



Actual Wellpath Report
 MND-6M-HS AWP Proj: 13752'
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REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot M
Area	Marshall County, WV	Well	MND-6M-HS
Field	Marshall	Wellbore	MND-6M-HS AWB
Facility	MND-6 Pad		

REPORT SETUP INFORMATION

Projection System	NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet	Software System	WellArchitect® 4.0.1
North Reference	Grid	User	Kroschr
Scale	0.999946	Report Generated	1/12/2015 at 2:44:41 PM
Convergence at slot	0.82° West	Database/Source file	WA_NorthEast/MND-6M-HS_AWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North(ft)	East(ft)	Northing(US ft)	Northing(US ft)	Latitude	Longitude
Slot Location	-19.94	-72.38	1637105.40	482492.29	39°49'03.167"N	80°47'31.007"W
Facility Reference Pt			1637177.78	482512.23	39°49'03.375"N	80°47'30.083"W
Field Reference Pt			609601.22	0.00	38°23'48.753"N	84°21'09.765"W

WELLPATH DATUM

Calculation method	Minimum curvature	Nomac 79 (RKB) to Facility Vertical Datum	746.53ft
Horizontal Reference Pt	Slot	Nomac 79 (RKB) to Mean Sea Level	746.53ft
Vertical Reference Pt	Nomac 79 (RKB)	Nomac 79 (RKB) to Mind Line at Slot (Slot M)	26.00ft
MD Reference Pt	Nomac 79 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	325.00°

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REFERENCE WELLPATH IDENTIFICATION

Operator: NOBLE ENERGY
Area: Marshall County, WV
Field: Marshall
Facility: MND-6 Pad

Slot: MND-6M-HS
Well: Wellbore
MND-6M-HS AWP

WELLPATH DATA (156 stations) † = interpolated/extrapolated station

MD (ft)	Inclination (°)	Azimuth (°)	TYD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (P/100ft)
0.00†	0.000	321.260	0.00	0.00	0.00	0.00	1637105.40	482492.29	39°49'03.167"N	80°47'31.007"W	0.00	0.000	0.00
26.00	0.000	321.260	26.00	0.00	0.00	0.00	1637105.40	482492.29	39°49'03.167"N	80°47'31.007"W	0.00	0.000	0.00
50.00	0.080	321.260	50.00	0.02	0.01	-0.01	1637105.39	482492.30	39°49'03.168"N	80°47'31.009"W	0.02	321.260	0.33
100.00	0.270	265.920	100.00	0.11	0.03	-0.15	1637105.25	482492.32	39°49'03.168"N	80°47'31.009"W	0.15	282.024	0.47
177.00	0.360	317.860	177.00	0.45	0.20	-0.49	1637104.91	482492.45	39°49'03.169"N	80°47'31.013"W	0.52	291.915	0.37
208.00	0.460	309.520	208.00	0.66	0.35	-0.65	1637104.75	482492.64	39°49'03.171"N	80°47'31.015"W	0.74	298.123	0.37
217.00	0.610	275.230	217.00	0.73	0.38	-0.73	1637104.67	482492.67	39°49'03.171"N	80°47'31.016"W	0.82	297.321	3.85
238.00	0.650	270.800	238.00	0.87	0.39	-0.96	1637104.44	482492.68	39°49'03.171"N	80°47'31.019"W	1.04	292.048	0.30
