



**Actual Wellpath Report**  
 MND-6D-HS AWP Proj: 16755'  
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**REFERENCE WELLPATH IDENTIFICATION**

Operator	NOBLE ENERGY	Slot	MND-6D-HS
Area	Marshall County, WV	Well	MND-6D-HS AWP
Field	Marshall	Wellbore	MND-6D-HS AWP
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	12/30/2014 at 8:27:55 AM
Convergence at slot	0.82° West	Database/Source file	WA_NorthEast/MND-6D-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	7.65	-48.71	1637129.07	482519.88	39°49'03.443"N	80°47'30.709"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	746.94ft
Horizontal Reference Pt	Slot	Nomac 79 (RKB) to Mean Sea Level	746.94ft
Vertical Reference Pt	Nomac 79 (RKB)	Nomac 79 (RKB) to Mud Line at Slot (Slot D)	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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Operator: NOBLE ENERGY  
Area: Marshall County, WV  
Field: Marshall  
Facility: MND-6 Pad

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

WELLPATH DATA (208 stations) - interpolated/extrapolated station

MID	Inclination	Azimuth	TYD	Vert Sect	North	East	Grid East	Grid North	Closure Dist	Closure Dir	DLS	Comments
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]	[ft]	[°]	[°/100ft]	
0.00+	0.000	294.870	0.00	0.00	0.00	0.00	1637129.07	482519.88	0.00	0.000	0.00	
26.00	0.000	294.870	26.00	0.00	0.00	0.00	1637129.07	482519.88	0.00	0.000	0.00	
100.00	0.340	294.870	100.00	0.19	0.09	-0.20	1637128.87	482519.97	0.22	294.870	0.46	
151.00	0.400	186.030	151.00	0.19	-0.02	-0.36	1637128.71	482519.86	0.36	266.607	1.18	
200.00	0.470	216.080	200.00	-0.01	0.35	-0.46	1637128.58	482519.53	0.01	234.270	0.48	
217.00	0.780	214.260	217.00	-0.07	-0.51	-0.60	1637128.47	482519.37	0.78	229.774	1.83	
250.00	0.540	218.870	242.99	-0.17	-0.75	-0.77	1637128.30	482519.13	1.08	226.017	0.94	
250.00	0.610	242.510	249.99	-0.17	-0.79	-0.83	1637128.24	482519.09	1.14	226.341	3.50	
