

# Chevron Appalachia, LLC Berger 10H Gyro+MWD

**PATHFINDER**

A Schlumberger Company

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<b>Report Date:</b> 11/16/2015	<b>Survey / DLS Computation Method:</b> Minimum Curvature (Dubinski)
<b>Client:</b> Chevron Appalachia, LLC	<b>Vertical Section Azimuth:</b> 157.194° (TrueNorth)
<b>Field:</b> WV Marshall County	<b>Vertical Section Origin:</b> 0 ft, 0 ft
<b>Structure / Slot:</b> Chevron Appalachia, LLC Berger 10H / Chevron Appalachia, LLC Berger 10H	<b>TVD Reference Datum:</b> KB
<b>Well:</b> Berger 10H	<b>TVD Reference Elevation:</b> 1319.57 ft above MSL
<b>Borehole:</b> Original Borehole	<b>Sea Bed / Ground Level Elevation:</b> 1287.57 ft above MSL
<b>UWI/API#:</b> Unknown / 47-051-01709-00	<b>Magnetic Declination:</b> -7.6867°
<b>Survey Name / Date:</b> Chevron Appalachia, LLC Berger 10H Gyro+MWD 24-Dec-2014	<b>Total Field Strength:</b> 52762.79 nT
<b>Grid Coordinate System:</b> NAD83 West Virginia State	<b>Magnetic Dip:</b> 67.313°
<b>Location Lat/Long:</b> 39° 52' 28.228" N, 80° 45' 16.677" W	<b>Declination Date:</b> 12/15/2014
<b>Location Grid N/E Y/X:</b> Y: 503099.520 ftUSX: 1616384.750 ftUS	<b>Magnetic Declination Model:</b> HDGM 2013
<b>Grid Convergence Angle:</b> 0°	<b>North Reference:</b> TrueNorth
<b>Grid Scale Factor:</b> 0.99991045	<b>Total Corr Mag North -&gt; Grid North:</b> -7.76°
	<b>Local Coordinates Referenced To:</b> GridNorth

MD	INCL	AZIM	TVD	VSEC	ND	ED	DLS
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.07	332.70	100.00	-0.06	0.05	-0.03	0.07
130.00	0.17	250.93	130.00	-0.08	0.06	-0.08	0.58
160.00	0.06	192.47	160.00	-0.07	0.03	-0.12	0.49
190.00	0.13	235.95	190.00	-0.05	-0.01	-0.16	0.32
220.00	0.24	231.32	220.00	-0.03	-0.07	-0.23	0.37
250.00	0.58	223.31	250.00	0.05	-0.22	-0.39	1.15
280.00	0.71	225.29	280.00	0.18	-0.46	-0.62	0.44
310.00	0.81	223.25	309.99	0.34	-0.74	-0.90	0.35
340.00	0.88	229.30	339.99	0.49	-1.05	-1.22	0.38
370.00	0.99	233.32	369.99	0.63	-1.35	-1.60	0.43
400.00	1.02	234.00	399.98	0.75	-1.66	-2.03	0.11
430.00	1.02	231.66	429.98	0.88	-1.99	-2.45	0.14
460.00	1.01	233.93	459.97	1.01	-2.31	-2.87	0.14
490.00	0.67	230.34	489.97	1.13	-2.58	-3.22	1.15
520.00	0.33	54.13	519.97	1.16	-2.64	-3.29	3.33
550.00	0.54	61.74	549.97	1.12	-2.52	-3.09	0.72
580.00	0.49	59.67	579.97	1.09	-2.39	-2.86	0.18
610.00	0.74	56.59	609.97	1.04	-2.22	-2.59	0.84
640.00	0.83	58.49	639.96	0.97	-2.00	-2.24	0.31
670.00	0.92	61.12	669.96	0.91	-1.77	-1.84	0.33

