



Spur Energy Partners, LLC

Eddy County, NM (NAD 83 - NME)

Osage Boyd 15 Federal Com

#14H

Wellbore #1

Design: Wellbore #1

Standard Survey Report

23 October, 2020



Company:	Spur Energy Partners, LLC	Local Co-ordinate Reference:	Well #14H
Project:	Eddy County, NM (NAD 83 - NME)	TVD Reference:	RKB = 20' @ 3487.00usft (Akita 57)
Site:	Osage Boyd 15 Federal Com	MD Reference:	RKB = 20' @ 3487.00usft (Akita 57)
Well:	#14H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	WBDS_SQL_2

Project	Eddy County, NM (NAD 83 - NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Osage Boyd 15 Federal Com		
Site Position:		Northing:	600,962.30 usft
From:	Map	Easting:	496,514.50 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in
		Latitude:	32.652008
		Longitude:	-104.478969
		Grid Convergence:	-0.079 °

Well	#14H		
Well Position	+N/-S	0.00 usft	Northing: 600,814.20 usft
	+E/-W	0.00 usft	Easting: 497,540.20 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32.651605
		Longitude:	-104.475636
		Ground Level:	3,467.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/10/20	7.048	60.268	47,752.45924042

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	359.99	

Survey Program	Date	10/23/20			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
164.00	1,183.00	Survey #1 (Wellbore #1)	MWD+IGRF	OWSG MWD + IGRF or WMM	
1,305.00	3,695.00	Survey #2 (Wellbore #1)	MWD+IGRF	OWSG MWD + IGRF or WMM	
3,843.00	8,327.00	Survey #3 (Wellbore #1)	MWD+IGRF	OWSG MWD + IGRF or WMM	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
164.00	1.89	4.31	163.97	2.70	0.20	2.70	1.15	1.15	0.00	
284.00	2.46	29.54	283.89	6.91	1.62	6.91	0.92	0.47	21.02	
405.00	3.65	58.81	404.72	11.17	6.20	11.16	1.59	0.98	24.19	
525.00	6.64	95.72	524.25	12.45	16.37	12.45	3.60	2.49	30.76	
646.00	9.76	82.19	644.01	13.15	33.50	13.14	3.01	2.58	-11.18	
769.00	12.75	88.78	764.64	14.86	57.41	14.85	2.64	2.43	5.36	
890.00	15.03	95.63	882.10	13.60	86.37	13.59	2.32	1.88	5.66	
1,011.00	15.25	95.81	998.90	10.45	117.82	10.43	0.19	0.18	0.15	