265.00	1.040	230.180	264.99	-0.17	-0.91	-1.00	1637128.07	482518.97	1.36	227.664	3.09	
300.00	0.410	120.850	299.99	-0.31	-1.18	-1.14	1637127.93	482518.70	1.64	223.965	3.54	
311.00	0.510	98.120	310.99	-0.38	-1.21	-1.06	1637128.01	482518.67	1.61	221.181	1.87	
329.00	0.610	90.290	328.99	-0.49	-1.22	-0.88	1637128.19	482518.66	1.51	215.864	0.70	
400.00	0.960	76.590	399.98	-0.93	-1.08	0.07	1637129.14	482518.80	1.09	176.094	0.56	
431.00	0.980	77.700	430.98	-1.13	-0.97	0.59	1637129.66	482518.91	1.13	148.823	0.09	
500.00	1.180	75.140	499.97	-1.60	-0.66	1.85	1637130.92	482519.22	1.96	109.645	0.30	
525.00	1.650	74.650	524.96	-1.81	-0.50	2.44	1637131.51	482519.38	2.50	101.530	1.88	
600.00	1.720	77.480	599.93	-2.60	0.03	4.58	1637133.65	482519.91	4.58	89.611	0.14	
621.00	2.220	83.200	620.91	-2.92	0.15	5.30	1637134.37	482520.03	5.30	88.404	2.56	
665.00	1.730	83.990	664.89	-3.64	0.32	6.80	1637135.87	482520.20	6.81	87.324	1.12	
675.00	1.550	81.640	674.88	-3.78	0.35	7.09	1637136.16	482520.23	7.10	87.145	1.92	
700.00	1.150	80.250	699.88	-4.03	0.45	7.67	1637136.74	482520.33	7.68	86.678	1.61	
703.00	1.210	83.220	702.88	-4.06	0.45	7.73	1637136.80	482520.33	7.74	86.639	2.86	
725.00	0.960	77.840	724.87	-4.24	0.52	8.14	1637137.21	482520.40	8.16	86.544	1.23	
750.00	0.910	76.930	749.87	-4.40	0.61	8.54	1637137.61	482520.49	8.56	85.919	0.21	
766.00	0.520	148.210	765.87	-4.52	0.58	8.70	1637137.77	482520.46	8.72	86.211	5.57	
861.00	0.610	194.290	860.86	-5.28	-0.28	8.80	1637137.87	482519.60	8.81	91.823	0.47	
955.00	0.780	197.630	954.86	-5.99	-1.37	8.49	1637137.56	482518.51	8.60	99.203	0.19	
1090.00	0.730	201.090	1089.84	-7.03	-3.05	7.90	1637136.97	482518.83	8.47	111.134	0.05	
1188.00	0.690	198.250	1187.84	-7.73	-4.20	7.49	1637136.56	482515.68	8.58	119.261	0.05	
1282.00	0.560	207.300	1281.83	-8.28	-5.14	7.10	1637136.17	482514.74	8.77	125.908	0.17	



