



# NOBLE ENERGY

Location: Gilmer County, WV  
 Field: Gilmer  
 Facility: Norm Pad

Slot: Slot #5  
 Well: Norm 1G  
 Wellbore: Norm 1G (PWB)



### Location Information

Factory Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude		
Norm Pad	2015441.000	673234.000	38°50'55.740"N	80°56'44.830"W		
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot #5	-71.02	37.86	2015479.000	673163.000	38°50'55.038"N	80°56'44.350"W
Precision SRS (RKN) in Mud line (At Slot: Slot #5)	18ft					
Mean Sea Level to Mud line (At Slot: Slot #5)	-810ft					
Precision S45 (RKB) to Mean Sea Level	826ft					

### Hole and Casing Sections

Name	Start MD (ft)	End MD (ft)	Interval (ft)	Start TVD (ft)	End TVD (ft)	Start Lat (ft)	Start Long (ft)	End Lat (ft)	End Long (ft)	Wellbore
13.375in Casing Surface	13.00	43.00	30.00	12.00	40.00	0.00	0.00	0.00	0.00	Name 12 (PWB)
113.125in Casing Intermediate	18.00	2000.00	1982.00	13.00	2000.00	0.00	0.00	0.00	0.00	Name 13 (PWB)

### Bottom Hole Location

MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
19904.12	89.500	181.100	6131.60	-4778.42	2321.05	2017804.00	66385.00	38°49'43.029"N	80°58'13.020"W

Plot reference wellpath is Norm 1G (PWP) EX-01

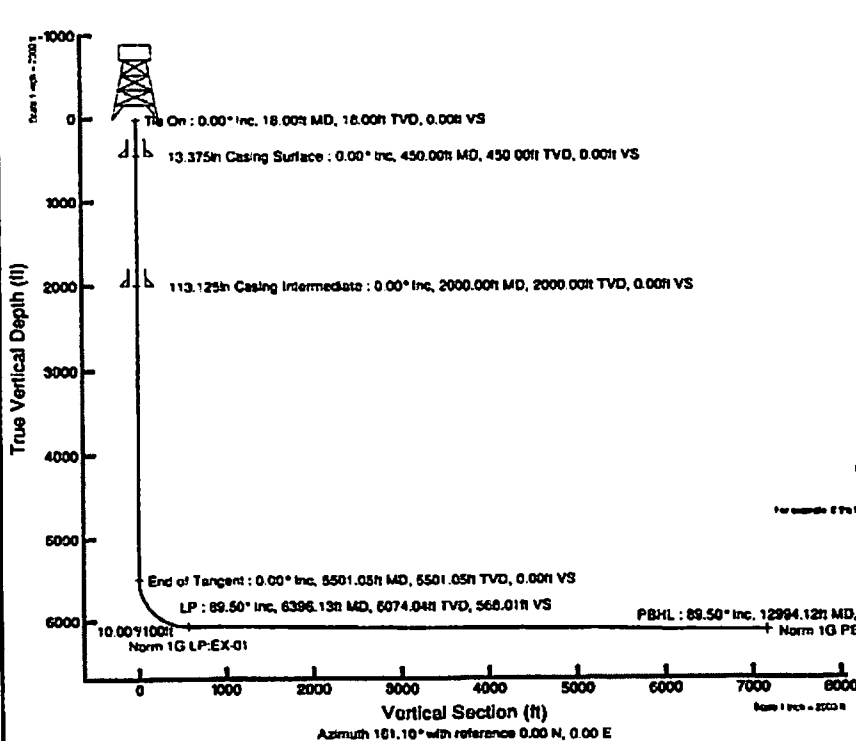
Top survey depth are referenced to Precision SRS (RKN)	Grid System: NAD83 / Lambert West Virginia SP, Southern Zone (1729, US feet)
Measured depths are referenced to Precision S45 (RKB)	North Reference: True north
Precision S45 (RKB) to Mean Sea Level: 826 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: Slot #5): -810 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: Inquest on 8/15/2013

### Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	OLS (ft/100ft)	VS (ft)
Tie On	18.00	0.000	161.100	18.00	0.00	0.00	0.00	0.00
End of Tangent	5501.05	0.000	161.100	5501.05	0.00	0.00	0.00	0.00
LP	6396.13	89.500	161.100	6074.04	-537.39	183.88	10.00	568.01
PBHL	12994.12	89.500	161.100	6131.60	-5778.42	2321.05	0.00	7165.74

