

Endurance Resources LLC

Moonlight Buttfress 26 Fed #1H

Lea County, NM

Noram 23

API# 30-025-42969-0000

HOBBS OCD

MAY 16 2016

RECEIVED

December 21, 2015 - January 11, 2015

MO-XX-0902995244

Sperry Drilling

MWD Survey Report

Submitted by: Ellis Sim

3950 Interwood South Parkway Houston, TX 77032

Ph: 281.986.4400

HALLIBURTON

Sperry Drilling

Survey Report for Endurance Resources LLC

Rig	:	Noram 23
Well Name	:	Moonlight Buttress 26 Fed #1H
Field Name	:	Wildcat (Bone Spring)
Country	:	USA
Job Number	:	MO-XX-0902995244
Job Start Date	:	21-Dec-15
API Number	:	30-025-42969-0000

HOBBS OCD
MAY 16 2016
RECEIVED

MAY 16 2016

RECEIVED

DIRECTIONAL SURVEY DATA

Tie-in

0.00 0.00 0.00 0.00 0.00 N 0.00 E

Measured Depth (ft)	Inclination (deg)	Direction (deg)	Vertical Depth (ft)	Latitude (ft)	Departure (ft)	Vertical Section (ft)	Dogleg (°/100')
132.00	0.88	132.63	131.99	0.69 S	0.75 E	-0.70	0.67
249.00	0.87	126.66	248.98	1.83 S	2.12 E	-1.85	0.08
368.00	0.80	127.13	367.97	2.87 S	3.51 E	-2.90	0.06
483.00	0.73	132.84	482.96	3.86 S	4.69 E	-3.90	0.09
600.00	0.55	142.14	599.95	4.81 S	5.58 E	-4.86	0.18
665.00	0.42	150.57	664.95	5.26 S	5.89 E	-5.31	0.23
760.00	0.22	143.38	759.95	5.71 S	6.17 E	-5.77	0.21
854.00	0.07	69.73	853.95	5.84 S	6.33 E	-5.89	0.23
948.00	0.09	208.88	947.95	5.88 S	6.35 E	-5.94	0.16
1042.00	0.15	349.66	1,041.95	5.82 S	6.29 E	-5.88	0.24
1110.00	0.11	118.09	1,109.95	5.76 S	6.34 E	-5.82	0.35
1237.00	0.25	317.56	1,236.95	5.61 S	6.25 E	-5.67	0.28
1331.00	0.48	339.09	1,330.94	5.09 S	5.97 E	-5.14	0.28
1426.00	0.32	333.99	1,425.94	4.48 S	5.71 E	-4.53	0.17
1520.00	0.41	327.84	1,519.94	3.95 S	5.42 E	-4.00	0.11
1614.00	0.57	333.45	1,613.94	3.24 S	5.03 E	-3.29	0.18
1804.00	0.39	0.82	1,803.93	1.74 S	4.61 E	-1.78	0.15
1898.00	0.53	46.76	1,897.93	1.12 S	4.93 E	-1.17	0.40
1992.00	0.86	70.73	1,991.92	0.59 S	5.91 E	-0.65	0.46
2087.00	0.97	76.10	2,086.91	0.16 S	7.36 E	-0.23	0.15
2182.00	1.20	71.33	2,181.89	0.35 N	9.08 E	0.26	0.26
2276.00	1.31	67.16	2,275.87	1.08 N	11.00 E	0.98	0.15
2371.00	1.56	61.99	2,370.84	2.11 N	13.14 E	1.98	0.30
2465.00	2.12	62.82	2,464.79	3.50 N	15.82 E	3.35	0.59
2559.00	2.32	68.34	2,558.72	5.00 N	19.13 E	4.82	0.31
2654.00	2.41	52.58	2,653.64	6.92 N	22.50 E	6.71	0.69
2748.00	0.22	43.43	2,747.61	8.25 N	24.19 E	8.02	2.34
2843.00	0.39	166.12	2,842.61	8.07 N	24.39 E	7.84	0.57
2937.00	0.59	129.69	2,936.61	7.45 N	24.84 E	7.21	0.38
3032.00	0.76	114.60	3,031.60	6.87 N	25.79 E	6.63	0.26
3126.00	0.83	95.52	3,125.59	6.54 N	27.04 E	6.29	0.29
3221.00	0.89	80.27	3,220.58	6.60 N	28.45 E	6.33	0.25
3315.00	1.07	70.89	3,314.57	7.01 N	29.99 E	6.73	0.26
3410.00	1.39	70.11	3,409.54	7.70 N	31.91 E	7.40	0.34
3504.00	0.68	52.54	3,503.53	8.43 N	33.43 E	8.11	0.82
3598.00	0.44	24.27	3,597.52	9.09 N	34.03 E	8.77	0.39
3693.00	0.60	53.24	3,692.52	9.72 N	34.57 E	9.39	0.32
3787.00	0.61	45.76	3,786.51	10.36 N	35.32 E	10.03	0.08
3881.00	1.44	83.60	3,880.50	10.84 N	36.85 E	10.49	1.10
3976.00	2.13	92.40	3,975.45	10.90 N	39.80 E	10.52	0.78
4070.00	2.29	79.15	4,069.38	11.18 N	43.39 E	10.77	0.57