260.00	0.760	266.780	260.00	1.02	0.38	-1.23	1637104.17	482492.67	39°49'03.171"N	80°47'31.023"W	1.29	287.264	0.55
311.00	0.560	278.050	310.99	1.37	0.40	-1.82	1637103.38	482492.59	39°49'03.177"N	80°47'31.030"W	1.86	282.379	0.47
327.00	0.380	318.510	326.99	1.47	0.45	-1.93	1637103.47	482492.74	39°49'03.172"N	80°47'31.032"W	1.98	283.114	2.29
422.00	0.170	330.430	421.99	1.93	0.81	-2.21	1637103.19	482493.10	39°49'03.175"N	80°47'31.035"W	2.35	290.108	0.23
516.00	0.380	140.380	515.99	1.76	0.69	-2.08	1637103.32	482492.98	39°49'03.174"N	80°47'31.034"W	2.19	288.355	0.58
611.00	0.140	123.410	610.99	1.33	0.38	-1.78	1637103.62	482492.67	39°49'03.171"N	80°47'31.030"W	1.82	282.132	0.26
703.00	0.720	108.300	702.99	0.77	0.14	-1.14	1637104.26	482492.43	39°49'03.169"N	80°47'31.022"W	1.14	276.972	0.64
786.00	0.710	147.310	785.98	-0.17	-0.46	-0.36	1637105.04	482491.83	39°49'03.161"N	80°47'31.012"W	0.58	218.419	0.58
804.00	0.750	159.400	803.98	-0.39	-0.66	-0.26	1637105.14	482491.63	39°49'03.161"N	80°47'31.010"W	0.71	201.545	0.88
902.00	1.850	233.750	901.96	-1.05	-2.20	-1.31	1637104.09	482490.09	39°49'03.145"N	80°47'31.023"W	2.56	210.825	1.84
999.00	3.380	249.030	998.85	-0.39	-4.15	-5.24	1637100.16	482488.14	39°49'03.126"N	80°47'31.073"W	6.69	231.665	1.72
1095.00	3.590	249.200	1094.68	1.03	-6.23	-10.70	1637094.10	482486.06	39°49'03.104"N	80°47'31.143"W	12.38	239.794	0.22
1180.00	5.170	247.640	1179.40	2.58	-8.72	-24.96	1637088.44	482484.57	39°49'03.079"N	80°47'31.223"W	19.06	242.774	2.25
1274.00	5.100	245.190	1273.00	4.31	-12.21	-24.96	1637080.44	482480.08	39°49'03.043"N	80°47'31.325"W	27.79	243.930	0.43
1370.00	4.810	243.650	1368.63	5.68	-15.81	-32.50	1637072.91	482476.48	39°49'03.006"N	80°47'31.421"W	36.14	244.050	0.40
1465.00	3.650	235.070	1463.37	6.29	-19.31	-38.54	1637066.86	482472.98	39°49'02.971"N	80°47'31.497"W	43.11	243.385	1.39
1561.00	3.560	233.030	1559.18	6.19	-22.86	-43.44	1637061.97	482469.44	39°49'02.935"N	80°47'31.559"W	49.08	242.244	0.16
1656.00	1.820	224.240	1654.08	5.81	-25.71	-46.84	1637058.56	482465.58	39°49'02.907"N	80°47'31.603"W	53.43	241.237	1.88
1751.00	0.380	105.810	1749.06	5.28	-26.88	-47.59	1637057.81	482465.41	39°49'02.895"N	80°47'31.612"W	54.65	240.543	2.14
1845.00	0.540	82.500	1843.06	4.83	-26.90	-46.85	1637058.55	482465.39	39°49'02.895"N	80°47'31.602"W	54.03	240.133	2.16
1940.00	0.510	71.440	1938.05	4.51	-26.71	-46.01	1637059.40	482465.58	39°49'02.897"N	80°47'31.592"W	53.20	239.860	0.11
2009.00	0.440	71.590	2007.05	4.34	-26.53	-45.46	1637059.94	482465.76	39°49'02.899"N	80°47'31.585"W	52.64	239.754	0.10