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REFERENCE WELL IDENTIFICATION		Slot	Slot D
Operator	NOBLE ENERGY	Well	MND-6D-HS
Area	Marshall County, WV	Wellbore	MND-6D-HS AWB
Field	Marshall		
Facility	MND-6 Pad		

WELLPATH DATA (208 stations)													
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Comments	
1313.00	0.470	198.950	1312.83	-8.43	-5.40	6.99	1637136.06	482514.48	8.83	127.669	0.38		
1376.00	0.460	44.950	1375.83	-8.54	-5.46	7.08	1637136.15	482514.42	8.95	127.630	1.44		
1471.00	1.280	41.660	1470.82	-8.23	-4.40	8.06	1637137.13	482515.48	9.18	118.628	0.86		
1564.00	0.270	319.240	1563.81	-7.77	-3.46	8.61	1637137.68	482516.42	9.28	111.884	1.37		
1659.00	0.370	264.900	1658.81	-7.39	-3.31	8.16	1637137.22	482516.57	8.80	112.120	0.32		
1754.00	0.340	277.070	1753.81	-7.05	-3.31	7.57	1637136.64	482516.57	8.26	113.601	0.09		
1848.00	0.340	268.830	1847.80	-6.71	-3.28	7.01	1637136.08	482516.60	7.74	115.054	0.05		
1943.00	1.160	36.080	1942.80	-6.24	-2.51	7.30	1637136.37	482517.37	7.72	108.959	1.47		
2012.00	1.250	34.750	2011.78	-5.75	-1.32	8.14	1637137.21	482518.56	8.25	99.243	0.14		
2143.00	0.830	21.500	2142.76	-4.74	0.73	9.30	1637138.37	482520.61	9.33	85.498	0.37		
2238.00	0.530	346.820	2237.76	-3.95	1.80	9.45	1637138.52	482521.68	9.62	79.218	0.52		
2333.00	0.520	331.430	2331.75	-3.12	2.60	9.15	1637138.22	482522.48	9.51	74.148	0.15		
2427.00	0.770	311.930	2426.75	-2.07	3.40	8.47	1637137.54	482523.28	9.13	68.107	0.35		
2521.00	0.930	308.040	2520.74	-0.72	4.30	7.40	1637136.47	482524.18	8.56	59.861	0.18		
2617.00	0.630	320.780	2616.75	0.55	5.18	6.45	1637135.52	482525.06	8.28	51.213	0.36		
2711.00	0.560	313.440	2710.72	1.51	5.90	5.79	1637134.86	482525.78	8.27	44.462	0.11		
2806.00	0.480	311.720	2805.72	2.35	6.48	5.16	1637134.23	482526.36	8.29	38.493	0.09		
2901.00	0.700	307.570	2900.71	3.30	7.10	4.40	1637133.47	482526.98	8.36	31.774	0.24		
2995.00	0.650	297.240	2994.71	4.31	7.70	3.47	1637132.54	482527.58	8.44	24.270	0.14		
3090.00	0.650	289.780	3089.70	5.25	8.13	2.48	1637131.55	482528.01	8.30	17.000	0.09		
3185.00	1.120	293.870	3184.69	6.47	8.68	1.13	1637130.20	482528.56	8.76	7.403	0.50		
3280.00	0.950	271.800	3279.67	7.73	9.09	-0.51	1637128.56	482528.96	9.10	356.800	0.45		
3375.00	0.920	275.840	3374.66	8.70	9.19	-2.05	1637127.02	482529.07	9.41	347.400	0.08		
3470.00	0.720	280.320	3469.65	9.63	9.37	-3.40	1637125.67	482529.25	9.97	340.062	0.22		
3564.00	0.680	260.540	3563.64	10.29	9.39	1.53	1637124.54	482529.27	10.42	334.232	0.26		
3659.00	0.780	263.970	3658.64	10.84	9.23	-5.73	1637123.34	482529.10	10.86	328.155	0.11		
3754.00	0.790	261.860	3753.63	11.45	9.06	-7.02	1637122.01	482528.94	11.47	322.240	0.03		
3849.00	2.630	219.540	3848.58	11.17	7.29	-9.06	1637120.01	482527.17	11.63	308.833	2.23		
3944.00	4.530	217.310	3943.39	9.45	2.63	-12.72	1637116.35	482522.51	12.99	281.665	2.00		
4039.00	5.650	235.850	4038.02	8.38	-2.58	-18.86	1637110.21	482516.90	19.16	261.012	2.08		