676.00	0.93	61.35	675.96	0.90	-1.72	-1.76	0.18
719.00	1.30	57.63	718.95	0.79	-1.29	-1.04	0.88
803.00	1.54	53.82	802.92	0.37	-0.11	0.68	0.31
896.00	1.45	145.75	895.90	1.23	-0.35	2.35	2.31
991.00	3.08	176.63	990.83	4.81	-3.89	3.18	2.08
1086.00	3.41	178.56	1085.68	9.85	-9.26	3.40	0.37
1181.00	4.28	183.83	1180.46	15.65	-15.62	3.23	0.99
1276.00	4.26	184.56	1275.20	21.96	-22.68	2.71	0.06
1370.00	4.52	196.74	1368.92	27.92	-29.71	1.37	1.03
1465.00	4.60	199.93	1463.62	33.60	-36.88	-1.01	0.28
1560.00	4.76	203.43	1558.31	39.13	-44.08	-3.87	0.34
1655.00	3.18	201.80	1653.08	43.73	-50.14	-6.42	1.67
1750.00	1.02	185.22	1748.01	46.35	-53.42	-7.47	2.34
1845.00	0.41	276.96	1843.00	46.93	-54.22	-7.88	1.17
1940.00	1.06	298.97	1937.99	46.07	-53.76	-8.99	0.74
2035.00	1.27	297.77	2032.97	44.57	-52.84	-10.69	0.22
2130.00	1.35	309.43	2127.95	42.76	-51.64	-12.48	0.29
2225.00	1.16	301.75	2222.93	40.98	-50.42	-14.17	0.27
2320.00	1.11	307.65	2317.91	39.40	-49.35	-15.72	0.14
2415.00	1.24	304.51	2412.89	37.73	-48.21	-17.29	0.16
2510.00	1.34	301.06	2507.86	35.97	-47.05	-19.09	0.13
2605.00	1.10	298.98	2602.84	34.36	-46.03	-20.84	0.26
2658.00	1.15	293.45	2655.83	33.57	-45.58	-21.78	0.22
2794.00	1.05	310.94	2791.81	31.47	-44.22	-23.96	0.26
2889.00	0.62	115.78	2886.80	31.08	-43.87	-24.16	1.74
2984.00	0.49	100.32	2981.80	31.68	-44.17	-23.30	0.21
3079.00	0.30	98.07	3076.80	32.03	-44.27	-22.66	0.20
3173.00	0.35	80.12	3170.79	32.22	-44.26	-22.14	0.12
3268.00	0.11	28.25	3265.79	32.22	-44.13	-21.81	0.30
3363.00	0.16	328.09	3360.79	32.03	-43.93	-21.83	0.15
3457.00	0.31	284.56	3454.79	31.75	-43.75	-22.15	0.24
3552.00	0.52	262.46	3549.79	31.48	-43.75	-22.83	0.28
3647.00	0.80	271.54	3644.78	31.09	-43.78	-23.92	0.31
3742.00	0.89	253.44	3739.77	30.74	-43.98	-25.29	0.29
3836.00	0.73	251.45	3833.76	30.61	-44.38	-26.55	0.17
3930.00	0.64	262.16	3927.76	30.43	-44.64	-27.64	0.16
4025.00	0.66	265.96	4022.75	30.12	-44.75	-28.72	0.05
4120.00	0.56	305.83	4117.75	29.55	-44.52	-29.64	0.45
4214.00	0.56	317.64	4211.74	28.73	-43.91	-30.31	0.12