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Area	Marshall County, WV	Well	MND-6M-HS
Field	Marshall	Wellbore	MND-6M-HS AWB
Facility	MND-6 Pad		

WELLPATH DATA (156 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
2108.00	0.040	102.800	2106.05	4.21	-26.42	-45.07	1637060.33	482465.87	39°49'02.900"N	80°47'31.580"W	52.24	239.623	0.41
2173.00	0.410	243.830	2171.05	4.23	-26.53	-45.26	1637060.15	482465.77	39°49'02.899"N	80°47'31.582"W	52.46	239.624	0.68
2267.00	3.780	241.950	2264.97	4.66	-28.13	-48.29	1637057.11	482464.16	39°49'02.883"N	80°47'31.621"W	55.89	239.779	3.59
2362.00	6.570	237.840	2359.58	5.30	-32.50	-55.66	1637049.74	482459.79	39°49'02.838"N	80°47'31.714"W	64.45	239.721	2.96
2456.00	8.480	236.620	2452.76	5.77	-39.17	-66.00	1637039.40	482453.12	39°49'02.771"N	80°47'31.846"W	76.75	239.309	2.04
2551.00	12.250	234.550	2546.20	5.89	-48.88	-80.06	1637025.34	482443.42	39°49'02.673"N	80°47'32.024"W	93.80	238.597	3.99
2641.00	15.190	233.460	2638.48	5.47	-62.13	-98.28	1637007.18	482430.16	39°49'02.539"N	80°47'32.255"W	116.27	237.697	3.11
2741.00	17.350	231.880	2729.67	4.37	-78.29	-119.42	1636985.98	482414.00	39°49'02.377"N	80°47'32.523"W	142.80	236.752	2.32
2836.00	20.280	231.120	2819.58	2.48	-97.37	-143.39	1636962.02	482394.92	39°49'02.185"N	80°47'32.826"W	173.33	235.820	3.09
2930.00	24.460	232.910	2906.49	0.67	-119.35	-171.61	1636933.80	482372.95	39°49'01.964"N	80°47'33.184"W	209.03	235.183	4.50
3025.00	30.710	235.930	2990.65	0.34	-144.82	-207.43	1636897.98	482347.48	39°49'01.707"N	80°47'33.638"W	252.98	235.078	6.74
3120.00	35.620	236.100	3070.15	1.27	-173.86	-250.51	1636854.90	482318.44	39°49'01.414"N	80°47'34.185"W	304.93	235.239	5.17
3215.00	34.830	232.810	3147.76	0.76	-205.69	-295.09	1636810.33	482286.61	39°49'01.093"N	80°47'34.750"W	359.70	235.122	2.16
3305.00	34.420	230.980	3225.12	-2.12	-238.64	-337.11	1636768.30	482253.66	39°49'00.761"N	80°47'35.283"W	413.03	234.705	1.19
3404.00	33.660	231.310	3303.84	-5.69	-272.00	-378.53	1636726.89	482220.31	39°49'00.426"N	80°47'35.807"W	466.12	234.300	0.83
3498.00	33.790	233.940	3382.04	-7.84	-303.65	-419.98	1636685.44	482188.66	39°49'00.107"N	80°47'36.333"W	518.25	234.133	1.54
3593.00	34.810	236.810	3460.54	-7.47	-334.03	-464.01	1636641.42	482158.28	39°48'59.801"N	80°47'37.881"W	571.74	234.251	2.03
3688.00	36.100	238.020	3537.93	-5.14	-363.70	-510.44	1636594.98	482128.61	39°48'59.195"N	80°47'38.072"W	626.76	234.530	1.55
3783.00	35.440	235.890	3615.01	-3.24	-393.97	-556.99	1636548.44	482098.35	39°48'58.877"N	80°47'38.635"W	682.24	234.728	1.48
3878.00	34.560	233.990	3692.83	-3.57	-425.48	-601.43	1636504.01	482066.83	39°48'58.553"N	80°47'39.191"W	736.72	234.722	1.77
3972.00	35.150	233.900	3769.49	-4.83	-457.72	-645.23	1636460.20	482034.59	39°48'58.226"N	80°47'39.772"W	791.10	234.649	1.72
4068.00	35.960	234.690	3847.11	-5.55	-490.70	-691.11	1636414.32	482001.62	39°48'58.206"N	80°47'39.991"W	846.60	234.627	0.52
4162.00	33.910	234.610	3924.16	-5.88	-521.84	-735.02	1636367.14	481970.48	39°48'57.906"N	80°47'40.329"W	901.42	234.627	2.18
4257.00	33.450	235.900	4003.22	-5.64	-551.86	-778.30	1636327.14	481940.46	39°48'57.603"N	80°47'40.878"W	954.10	234.661	0.90
4351.00	35.500	238.600	4080.71	-3.32	-580.61	-823.06	1636282.35	481911.71	39°48'57.513"N	80°47'41.446"W	1007.24	234.800	2.72
4446.00	35.580	237.890	4158.01	-0.40	-609.67	-870.01	1636235.34	481882.65	39°48'57.019"N	80°47'42.043"W	1062.37	234.979	0.44
4541.00	35.450	239.310	4235.34	-3.07	-638.43	-917.11	1636188.34	481853.99	39°48'56.728"N	80°47'42.641"W	1117.05	235.157	0.88
4636.00	34.930	239.140	4312.98	-7.10	-666.44	-964.15	1636141.30	481825.89	39°48'56.445"N	80°47'43.238"W	1172.06	235.347	0.56
4730.00	35.020	240.140	4390.00	-11.46	-693.67	-1010.64	1636094.81	481798.66	39°48'56.169"N	80°47'43.829"W	1225.80	235.536	0.62
4826.00	35.100	240.710	4468.58	-16.67	-720.89	-1058.96	1636046.85	481771.44	39°48'55.893"N	80°47'44.439"W	1280.75	235.746	0.33





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Area	Marshall County, WV	Well	MND-6M-HS
Field	Marshall	Wellbore	MND-6M-HS AWB
Facility	MND-6 Pad		

WELLPATH DATA (156 stations)

