

HALLIBURTON

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State of New Mexico, Eddy County

15-39790

I, Daniel Little, certify that I am employed by Halliburton Energy Services, Inc. (AKA Sperry Drilling) and that on the dates of April 3, 2012 through April 15, 2012 I did conduct or supervise the taking of a MWD Directional surveys for the well Beryl 33 Federal 1H from 7448' MD to 12464' MD. This data is true, correct, complete and within the limitations of the tools as set forth by Halliburton Energy Services, Inc. (AKA Sperry Drilling). I am authorized and qualified to make this report and this survey was conducted at the request of Devon Energy for the Beryl 33 Federal 1H well, API No. 30-015-39790 in Eddy County, New Mexico. I have reviewed this report and find that it conforms to the principles and procedures as set forth by Halliburton Energy Services, Inc. (AKA Sperry Drilling).



Daniel Little
MWD Field Engineer

**Devon Energy
Beryl 33 Federal 1H
Eddy County, NM
Cactus 126
API# 30-015-39790**

**April 3, 2012 – April 15, 2012
HD-MJ-0009332013**

**Sperry Drilling
MWD Survey Report**

Submitted by Daniel Little
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HALLIBURTON

**Drilling and Formation
Evaluation**

Survey Report for Devon Energy

Rig:	Cactus 126
Well Name:	Beryl 33 Federal 1H
Field Name:	Hackberry Lake (Bone Springs)
Country:	U.S.A.
Job Number:	HD-XX-0009332013
Job Start Date:	03-Apr-12
API Number:	30-015-39790

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1. Directional Survey Data

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)
141.06	0.15	38.49	141.06	0.14 N	0.11 E	0.14	0.11
236.06	0.13	85.26	236.06	0.25 N	0.30 E	0.25	0.12
331.06	0.66	75.42	331.06	0.40 N	0.94 E	0.40	0.56
426.06	0.77	83.99	426.05	0.60 N	2.10 E	0.60	0.16
521.06	1.12	74.45	521.04	0.92 N	3.63 E	0.91	0.40
616.06	1.51	76.81	616.01	1.45 N	5.74 E	1.45	0.41
711.06	1.57	80.70	710.98	1.95 N	8.25 E	1.94	0.13
806.06	1.91	64.53	805.93	2.84 N	10.96 E	2.83	0.63
901.06	2.13	69.44	900.87	4.14 N	14.04 E	4.13	0.29
996.06	2.49	85.95	995.80	4.91 N	17.75 E	4.89	0.79
1091.06	2.03	86.46	1,090.72	5.16 N	21.49 E	5.13	0.48
1186.06	1.59	77.07	1,185.68	5.55 N	24.46 E	5.53	0.56
1281.06	1.17	63.93	1,280.65	6.28 N	26.61 E	6.25	0.55
1376.06	1.25	59.02	1,375.63	7.24 N	28.37 E	7.21	0.14
1471.06	1.20	54.19	1,470.61	8.35 N	30.07 E	8.32	0.12
1566.06	1.00	56.55	1,565.59	9.39 N	31.56 E	9.36	0.22
1661.06	0.82	47.18	1,660.58	10.31 N	32.75 E	10.27	0.25
1756.06	0.64	45.72	1,755.57	11.14 N	33.63 E	11.11	0.19
1851.06	0.48	39.95	1,850.57	11.82 N	34.27 E	11.78	0.18
1946.06	0.37	269.29	1,945.56	12.12 N	34.22 E	12.08	0.81
2041.06	0.47	298.79	2,040.56	12.30 N	33.57 E	12.27	0.25
2136.06	0.65	271.53	2,135.56	12.50 N	32.69 E	12.47	0.33
2231.06	0.64	273.33	2,230.55	12.55 N	31.62 E	12.52	0.02
2326.06	0.74	279.72	2,325.54	12.68 N	30.49 E	12.65	0.13
2421.06	0.59	302.56	2,420.54	13.05 N	29.47 E	13.02	0.32
2516.06	0.49	291.86	2,515.53	13.46 N	28.68 E	13.43	0.15
2611.06	0.21	307.27	2,610.53	13.72 N	28.16 E	13.69	0.31
2706.06	0.28	58.11	2,705.53	13.95 N	28.22 E	13.92	0.43
2801.06	0.39	53.39	2,800.53	14.26 N	28.68 E	14.23	0.12
2896.06	0.37	314.46	2,895.53	14.67 N	28.72 E	14.64	0.61
2991.06	0.96	296.19	2,990.52	15.24 N	27.79 E	15.21	0.65
3086.06	0.75	271.90	3,085.51	15.61 N	26.45 E	15.58	0.44
3181.06	0.78	275.00	3,180.50	15.69 N	25.19 E	15.66	0.05
3276.06	0.77	287.89	3,275.49	15.94 N	23.93 E	15.91	0.18
3371.06	0.32	288.39	3,370.49	16.22 N	23.08 E	16.20	0.47
3466.06	0.12	286.09	3,465.49	16.33 N	22.73 E	16.31	0.21
3561.06	0.12	209.08	3,560.49	16.27 N	22.58 E	16.25	0.16
3656.06	0.19	215.55	3,655.49	16.06 N	22.44 E	16.03	0.08
3751.06	0.11	210.25	3,750.49	15.85 N	22.31 E	15.83	0.09
3846.06	0.19	8.25	3,845.49	15.93 N	22.28 E	15.90	0.31
3941.06	0.27	0.99	3,940.49	16.31 N	22.31 E	16.28	0.09
4036.06	0.39	357.81	4,035.49	16.85 N	22.30 E	16.83	0.13

