

**Weatherford**

HOBBS OCD
FEB 23 2018
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SURVEY REPORT

Report Date: 11/3/2017
 Customer: Devon Energy
 Job Name: MD-12741993
 Well Name: Green Wave 20-32 Fed

Field: Upper Bone Spring
 Rig: ICD 209
 Rig Loc: Lea Co., New

Survey Calculation Method: Minimum Curvature						
Magnetic Reference	Target Direction	Total Magnetic Field	Magnetic Dip Angle	Magnetic Declination	Grid Convergence	Total Correction
Grid North	179.50 deg	47835 nT	59.87 deg	6.96 deg	0.44 deg	6.52 deg
Survey Tie-On	Depth	INC	AZ	TVD	NS	EW
	0.00 ft	0.00 deg	0.00 deg	0.00 ft	0.00 ft	0.00 ft

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		VSect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
100.00	0.19	37.32	100.00	0.13	0.10	-0.13	0.19
200.00	0.01	44.39	200.00	0.27	0.21	-0.27	0.18
300.00	0.14	240.71	300.00	0.22	0.11	-0.22	0.15
400.00	0.24	274.38	400.00	0.17	-0.21	-0.17	0.15
500.00	0.62	283.51	500.00	0.32	-0.94	-0.32	0.38
600.00	0.33	288.69	599.99	0.53	-1.74	-0.55	0.29
700.00	0.64	271.05	699.99	0.64	-2.57	-0.66	0.34
800.00	0.70	281.93	799.98	0.77	-3.73	-0.81	0.14
900.00	0.73	286.77	899.97	1.08	-4.94	-1.13	0.07
1000.00	0.90	298.03	999.96	1.64	-6.24	-1.69	0.23
1100.00	0.45	315.21	1099.96	2.28	-7.21	-2.35	0.49
1200.00	0.10	336.96	1199.96	2.64	-7.52	-2.71	0.36
1300.00	0.12	14.16	1299.96	2.82	-7.53	-2.89	0.07
1400.00	0.50	50.37	1399.95	3.20	-7.17	-3.27	0.41
1500.00	0.29	80.37	1499.95	3.52	-6.58	-3.58	0.29
1600.00	0.64	56.18	1599.95	3.88	-5.87	-3.93	0.39
1700.00	0.33	74.55	1699.94	4.27	-5.13	-4.31	0.34
1800.00	0.08	99.16	1799.94	4.33	-4.78	-4.37	0.26
1900.00	0.48	14.37	1899.94	4.73	-4.61	-4.77	0.48
2000.00	0.53	17.66	1999.94	5.57	-4.36	-5.61	0.06
2100.00	0.75	15.32	2099.93	6.64	-4.05	-6.68	0.22
2200.00	0.65	10.22	2199.92	7.83	-3.78	-7.87	0.12
2300.00	0.54	37.63	2299.92	8.77	-3.39	-8.79	0.30
2400.00	0.68	41.19	2399.91	9.58	-2.71	-9.61	0.14
2500.00	0.83	46.55	2499.90	10.53	-1.79	-10.54	0.17
2600.00	1.34	53.86	2599.89	11.72	-0.32	-11.72	0.53
2700.00	1.18	57.21	2699.86	12.96	1.49	-12.95	0.18
2800.00	0.87	69.88	2799.85	13.78	3.06	-13.76	0.38
2900.00	0.77	51.19	2899.84	14.47	4.30	-14.43	0.28
3000.00	0.78	42.19	2999.83	15.39	5.28	-15.34	0.12
3100.00	1.01	39.73	3099.81	16.57	6.30	-16.52	0.23
3200.00	1.10	60.99	3199.80	17.72	7.71	-17.65	0.40
3300.00	1.59	52.46	3299.77	19.03	9.64	-18.94	0.53
3400.00	1.47	40.54	3399.73	20.85	11.58	-20.75	0.34
3500.00	2.20	25.93	3499.68	23.55	13.25	-23.43	0.86