MID	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(US ft)	(US ft)			(ft)	(°)	(ft/100ft)
4920.00	35.070	240.510	4545.50	21.95	-747.40	-1105.68	1635999.78	481744.93	39°48'55.624"N	80°47'45.037"W	1334.59	235.943	0.13
5015.00	35.090	236.160	4623.26	25.13	-776.05	-1152.12	1635953.34	481716.28	39°48'55.335"N	80°47'45.627"W	1389.12	236.037	2.63
5110.00	35.090	236.850	4700.99	26.56	-806.19	-1197.67	1635907.80	481686.15	39°48'55.030"N	80°47'46.205"W	1443.73	236.054	0.42
5205.00	35.070	241.380	4778.75	30.48	-834.20	-1244.49	1635860.98	481658.14	39°48'54.747"N	80°47'46.800"W	1498.22	236.166	2.74
5299.00	35.030	241.360	4855.70	36.47	-860.06	-1291.88	1635813.59	481632.27	39°48'54.484"N	80°47'47.402"W	1551.98	236.346	0.04
5394.00	35.010	237.190	4933.52	40.53	-887.90	-1338.72	1635766.76	481604.44	39°48'54.203"N	80°47'47.997"W	1606.40	236.446	2.52
5489.00	34.980	236.700	5011.34	42.38	-917.62	-1384.38	1635721.11	481574.72	39°48'53.903"N	80°47'48.577"W	1660.89	236.462	0.30
5583.00	34.980	237.180	5088.36	44.20	-947.02	-1429.55	1635675.93	481545.33	39°48'53.606"N	80°47'49.150"W	1714.77	236.477	0.29
5678.00	35.020	232.660	5166.19	44.13	-978.32	-1474.11	1635631.37	481514.03	39°48'52.290"N	80°47'50.715"W	1769.21	236.429	2.73
5772.00	35.050	232.700	5243.16	41.94	-1011.03	-1517.05	1635588.46	481481.31	39°48'52.961"N	80°47'50.259"W	1825.06	236.318	0.04
5867.00	35.010	233.660	5320.95	40.21	-1043.71	-1560.68	1635544.81	481448.64	39°48'52.631"N	80°47'50.812"W	1877.51	236.227	0.58
5962.00	35.560	238.020	5398.51	41.03	-1074.50	-1606.07	1635499.42	481417.85	39°48'52.321"N	80°47'51.388"W	1932.35	236.217	10.03
6057.00	38.280	256.230	5474.68	53.18	-1096.20	-1658.25	1635447.25	481396.15	39°48'52.099"N	80°47'52.057"W	1987.82	236.533	11.83
6151.00	42.940	267.420	5546.12	80.94	-1104.59	-1718.63	1635386.87	481387.76	39°48'52.007"N	80°47'52.825"W	2042.99	237.271	9.18
6246.00	44.320	279.460	5615.00	121.60	-1100.58	-1783.80	1635321.69	481391.77	39°48'52.038"N	80°47'53.661"W	2096.01	238.326	8.86
6341.00	50.480	287.920	5679.34	174.18	-1083.82	-1851.54	1635253.97	481408.53	39°48'52.193"N	80°47'54.532"W	2145.43	239.657	9.21
6436.00	58.710	293.820	5734.36	238.29	-1056.09	-1923.70	1635181.81	481436.26	39°48'52.457"N	80°47'55.462"W	2194.53	241.234	10.03
6531.00	60.280	305.170	5782.70	312.01	-1015.83	-1994.73	1635110.78	481476.51	39°48'52.845"N	80°47'56.379"W	2238.50	243.012	10.42
6625.00	63.840	311.270	5826.77	391.47	-964.44	-2059.87	1635045.64	481527.90	39°48'53.343"N	80°47'57.223"W	2274.47	244.911	6.87
6720.00	72.750	315.410	5861.88	477.82	-903.87	-2123.92	1634981.60	481588.47	39°48'53.933"N	80°47'58.055"W	2308.25	246.947	10.21
6814.00	85.660	320.020	5879.46	569.20	-835.67	-2185.83	1634919.69	481656.67	39°48'54.598"N	80°47'58.861"W	2340.13	249.078	14.55
6909.00	90.710	323.020	5880.98	617.07	-798.13	-2215.67	1634889.85	481694.21	39°48'54.965"N	80°47'59.251"W	2355.04	250.190	12.23
7004.00	90.580	324.700	5880.45	664.06	-760.16	-2243.39	1634854.14	481733.16	39°48'55.336"N	80°47'59.613"W	2368.68	251.281	3.58
7099.00	90.220	323.110	5879.27	854.03	-605.63	-2353.90	163451.63	481808.42	39°48'56.095"N	80°48'00.328"W	2397.52	253.459	0.39
7194.00	90.580	323.290	5878.61	948.98	-529.57	-2410.80	163463.73	481868.69	39°48'56.847"N	80°48'01.057"W	2430.56	255.571	1.95
7289.00	90.580	322.960	5877.65	1043.93	-453.58	-2467.81	163469.73	481908.74	39°48'57.591"N	80°48'01.801"W	2509.14	257.611	0.42
7384.00	90.520	322.280	5876.73	1138.84	-378.09	-2525.48	1634580.06	482114.22	39°48'59.071"N	80°48'02.545"W	2553.62	259.585	0.35
7480.00	90.650	322.450	5875.75	1234.73	-302.07	-2584.10	1634521.45	482190.24	39°48'59.814"N	80°48'04.063"W	2601.69	263.333	0.22
7575.00	90.220	323.810	5875.03	1329.68	-226.07	-2641.09	1634464.45	482266.23	39°48'59.357"N	80°48'04.308"W	2650.75	265.107	1.50