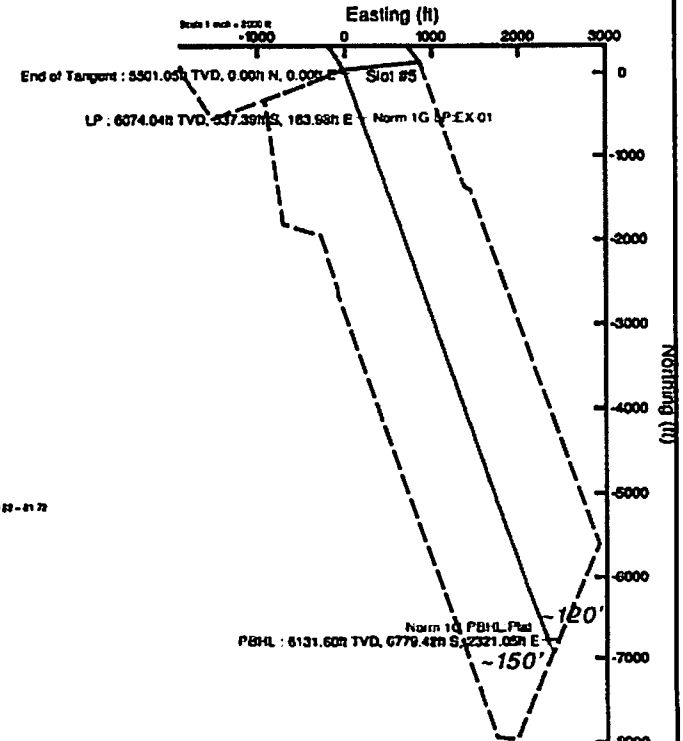
### Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Norm 1G LP Pad	6374.00	6374.00	-474.11	173.88	2018633.00	672983.00	38°50'49.263"N	80°56'42.159"W
Norm 1G LP EX-01	6396.13	6074.04	-437.39	183.88	2018683.29	672979.72	38°50'48.726"N	80°56'42.024"W
Norm 1G PWB Pad	12994.12	6131.60	-4778.42	2321.05	2017804.00	66385.00	38°49'43.029"N	80°58'13.020"W



8000ft (1945 ft to 8195 ft) Dip 86.54° (true 8295 ft) of  
 magnitude North to 8.28 degrees West of True North (S 81°22'00")

To correct azimuth from magnetic to true subtract 8.28 degrees  
 For example if the magnetic North Azimuth = 82 deg, then the True North Azimuth = 82 - 8.28 = 73.72



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## Actual Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot #1G
Area	Gilmer County, WV	Well	Norm 1G
Field	Gilmer	Wellbore	Norm 1G (AWB)
Facility	Norm Pad		

REPORT SETUP INFORMATION			
Projection System	NAD27 / Lambert West Virginia SP, Southern Zone (4702), US feet	Software System	WellArchitect® 4.0.0
North Reference	True	User	Vansbra
Scale	0.999993	Report Generated	27/May/2013 at 07:17
Convergence at slot	n/a	Database/Source file	WellArchitectDB/Norm_1G_AWB_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-71.02	37.96	2015479.00	673163.00	38°50'55.038"N	80°56'44.350"W
Facility Reference Pt			2015441.00	673234.00	38°50'55.740"N	80°56'44.830"W
Field Reference Pt			0.00	0.00	36°47'50.602"N	87°50'06.103"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Precision 542 (RKB) to Facility Vertical Datum	18.00ft
Horizontal Reference Pt	Slot	Precision 542 (RKB) to Mean Sea Level	828.00ft
Vertical Reference Pt	Precision 542 (RKB)	Precision 542 (RKB) to Mud Line at Slot (Slot #1G)	18.00ft
MD Reference Pt	Precision 542 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	161.10°

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# Actual Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot #1G
Area	Gilmer County, WV	Well	Norm 1G
Field	Gilmer	Wellbore	Norm 1G (AWB)
Facility	Norm Pad		