DIRECTIONAL SURVEY DATA

Measured Depth (ft)	Inclination (deg)	Direction (deg)	Vertical Depth (ft)	Latitude (ft)	Departure (ft)	Vertical Section (ft)	Dogleg (°/100')
4165.00	1.18	47.52	4,164.34	12.19 N	45.97 E	11.76	1.50
4260.00	0.86	224.98	4,259.34	12.35 N	46.18 E	11.91	2.14
4354.00	1.67	219.75	4,353.31	10.80 N	44.81 E	10.37	0.87
4448.00	1.01	168.87	4,447.29	8.93 N	44.09 E	8.52	1.38
4542.00	2.37	86.23	4,541.26	8.25 N	46.19 E	7.81	2.61
4637.00	2.19	93.20	4,636.18	8.28 N	49.97 E	7.80	0.35
4731.00	1.77	136.19	4,730.13	7.13 N	52.77 E	6.63	1.60
4826.00	1.68	246.86	4,825.11	5.52 N	52.50 E	5.03	2.99
4920.00	2.15	259.30	4,919.05	4.65 N	49.50 E	4.19	0.66
5015.00	1.80	251.43	5,014.00	3.85 N	46.33 E	3.41	0.46
5109.00	1.60	246.59	5,107.96	2.86 N	43.72 E	2.44	0.27
5204.00	1.45	245.26	5,202.92	1.83 N	41.42 E	1.44	0.16
5298.00	1.36	240.51	5,296.89	0.78 N	39.37 E	0.41	0.15
5393.00	1.20	229.78	5,391.87	0.42 S	37.62 E	-0.78	0.30
5487.00	1.21	220.77	5,485.85	1.81 S	36.22 E	-2.15	0.20
5582.00	1.04	209.72	5,580.83	3.32 S	35.13 E	-3.65	0.29
5677.00	0.87	194.14	5,675.82	4.77 S	34.53 E	-5.09	0.32
5771.00	0.87	178.45	5,769.81	6.18 S	34.37 E	-6.50	0.25
5866.00	0.68	163.92	5,864.80	7.44 S	34.55 E	-7.77	0.29
5961.00	0.52	154.52	5,959.79	8.38 S	34.89 E	-8.71	0.20
6055.00	0.48	138.71	6,053.79	9.06 S	35.34 E	-9.39	0.15
6149.00	0.46	143.47	6,147.79	9.66 S	35.82 E	-9.99	0.05
6244.00	0.42	123.17	6,242.78	10.15 S	36.34 E	-10.49	0.17
6338.00	1.13	256.39	6,336.78	10.56 S	35.72 E	-10.89	1.54
6432.00	1.70	255.88	6,430.75	11.11 S	33.47 E	-11.43	0.60
6527.00	1.60	253.85	6,525.71	11.83 S	30.83 E	-12.12	0.12
6621.00	1.48	248.25	6,619.68	12.64 S	28.45 E	-12.91	0.21
6716.00	1.37	243.14	6,714.65	13.61 S	26.29 E	-13.85	0.17
6810.00	1.34	237.92	6,808.62	14.70 S	24.36 E	-14.93	0.14
6905.00	1.22	234.54	6,903.60	15.87 S	22.60 E	-16.09	0.15
7000.00	1.08	229.48	6,998.58	17.04 S	21.09 E	-17.24	0.18
7094.00	0.93	225.83	7,092.56	18.16 S	19.87 E	-18.34	0.17
7188.00	0.79	223.00	7,186.55	19.16 S	18.88 E	-19.34	0.16
7283.00	0.59	216.40	7,281.54	20.03 S	18.14 E	-20.20	0.23
7377.00	0.52	220.37	7,375.54	20.75 S	17.58 E	-20.91	0.08
7471.00	0.52	224.60	7,469.54	21.38 S	17.00 E	-21.54	0.04
7566.00	0.61	211.45	7,564.53	22.12 S	16.43 E	-22.27	0.16
7661.00	0.37	212.48	7,659.53	22.81 S	16.00 E	-22.96	0.25
7755.00	0.41	201.17	7,753.53	23.38 S	15.71 E	-23.53	0.09
7849.00	0.70	297.83	7,847.52	23.43 S	15.08 E	-23.57	0.91
7944.00	0.62	317.32	7,942.52	22.78 S	14.22 E	-22.91	0.25
8038.00	0.26	321.08	8,036.51	22.24 S	13.74 E	-22.37	0.38
8132.00	0.29	289.16	8,130.51	21.99 S	13.38 E	-22.12	0.17
8227.00	0.46	281.03	8,225.51	21.84 S	12.77 E	-21.96	0.19
8331.00	3.77	352.85	8,329.43	18.36 S	11.93 E	-18.47	3.51