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REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot M
Area	Marshall County, WV	Well	MND-6M-HS
Field	Marshall	Wellbore	MND-6M-HS AWP
Facility	MND-6 Pad		

WELLPATH DATA (156 stations)

MD	Inclinon	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]			[ft]	[°]	[1/100ft]
7669.00	90.430	326.530	5874.50	1423.67	-148.92	-2694.77	1634410.78	482343.38	39°49'01.311"N	80°48'05.510"W	2698.89	266.837	2.90
7764.00	90.340	329.720	5873.86	1518.51	-68.26	-2744.93	1634360.62	482424.03	39°49'02.101"N	80°48'06.168"W	2745.78	268.575	3.36
7859.00	90.460	329.820	5873.20	1613.18	13.82	-2792.76	1634312.79	482506.11	39°49'02.905"N	80°48'06.796"W	2792.80	270.283	0.16
7953.00	90.430	329.900	5872.47	1706.84	95.11	-2839.96	1634265.60	482587.39	39°49'03.702"N	80°48'07.416"W	2841.55	271.918	0.09
8048.00	90.520	332.760	5871.68	1801.25	178.45	-2885.53	1634220.93	482670.72	39°49'04.519"N	80°48'08.015"W	2891.04	273.539	3.01
8143.00	90.650	330.250	5870.71	1895.62	261.93	-2930.85	1634174.72	482754.20	39°49'05.337"N	80°48'08.611"W	2942.53	275.107	2.65
8238.00	90.680	325.590	5869.61	1990.47	342.40	-2981.28	1634124.28	482834.67	39°49'06.125"N	80°48'09.273"W	3000.88	276.552	4.91
8333.00	90.650	321.340	5868.50	2085.41	418.70	-3037.82	1634067.75	482910.97	39°49'06.871"N	80°48'10.011"W	3066.54	277.848	4.47
8427.00	90.710	319.860	5867.39	2179.12	491.33	-3097.48	1634008.09	482983.60	39°49'07.581"N	80°48'10.789"W	3136.21	279.013	1.58
8522.00	90.680	318.400	5866.24	2273.61	563.17	-3156.64	1633948.54	483055.42	39°49'08.281"N	80°48'11.599"W	3209.43	280.106	1.54
8617.00	90.620	318.970	5865.16	2368.03	634.51	-3222.35	1633883.23	483126.77	39°49'09.978"N	80°48'12.416"W	3284.23	281.140	0.60
8711.00	90.580	321.760	5864.17	2461.71	706.89	-3282.30	1633823.28	483199.15	39°49'09.684"N	80°48'13.198"W	3357.56	282.154	2.97
8806.00	90.620	325.360	5863.18	2556.66	783.30	-3338.72	1633766.87	483275.55	39°49'10.431"N	80°48'13.938"W	3429.38	283.203	3.79
8901.00	90.680	325.920	5862.10	2651.64	861.72	-3392.33	1633713.25	483353.96	39°49'11.198"N	80°48'14.636"W	3500.07	284.253	0.59
8996.00	90.620	324.030	5861.02	2746.63	939.51	-3446.85	1633656.74	483431.75	39°49'11.959"N	80°48'15.349"W	3572.60	285.247	1.99
9090.00	90.580	323.860	5860.04	2840.61	1015.50	-3502.17	1633603.42	483507.73	39°49'12.702"N	80°48'16.073"W	3646.43	286.170	0.19
9185.00	90.620	325.090	5859.04	2935.60	1092.81	-3557.37	1633548.73	483585.04	39°49'13.458"N	80°48'16.794"W	3721.44	287.077	1.30
9279.00	90.650	325.550	5858.00	3029.59	1170.11	-3610.85	1633494.75	483662.33	39°49'14.214"N	80°48'17.494"W	3795.71	287.955	0.49
9373.00	90.310	327.200	5857.21	3123.56	1248.37	-3662.90	1633442.70	483740.59	39°49'14.980"N	80°48'18.176"W	3869.79	288.820	1.79
9469.00	90.250	328.120	5856.74	3219.45	1329.48	-3714.25	1633391.35	483821.70	39°49'15.774"N	80°48'18.849"W	3945.02	289.694	0.96
9565.00	90.580	330.890	5855.06	3313.15	1410.47	-3761.95	1633343.66	483902.68	39°49'16.568"N	80°48'19.475"W	4017.67	290.553	2.97
9658.00	90.400	333.410	5854.21	3407.40	1494.45	-3806.32	1633299.29	483986.66	39°49'17.391"N	80°48'20.059"W	4089.19	291.436	2.66
9753.00	90.370	332.230	5854.65	3501.52	1578.96	-3849.72	1633255.90	484071.16	39°49'18.220"N	80°48'20.631"W	4160.94	292.301	1.24
9847.00	90.740	330.710	5853.70	3594.91	1661.54	-3894.61	1633211.01	484153.74	39°49'19.030"N	80°48'21.222"W	4234.23	293.104	1.66
9942.00	90.890	324.940	5852.37	3689.74	1741.91	-3945.17	1633166.45	484234.10	39°49'20.817"N	80°48'21.885"W	4312.61	293.823	6.08
10037.00	91.140	324.880	5850.50	3784.73	1819.63	-3999.78	1633105.85	484311.82	39°49'21.527"N	80°48'22.599"W	4477.23	294.463	0.27
10133.00	91.080	322.700	5848.83	3879.68	1896.26	-4055.88	1633049.74	484388.44	39°49'22.326"N	80°48'23.332"W	4554.27	295.058	2.30
10227.00	90.980	321.160	5847.12	3974.53	1971.04	-4114.45	1632991.18	484463.22	39°49'22.057"N	80°48'24.097"W	4632.20	295.597	1.62
10322.00	90.980	322.230	5845.49	4069.36	2045.57	-4173.33	1632933.31	484537.75	39°49'22.785"N	80°48'24.865"W	4711.69	296.112	1.13
10416.00	91.020	322.670	5843.85	4163.25	2120.09	-4230.61	1632875.03	484612.26	39°49'23.513"N	80°48'25.613"W	4792.10	296.617	0.47