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		VSect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
3600.00	2.22	20.62	3599.61	27.09	14.77	-26.96	0.21
3700.00	2.47	12.58	3699.53	31.00	15.92	-30.86	0.41
3800.00	3.07	5.89	3799.41	35.77	16.67	-35.62	0.68
3900.00	2.83	11.38	3899.28	40.85	17.43	-40.70	0.37
4000.00	2.85	15.49	3999.15	45.67	18.58	-45.51	0.20
4100.00	2.92	8.01	4099.03	50.59	19.60	-50.41	0.38
4200.00	3.07	3.52	4198.89	55.78	20.12	-55.60	0.28
4300.00	2.73	2.17	4298.76	60.84	20.37	-60.65	0.35
4400.00	2.80	1.81	4398.65	65.66	20.54	-65.47	0.07
4500.00	2.70	0.42	4498.53	70.45	20.64	-70.27	0.12
4600.00	2.45	2.87	4598.43	74.94	20.76	-74.76	0.27
4700.00	2.76	4.61	4698.33	79.48	21.06	-79.29	0.32
4800.00	2.90	3.43	4798.20	84.40	21.41	-84.21	0.15
4900.00	1.96	3.17	4898.11	88.63	21.65	-88.44	0.94
5000.00	1.87	350.04	4998.06	91.95	21.46	-91.76	0.45
5100.00	2.68	342.86	5097.98	95.79	20.49	-95.61	0.86
5186.00	3.18	340.66	5183.87	99.96	19.11	-99.79	0.60
5383.00	2.76	341.66	5380.60	109.62	15.81	-109.48	0.21
5477.00	3.02	347.70	5474.48	114.19	14.57	-114.06	0.43
5570.00	4.02	357.07	5567.31	119.84	13.88	-119.71	1.24
5665.00	4.99	358.15	5662.01	127.29	13.58	-127.17	1.02
5759.00	5.07	359.19	5755.65	135.53	13.39	-135.41	0.13
5854.00	4.72	359.44	5850.30	143.64	13.29	-143.52	0.37
5948.00	4.34	359.45	5944.01	151.06	13.22	-150.94	0.40
6042.00	4.36	357.40	6037.74	158.19	13.02	-158.07	0.17
6136.00	4.45	357.06	6131.46	165.40	12.67	-165.28	0.10
6230.00	4.38	352.79	6225.18	172.60	12.03	-172.49	0.36
6324.00	4.53	353.85	6318.90	179.85	11.19	-179.75	0.18
6417.00	4.54	358.22	6411.61	187.18	10.68	-187.08	0.37
6511.00	4.39	359.45	6505.32	194.50	10.53	-194.40	0.19
6605.00	4.30	357.80	6599.05	201.62	10.36	-201.52	0.16
6699.00	4.09	4.24	6692.80	208.48	10.47	-208.38	0.55
6792.00	4.12	5.17	6785.56	215.12	11.02	-215.01	0.08
6886.00	4.26	5.47	6879.31	221.96	11.65	-221.85	0.15
6980.00	4.35	359.38	6973.04	229.00	11.95	-228.88	0.50
7074.00	3.99	7.38	7066.80	235.80	12.33	-235.69	0.73
7169.00	3.63	7.30	7161.59	242.07	13.14	-241.94	0.38
7263.00	3.31	5.12	7255.41	247.72	13.76	-247.59	0.37
7358.00	3.08	7.12	7350.27	252.98	14.32	-252.85	0.27
7452.00	3.70	5.99	7444.10	258.51	14.95	-258.37	0.66
7546.00	3.86	3.22	7537.90	264.68	15.44	-264.54	0.26
7640.00	3.43	6.60	7631.71	270.63	15.94	-270.48	0.51
7734.00	3.12	7.57	7725.55	275.96	16.60	-275.81	0.34
7828.00	3.55	3.53	7819.39	281.40	17.12	-281.24	0.52
7922.00	4.10	2.68	7913.18	287.66	17.45	-287.50	0.59
8016.00	3.11	4.50	8007.00	293.56	17.81	-293.40	1.06
8110.00	3.61	359.47	8100.83	299.07	17.98	-298.90	0.62
8204.00	4.17	354.63	8194.62	305.43	17.64	-305.26	0.69
8298.00	3.88	353.27	8288.39	311.99	16.94	-311.83	0.32
8392.00	4.23	0.32	8382.15	318.61	16.59	-318.46	0.65