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REFERENCE WELLPATH IDENTIFICATION

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

WELLPATH DATA (208 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Seet [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Closure Dist [ft]	Closure Dir [°]	DLS ["/100ft]	Comments
4081.00	5.450	246.220	4079.83	8.79	-4.95	-22.40	1637106.67	482514.93	22.94	257.542	2.43	
4107.00	5.430	252.760	4105.71	9.41	-5.81	-24.71	1637104.37	482514.07	25.38	256.763	2.38	
4196.00	11.100	242.990	4193.75	11.89	-10.95	-36.37	1637092.70	482508.93	37.98	253.238	6.34	
4244.00	15.550	240.450	4240.45	13.14	-16.23	-46.09	1637082.98	482503.65	48.86	250.602	9.35	
4291.00	16.920	235.300	4285.58	13.78	-23.23	-57.19	1637071.88	482496.65	61.73	247.895	1.23	
4339.00	16.130	227.610	4331.60	12.95	-31.70	-67.86	1637061.21	482488.18	74.90	244.960	4.84	
4386.00	15.530	220.300	4376.82	10.52	-40.90	-76.75	1637052.32	482478.98	86.97	241.946	4.43	
4480.00	15.900	220.610	4467.31	4.12	-60.28	-93.27	1637035.80	482459.61	111.06	237.128	0.40	
4575.00	15.920	230.520	4558.69	-0.13	-78.44	-111.80	1637017.27	482441.44	136.58	234.946	2.86	
4670.00	15.830	230.280	4650.06	-2.21	-95.01	-131.83	1636997.25	482424.88	162.49	234.220	0.12	
4764.00	15.880	229.940	4740.49	-4.40	-111.48	-151.53	1636977.55	482408.41	188.12	233.659	0.11	
4839.00	15.810	232.830	4831.88	-6.04	-127.66	-171.79	1636957.29	482392.23	214.03	233.384	0.83	
4954.00	15.810	234.740	4923.29	-6.59	-142.95	-192.67	1636936.41	482376.94	239.91	233.427	0.51	
5048.00	15.630	236.370	5013.77	-6.34	-157.36	-213.67	1636915.41	482362.53	265.36	233.631	0.51	
5143.00	15.240	239.030	5105.35	-5.16	-170.87	-235.03	1636894.05	482349.02	290.58	233.983	0.85	
5237.00	15.400	237.240	5196.01	-3.80	-183.98	-256.12	1636872.96	482335.91	315.35	234.309	0.53	
5332.00	15.500	243.980	5287.58	-1.33	-196.38	-278.14	1636850.95	482323.52	340.48	234.777	1.89	
5379.00	14.700	261.630	5332.98	2.33	-200.00	-289.69	1636839.40	482319.89	352.02	235.379	9.89	
5426.00	17.330	277.040	5378.17	9.69	-200.01	-302.54	1636826.54	482319.88	362.68	236.531	10.59	
5478.00	20.450	282.860	5427.37	21.62	-197.04	-319.09	1636810.00	482322.85	375.02	238.305	7.00	
5521.00	22.980	274.640	5467.33	32.55	-194.69	-334.79	1636794.30	482325.20	387.28	239.821	9.19	
5569.00	25.800	271.440	5511.04	44.73	-193.67	-354.57	1636778.52	482326.23	404.02	241.357	6.49	
5616.00	27.060	282.230	5553.15	58.67	-191.14	-375.26	1636763.83	482328.75	421.14	243.008	10.55	
5663.00	28.650	294.150	5594.74	76.20	-184.26	-396.01	1636753.09	482335.63	436.78	245.047	12.30	
5710.00	32.300	302.090	5635.25	97.46	-172.97	-416.94	1636742.15	482346.92	451.40	247.468	11.55	
5758.00	36.420	306.190	5674.87	122.77	-157.74	-439.32	1636732.15	482362.15	466.78	250.249	9.84	
5805.00	42.240	310.120	5711.22	151.28	-139.30	-462.43	1636666.41	482380.59	483.20	253.244	13.46	
5852.00	47.350	312.960	5744.56	183.47	-117.33	-487.43	1636641.67	482402.56	501.35	256.466	11.67	
5900.00	52.290	314.190	5775.52	219.41	-92.04	-513.98	1636615.12	482427.84	522.16	259.847	10.48	
5947.00	57.070	314.600	5802.69	257.09	-65.22	-541.37	1636587.73	482454.66	545.29	263.131	10.20	



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REFERENCE WELL PATH IDENTIFICATION

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

WELLPATH DATA (208 stations)

MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Closure Dist (ft)	Closure Dir (°)	DLS (%/100ft)	Comments
5994.00	62.660	314.920	5826.28	297.08	-36.61	-570.22	1636558.88	482483.27	571.39	266.327	11.91	
6040.00	67.780	315.560	5845.55	338.22	-6.96	-599.62	1636529.49	482512.92	599.66	269.335	11.20	
6089.00	72.260	318.310	5862.29	383.80	26.68	-631.04	1636498.07	482546.56	631.60	272.421	10.55	
6135.00	74.770	321.180	5875.35	427.72	60.34	-659.53	1636469.58	482580.22	662.28	275.228	8.10	
6184.00	78.920	322.700	5886.50	475.35	97.91	-688.74	1636440.18	482617.78	695.85	278.088	8.99	
6278.00	87.660	324.460	5897.47	568.59	172.96	-744.29	1636384.82	482692.83	764.12	283.082	9.48	
6336.00	90.770	324.640	5898.26	626.57	220.20	-777.92	1636351.19	482740.07	808.49	285.805	5.37	
6373.00	90.580	324.880	5897.83	663.57	250.41	-799.27	1636329.84	482770.28	837.58	287.396	0.83	
6468.00	90.460	324.550	5896.97	758.57	327.96	-854.15	1636274.97	482847.82	914.94	291.005	0.37	
6563.00	90.520	322.910	5896.15	833.54	404.55	-910.34	1636218.78	482924.40	996.18	293.960	1.71	
6658.00	90.490	322.640	5895.32	948.46	480.19	-967.81	1636161.31	483000.04	1080.39	296.389	0.29	
6753.00	90.370	327.290	5894.60	1043.43	557.95	-1022.33	1636106.80	483077.80	1164.68	298.624	4.90	
6847.00	90.550	329.710	5893.85	1137.25	638.09	-1071.44	1636057.69	483157.94	1247.05	300.776	2.58	
6942.00	90.490	329.130	5892.99	1231.96	719.87	-1119.77	1636009.36	483239.71	1331.20	302.736	0.61	
7037.00	90.460	328.330	5892.20	1326.75	801.07	-1169.08	1635960.06	483320.91	1417.20	304.420	0.84	
7131.00	90.520	324.390	5891.39	1420.71	879.31	-1221.14	1635908.00	483399.14	1504.78	305.757	4.19	
7225.00	90.520	321.460	5890.54	1514.63	954.30	-1277.80	1635851.34	483474.12	1594.82	306.753	3.12	
7320.00	90.430	320.140	5889.75	1609.37	1027.91	-1337.84	1635791.31	483547.74	1687.13	307.536	1.39	
7415.00	91.050	321.260	5888.53	1704.09	1101.42	-1398.00	1635731.14	483621.24	1779.76	308.233	1.35	
7510.00	90.830	321.610	5886.97	1798.90	1175.69	-1457.22	1635671.93	483695.50	1872.36	308.897	0.44	
7605.00	90.950	320.810	5885.14	1893.68	1249.73	-1516.67	1635612.43	483769.54	1965.27	309.487	0.85	
7700.00	90.680	323.540	5884.14	1988.54	1324.75	-1574.97	1635554.18	483844.56	2058.04	310.068	2.89	
7795.00	90.800	327.870	5882.91	2083.50	1403.21	-1628.48	1635500.68	483923.01	2149.64	310.750	4.56	
7889.00	91.290	325.280	5881.20	2177.44	1481.64	-1680.25	1635448.91	484001.44	2240.20	311.406	2.80	
7984.00	90.550	323.610	5879.67	2272.42	1558.92	-1735.48	1635393.68	484078.71	2332.84	311.932	1.92	
8079.00	90.860	326.360	5878.50	2367.41	1636.24	-1790.66	1635338.51	484156.03	2425.64	312.420	0.98	
8174.00	90.770	327.560	5877.05	2462.39	1714.82	-1844.02	1635285.15	484234.61	2518.14	312.921	0.98	
8268.00	90.740	330.780	5874.44	2631.07	1874.96	-1944.27	1635184.91	484394.74	2701.05	313.960	3.60	
8458.00	90.950	331.700	5873.04	2745.29	1959.01	-1988.51	1635146.57	484476.78	2791.39	314.572	3.08	





**Actual Wellpath Report**  
 MND-6D-HS AWP Proj: 16755'  
 Page 6 of 11

**REFERENCE WELLPATH IDENTIFICATION**  
 Operator: NOBLE ENERGY  
 Area: Marshall County, WV  
 Field: Marshall  
 Facility: MND-6 Pad

Slot: Slot D  
 Well: MND-6D-HS  
 Wellbore: MND-6D-HS AWB

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**WELLPATH DATA (208 stations)**