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Actual Wellpath Report
MND-6M-HS AWP Proj: 13752
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REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot M
Area	Marshall County, WV	Well	MND-6M-HS
Field	Marshall	Wellbore	MND-6M-HS AWP
Facility	MND-6 Pad		

WELLPATH DATA (156 stations)

MD	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	S [ft/100ft]
10511.00	91.050	322.900	5842.14	4258.16	2195.73	-4288.05	1632817.59	484687.90	39°49'24.252"N	80°48'26.363"W	4817.53	297.115	0.24
10606.00	91.170	322.580	5840.30	4353.07	2271.32	-4345.56	1632760.08	484763.49	39°49'24.991"N	80°48'27.114"W	4903.35	297.595	0.36
10700.00	90.800	318.410	5838.68	4446.75	2343.83	-4405.33	1632700.31	484835.98	39°49'25.699"N	80°48'27.894"W	4990.04	298.015	4.45
10795.00	90.770	324.780	5837.38	4541.52	2418.23	-4464.31	1632641.33	484910.38	39°49'26.425"N	80°48'28.663"W	5077.20	298.443	6.70
10889.00	90.280	328.470	5835.92	4635.46	2496.71	-4516.01	1632589.66	484988.86	39°49'27.193"N	80°48'29.341"W	5160.23	298.936	3.96
10984.00	90.370	325.900	5835.98	4730.38	2576.54	-4567.49	1632538.16	485068.69	39°49'27.975"N	80°48'30.015"W	5244.10	299.428	2.71
11079.00	90.530	324.430	5835.21	4825.38	2654.51	-4621.75	1632483.90	485146.65	39°49'28.738"N	80°48'30.725"W	5329.82	299.871	1.56
11173.00	90.580	325.750	5834.29	4919.37	2731.59	-4675.55	1632430.12	485223.73	39°49'29.492"N	80°48'31.429"W	5415.01	300.295	1.40
11268.00	90.650	325.900	5833.27	5014.35	2810.18	-4728.91	1632376.76	485302.31	39°49'30.260"N	80°48'32.127"W	5500.88	300.721	0.17
11363.00	90.740	326.300	5832.12	5109.33	2889.03	-4781.89	1632323.78	485381.16	39°49'31.032"N	80°48'32.821"W	5586.85	301.139	0.43
11457.00	90.770	326.870	5830.88	5203.29	2967.48	-4833.65	1632272.02	485459.61	39°49'31.800"N	80°48'33.499"W	5671.87	301.547	0.61
11552.00	91.050	326.870	5829.37	5298.22	3047.03	-4885.56	1632220.11	485539.15	39°49'32.578"N	80°48'34.179"W	5757.87	301.951	0.29
11646.00	91.080	325.520	5827.62	5392.18	3125.12	-4937.85	1632167.82	485617.24	39°49'33.343"N	80°48'34.864"W	5843.69	302.329	1.44
11741.00	91.020	322.290	5825.88	5487.14	3201.86	-4993.80	1632111.88	485693.97	39°49'34.093"N	80°48'35.595"W	5932.11	302.667	3.40
11836.00	91.020	318.320	5824.19	5581.79	3274.93	-5054.46	1632051.22	485767.02	39°49'34.806"N	80°48'36.386"W	6022.68	302.940	4.18
11931.00	90.950	318.300	5822.55	5676.12	3345.86	-5117.63	1631988.05	485837.97	39°49'35.498"N	80°48'37.209"W	6114.32	303.176	0.08
12026.00	91.020	322.920	5820.92	5770.81	3419.25	-5177.89	1631927.80	485911.35	39°49'36.214"N	80°48'37.995"W	6204.99	303.439	4.86
12121.00	90.990	324.930	5819.25	5865.77	3496.02	-5233.82	1631871.87	485988.12	39°49'36.965"N	80°48'38.726"W	6294.05	303.742	2.12
12215.00	90.980	326.000	5817.64	5959.75	3573.44	-5287.10	1631818.39	486065.54	39°49'37.722"N	80°48'39.424"W	6381.45	304.054	1.14