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		VSect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
8486.00	4.23	1.67	8475.90	325.55	16.71	-325.39	0.11
8580.00	3.93	5.65	8569.66	332.22	17.13	-332.05	0.44
8674.00	3.26	10.56	8663.47	338.05	17.94	-337.88	0.78
8768.00	3.78	3.86	8757.29	343.77	18.64	-343.59	0.70
8862.00	3.04	3.76	8851.13	349.35	19.01	-349.17	0.79
8956.00	3.87	5.19	8944.96	354.99	19.46	-354.81	0.89
9050.00	2.89	2.19	9038.79	360.52	19.84	-360.33	1.06
9144.00	3.70	355.85	9132.64	365.91	19.71	-365.73	0.94
9238.00	4.19	358.57	9226.41	372.37	19.40	-372.19	0.56
9332.00	3.41	354.39	9320.21	378.59	19.04	-378.41	0.88
9426.00	3.79	359.53	9414.02	384.48	18.74	-384.30	0.53
9520.00	5.14	5.58	9507.73	391.77	19.13	-391.59	1.52
9614.00	3.61	2.34	9601.46	398.92	19.66	-398.74	1.65
9708.00	3.43	348.01	9695.28	404.63	19.19	-404.45	0.95
9802.00	3.92	356.43	9789.09	410.59	18.41	-410.41	0.77
9895.00	3.38	357.65	9881.90	416.50	18.10	-416.33	0.59
9989.00	2.60	356.15	9975.77	421.40	17.84	-421.22	0.83
10083.00	1.97	8.96	10069.70	425.12	17.95	-424.95	0.86
10177.00	1.36	43.34	10163.66	427.53	18.97	-427.34	1.22
10270.00	1.23	325.04	10256.64	429.15	19.15	-428.96	1.76
10292.00	1.63	308.79	10278.63	429.54	18.78	-429.36	2.57
10316.00	1.88	308.46	10302.62	429.99	18.20	-429.82	1.04
10363.00	1.54	261.37	10349.60	430.38	16.97	-430.21	2.98
10410.00	4.85	194.87	10396.53	428.36	15.84	-428.21	9.50
10457.00	8.19	186.82	10443.22	423.12	14.93	-422.97	7.35
10504.00	11.62	189.11	10489.52	415.12	13.78	-414.98	7.34
10551.00	15.17	188.86	10535.23	404.36	12.09	-404.24	7.55
10598.00	19.29	188.52	10580.11	390.60	9.99	-390.50	8.77
10645.00	22.26	188.17	10624.05	374.11	7.57	-374.03	6.32
10677.00	24.72	187.06	10653.40	361.47	5.89	-361.40	7.81
10708.00	27.14	187.72	10681.28	348.03	4.14	-347.98	7.86
10740.00	29.17	187.09	10709.49	333.06	2.20	-333.02	6.41
10771.00	31.89	184.86	10736.19	317.40	0.57	-317.38	9.50
10802.00	35.40	185.60	10761.99	300.30	-1.00	-300.29	11.40
10834.00	38.31	184.74	10787.59	281.18	-2.72	-281.20	9.24
10865.00	42.30	184.05	10811.23	261.19	-4.26	-261.22	12.95
10896.00	46.01	183.14	10833.47	239.64	-5.60	-239.68	12.14
10928.00	49.50	182.49	10854.98	215.99	-6.76	-216.04	11.01
10959.00	53.45	180.68	10874.28	191.75	-7.42	-191.81	13.54
10990.00	57.11	179.14	10891.94	166.28	-7.38	-166.33	12.49
11022.00	61.35	178.29	10908.31	138.79	-6.75	-138.85	13.44
11053.00	66.37	177.10	10921.96	111.00	-5.63	-111.04	16.56
11084.00	71.56	177.13	10933.08	82.11	-4.17	-82.14	16.74
11116.00	76.46	177.28	10941.89	51.39	-2.67	-51.42	15.32
11141.00	80.88	177.44	10946.80	26.91	-1.55	-26.93	17.69
11172.00	87.48	177.44	10949.95	-3.88	-0.17	3.88	21.29
11204.00	91.26	176.65	10950.30	-35.83	1.48	35.84	12.07
11234.00	91.26	176.20	10949.64	-65.76	3.35	65.79	1.50
11265.00	90.98	175.55	10949.03	-96.68	5.58	96.72	2.28
11296.00	91.40	175.08	10948.39	-127.57	8.11	127.63	2.03

