

15-40826

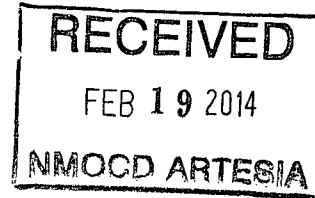


LEAM Drilling Systems, Inc. 2027A Airport Rd., Conroe, TX 77301

Survey Report

MINIMUM CURVATURE CALCULATION

Operator: Devon Energy
 Well Name: Harroun Trust 31 #4H
 Location: Eddy County, NM
 Start Date: 8/28/2013
 End Date:
 Direction: 354.18°

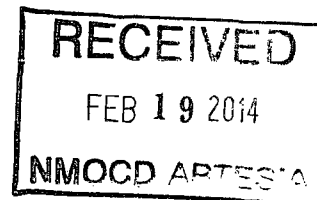


Survey Number	MD ft	INC °	AZM °	TVD ft	N-S ft	E-W ft	SECT ft	DLS °/100'
TIE IN	5833	0.55	203.44	5832.35	-13.34	3.60	-13.64	0.00
1	5897	0.62	286.33	5896.35	-13.52	3.15	-13.77	1.21
2	5929	3.61	329.23	5928.32	-12.61	2.46	-12.79	9.95
3	5960	7.39	331.50	5959.17	-10.02	1.01	-10.07	12.21
4	5992	10.82	329.05	5990.77	-5.63	-1.51	-5.45	10.78
5	6024	14.68	326.59	6021.97	0.33	-5.29	0.87	12.18
6	6055	18.73	325.18	6051.66	7.70	-10.30	8.70	13.13
7	6087	21.81	323.60	6081.67	16.70	-16.76	18.32	9.77
8	6118	23.74	325.18	6110.25	26.46	-23.74	28.73	6.53
9	6150	26.56	326.41	6139.22	37.71	-31.38	40.70	8.96
10	6182	30.07	327.82	6167.39	50.46	-39.61	54.22	11.17
11	6213	33.41	329.93	6193.75	64.42	-48.03	68.96	11.35
12	6245	36.84	331.33	6219.92	80.47	-57.05	85.84	11.01
13	6277	40.36	332.57	6244.92	98.09	-66.43	104.32	11.26
14	6308	44.58	332.74	6267.78	116.68	-76.04	123.79	13.62
15	6340	48.28	333.27	6289.83	137.34	-86.56	145.41	11.62
16	6372	51.88	331.51	6310.37	159.07	-97.94	168.19	12.01
17	6403	55.22	330.46	6328.78	180.87	-110.03	191.10	11.11
18	6435	58.74	329.23	6346.22	204.07	-123.51	215.54	11.46
19	6467	62.61	327.82	6361.89	227.85	-138.08	240.68	12.69
20	6498	66.57	326.41	6375.19	251.36	-153.29	265.61	13.42
21	6530	71.40	324.83	6386.66	276.00	-170.16	291.83	15.78
22	6562	75.27	324.66	6395.84	301.03	-187.85	318.52	12.10
23	6593	79.23	325.01	6402.68	325.74	-205.26	344.88	12.82
24	6625	82.57	326.41	6407.74	351.84	-223.05	372.65	11.30
25	6656	86.17	326.94	6410.78	377.62	-240.00	400.01	11.74
26	6688	88.55	327.47	6412.25	404.49	-257.31	428.49	7.62
27	6751	87.93	329.75	6414.19	458.24	-290.11	485.29	3.75
28	6846	87.93	332.57	6417.62	541.39	-335.90	572.66	2.97
29	6941	89.25	335.91	6419.96	626.91	-377.17	661.92	3.78
30	7036	88.90	339.24	6421.49	714.70	-413.40	752.94	3.52
31	7131	90.22	343.64	6422.22	804.73	-443.63	845.57	4.84