MD (ft)	Inclination (°)	Azimuth (°)	TYD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Closure Dist (ft)	Closure Dir (°)	D/S (°/100ft)	Comments
8553.00	90.860	331.110	5871.54	2839.48	2043.19	-2032.50	1635096.68	484562.95	2881.96	315.150	2.73	
8648.00	91.230	327.200	5869.80	2934.19	2124.72	-2081.19	1635047.99	484644.48	2974.19	315.593	4.13	
8742.00	90.430	323.420	5868.44	3028.16	2201.99	-2134.68	1634994.51	484721.75	3066.85	315.889	4.11	
8837.00	90.550	322.640	5867.63	3123.10	2277.88	-2191.81	1634937.39	484797.64	3161.13	316.103	0.83	
8922.00	90.430	322.040	5866.82	3218.00	2353.09	-2249.85	1634875.35	484872.84	3255.59	316.285	0.94	
9026.00	90.520	324.760	5866.04	3311.95	2428.54	-2305.88	1634823.31	484948.29	3348.87	316.484	2.90	
9121.00	90.680	323.400	5865.04	3406.93	2505.47	-2361.61	1634767.59	485025.21	3443.05	316.693	1.44	
9216.00	90.860	321.130	5863.77	3501.80	2580.59	-2419.74	1634709.46	485100.33	3537.60	316.842	2.40	
9310.00	90.800	320.490	5862.40	3595.54	2653.44	-2479.14	1634650.07	485173.17	3631.37	316.945	0.68	
9405.00	90.860	320.450	5861.03	3690.24	2726.76	-2539.60	1634589.62	485246.43	3726.18	317.035	0.08	
9499.00	90.650	320.770	5859.79	3783.95	2799.34	-2599.24	1634529.97	485319.07	3820.00	317.123	0.41	
9594.00	90.520	323.830	5858.82	3878.83	2874.50	-2657.33	1634471.89	485394.22	3914.60	317.248	3.22	
9689.00	91.420	328.060	5857.21	3973.78	2953.17	-2710.51	1634418.71	485472.89	4008.50	317.453	4.55	
9784.00	91.080	326.480	5855.14	4068.68	3033.07	-2761.86	1634367.37	485552.78	4102.12	317.680	1.70	
9879.00	91.170	328.210	5853.27	4163.58	3113.03	-2813.11	1634316.12	485632.74	4195.78	317.897	1.82	
9974.00	91.080	329.870	5851.41	4258.32	3194.48	-2861.97	1634267.26	485714.18	4289.00	318.143	1.75	
10068.00	90.920	327.780	5849.74	4352.09	3274.89	-2910.61	1634218.62	485794.59	4381.39	318.370	2.23	
10163.00	90.920	324.600	5848.19	4447.05	3353.80	-2963.46	1634165.77	485873.50	4475.50	318.536	3.35	
10257.00	90.950	320.060	5846.66	4540.91	3428.18	-3020.88	1634108.35	485947.87	4569.26	318.614	4.83	
10352.00	90.740	322.570	5845.26	4635.69	3502.32	-3080.25	1634048.99	486022.01	4664.14	318.669	2.55	
10447.00	90.650	322.650	5844.10	4730.60	3577.80	-3137.94	1633991.31	486097.48	4758.91	318.747	0.13	
10541.00	90.650	320.790	5843.04	4824.44	3651.58	-3197.46	1633933.09	486171.25	4852.78	318.805	1.98	
10637.00	90.620	321.380	5841.97	4920.21	3726.27	-3256.46	1633872.79	486245.94	4948.70	318.849	0.62	
10732.00	90.740	321.100	5840.84	5015.00	3800.34	-3315.93	1633813.32	486320.01	5043.61	318.894	0.32	
10827.00	90.650	324.840	5839.69	5109.91	3876.16	-3373.13	1633756.13	486395.83	5138.35	318.969	3.94	
10922.00	91.020	327.940	5838.31	5204.87	3955.64	-3436.32	1633697.55	486474.92	5232.55	319.104	3.29	
11017.00	90.990	327.660	5836.94	5299.74	4035.64	-3476.32	1633639.04	486555.29	5326.46	319.258	1.64	
11112.00	91.080	326.100	5834.92	5394.67	4115.19	-3528.22	1633581.05	486634.84	5420.62	319.391	1.50	
11207.00	91.140	325.020	5833.08	5489.64	4193.52	-3581.93	1633524.34	486713.17	5515.06	319.497	1.14	
11302.00	91.050	323.630	5831.27	5584.62	4270.68	-3637.32	1633469.95	486790.32	5609.71	319.579	1.47	



Actual Wellpath Report  
MND-6D-HS AWP Proj: 16755'  
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REFERENCE WELLPATH IDENTIFICATION  
Operator NOBLE ENERGY  
Area Marshall County, WV  
Field Marshall  
Facility MND-6 Pad