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		VSect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
11328.00	91.47	175.06	10947.59	-159.44	10.86	159.53	0.23
11359.00	91.54	174.89	10946.77	-190.31	13.57	190.42	0.59
11390.00	91.54	174.95	10945.94	-221.17	16.32	221.31	0.19
11421.00	91.61	174.69	10945.09	-252.04	19.12	252.19	0.87
11515.00	91.05	174.29	10942.91	-345.58	28.14	345.81	0.73
11609.00	90.56	173.88	10941.59	-439.07	37.83	439.38	0.68
11703.00	90.42	173.69	10940.78	-532.51	48.00	532.91	0.25
11797.00	90.21	173.78	10940.26	-625.95	58.26	626.43	0.24
11891.00	90.28	174.76	10939.86	-719.48	67.64	720.04	1.05
11985.00	90.07	176.46	10939.58	-813.20	74.84	813.82	1.82
12079.00	90.70	177.05	10938.94	-907.04	80.16	907.71	0.92
12173.00	90.42	177.37	10938.03	-1000.93	84.74	1001.63	0.45
12267.00	90.49	177.09	10937.28	-1094.81	89.28	1095.55	0.31
12361.00	90.07	177.79	10936.82	-1188.72	93.48	1189.49	0.87
12455.00	88.95	178.49	10937.62	-1282.66	96.53	1283.46	1.41
12548.00	88.60	178.96	10939.61	-1375.62	98.60	1376.43	0.63
12642.00	89.65	181.27	10941.05	-1469.60	98.41	1470.40	2.70
12736.00	89.09	181.25	10942.08	-1563.57	96.34	1564.35	0.60
12830.00	89.72	182.20	10943.06	-1657.52	93.51	1658.27	1.21
12924.00	89.30	180.77	10943.86	-1751.48	91.08	1752.21	1.59
13018.00	89.37	181.02	10944.95	-1845.47	89.61	1846.18	0.28
13112.00	89.09	180.08	10946.22	-1939.45	88.70	1940.15	1.04
13206.00	88.95	179.94	10947.82	-2033.44	88.69	2034.13	0.21
13300.00	88.32	179.84	10950.06	-2127.41	88.87	2128.10	0.68
13394.00	88.46	178.81	10952.70	-2221.37	89.98	2222.07	1.11
13487.00	90.00	177.06	10953.95	-2314.29	93.33	2315.02	2.51
13581.00	90.07	177.08	10953.90	-2408.17	98.13	2408.93	0.08
13675.00	89.44	175.97	10954.30	-2501.99	103.83	2502.80	1.36
13769.00	89.65	176.83	10955.04	-2595.80	109.73	2596.66	0.94
13863.00	89.58	176.50	10955.68	-2689.64	115.20	2690.54	0.36
13957.00	90.28	176.93	10955.79	-2783.49	120.59	2784.43	0.87
14051.00	90.07	177.27	10955.50	-2877.36	125.34	2878.35	0.43
14145.00	89.51	177.56	10955.85	-2971.27	129.58	2972.29	0.67
14238.00	88.95	179.36	10957.10	-3064.22	132.08	3065.26	2.03
14332.00	89.37	181.46	10958.48	-3158.20	131.41	3159.23	2.28
14426.00	89.23	182.08	10959.62	-3252.15	128.50	3253.15	0.68
14520.00	88.81	181.15	10961.23	-3346.10	125.86	3347.07	1.09
14614.00	89.44	181.53	10962.67	-3440.06	123.66	3441.01	0.78
14708.00	89.23	181.47	10963.76	-3534.02	121.20	3534.95	0.23
14802.00	89.79	180.87	10964.56	-3628.00	119.28	3628.90	0.87
14896.00	91.54	180.64	10963.47	-3721.98	118.04	3722.87	1.88
14990.00	91.33	180.72	10961.12	-3815.94	116.92	3816.82	0.24
15084.00	90.84	180.43	10959.34	-3909.92	115.98	3910.79	0.61
15178.00	90.35	180.72	10958.36	-4003.91	115.04	4004.76	0.61
15272.00	90.28	181.04	10957.84	-4097.90	113.59	4098.73	0.35
15365.00	90.42	181.56	10957.28	-4190.87	111.48	4191.69	0.58
15460.00	91.47	182.58	10955.71	-4285.80	108.05	4286.58	1.54
15554.00	90.70	181.71	10953.93	-4379.71	104.54	4380.46	1.24
15647.00	90.35	180.53	10953.08	-4472.69	102.72	4473.41	1.32
15741.00	90.14	180.66	10952.68	-4566.68	101.74	4567.40	0.26