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Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,132.00	15.52	95.98	1,115.56	7.15	149.75	7.13	0.23	0.22	0.14
1,183.00	15.21	96.42	1,164.74	5.69	163.19	5.67	0.65	-0.61	0.86
1,305.00	15.96	95.72	1,282.25	2.23	195.78	2.20	0.63	0.61	-0.57
1,431.00	17.36	96.16	1,402.96	-1.51	231.71	-1.55	1.12	1.11	0.35
1,557.00	15.38	98.18	1,523.85	-5.91	266.94	-5.95	1.63	-1.57	1.60
1,683.00	16.66	97.48	1,644.95	-10.64	301.39	-10.69	1.03	1.02	-0.56
1,745.00	16.97	97.39	1,704.30	-12.96	319.17	-13.01	0.50	0.50	-0.15
1,808.00	17.67	95.72	1,764.44	-15.09	337.80	-15.15	1.36	1.11	-2.65
1,871.00	17.98	82.45	1,824.45	-14.77	356.96	-14.83	6.45	0.49	-21.06
1,934.00	18.99	67.42	1,884.23	-9.55	376.08	-9.62	7.71	1.60	-23.86
1,997.00	19.47	52.30	1,943.75	0.81	393.86	0.74	7.92	0.76	-24.00
2,060.00	22.02	41.84	2,002.68	16.04	410.06	15.97	7.12	4.05	-16.60
2,123.00	25.45	35.52	2,060.35	35.87	425.81	35.79	6.77	5.44	-10.03
2,186.00	29.41	32.00	2,116.26	60.01	441.87	59.93	6.79	6.29	-5.59
2,249.00	32.92	29.63	2,170.16	88.02	458.54	87.94	5.90	5.57	-3.76
2,312.00	36.75	24.88	2,221.88	120.02	474.94	119.93	7.45	6.08	-7.54
2,375.00	39.69	21.10	2,271.37	155.90	490.12	155.81	5.96	4.67	-6.00
2,438.00	42.81	16.71	2,318.74	195.18	503.52	195.10	6.75	4.95	-6.97
2,501.00	43.78	11.79	2,364.61	237.03	514.13	236.95	5.57	1.54	-7.81
2,565.00	44.40	7.39	2,410.59	280.92	521.54	280.83	4.88	0.97	-6.87
2,628.00	45.41	3.00	2,455.22	325.19	525.55	325.10	5.17	1.60	-6.97
2,690.00	48.31	0.54	2,497.61	370.40	526.92	370.31	5.50	4.68	-3.97
2,754.00	52.44	0.62	2,538.42	419.68	527.42	419.59	6.45	6.45	0.12
2,816.00	57.36	2.03	2,574.06	470.38	528.61	470.28	8.15	7.94	2.27
2,848.00	59.60	2.56	2,590.79	497.63	529.71	497.54	7.14	7.00	1.66
2,880.00	60.79	2.29	2,606.69	525.37	530.88	525.28	3.79	3.72	-0.84
2,911.00	61.76	2.21	2,621.59	552.54	531.95	552.44	3.14	3.13	-0.26
2,943.00	61.36	1.50	2,636.83	580.66	532.86	580.57	2.32	-1.25	-2.22
2,974.00	60.04	0.45	2,652.00	607.69	533.32	607.60	5.18	-4.26	-3.39
3,006.00	60.35	0.01	2,667.91	635.46	533.43	635.36	1.54	0.97	-1.37
3,068.00	61.93	359.83	2,697.83	689.75	533.36	689.66	2.56	2.55	-0.29
3,131.00	64.70	0.36	2,726.12	746.04	533.45	745.94	4.46	4.40	0.84
3,194.00	69.27	0.80	2,750.75	804.00	534.04	803.91	7.28	7.25	0.70
3,257.00	74.20	0.97	2,770.49	863.80	534.97	863.71	7.83	7.83	0.27
3,320.00	78.73	1.15	2,785.23	925.03	536.10	924.93	7.20	7.19	0.29
3,382.00	84.09	1.41	2,794.49	986.29	537.47	986.20	8.66	8.65	0.42
3,445.00	89.27	1.94	2,798.13	1,049.14	539.31	1,049.05	8.26	8.22	0.84
3,570.00	90.55	359.74	2,798.33	1,174.12	541.14	1,174.02	2.04	1.02	-1.76
3,695.00	90.33	358.16	2,797.37	1,299.09	538.85	1,298.99	1.28	-0.18	-1.26
3,843.00	89.23	358.16	2,797.94	1,447.01	534.10	1,446.92	0.74	-0.74	0.00
3,969.00	86.99	358.16	2,802.09	1,572.87	530.06	1,572.77	1.78	-1.78	0.00
4,095.00	87.30	357.99	2,808.37	1,698.64	525.83	1,698.55	0.28	0.25	-0.13
4,221.00	87.69	357.72	2,813.88	1,824.43	521.12	1,824.34	0.38	0.31	-0.21