32	7226	90.66	348.21	6421.49	896.85	-466.72	939.56	4.83
33	7320	90.57	350.67	6420.48	989.25	-483.95	1033.23	2.62
34	7416	91.45	352.96	6418.79	1084.25	-497.61	1129.12	2.56
35	7511	90.48	354.36	6417.19	1178.65	-508.10	1224.10	1.79
36	7606	90.66	353.31	6416.24	1273.10	-518.30	1319.09	1.12
37	7701	89.96	355.42	6415.73	1367.63	-527.63	1414.08	2.34
38	7795	90.84	356.47	6415.07	1461.39	-534.28	1508.04	1.46
39	7890	89.96	358.05	6414.41	1556.28	-538.82	1602.89	1.90
40	7985	93.21	359.99	6411.78	1651.21	-540.44	1697.50	3.98
41	8080	91.98	357.70	6407.48	1746.08	-542.36	1792.08	2.73
42	8175	88.02	357.17	6407.48	1840.97	-546.61	1886.91	4.21
43	8269	88.90	357.35	6410.01	1934.83	-551.10	1980.74	0.96
44	8364	90.04	357.70	6410.89	2029.73	-555.20	2075.57	1.26
45	8459	90.75	357.35	6410.23	2124.64	-559.30	2170.40	0.83
46	8554	90.13	355.24	6409.50	2219.43	-565.44	2265.33	2.31
47	8649	89.34	355.42	6409.94	2314.12	-573.18	2360.31	0.85
48	8743	88.55	356.30	6411.67	2407.85	-579.96	2454.25	1.26
49	8838	89.52	355.94	6413.27	2502.62	-586.39	2549.18	1.09
50	8932	88.72	357.35	6414.72	2596.45	-591.89	2643.08	1.72
51	9026	88.55	358.23	6416.95	2690.35	-595.51	2736.87	0.95
52	9121	90.04	358.76	6418.12	2785.31	-598.01	2831.59	1.66
53	9215	91.63	359.28	6416.75	2879.28	-599.62	2925.24	1.78
54	9310	91.10	359.11	6414.49	2974.24	-600.95	3019.85	0.59
55	9404	90.13	358.41	6413.48	3068.21	-602.98	3113.54	1.27
56	9498	91.63	358.76	6412.04	3162.17	-605.30	3207.25	1.64
57	9593	90.22	359.46	6410.50	3257.14	-606.78	3301.88	1.66
58	9687	90.31	359.99	6410.07	3351.14	-607.23	3395.44	0.57
59	9782	88.55	358.41	6411.01	3446.12	-608.56	3490.07	2.49
60	9876	90.31	0.16	6411.95	3540.10	-609.73	3583.68	2.64
61	9970	88.37	359.28	6413.03	3634.09	-610.19	3677.23	2.27
62	10065	88.99	358.93	6415.22	3729.05	-611.67	3771.85	0.75
63	10159	89.69	359.11	6416.30	3823.03	-613.28	3865.51	0.77
64	10253	90.22	358.93	6416.38	3917.02	-614.89	3959.18	0.60
65	10347	90.31	358.05	6415.94	4010.98	-617.36	4052.91	0.94
66	10441	90.66	357.88	6415.15	4104.92	-620.70	4146.70	0.41
67	10535	91.28	357.88	6413.56	4198.84	-624.18	4240.49	0.66
68	10629	90.66	357.00	6411.96	4292.73	-628.38	4334.32	1.15
69	10723	89.52	356.47	6411.82	4386.58	-633.73	4428.23	1.34
70	10818	90.48	356.47	6411.82	4481.40	-639.58	4523.15	1.01
71	10913	89.16	356.47	6412.12	4576.21	-645.43	4618.07	1.39
72	11007	89.16	356.47	6413.49	4670.02	-651.22	4711.99	0.00
73	11102	90.04	355.94	6414.16	4764.81	-657.50	4806.92	1.08
74	11196	90.75	355.77	6413.51	4858.56	-664.30	4900.88	0.78
75	11247	91.01	354.71	6412.73	4909.38	-668.53	4951.87	2.14
76	11310	90.57	355.24	6411.86	4972.13	-674.05	5014.85	1.09
77	11405	90.22	357.00	6411.20	5066.91	-680.47	5109.79	1.89
78	11499	88.64	357.17	6412.14	5160.78	-685.25	5203.66	1.69
79	11593	88.37	358.41	6414.59	5254.68	-688.88	5297.44	1.35
80	11687	88.37	358.76	6417.26	5348.61	-691.20	5391.13	0.37