DIRECTIONAL SURVEY DATA

Measured Depth (ft)	Inclination (deg)	Direction (deg)	Vertical Depth (ft)	Latitude (ft)	Departure (ft)	Vertical Section (ft)	Dogleg (°/100')
8362.00	5.98	355.28	8,360.32	15.74 S	11.67 E	-15.85	7.17
8394.00	8.31	354.98	8,392.07	11.77 S	11.33 E	-11.88	7.28
8425.00	10.27	354.81	8,422.66	6.79 S	10.89 E	-6.89	6.31
8456.00	12.61	354.98	8,453.04	0.67 S	10.34 E	-0.77	7.56
8487.00	14.72	356.24	8,483.16	6.63 N	9.79 E	6.54	6.87
8519.00	16.90	355.64	8,513.95	15.33 N	9.17 E	15.24	6.83
8550.00	19.17	353.37	8,543.43	24.88 N	8.24 E	24.80	7.66
8582.00	21.71	352.27	8,573.41	35.96 N	6.83 E	35.90	8.05
8613.00	24.81	353.00	8,601.89	48.10 N	5.27 E	48.05	10.02
8645.00	27.64	352.25	8,630.59	62.12 N	3.45 E	62.09	8.90
8676.00	30.76	352.67	8,657.65	77.11 N	1.47 E	77.09	10.11
8707.00	33.86	354.16	8,683.84	93.57 N	0.42 W	93.57	10.33
8739.00	36.47	356.71	8,710.00	111.94 N	1.88 W	111.95	9.37
8770.00	39.37	358.29	8,734.45	130.97 N	2.70 W	130.99	9.87
8789.00	41.91	359.14	8,748.87	143.34 N	2.97 W	143.36	13.64
8801.00	43.59	359.77	8,757.68	151.49 N	3.05 W	151.51	14.51
8833.00	47.81	1.11	8,780.03	174.38 N	2.86 W	174.40	13.52
8865.00	52.29	2.16	8,800.57	198.90 N	2.16 W	198.91	14.23
8895.00	57.03	2.27	8,817.91	223.35 N	1.21 W	223.35	15.79
8927.00	62.22	1.38	8,834.09	250.93 N	0.34 W	250.92	16.39
8958.00	66.24	0.51	8,847.56	278.84 N	0.12 E	278.83	13.22
8990.00	69.11	0.36	8,859.72	308.44 N	0.34 E	308.42	8.97
9021.00	71.38	0.23	8,870.19	337.61 N	0.49 E	337.59	7.32
9053.00	73.57	359.96	8,879.83	368.12 N	0.54 E	368.10	6.89
9084.00	75.76	0.23	8,888.03	398.02 N	0.59 E	397.99	7.13
9116.00	77.61	0.23	8,895.40	429.15 N	0.72 E	429.13	5.77
9147.00	79.63	0.05	8,901.52	459.54 N	0.79 E	459.52	6.54
9178.00	81.62	0.18	8,906.57	490.13 N	0.85 E	490.10	6.43
9293.00	85.59	359.77	8,919.38	604.39 N	0.81 E	604.35	3.47
9388.00	87.96	359.60	8,924.72	699.23 N	0.29 E	699.20	2.51
9483.00	92.37	0.14	8,924.44	794.21 N	0.07 E	794.17	4.67
9578.00	91.97	359.08	8,920.83	889.13 N	0.58 W	889.10	1.19
9673.00	92.50	358.36	8,917.13	984.04 N	2.71 W	984.02	0.93
9768.00	94.01	358.26	8,911.74	1,078.84 N	5.50 W	1078.84	1.60
9864.00	92.50	357.85	8,906.29	1,174.63 N	8.75 W	1174.66	1.63
9958.00	92.99	357.13	8,901.79	1,268.43 N	12.86 W	1268.49	0.93
10053.00	91.36	356.75	8,898.19	1,363.22 N	17.94 W	1363.33	1.77
10149.00	92.62	356.30	8,894.86	1,458.98 N	23.76 W	1459.14	1.40
10244.00	92.10	357.00	8,890.95	1,553.74 N	29.31 W	1553.95	0.92
10339.00	92.56	359.10	8,887.09	1,648.60 N	32.53 W	1648.83	2.26
10435.00	91.33	0.15	8,883.83	1,744.54 N	33.16 W	1744.78	1.69
10529.00	90.31	0.52	8,882.49	1,838.53 N	32.61 W	1838.75	1.15
10624.00	88.18	359.60	8,883.75	1,933.51 N	32.51 W	1933.73	2.44
10719.00	90.74	0.41	8,884.64	2,028.50 N	32.50 W	2028.72	2.83
10814.00	92.31	0.26	8,882.12	2,123.46 N	31.95 W	2123.67	1.66