WELLPATH DATA (164 stations) † = Interpolated/extrapolated station							
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	DLS (%/100ft)
0.00†	0.000	335.730	0.00	0.00	0.00	0.00	0.00
18.00	0.000	335.730	18.00	0.00	0.00	0.00	0.00
83.00	0.800	335.730	83.00	-0.45	0.41	-0.19	1.23
177.00	1.400	337.800	176.98	-2.25	2.08	-0.89	0.64
270.00	1.870	333.140	269.94	-4.89	4.48	-2.00	0.52
363.00	0.660	320.460	362.92	-6.89	6.25	-3.03	1.33
394.00	0.250	306.750	393.92	-7.12	6.43	-3.20	1.36
489.00	1.010	134.940	488.91	-6.54	5.96	-2.77	1.32
578.00	1.990	138.000	577.88	-4.41	4.26	-1.18	1.10
668.00	0.860	115.500	667.85	-2.50	2.80	0.47	1.38
758.00	0.740	55.930	757.85	-2.18	2.84	1.56	0.89
847.00	0.720	42.320	846.84	-2.60	3.57	2.42	0.20
937.00	0.050	210.320	936.84	-2.85	3.96	2.78	0.85
1026.00	1.050	226.000	1025.83	-2.47	3.36	2.17	1.13
1116.00	1.170	228.880	1115.81	-1.78	2.18	0.88	0.15
1206.00	0.780	226.960	1205.80	-1.18	1.16	-0.26	0.43
1295.00	0.690	223.310	1294.79	-0.68	0.36	-1.07	0.11
1385.00	0.620	223.550	1384.79	-0.20	-0.39	-1.77	0.08
1475.00	0.200	205.560	1474.78	0.13	-0.89	-2.18	0.48
1564.00	0.180	80.300	1563.78	0.27	-1.00	-2.11	0.38
1654.00	0.220	94.800	1653.78	0.36	-0.99	-1.79	0.07
1744.00	0.260	70.890	1743.78	0.43	-0.94	-1.43	0.12
1833.00	0.230	76.280	1832.78	0.44	-0.83	-1.06	0.04
1923.00	0.340	79.590	1922.78	0.50	-0.74	-0.63	0.12
1968.00	0.270	74.810	1967.78	0.53	-0.69	-0.39	0.17
2061.00	0.130	21.650	2060.78	0.46	-0.53	-0.14	0.23
2106.00	0.250	300.160	2105.78	0.35	-0.44	-0.21	0.59
2195.00	0.430	264.250	2194.78	0.12	-0.37	-0.71	0.30
2285.00	0.560	289.380	2284.78	-0.23	-0.26	-1.46	0.28
2374.00	0.340	279.180	2373.77	-0.62	-0.08	-2.13	0.26
2464.00	0.490	293.080	2463.77	-1.00	0.12	-2.75	0.20
2554.00	0.290	288.900	2553.77	-1.40	0.34	-3.32	0.22
2643.00	0.360	276.220	2642.77	-1.66	0.45	-3.81	0.11
2733.00	0.390	318.720	2732.76	-2.06	0.71	-4.29	0.30
2823.00	0.560	107.400	2822.76	-2.08	0.81	-4.07	1.02
2912.00	0.870	109.320	2911.76	-1.41	0.45	-3.02	0.35
3002.00	0.710	114.380	3001.75	-0.60	0.00	-1.87	0.19
3092.00	0.430	123.060	3091.74	0.05	-0.42	-1.08	0.32
3181.00	0.290	100.930	3180.74	0.42	-0.64	-0.58	0.22
3271.00	0.160	98.920	3270.74	0.59	-0.71	-0.23	0.14
3361.00	0.280	102.980	3360.74	0.77	-0.77	0.11	0.13

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3450.00	0.070	124.080	3449.74	0.93	-0.85	0.37	0.24
3540.00	0.060	289.580	3539.74	0.94	-0.87	0.37	0.14
3630.00	0.130	186.340	3629.74	1.00	-0.95	0.31	0.17
3719.00	0.250	186.540	3718.74	1.27	-1.25	0.28	0.13

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot #1G
Area	Gilmer County, WV	Well	Norm 1G
Field	Gilmer	Wellbore	Norm 1G (AWB)
Facility	Norm Pad		