81	11782	89.43	358.93	6419.09	5443.57	-693.11	5485.80	1.13
82	11876	91.45	0.87	6418.37	5537.56	-693.28	5579.32	2.98
83	11971	90.04	0.51	6417.13	5632.54	-692.13	5673.69	1.53
84	12065	90.40	359.81	6416.77	5726.54	-691.87	5767.18	0.84
85	12160	90.57	359.81	6415.96	5821.54	-692.19	5861.72	0.18
86	12254	92.51	0.69	6413.44	5915.49	-691.78	5955.15	2.27
87	12348	90.13	358.05	6411.27	6009.45	-692.81	6048.73	3.78
88	12443	89.25	357.35	6411.79	6104.37	-696.62	6143.54	1.18
89	12537	87.41	356.12	6414.53	6198.17	-701.97	6237.40	2.35
90	12632	86.79	354.89	6419.33	6292.76	-709.41	6332.26	1.45
91	12726	88.29	354.89	6423.37	6386.29	-717.77	6426.16	1.60
92	12820	90.13	355.59	6424.66	6479.96	-725.57	6520.13	2.09
93	12915	91.10	355.94	6423.64	6574.69	-732.59	6615.09	1.09
94	13010	91.98	356.12	6421.09	6669.43	-739.16	6710.00	0.95
95	13104	90.31	356.30	6419.21	6763.20	-745.37	6803.92	1.79
96	13198	88.11	357.17	6420.51	6857.03	-750.73	6897.81	2.52

0	0	0
100	0.64	195.07
200	0.56	230.81
300	0.9	205.46
400	1.23	208.57
500	0.76	240.71
600	0.78	339.49
700	1.36	1.67
800	1.93	6.39
900	2.23	0.11
1000	1.38	349.58
1100	0.77	310.11
1200	0.91	313.3
1300	0.88	335.52
1400	0.9	358.26
1500	0.48	49.66
1600	0.75	90.95
1700	0.91	132.93
1800	1.13	122.29
1900	1.6	98.94
2000	1.31	84.79
2100	0.9	42.33
2200	1.03	53.38
2300	1.1	84.68
2400	1.21	98.63
2500	0.84	105.77
2600	0.81	104.44
2700	0.52	124.91
2800	0.61	157.88
2900	0.61	138.33
3000	0.49	146.92
3100	0.48	161.08
3200	0.5	154.52
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3400	0.61	145.91
3500	0.37	151.48
3600	0.42	143.68
3700	0.44	175.3
3800	0.44	218.92
3900	0.74	270.61
4000	0.62	228.77
4100	0.61	231.15
4200	0.64	234.12
4300	0.37	226.85
4400	0.39	218.76
4500	0.42	235.45
4600	0.69	242.49



4700	0.54	249.75
4800	0.54	236.97
4900	0.54	228.15
5000	0.79	194.81
5100	0.81	177.13
5200	0.91	193.76
5300	0.68	205.84
5400	0.66	199.82
5500	0.74	201.99
5600	0.82	214.41
5700	0.73	202.32
5800	0.72	201.83
5833	0.55	203.44
5897	0.62	286.33
5929	3.61	329.23
5960	7.39	331.5
5992	10.82	329.05
6024	14.68	326.59
6055	18.73	325.18
6087	21.81	323.6
6118	23.74	325.18
6150	26.56	326.41
6182	30.07	327.82
6213	33.41	329.93
6245	36.84	331.33
6277	40.36	332.57
6308	44.58	332.74
6340	48.28	333.27
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6435	58.74	329.23
6467	62.61	327.82
6498	66.57	326.41
6530	71.4	324.83
6562	75.27	324.66
6593	79.23	325.01
6625	82.57	326.41
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6751	87.93	329.75
6846	87.93	332.57
6941	89.25	335.91
7036	88.9	339.24
7131	90.22	343.64
7226	90.66	348.21
7320	90.57	350.67
7416	91.45	352.96

7511	90.48	354.36
7606	90.66	353.31
7701	89.96	355.42
7795	90.84	356.47
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8080	91.98	357.7
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8364	90.04	357.7
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8743	88.55	356.3
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10159	89.69	359.11
10253	90.22	358.93
10347	90.31	358.05
10441	90.66	357.88
10535	91.28	357.88
10629	90.66	357
10723	89.52	356.47
10818	90.48	356.47
10913	89.16	356.47
11007	89.16	356.47
11102	90.04	355.94
11196	90.75	355.77
11247	91.01	354.71
11310	90.57	355.24
11405	90.22	357
11499	88.64	357.17
11593	88.37	358.41
11687	88.37	358.76
11782	89.43	358.93

11876	91.45	0.87
11971	90.04	0.51
12065	90.4	359.81
12160	90.57	359.81
12254	92.51	0.69
12348	90.13	358.05
12443	89.25	357.35
12537	87.41	356.12
12632	86.79	354.89
12726	88.29	354.89
12820	90.13	355.59
12915	91.1	355.94
13010	91.98	356.12
13104	90.31	356.3
13198	88.11	357.17
13292	88.64	359.28
13387	94.35	3.85
13481	92.68	3.15
13557	93.21	2.45
13605	93.21	2.45