DIRECTIONAL SURVEY DATA

Measured Depth (ft)	Inclination (deg)	Direction (deg)	Vertical Depth (ft)	Latitude (ft)	Departure (ft)	Vertical Section (ft)	Dogleg (°/100')
10910.00	91.26	0.23	8,879.13	2,219.41 N	31.54 W	2219.61	1.09
11005.00	91.91	359.47	8,876.50	2,314.38 N	31.79 W	2314.57	1.05
11099.00	91.48	359.51	8,873.72	2,408.33 N	32.63 W	2408.53	0.46
11195.00	90.40	359.06	8,872.14	2,504.31 N	33.83 W	2504.52	1.22
11290.00	89.45	358.77	8,872.27	2,599.29 N	35.62 W	2599.51	1.05
11386.00	88.52	359.21	8,873.98	2,695.26 N	37.31 W	2695.49	1.07
11481.00	90.25	358.86	8,875.00	2,790.24 N	38.92 W	2790.48	1.86
11575.00	90.15	358.72	8,874.67	2,884.21 N	40.90 W	2884.47	0.18
11672.00	92.22	358.87	8,872.66	2,981.17 N	42.95 W	2981.44	2.14
11765.00	91.14	358.11	8,869.93	3,074.09 N	45.40 W	3074.38	1.41
11860.00	91.67	358.82	8,867.60	3,169.03 N	47.94 W	3169.34	0.93
11955.00	91.33	0.30	8,865.11	3,263.99 N	48.67 W	3264.30	1.59
12049.00	91.27	1.01	8,862.98	3,357.96 N	47.60 W	3358.26	0.76
12144.00	88.86	0.50	8,862.88	3,452.94 N	46.35 W	3453.23	2.59
12239.00	88.98	0.08	8,864.67	3,547.93 N	45.86 W	3548.20	0.46
12333.00	89.69	0.02	8,865.76	3,641.92 N	45.78 W	3642.19	0.76
12430.00	90.74	0.39	8,865.39	3,738.92 N	45.44 W	3739.18	1.15
12526.00	91.94	358.20	8,863.15	3,834.87 N	46.63 W	3835.14	2.60
12621.00	89.20	358.66	8,862.20	3,929.82 N	49.23 W	3930.11	2.93
12715.00	89.51	359.00	8,863.26	4,023.80 N	51.16 W	4024.10	0.49
12810.00	92.43	0.92	8,861.65	4,118.77 N	51.23 W	4119.07	3.68
12905.00	93.76	359.49	8,856.52	4,213.63 N	50.89 W	4213.92	2.05
12998.00	92.68	0.17	8,851.30	4,306.48 N	51.16 W	4306.77	1.37
13094.00	91.26	0.39	8,847.99	4,402.42 N	50.69 W	4402.70	1.49
13189.00	94.69	1.42	8,843.06	4,497.26 N	49.19 W	4497.52	3.77
13283.00	94.69	2.36	8,835.37	4,590.89 N	46.09 W	4591.13	1.00
13377.00	94.72	2.24	8,827.67	4,684.50 N	42.34 W	4684.69	0.14
13471.00	95.12	3.00	8,819.60	4,778.06 N	38.06 W	4778.20	0.92
13564.00	96.49	2.59	8,810.20	4,870.47 N	33.54 W	4870.57	1.53
13582.00	97.04	2.32	8,808.08	4,888.33 N	32.78 W	4888.42	3.44
13634.00	97.04	2.32	8,801.70	4,939.89 N	30.69 W	4939.96	0.01