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4309.00	0.75	325.31	4306.74	27.69	-43.06	-30.98	0.22
4404.00	3.26	266.64	4401.68	26.18	-42.71	-34.03	3.09
4483.00	8.03	241.17	4480.28	26.01	-45.50	-41.11	6.67
4532.00	13.87	218.24	4528.39	29.21	-51.77	-47.75	14.66
4586.00	19.48	209.55	4580.11	37.85	-64.70	-56.20	11.33
4627.00	20.65	206.33	4618.62	46.76	-77.12	-62.78	3.93
4722.00	17.97	204.53	4708.27	67.65	-105.47	-76.30	2.90
4817.00	22.63	218.95	4797.40	86.25	-133.05	-93.89	7.17
4911.00	27.44	232.33	4882.61	100.39	-160.39	-122.44	7.88
5006.00	34.99	248.68	4963.94	105.31	-183.74	-165.29	11.88
5101.00	41.66	252.52	5038.44	101.67	-203.16	-220.84	7.45
5196.00	41.72	250.54	5109.39	96.90	-223.17	-280.76	1.38
5291.00	41.97	251.36	5180.16	92.74	-243.85	-340.67	0.63
5386.00	41.80	251.23	5250.89	88.21	-264.19	-400.74	0.20
5481.00	41.56	250.75	5321.84	84.03	-284.78	-460.47	0.42
5576.00	41.63	251.05	5392.89	79.95	-305.41	-520.06	0.23
5670.00	42.02	251.92	5462.94	75.26	-325.31	-579.50	0.74
5765.00	42.19	252.08	5533.42	69.92	-344.99	-640.08	0.21
5860.00	42.07	251.95	5603.87	64.57	-364.67	-700.69	0.16
5955.00	41.84	249.65	5674.53	60.57	-385.55	-760.66	1.64
6050.00	42.59	246.46	5744.90	59.63	-409.41	-819.84	2.39
6145.00	42.55	243.02	5814.87	62.38	-436.83	-877.95	2.45
6239.00	42.28	234.63	5884.32	71.57	-469.58	-932.10	6.02
6334.00	42.18	226.56	5954.72	89.78	-510.04	-981.35	5.71
6429.00	44.03	218.87	6024.13	116.70	-557.71	-1025.26	5.86
6524.00	49.41	201.29	6089.51	158.48	-617.31	-1059.23	14.58
6619.00	51.34	183.93	6150.37	217.78	-688.25	-1074.94	14.19
6714.00	51.71	177.46	6209.51	285.92	-762.55	-1075.84	5.34
6808.00	53.22	178.12	6266.78	355.70	-837.03	-1072.97	1.70
6903.00	57.64	172.33	6320.70	430.05	-914.91	-1066.37	6.84
6998.00	66.67	165.92	6365.06	512.13	-997.22	-1050.36	11.21
7093.00	77.52	162.06	6394.23	601.75	-1083.93	-1025.37	12.06
7188.00	82.67	156.06	6410.58	695.21	-1171.25	-991.92	8.25
7283.00	89.30	150.73	6417.23	789.68	-1255.90	-949.51	8.94
7377.00	90.05	141.84	6417.76	881.89	-1334.01	-897.39	9.49
7472.00	89.76	142.19	6417.91	973.57	-1408.89	-838.92	0.48
7567.00	90.05	142.68	6418.07	1065.44	-1484.20	-781.01	0.60
7662.00	89.06	144.96	6418.81	1157.85	-1560.87	-724.94	2.62
7757.00	89.50	141.51	6420.00	1250.03	-1636.96	-668.10	3.67