Directional Survey Data

Measured Depth (ft)	Inclination (deg)	Direction (deg)	Vertical Depth (ft)	Latitude (ft)	Departure (ft)	Vertical Section (ft)	Dogleg (1/100)
4131.06	0.44	356.33	4,130.48	17.54 N	22.27 E	17.52	0.05
4226.06	0.55	355.30	4,225.48	18.36 N	22.21 E	18.34	0.12
4321.06	0.62	342.62	4,320.47	19.30 N	22.01 E	19.28	0.15
4416.06	0.62	352.88	4,415.47	20.30 N	21.80 E	20.28	0.12
4511.06	0.74	10.46	4,510.46	21.42 N	21.84 E	21.39	0.25
4606.06	0.82	5.70	4,605.45	22.70 N	22.02 E	22.67	0.11
4701.06	0.89	352.68	4,700.44	24.11 N	22.00 E	24.08	0.22
4796.06	0.93	354.42	4,795.43	25.60 N	21.83 E	25.58	0.05
4891.06	1.00	351.99	4,890.42	27.19 N	21.64 E	27.17	0.09
4986.06	1.02	359.58	4,985.40	28.86 N	21.52 E	28.84	0.14
5081.06	0.93	348.81	5,080.39	30.46 N	21.36 E	30.44	0.21
5176.06	1.10	345.90	5,175.37	32.10 N	20.99 E	32.08	0.19
5271.06	1.48	330.20	5,270.35	34.05 N	20.16 E	34.03	0.54
5366.06	1.63	330.46	5,365.32	36.29 N	18.88 E	36.27	0.16
5461.06	1.54	323.87	5,460.28	38.50 N	17.46 E	38.48	0.21
5556.06	1.66	324.57	5,555.24	40.65 N	15.91 E	40.63	0.13
5651.06	1.71	321.44	5,650.20	42.88 N	14.23 E	42.86	0.11
5746.06	1.80	321.64	5,745.16	45.16 N	12.42 E	45.14	0.09
5841.06	2.39	318.32	5,840.09	47.81 N	10.18 E	47.80	0.63
5936.06	3.08	312.92	5,934.98	51.02 N	6.99 E	51.02	0.77
6031.06	3.32	316.07	6,029.84	54.74 N	3.21 E	54.74	0.31
6126.06	3.15	322.16	6,124.68	58.79 N	0.30 W	58.79	0.40
6221.06	2.99	314.23	6,219.55	62.58 N	3.67 W	62.58	0.48
6316.06	2.62	307.48	6,314.44	65.62 N	7.17 W	65.63	0.52
6411.06	2.69	302.38	6,409.33	68.14 N	10.78 W	68.15	0.26
6506.06	2.37	305.26	6,504.24	70.47 N	14.26 W	70.48	0.36
6601.06	1.86	303.77	6,599.18	72.46 N	17.15 W	72.48	0.54
6696.06	1.65	311.63	6,694.13	74.22 N	19.45 W	74.24	0.34
6791.06	1.40	301.37	6,789.10	75.74 N	21.47 W	75.76	0.39
6886.06	1.39	321.49	6,884.07	77.24 N	23.17 W	77.27	0.51
6981.06	1.47	308.20	6,979.04	78.90 N	24.85 W	78.92	0.36
7076.06	1.45	304.19	7,074.01	80.33 N	26.80 W	80.35	0.11
7171.06	1.38	278.43	7,168.98	81.17 N	28.93 W	81.20	0.67
7266.06	2.25	269.53	7,263.93	81.32 N	31.92 W	81.36	0.96
7448.00	14.30	325.06	7,443.77	99.80 N	48.44 W	99.85	7.23
7479.00	17.67	327.39	7,473.57	106.90 N	53.17 W	106.95	11.05
7511.00	21.15	329.75	7,503.75	115.98 N	58.69 W	116.04	11.15
7543.00	23.02	331.66	7,533.40	126.47 N	64.57 W	126.54	6.27
7574.00	26.23	334.72	7,561.58	138.01 N	70.38 W	138.08	11.13
7605.00	30.02	336.61	7,588.92	151.32 N	76.38 W	151.40	12.55
7637.00	32.69	338.37	7,616.24	166.70 N	82.75 W	166.79	8.85
7668.00	34.63	340.05	7,642.04	182.77 N	88.84 W	182.86	6.91
7700.00	35.42	343.91	7,668.25	200.23 N	94.51 W	200.33	7.37
7732.00	36.01	348.41	7,694.24	218.35 N	98.97 W	218.46	8.41
7764.00	36.94	353.24	7,719.97	237.12 N	101.99 W	237.23	9.42