12310.00	90.950	327.600	5816.04	6054.69	3652.92	-5339.11	1631766.39	486145.00	35°49'38.500"N	80°48'40.105"W	6465.15	304.379	1.68
12404.00	91.080	328.080	5814.37	6148.56	3732.49	-5389.14	1631716.56	486224.57	39°49'39.279"N	80°48'40.761"W	6555.48	304.706	0.53
12499.00	90.950	328.090	5812.69	6243.41	3813.11	-5439.35	1631666.35	486305.19	39°49'40.069"N	80°48'41.420"W	6642.78	305.031	0.14
12593.00	91.110	326.700	5811.00	6337.31	3892.29	-5490.00	1631615.71	486384.36	39°49'40.844"N	80°48'42.084"W	6729.78	305.336	1.49
12687.00	91.200	323.880	5809.10	6431.28	3969.53	-5543.51	1631562.20	486461.60	39°49'41.599"N	80°48'42.784"W	6818.19	305.605	3.00
12782.00	91.140	325.060	5807.16	6526.25	4046.83	-5598.70	1631507.01	486538.89	39°49'42.355"N	80°48'43.506"W	6908.13	305.860	1.24
12877.00	91.050	325.100	5805.35	6621.23	4124.71	-5653.07	1631455.64	486619.77	39°49'43.117"N	80°48'44.217"W	7009.48	306.116	0.10
12973.00	90.980	322.120	5803.65	6717.18	4201.97	-5710.01	1631395.71	486694.02	39°49'43.872"N	80°48'44.961"W	7099.48	306.349	3.10
13068.00	91.020	325.070	5801.99	6812.12	4278.41	-5766.38	1631339.34	486770.46	39°49'44.620"N	80°48'45.698"W	7180.24	306.574	3.11
13162.00	91.080	326.820	5800.27	6906.09	4356.27	-5819.01	1631286.72	486848.32	39°49'45.381"N	80°48'46.387"W	7268.97	306.820	1.86
13257.00	90.680	323.770	5798.81	7001.07	4434.35	-5873.08	1631232.65	486926.39	39°49'46.145"N	80°48'47.095"W	7359.11	307.054	2.24



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Actual Wellpath Report
 MND-6M-HS AWP Proj: 13752
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REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	MND-6M-HS
Area	Marshall County, WV	Well	Wellbore
Field	Marshall	Wellbore	MND-6M-HS AWP
Facility	MND-6 Pad		

WELLPATH DATA (156 stations)

MID	Inclination	Azimuth	TVD	Vert Seet	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dif	D/D
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]	[US ft]	[°N]	[ft]	[ft]	[ft/100ft]
13352.00	90.310	323.800	5797.99	7096.04	4511.00	-5929.21	1631176.52	487003.03	39°49'46.894"N	80°48'47.828"W	7450.14	307.264	0.39
13447.00	90.280	323.880	5797.50	7191.02	4587.691	-5985.261	1631120.471	487079.73	39°49'47.644"N	80°48'48.561"W	7541.24	307.470	0.09
13541.00	90.340	323.010	5796.99	7284.99	4663.20	-6041.241	1631064.49	487155.23	39°49'48.382"N	80°48'49.293"W	7631.65	307.664	0.93
13636.00	90.310	325.580	5796.45	7379.97	4740.34	-6096.68	1631009.06	487232.26	39°49'49.136"N	80°48'50.018"W	7722.71	307.866	2.71
13728.00	90.490	329.150	5795.81	7471.87	4817.80	-6146.29	1630859.46	487305.82	39°49'49.895"N	80°48'50.668"W	7809.48	308.091	3.89
13752.00	90.490	329.150	5795.60	7495.81	4838.40	-6158.59	1630947.15	487330.42	39°49'50.097"N	80°48'50.830"W	7831.88	308.154	0.00