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7852.00	89.10	134.67	6421.16	1339.73	-1707.61	-604.68	7.22
7946.00	88.17	140.85	6423.40	1428.31	-1777.15	-541.54	6.65
8041.00	87.83	145.25	6426.71	1520.35	-1853.00	-484.48	4.64
8136.00	87.19	145.20	6430.83	1613.19	-1930.96	-430.34	0.68
8231.00	86.37	145.32	6436.17	1705.99	-2008.90	-376.29	0.88
8326.00	87.33	145.21	6441.39	1798.80	-2086.85	-322.25	1.02
8420.00	88.96	145.25	6444.43	1890.71	-2164.02	-268.67	1.74
8515.00	89.40	145.73	6445.79	1983.72	-2242.30	-214.85	0.68
8610.00	88.45	143.37	6447.57	2076.39	-2319.67	-159.77	2.68
8705.00	88.95	144.97	6449.73	2168.92	-2396.67	-104.18	1.77
8800.00	88.99	143.44	6451.44	2261.48	-2473.71	-48.63	1.61
8895.00	89.10	142.72	6453.02	2353.60	-2549.65	8.43	0.77
8989.00	89.03	142.73	6454.56	2444.60	-2624.44	65.36	0.07
9084.00	88.57	142.97	6456.55	2536.62	-2700.14	122.72	0.55
9179.00	89.04	142.46	6458.53	2628.58	-2775.71	180.26	0.73
9274.00	89.56	143.88	6459.69	2720.74	-2851.74	237.20	1.60
9368.00	90.44	142.90	6459.69	2812.02	-2927.19	293.26	1.41
9463.00	89.98	144.30	6459.35	2904.36	-3003.65	349.63	1.55
9558.00	89.32	144.66	6459.93	2997.02	-3080.97	404.83	0.79
9653.00	89.35	144.28	6461.03	3089.68	-3158.27	460.04	0.40
9748.00	89.09	143.35	6462.33	3182.09	-3234.94	516.12	1.01
9843.00	90.21	141.10	6462.91	3273.86	-3310.02	574.30	2.64
9938.00	88.72	143.23	6463.80	3365.60	-3385.04	632.57	2.73
10033.00	87.96	145.95	6466.56	3458.26	-3462.43	687.59	2.97
10130.00	89.70	144.06	6468.54	3553.05	-3541.87	743.20	2.65
10222.00	90.33	143.41	6468.52	3642.52	-3616.05	797.62	0.98
10317.00	90.72	144.10	6467.65	3734.91	-3692.66	853.79	0.84
10412.00	90.80	143.64	6466.39	3827.35	-3769.38	909.79	0.48
10507.00	90.53	144.65	6465.29	3919.89	-3846.38	965.43	1.10
10602.00	90.27	144.98	6464.63	4012.68	-3924.02	1020.16	0.43
10696.00	89.16	144.02	6465.09	4104.38	-4000.54	1074.75	1.56
10791.00	90.22	144.35	6465.60	4196.94	-4077.58	1130.34	1.17
10886.00	90.76	143.10	6464.79	4289.32	-4154.16	1186.54	1.43
10981.00	90.61	145.74	6463.65	4381.95	-4231.42	1241.80	2.78
11075.00	90.32	144.16	6462.89	4473.81	-4308.37	1295.78	1.72
11170.00	88.74	143.92	6463.67	4566.31	-4385.26	1351.57	1.68
11265.00	88.59	145.45	6465.89	4659.03	-4462.75	1406.47	1.62
11360.00	88.80	145.19	6468.05	4751.97	-4540.85	1460.51	0.35
11455.00	88.27	142.40	6470.48	4844.34	-4617.47	1516.60	2.99

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11550.00	88.93	142.32	6472.81	4936.15	-4692.67	1574.60	0.70
11645.00	88.56	141.52	6474.89	5027.77	-4767.44	1633.18	0.92
11740.00	88.85	141.42	6477.03	5119.19	-4841.74	1692.34	0.33
11834.00	89.26	142.38	6478.58	5209.85	-4915.70	1750.33	1.10
11929.00	88.73	141.81	6480.25	5301.56	-4990.64	1808.69	0.81
12024.00	89.83	142.68	6481.44	5393.33	-5065.74	1866.85	1.47
12119.00	89.04	140.34	6482.37	5484.78	-5140.09	1925.97	2.60
12214.00	90.41	143.35	6482.83	5576.38	-5214.78	1984.65	3.48
12309.00	89.03	142.34	6483.29	5668.41	-5290.50	2042.02	1.79
12403.00	89.30	142.58	6484.66	5759.31	-5365.03	2099.29	0.38
12498.00	88.82	143.57	6486.21	5851.43	-5440.97	2156.35	1.15
12593.00	89.62	143.52	6487.50	5943.74	-5517.37	2212.79	0.85
12688.00	88.64	146.63	6488.94	6036.60	-5595.24	2267.16	3.43
12783.00	89.27	145.88	6490.67	6129.86	-5674.22	2319.93	1.03
12877.00	89.86	144.49	6491.39	6221.79	-5751.39	2373.59	1.60
12972.00	90.47	145.41	6491.11	6314.63	-5829.16	2428.14	1.16
13067.00	89.55	146.56	6491.09	6407.82	-5907.90	2481.29	1.55
13099.00	89.55	146.56	6491.34	6439.27	-5934.61	2498.92	0.01

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