Directional Survey Data

Measured Depth (ft)	Inclination (deg)	Direction (deg)	Vertical Depth (ft)	Latitude (ft)	Departure (ft)	Vertical Section (ft)	Dogleg (°/100')
10923.00	92.47	358.84	7,960.61	3,302.39 N	13.14 W	3302.41	1.11
11018.00	93.12	359.33	7,955.98	3,397.27 N	14.66 W	3397.28	0.87
11113.00	91.88	357.95	7,951.84	3,492.15 N	16.91 W	3492.16	1.95
11207.00	92.35	359.28	7,948.36	3,586.05 N	19.18 W	3586.07	1.49
11302.00	90.93	358.10	7,945.65	3,680.98 N	21.35 W	3681.00	1.94
11397.00	90.58	357.70	7,944.40	3,775.91 N	24.83 W	3775.94	0.55
11491.00	90.12	357.75	7,943.81	3,869.84 N	28.56 W	3869.86	0.49
11586.00	89.51	358.10	7,944.12	3,964.77 N	32.00 W	3964.80	0.74
11681.00	89.69	357.19	7,944.79	4,059.69 N	35.91 W	4059.72	0.97
11776.00	88.76	357.79	7,946.07	4,154.59 N	40.07 W	4154.63	1.16
11870.00	88.58	358.67	7,948.25	4,248.52 N	42.98 W	4248.56	0.96
11965.00	87.68	0.45	7,951.35	4,343.46 N	43.71 W	4343.50	2.09
12059.00	87.19	2.18	7,955.55	4,437.34 N	41.56 W	4437.38	1.91
12154.00	87.96	3.52	7,959.57	4,532.13 N	36.85 W	4532.17	1.63
12249.00	89.20	4.44	7,961.92	4,626.87 N	30.26 W	4626.90	1.62
12344.00	89.25	4.01	7,963.21	4,721.60 N	23.26 W	4721.63	0.45
12439.00	88.55	4.38	7,965.03	4,816.33 N	16.32 W	4816.35	0.83
12464.00	88.05	3.90	7,965.77	4,841.25 N	14.52 W	4841.27	2.76
12522.00	88.05	3.90	7,967.74	4,899.09 N	10.58 W	4899.10	0.01

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 359.94 degrees (Grid)
- A total correction of 7.71 deg from Magnetic north to Grid north has been applied
- Horizontal displacement is relative to the well head.
- Horizontal displacement (closure) at 12,522.00 feet is 4,899.10 feet along 359.88 degrees (Grid)

SURVEYS ARE CALCULATED USING THE SHORT COLLAR METHOD.
WELL ASSUMED VERTICAL AT THE WELLHEAD.

SURVEYS FROM 141.06' MD TO 7266.06' MD PROVIDED BY VAUGHN ENERGY SERVICES.
SURVEYS FROM 7448' MD TO 12464' MD PROVIDED BY SPERRY DRILLING.

SURVEY AT 12464' MD HAS BEEN PROJECTED TO TD AT 12522' MD.
SPERRY DRILLING ENGINEERS: D. LITTLE, R. MEDALLA.

WARRANTY

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