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				NS (ft)	EW (ft)		
15835.00	90.49	180.69	10952.16	-4660.67	100.63	4661.37	0.37
15929.00	89.51	178.60	10952.16	-4754.67	101.22	4755.37	2.46
16023.00	89.58	178.76	10952.91	-4848.64	103.38	4849.36	0.19
16117.00	89.30	178.48	10953.82	-4942.61	105.65	4943.34	0.42
16211.00	88.81	177.84	10955.37	-5036.54	108.66	5037.30	0.86
16305.00	90.42	178.93	10956.01	-5130.50	111.31	5131.28	2.07
16399.00	90.84	178.52	10954.97	-5224.47	113.40	5225.26	0.62
16493.00	90.84	178.84	10953.59	-5318.44	115.57	5319.24	0.34
16586.00	91.75	178.89	10951.49	-5411.39	117.41	5412.21	0.98
16680.00	90.07	178.70	10950.00	-5505.36	119.39	5506.19	1.80
16774.00	90.00	178.61	10949.94	-5599.33	121.59	5600.18	0.12
16868.00	91.26	178.92	10948.91	-5693.30	123.62	5694.16	1.38
16962.00	91.61	179.23	10946.55	-5787.26	125.14	5788.13	0.50
17056.00	90.00	178.48	10945.23	-5881.23	127.01	5882.11	1.89
17150.00	90.21	179.10	10945.06	-5975.21	129.00	5976.10	0.70
17244.00	89.30	178.22	10945.46	-6069.18	131.20	6070.09	1.35
17338.00	89.44	178.17	10946.50	-6163.12	134.16	6164.06	0.16
17432.00	89.72	178.26	10947.19	-6257.08	137.09	6258.03	0.31
17526.00	90.49	178.25	10947.01	-6351.03	139.95	6352.01	0.82
17620.00	89.93	178.44	10946.67	-6444.99	142.66	6445.99	0.63
17713.00	91.47	178.76	10945.53	-6537.95	144.94	6538.97	1.69
17807.00	90.77	177.31	10943.70	-6631.88	148.16	6632.92	1.71
17901.00	90.84	178.51	10942.38	-6725.80	151.59	6726.87	1.28
17995.00	90.63	178.62	10941.17	-6819.77	153.94	6820.85	0.25
18089.00	90.91	179.31	10939.91	-6913.74	155.64	6914.84	0.79
18183.00	91.75	180.50	10937.72	-7007.71	155.79	7008.81	1.55
18277.00	91.61	179.95	10934.97	-7101.67	155.42	7102.76	0.60
18371.00	91.19	179.20	10932.67	-7195.64	156.12	7196.73	0.91
18465.00	91.75	179.60	10930.26	-7289.60	157.11	7290.70	0.73
18559.00	90.98	178.49	10928.02	-7383.56	158.67	7384.67	1.44
18654.00	91.40	178.29	10926.05	-7478.50	161.34	7479.63	0.49
18748.00	91.82	178.32	10923.41	-7572.43	164.12	7573.57	0.45
18842.00	91.19	179.03	10920.94	-7666.37	166.29	7667.53	1.01
18937.00	91.47	179.55	10918.73	-7761.33	167.47	7762.50	0.62
19031.00	90.77	179.74	10916.90	-7855.31	168.05	7856.48	0.77
19125.00	89.30	180.29	10916.84	-7949.31	168.03	7950.47	1.67
19219.00	91.47	182.00	10916.21	-8043.28	166.15	8044.42	2.94
19313.00	91.96	182.67	10913.39	-8137.16	162.32	8138.27	0.88
19407.00	87.62	181.82	10913.74	-8231.06	158.64	8232.13	4.70
19501.00	86.86	181.14	10918.26	-8324.92	156.21	8325.97	1.08
19595.00	88.81	179.88	10921.82	-8418.84	155.38	8419.88	2.47
19689.00	89.72	178.86	10923.02	-8512.83	156.41	8513.87	1.45
19782.00	91.12	178.62	10922.34	-8605.80	158.46	8606.86	1.53
19877.00	90.70	179.22	10920.83	-8700.77	160.25	8701.84	0.77
19970.00	90.63	180.40	10919.75	-8793.76	160.56	8794.83	1.27
20065.00	89.37	180.06	10919.75	-8888.76	160.18	8889.82	1.37
20159.00	88.46	179.80	10921.53	-8982.74	160.29	8983.80	1.01
20347.00	90.84	178.53	10922.68	-9170.70	163.03	9171.78	1.43
20441.00	90.84	178.32	10921.30	-9264.66	165.61	9265.75	0.22
20535.00	91.19	178.33	10919.64	-9358.60	168.36	9359.71	0.37

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		Vsect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
20629.00	90.77	177.64	10918.03	-9452.53	171.66	9453.67	0.86
20723.00	90.35	177.28	10917.11	-9546.43	175.83	9547.60	0.59
20807.00	90.91	176.59	10916.19	-9630.31	180.32	9631.51	1.06

Vertical Section is 9710.68 ft along the target direction of 179.50 deg at a measured depth of 20886.28 ft.
Horizontal Displacement is 9711.20 ft along the well bore azimuth of 178.91 deg.
The total correction is 6.52 deg relative to Grid North.