WELLPATH DATA (164 stations)							
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [*/100ft]
3809.00	0.560	230.620	3808.74	1.60	-1.72	-0.08	0.46
3898.00	0.570	236.660	3897.73	1.86	-2.24	-0.79	0.07
3988.00	0.660	234.250	3987.73	2.13	-2.79	-1.58	0.10
4077.00	0.600	256.580	4076.72	2.23	-3.20	-2.45	0.28
4167.00	0.680	264.860	4166.72	2.06	-3.36	-3.44	0.14
4257.00	0.220	229.860	4256.71	1.99	-3.51	-4.11	0.57
4346.00	0.410	248.010	4345.71	2.07	-3.74	-4.53	0.24
4436.00	0.740	32.730	4435.71	1.73	-3.38	-4.52	1.22
4526.00	0.940	38.110	4525.70	0.97	-2.31	-3.75	0.24
4615.00	0.590	13.900	4614.69	0.18	-1.29	-3.19	0.53
4705.00	0.440	10.440	4704.69	-0.51	-0.50	-3.01	0.17
4794.00	0.150	338.140	4793.69	-0.92	-0.05	-3.00	0.36
4884.00	4.960	146.720	4883.62	1.27	-1.94	-1.74	9.46
4893.00	5.600	146.630	4892.43	5.28	-5.40	0.54	1.42
4938.00	5.440	146.080	4937.22	9.47	-9.00	2.93	0.37
4983.00	9.620	156.500	4981.83	15.28	-14.22	5.62	9.73
5027.00	10.120	157.900	5025.17	22.80	-21.18	8.54	1.26
5072.00	9.140	156.210	5069.54	30.31	-28.11	11.47	2.27
5117.00	8.390	163.380	5114.02	37.15	-34.53	13.85	2.94
5162.00	7.350	161.830	5158.59	43.31	-40.41	15.69	2.36
5207.00	6.400	157.430	5203.27	48.69	-45.46	17.55	2.41
5251.00	6.290	155.590	5247.00	53.54	-49.92	19.49	0.53
5296.00	8.730	161.330	5291.61	59.41	-55.40	21.60	5.67
5341.00	8.690	160.010	5336.09	66.22	-61.83	23.86	0.45
5386.00	8.380	154.020	5380.59	72.88	-67.97	26.46	2.09
5431.00	12.310	160.340	5424.85	80.93	-75.44	29.51	9.08
5475.00	17.930	161.640	5467.31	92.40	-86.29	33.22	12.80
5520.00	23.230	161.880	5509.43	108.21	-101.31	38.17	11.78
5565.00	26.950	161.150	5550.17	127.29	-119.41	44.22	8.30
5610.00	29.940	159.140	5589.74	148.72	-139.55	51.52	6.98
5655.00	32.120	157.420	5628.30	171.88	-161.10	60.11	5.23
5700.00	36.670	157.940	5665.42	197.25	-184.61	69.76	10.13
5726.00	39.340	158.900	5685.90	213.24	-199.50	75.64	10.52
5788.00	40.430	159.150	5733.48	252.97	-236.62	89.87	1.78
5845.00	40.950	160.350	5776.70	290.12	-271.48	102.73	1.65
5876.00	43.300	160.070	5799.69	310.91	-291.05	109.77	7.60
5909.00	48.530	156.200	5822.65	334.56	-313.02	118.63	17.94
5940.00	52.980	152.470	5842.26	358.39	-334.63	129.04	17.11
5971.00	59.450	148.790	5859.49	383.70	-357.05	141.69	23.08
6003.00	62.420	149.310	5875.03	411.05	-381.04	156.08	9.39
6035.00	66.580	153.460	5888.81	439.51	-406.39	169.89	17.49

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6066.00	70.510	155.400	5900.15	468.16	-432.41	182.33	13.95
6098.00	75.640	155.960	5909.46	498.62	-460.30	194.93	16.12
6129.00	78.890	158.150	5916.30	528.78	-488.14	206.71	12.55
6161.00	82.150	160.960	5921.57	560.32	-517.71	217.73	13.37

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot #1G
Area	Gilmer County, WV	Well	Norm 1G
Field	Gilmer	Wellbore	Norm 1G (AWB)
Facility	Norm Pad		

