.9	90.54	
6,485.0	22.37	87.34	6,049.5	-19.0	2,233.2	2,233.3	90.49	
6,576.0	21.53	87.51	6,133.9	-17.5	2,267.2	2,267.3	90.44	
6,666.0	20.83	87.24	6,217.9	-16.0	2,299.7	2,299.8	90.40	
6,757.0	20.08	86.72	6,303.1	-14.3	2,331.5	2,331.5	90.35	
6,847.0	18.63	86.63	6,388.0	-12.6	2,361.2	2,361.3	90.30	
6,938.0	18.85	86.11	6,474.2	-10.7	2,390.4	2,390.4	90.26	
7,029.0	16.17	88.04	6,561.0	-9.3	2,417.7	2,417.8	90.22	
7,119.0	15.16	89.62	6,647.6	-8.8	2,442.0	2,442.1	90.21	
7,210.0	14.85	88.04	6,735.5	-8.3	2,465.6	2,465.6	90.19	
7,300.0	12.30	96.13	6,823.0	-8.9	2,486.7	2,486.7	90.21	
7,390.0	11.82	91.82	6,911.0	-10.2	2,505.4	2,505.4	90.23	
7,481.0	12.17	89.62	7,000.1	-10.5	2,524.3	2,524.3	90.24	
7,572.0	9.49	95.51	7,089.4	-11.1	2,541.4	2,541.4	90.25	
7,663.0	7.29	98.85	7,179.5	-12.7	2,554.5	2,554.6	90.29	
7,753.0	6.46	98.59	7,268.8	-14.4	2,565.2	2,565.2	90.32	
7,844.0	6.11	98.85	7,359.3	-15.9	2,575.0	2,575.1	90.35	
7,934.0	6.06	92.52	7,448.8	-16.8	2,584.5	2,584.6	90.37	
8,025.0	2.46	93.23	7,539.5	-17.2	2,591.3	2,591.3	90.38	
8,116.0	1.32	98.85	7,630.4	-17.4	2,594.3	2,594.3	90.38	
8,206.0	1.58	89.45	7,720.4	-17.6	2,596.5	2,596.6	90.39	
8,297.0	0.88	198.25	7,811.4	-18.2	2,597.6	2,597.6	90.40	
8,387.0	0.62	188.67	7,901.4	-19.4	2,597.3	2,597.3	90.43	
8,478.0	0.35	217.24	7,992.4	-20.1	2,597.0	2,597.1	90.44	
8,568.0	0.70	200.63	8,082.4	-20.8	2,596.7	2,596.7	90.46	
8,659.0	0.04	224.89	8,173.4	-21.3	2,596.4	2,596.5	90.47	
8,750.0	0.31	250.20	8,264.4	-21.5	2,596.2	2,596.3	90.47	
8,841.0	0.40	261.71	8,355.4	-21.6	2,595.6	2,595.7	90.48	
8,932.0	0.31	285.18	8,446.4	-21.6	2,595.1	2,595.2	90.48	
9,022.0	0.44	309.52	8,536.4	-21.3	2,594.6	2,594.7	90.47	
9,112.0	0.35	325.26	8,626.4	-20.8	2,594.2	2,594.3	90.46	

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<b>Site:</b>	Honea 19-05 Pad	<b>MD Reference:</b>	KB @ 8593.0ft
<b>Well:</b>	WMC 433-19-793	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	NN

MD (ft)	Inc (°)	Azi (azimuth) (°)	TVD (ft)	N/S (ft)	E/W (ft)	Closure Distance (ft)	Closure Azimuth (°)
9,203.0	0.44	359.89	8,717.4	-20.3	2,594.0	2,594.1	90.45
9,293.0	0.44	330.97	8,807.4	-19.6	2,593.8	2,593.9	90.43
9,384.0	0.53	352.33	8,898.4	-18.9	2,593.6	2,593.7	90.42
9,474.0	0.44	335.63	8,988.4	-18.2	2,593.4	2,593.5	90.40
9,565.0	0.70	357.25	9,079.4	-17.3	2,593.2	2,593.3	90.38
9,656.0	0.48	15.71	9,170.3	-16.4	2,593.3	2,593.4	90.36
9,746.0	0.22	264.17	9,260.3	-16.0	2,593.3	2,593.3	90.35
9,837.0	0.97	232.00	9,351.3	-16.5	2,592.5	2,592.5	90.36
9,927.0	0.92	230.86	9,441.3	-17.4	2,591.3	2,591.4	90.39
10,018.0	1.01	236.49	9,532.3	-18.3	2,590.1	2,590.1	90.41
10,108.0	0.70	239.12	9,622.3	-19.1	2,588.9	2,589.0	90.42
10,199.0	0.92	239.48	9,713.3	-19.7	2,587.8	2,587.9	90.44
10,289.0	0.75	238.16	9,803.3	-20.4	2,586.7	2,586.8	90.45
10,380.0	0.92	206.96	9,894.3	-21.4	2,585.9	2,586.0	90.47
10,470.0	1.54	201.86	9,984.3	-23.1	2,585.1	2,585.2	90.51
10,561.0	1.49	221.28	10,075.2	-25.1	2,583.9	2,584.0	90.56
10,651.0	2.50	219.17	10,165.2	-27.5	2,581.9	2,582.0	90.61
10,742.0	2.24	225.59	10,256.1	-30.3	2,579.3	2,579.5	90.67
10,833.0	2.37	221.72	10,347.0	-33.0	2,576.8	2,577.0	90.73
10,923.0	2.46	224.45	10,436.9	-35.7	2,574.2	2,574.5	90.80
11,005.0	2.15	228.66	10,518.9	-38.0	2,571.8	2,572.1	90.85
11,066.0	2.15	228.66	10,579.8	-39.5	2,570.1	2,570.4	90.88

**PTB @ 11066 MD/ 10579.8 TVD**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
201.0	201.0	-1.4	1.0	First Survey @ 201 MD/ 201 TVD
11,066.0	10,579.8	-39.5	2,570.1	PTB @ 11066 MD/ 10579.8 TVD

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_