TARGETS

Name	MD	TVD	North	East	Grid East	Grid North	Latitude	Longitude	Shape
	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]	[US ft]	[°N]	
MND-6M-HS BHL Rev-2		5788.55	4835.17	-6163.11	1630942.63	487327.191	39°49'50.064"N	80°48'50.887"W	point
MND-6M-HS LP Rev-2		5883.00	-750.62	-2251.89	1634853.64	481741.71	39°48'55.429"N	80°47'59.723"W	point
MND-6 Pad LL		6499.55	39.21	67.26	1637172.661	482531.50	39°49'03.564"N	80°47'30.152"W	polygon

WELLPATH COMPOSITION - Ret Wellbore MND-6M-HS AWP Ret Wellpath MND-6M-HS AWP Proj: 13752

Start MD	End MD	Positional Uncertainty Model	Log Name/Comment	Wellbore
[ft]	[ft]			
26.00	100.00	Generic gyro - northseeking (Standard)	01 Gyro <18° (50'-100')	MND-6M-HS AWP
100.00	703.00	ISCSWSA MWD, Rev. 2 (Standard)	02 APS BM <14-3/4" > (100')(177'-703') Proj: 760'	MND-6M-HS AWP
703.00	2009.00	ISCSWSA MWD, Rev. 2 (Standard)	03 APS BM <12-1/4" > (703')(786'-2009')	MND-6M-HS AWP
2009.00	13728.00	NavTrak (A1 Curve Short Spaced)	04 BHI AT Curve <8-3/4" > (2009')(2108'-13728')	MND-6M-HS AWP
13728.00	13752.00	Blind Drilling (std)	Projection to bit	MND-6M-HS AWP

Office
 JAN 17 2017
 WV Department of Environmental Protection
 BAKER HUGHES
 02/03/2017



Actual Wellpath Report
MND-6M-HS AWP Proj: 13752'
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REFERENCE WELL PATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot M
Area	Marshall County, WV	Well	MND-6M-HS
Field	Marshall	Wellbore	MND-6M-HS AWB
Facility	MND-6 Pad		

COMMENTS

Wellpath general comments

API: 47-051-01765-0000
 BHI Job #: 6639467
 Rig: Nomac 79
 Duration: 12.11.2014 - 12.21.2014
 Gyro <18" > (50-100)
 APS EM <14-3/4" > (1009)(177-703)
 APS EM <12-1/4" > (703)(786-2009)
 BHI AT Curve <8-3/4" > (2009)(2108-13728)
 Projected MD at TD: 13752'





Location: Marshall County, WV
 Field: Marshall
 Facility: MND-6 Pad

Slot: Slot M
 Well: MND-6M-HS
 Wellbore: MND-6M-HS PWB

NOBLE ENERGY



02/03/2017

Location Information		Grid East (US ft)	Grid North (US ft)	Latitude (N)	Longitude (W)
Facility Name	MND-6 Pad	1637177.780	482512.230	39° 53.57' N	80° 47' 30.083" W
Slot	Local N (ft) / Local E (ft)	Grid East (US ft)	Grid North (US ft)	Slot M	19.94 / -72.36
Slot M	-19.94 / -72.36	1637105.400	482492.280	39° 53' 03.07" N	80° 47' 31.000" W
Normac 79 (RKB) to Mud line (At Slot: Slot M)					
Mean Sea Level to Mud line (At Slot: Slot M)					
Normac 79 (RKB) to Mean Sea Level					

Plot reference: wellbore is MND-6M-HS PWB Rev: 0.0
 True vertical depths are referenced to Normac 79 (RKB)
 Measured depths are referenced to Normac 79 (RKB)
 Normac 79 (RKB) to Mean Sea Level: 746.55 feet
 Scale: True distance
 Mean Sea Level to Mud line (At Slot: Slot M): -720.63 feet
 Depth: area in feet
 Coordinates are in feet referenced to Slot
 Created by: kroschel on 1/12/2014

Office of the WV Department of Environmental Protection
 JAN 12 2014