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Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,348.00	86.59	359.83	2,820.21	1,951.23	518.41	1,951.14	1.87	-0.87	1.66
4,474.00	88.35	0.27	2,825.77	2,077.11	518.52	2,077.02	1.44	1.40	0.35
4,600.00	88.57	0.18	2,829.16	2,203.06	519.01	2,202.97	0.19	0.17	-0.07
4,727.00	88.44	0.01	2,832.47	2,330.02	519.22	2,329.93	0.17	-0.10	-0.13
4,853.00	89.76	0.45	2,834.45	2,456.00	519.73	2,455.91	1.10	1.05	0.35
4,979.00	90.11	0.97	2,834.60	2,581.99	521.29	2,581.89	0.50	0.28	0.41
5,101.00	90.68	0.62	2,833.76	2,703.97	522.98	2,703.88	0.55	0.47	-0.29
5,227.00	90.81	0.97	2,832.12	2,829.95	524.73	2,829.86	0.30	0.10	0.28
5,353.00	90.68	1.68	2,830.48	2,955.90	527.64	2,955.81	0.57	-0.10	0.56
5,478.00	90.81	359.92	2,828.85	3,080.87	529.39	3,080.78	1.41	0.10	-1.41
5,604.00	91.43	359.04	2,826.39	3,206.84	528.25	3,206.75	0.85	0.49	-0.70
5,730.00	89.10	358.51	2,825.81	3,332.80	525.55	3,332.71	1.90	-1.85	-0.42
5,854.00	89.36	358.51	2,827.47	3,456.75	522.33	3,456.66	0.21	0.21	0.00
5,980.00	89.89	359.04	2,828.30	3,582.72	519.63	3,582.63	0.59	0.42	0.42
6,103.00	90.02	358.87	2,828.40	3,705.70	517.39	3,705.61	0.17	0.11	-0.14
6,223.00	90.77	0.27	2,827.57	3,825.69	516.49	3,825.60	1.32	0.62	1.17
6,344.00	91.52	359.92	2,825.15	3,946.66	516.69	3,946.57	0.68	0.62	-0.29
6,465.00	90.02	0.71	2,823.52	4,067.65	517.36	4,067.55	1.40	-1.24	0.65
6,585.00	90.33	1.77	2,823.16	4,187.61	519.95	4,187.52	0.92	0.26	0.88
6,707.00	90.37	1.85	2,822.41	4,309.55	523.81	4,309.46	0.07	0.03	0.07
6,828.00	91.43	0.80	2,820.51	4,430.50	526.60	4,430.41	1.23	0.88	-0.87
6,950.00	91.91	0.54	2,816.96	4,552.44	528.03	4,552.35	0.45	0.39	-0.21
7,071.00	92.09	0.80	2,812.73	4,673.36	529.44	4,673.27	0.26	0.15	0.21
7,192.00	91.08	0.01	2,809.39	4,794.31	530.30	4,794.21	1.06	-0.83	-0.65
7,317.00	91.03	359.74	2,807.08	4,919.28	530.03	4,919.19	0.22	-0.04	-0.22
7,443.00	91.12	0.27	2,804.72	5,045.26	530.04	5,045.17	0.43	0.07	0.42
7,569.00	91.47	0.27	2,801.87	5,171.23	530.63	5,171.14	0.28	0.28	0.00
7,696.00	91.91	0.45	2,798.13	5,298.17	531.43	5,298.08	0.37	0.35	0.14
7,822.00	92.04	0.27	2,793.79	5,424.09	532.22	5,424.00	0.18	0.10	-0.14
7,948.00	90.42	359.92	2,791.08	5,550.06	532.43	5,549.97	1.32	-1.29	-0.28
8,074.00	90.33	359.92	2,790.26	5,676.06	532.25	5,675.96	0.07	-0.07	0.00
8,200.00	90.59	0.01	2,789.24	5,802.05	532.18	5,801.96	0.22	0.21	0.07
8,274.00	90.77	359.92	2,788.37	5,876.05	532.13	5,875.95	0.27	0.24	-0.12
8,327.00	90.77	359.92	2,787.65	5,929.04	532.06	5,928.95	0.00	0.00	0.00

Projection to Bit: 8327.00' MD/ 2787.65' TVD - Final Station Closure Distance= 5952.87 /Direction= 5.13 - TD: Y= 606743.

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Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
#14H FTP 100' FSL: 3 - actual wellpath hits target center - Point	0.00	0.00	2,780.24	901.80	535.65	601,716.00	498,075.85	32.654086	-104.473900
#14H Final Bit Proj @ - actual wellpath hits target center - Point	0.00	360.00	2,787.65	5,929.04	532.06	606,743.25	498,072.26	32.667904	-104.473933
#14H LTP 100' FNL: 8 - actual wellpath misses target center by 3.65usft at 8274.00usft MD (2788.37 TVD, 5876.05 N, 532.13 E) - Point	0.00	360.00	2,788.32	5,879.70	532.13	606,693.90	498,072.33	32.667769	-104.473933

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,327.00	2,787.65	5,929.04	532.06	Projection to Bit: 8327.00' MD/ 2787.65' TVD
8,327.00	2,787.65	5,929.04	532.06	Final Station Closure Distance= 5952.87 /Direction= 5.13
8,327.00	2,787.65	5,929.04	532.06	TD: Y= 606743.24 / X= 498072.26
8,327.00	2,787.65	5,929.04	532.06	TD: Latitude= 32.667904 / Longitude= -104.473933

Checked By: _____ Approved By: _____ Date: _____