SURVEY FOOTER

SURVEYS CALCULATED USING SHORT COLLAR METHOD.
 WELL ASSUMED VERTICAL AT WELLHEAD.
 SURVEYS FROM 132' MD TO 13582' ARE PROVIDED BY SPERRY DRILLING.
 SURVEY AT 13582' MD IS PROJECTED TO TD AT 13634' MD.
 SPERRY DRILLING ENGINEERS: E. SIM AND M. JACKSON.

DIRECTIONAL SURVEY DATA NOTES

- Calculation based on minimum curvature method.
- Survey coordinates relative to well system reference point.
- TVD values given relative to drilling measurement point.
- Vertical section relative to well head.
- Vertical section is computed along a direction of 359.46 degrees (Grid)
- A total correction of 6.56 deg from Magnetic north to Grid north has been applied
- Horizontal displacement is relative to the well head.
- Horizontal displacement (closure) at 13,634.00 feet is 4,939.99 feet along 359.64 degrees (Grid)

WARRANTY

HALLIBURTON ENERGY SERVICES, INC. WILL USE ITS BEST EFFORTS TO FURNISH CUSTOMERS WITH ACCURATE INFORMATION AND INTERPRETATIONS THAT ARE PART OF, AND INCIDENT TO, THE SERVICES PROVIDED. HOWEVER, HALLIBURTON ENERGY SERVICES, INC. CANNOT AND DOES NOT WARRANT THE ACCURACY OR CORRECTNESS OF SUCH INFORMATION AND INTERPRETATIONS. UNDER NO CIRCUMSTANCES SHOULD ANY SUCH INFORMATION OR INTERPRETATION BE RELIED UPON AS THE SOLE BASIS FOR ANY DRILLING, COMPLETION, PRODUCTION, OR FINANCIAL DECISION OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING VENTURE, DRILLING RIG OR ITS CREW OR ANY THIRD PARTY. THE CUSTOMER HAS FULL RESPONSIBILITY FOR ALL DRILLING, COMPLETION, AND PRODUCTION OPERATION. HALLIBURTON ENERGY SERVICES, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO THE SERVICES RENDERED. IN NO EVENT WILL HALLIBURTON ENERGY SERVICES, INC. SERVICES BE LIABLE FOR FAILURE TO OBTAIN ANY PARTICULAR RESULTS OR FOR ANY DAMAGES, INCLUDING, BUT NOT LIMITED TO, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, RESULTING FROM THE USE OF ANY INFORMATION OR INTERPRETATION PROVIDED BY HALLIBURTON ENERGY SERVICES, INC.

HALLIBURTON/SPERRY DRILLING
3950 INTERWOOD S. PKWY
HOUSTON, TEXAS 77032
PHONE 281.986.4400
FAX 281.986.4498