WELLPATH DATA (164 stations)							
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	DLS (°/100ft)
6174.00	82.320	161.150	5923.32	573.20	-529.89	221.91	1.95
6193.00	83.440	162.300	5925.68	592.06	-547.79	227.83	8.42
6225.00	87.320	163.730	5928.26	623.93	-578.29	237.14	12.92
6319.00	87.780	163.860	5932.27	717.74	-668.47	263.35	0.51
6414.00	89.630	163.900	5934.42	812.60	-759.71	289.72	1.95
6509.00	90.680	164.520	5934.16	907.46	-851.13	315.57	1.28
6604.00	89.820	163.960	5933.75	1002.31	-942.55	341.37	1.08
6699.00	89.510	164.820	5934.30	1097.15	-1034.05	366.93	0.96
6794.00	89.510	163.670	5935.12	1192.00	-1125.47	392.73	1.21
6889.00	89.320	163.100	5936.09	1286.92	-1216.50	419.89	0.63
6984.00	89.010	162.010	5937.47	1381.88	-1307.12	448.37	1.19
7079.00	88.770	161.480	5939.31	1476.86	-1397.32	478.12	0.61
7173.00	90.650	162.970	5939.79	1570.83	-1486.83	506.81	2.55
7268.00	91.110	162.510	5938.33	1665.78	-1577.54	535.00	0.68
7363.00	89.850	160.880	5937.53	1760.77	-1667.72	564.83	2.17
7458.00	89.320	161.330	5938.22	1855.76	-1757.60	595.59	0.73
7553.00	88.520	161.200	5940.01	1950.74	-1847.55	626.10	0.85
7648.00	88.060	160.180	5942.85	2045.70	-1937.16	657.50	1.18
7743.00	87.380	159.610	5946.63	2140.60	-2026.30	690.13	0.93
7838.00	88.030	159.610	5950.43	2235.49	-2115.28	723.20	0.68
7933.00	88.340	160.350	5953.44	2330.43	-2204.49	755.71	0.84
8028.00	89.880	160.250	5954.91	2425.40	-2293.92	787.73	1.62
8122.00	88.520	158.320	5956.23	2519.34	-2381.83	820.97	2.51
8217.00	90.370	158.890	5957.15	2614.24	-2470.27	855.62	2.04
8312.00	91.630	159.920	5955.49	2709.18	-2559.18	889.04	1.71
8407.00	91.350	160.130	5953.02	2804.13	-2648.44	921.48	0.37
8502.00	88.460	159.170	5953.18	2899.09	-2737.30	954.51	3.21
8597.00	87.570	159.450	5956.47	2993.99	-2826.32	988.05	0.98
8692.00	88.920	160.620	5959.38	3088.92	-2915.56	1020.47	1.88
8787.00	88.650	161.020	5961.39	3183.90	-3005.27	1051.68	0.51
8881.00	89.940	161.440	5962.55	3277.89	-3094.26	1081.92	1.44
8976.00	90.890	161.480	5961.86	3372.88	-3184.33	1112.13	1.00
9071.00	90.180	161.250	5960.97	3467.88	-3274.34	1142.48	0.79
9166.00	88.090	160.110	5962.41	3562.86	-3363.98	1173.91	2.51
9261.00	88.550	159.670	5965.19	3657.79	-3453.15	1206.56	0.67
9356.00	88.310	159.410	5967.79	3752.72	-3542.12	1239.75	0.37
9451.00	88.800	157.700	5970.19	3847.60	-3630.51	1274.47	1.87
9546.00	90.650	158.630	5970.65	3942.46	-3718.69	1309.80	2.18
9640.00	90.120	158.430	5970.01	4036.37	-3806.16	1344.21	0.60
9735.00	92.310	159.630	5968.00	4131.28	-3894.84	1378.20	2.63
9830.00	92.240	161.360	5964.23	4226.19	-3984.32	1409.89	1.82

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9925.00	91.080	162.830	5961.48	4321.13	-4074.68	1439.08	1.97
10020.00	89.380	162.620	5961.10	4416.09	-4165.39	1467.29	1.80
10115.00	88.150	160.000	5963.14	4511.06	-4255.35	1497.72	3.05
10210.00	89.450	162.600	5965.13	4606.03	-4345.30	1528.17	3.06



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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot #1G
Area	Gilmer County, WV	Well	Norm 1G
Field	Gilmer	Wellbore	Norm 1G (AWB)
Facility	Norm Pad		

WELLPATH DATA (164 stations)							
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	DLS (%/100ft)
10261.00	90.770	163.540	5965.04	4657.00	-4394.09	1543.02	3.18
10314.00	89.290	163.290	5965.01	4709.95	-4444.88	1558.15	2.83
10409.00	89.410	163.070	5966.09	4804.88	-4535.81	1585.64	0.26
10504.00	91.780	163.380	5965.10	4899.80	-4626.76	1613.05	2.52
10599.00	91.480	163.880	5962.40	4994.67	-4717.87	1639.82	0.61
10694.00	88.650	161.840	5962.29	5089.61	-4808.64	1667.81	3.67
10789.00	87.720	160.590	5965.30	5184.56	-4898.53	1698.38	1.64
10884.00	87.140	161.330	5969.56	5279.47	-4988.24	1729.34	0.99
10979.00	88.680	161.230	5973.02	5374.40	-5078.15	1759.81	1.62
11073.00	89.110	162.980	5974.83	5468.36	-5167.58	1788.69	1.92
11168.00	90.520	163.530	5975.14	5563.29	-5258.55	1816.06	1.59
11263.00	90.990	163.470	5973.89	5658.20	-5349.63	1843.04	0.50
11358.00	89.690	163.610	5973.33	5753.11	-5440.74	1869.96	1.38
11453.00	90.340	164.200	5973.30	5848.00	-5532.01	1896.29	0.92
11548.00	89.480	163.070	5973.45	5942.90	-5623.16	1923.06	1.49
11642.00	87.040	161.900	5976.30	6036.82	-5712.75	1951.33	2.88
11738.00	88.710	162.040	5979.86	6132.74	-5803.97	1981.02	1.75
11833.00	88.340	162.070	5982.31	6227.70	-5894.32	2010.28	0.39
11928.00	87.320	161.400	5985.91	6322.62	-5984.47	2040.04	1.28
12023.00	85.780	160.520	5991.62	6417.44	-6074.10	2070.97	1.87
12118.00	87.450	160.490	5997.23	6512.27	-6163.50	2102.62	1.76
12213.00	89.720	160.550	5999.58	6607.23	-6253.03	2134.29	2.39
12308.00	88.490	159.340	6001.06	6702.20	-6342.25	2166.86	1.82
12403.00	89.660	159.950	6002.60	6797.15	-6431.31	2199.90	1.39
12498.00	91.790	160.740	6001.39	6892.13	-6520.76	2231.85	2.39
12593.00	90.680	161.120	5999.35	6987.10	-6610.52	2262.88	1.23
12654.00	88.150	159.850	5999.97	7048.09	-6668.01	2283.25	4.64
12720.00	87.970	160.090	6002.20	7114.04	-6729.98	2305.84	0.45
12772.00	87.970	160.090	6004.05	7166.00	-6778.84	2323.54	0.00

21-05752



**Actual Wellpath Report**  
 Norm 1G AWP [Curve] Proj:  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot #1G
Area	Gilmer County, WV	Well	Norm 1G
Field	Gilmer	Wellbore	Norm 1G (AWB)
Facility	Norm Pad		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Norm 1G LP Rev-3		5935.00	-601.01	220.82	2015700.17	672562.13	38°50'49.097"N	80°56'41.559"W	point
Norm 1G BHL Rev-3		5980.60	-6779.42	2321.05	2017804.00	666385.00	38°49'48.025"N	80°56'15.020"W	point

WELLPATH COMPOSITION - Ref Wellbore: Norm 1G (AWB) Ref Wellpath: Norm 1G AWP [Curve] Proj:				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
18.00	394.00	Generic gyro - northseeking (Standard)	Gyro Surveys <83'-394'>	Norm 1G (AWB)
394.00	4794.00	NaviTrak (MagCorr)	MWD Surveys Pilot Hole <489'-5647'>Proj: 5735'	Norm 1G (AWB)
4794.00	5726.00	NaviTrak (MagCorr)	BHI MWD Surveys (5153')(4848'-5726')	Norm 1G (AWB)
5726.00	12720.00	NaviTrak (MagCorr)	BHI MWD Surveys (Curve & Lat) (5726')(12772')	Norm 1G (AWB)
12720.00	12772.00	Blind Drilling (std)	Projection to bit	Norm 1G (AWB)