Slot MND-6D  
Well Wellbore  
Slot D MND-6D-HS  
MND-6D-HS AWP

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WELLPATH DATA (208 stations)

MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Closure Dist (ft)	Closure Dir (°)	DLS (ft/100ft)
11396.00	91.020	323.900	5829.57	5678.58	4346.48	-3692.88	1633436.40	486866.12	5703.45	319.648	0.291
11491.00	91.110	324.050	5827.81	5773.55	4423.30	-3748.74	1633380.54	486942.94	5798.16	319.719	0.18
11586.00	91.020	323.580	5826.04	5868.51	4499.97	-3804.82	1633324.46	487019.60	5892.91	319.785	0.50
11681.00	91.140	323.270	5824.25	5963.46	4576.24	-3861.42	1633267.87	487095.87	5987.70	319.842	0.35
11775.00	91.050	324.930	5822.45	6057.43	4652.37	-3916.53	1633212.70	487171.99	6081.45	319.908	1.77
11870.00	91.140	326.480	5820.64	6152.40	4730.84	-3970.04	1633159.25	487250.46	6175.93	319.997	1.63
11965.00	91.230	330.490	5818.67	6247.18	4811.79	-4019.68	1633109.61	487331.40	6269.86	320.125	4.22
12060.00	91.200	333.780	5816.66	6341.41	4895.75	-4064.07	1633065.23	487415.35	6362.78	320.303	3.46
12155.00	91.230	332.180	5814.64	6435.47	4980.36	-4107.21	1633022.08	487499.96	6455.47	320.488	1.68
12249.00	91.230	329.540	5812.62	6528.95	5065.43	-4152.97	1632976.53	487582.03	6547.92	320.636	2.81
12344.00	91.570	325.480	5810.30	6623.81	5142.52	-4203.98	1632925.33	487662.12	6642.21	320.734	4.29
12439.00	91.450	320.750	5807.80	6718.70	5218.46	-4260.96	1632868.35	487738.05	6737.07	320.768	4.98
12533.00	90.620	318.640	5806.10	6812.27	5290.13	-4321.75	1632807.56	487809.71	6831.03	320.753	2.41
12628.00	90.280	320.160	5805.35	6906.81	5362.26	-4383.57	1632745.74	487881.84	6926.00	320.734	1.64
12723.00	90.400	322.010	5804.79	7001.95	5436.17	-4443.24	1632686.98	487955.75	7020.99	320.739	1.95
12817.00	90.370	323.690	5804.16	7095.52	5511.09	-4500.01	1632629.31	488030.66	7114.92	320.767	1.79
12911.00	90.340	324.530	5803.57	7189.50	5587.24	-4555.11	1632574.21	488106.81	7208.76	320.811	0.89
13006.00	90.430	328.270	5802.94	7284.45	5666.35	-4607.67	1632521.66	488185.91	7303.30	320.883	3.94
13101.00	90.800	326.910	5801.92	7379.35	5746.55	-4658.58	1632470.74	488266.11	7397.65	320.969	1.48
13196.00	91.140	325.660	5800.31	7474.31	5825.55	-4711.31	1632418.03	488345.11	7492.23	321.036	1.36
13291.00	91.290	328.790	5798.29	7569.20	5905.40	-4762.72	1632366.62	488424.95	7586.65	321.114	3.30
13385.00	91.050	327.590	5796.53	7663.04	5985.27	-4812.25	1632317.08	488504.84	7679.92	321.200	1.30
13480.00	91.170	327.460	5794.53	7757.93	6065.40	-4863.25	1632266.09	488584.94	7774.33	321.277	0.19
13575.00	90.800	327.720	5792.90	7852.82	6145.59	-4914.16	1632215.18	488665.12	7868.75	321.353	0.48
13670.00	90.990	328.150	5791.42	7947.68	6226.08	-4964.59	1632164.76	488745.62	7963.12	321.432	0.49
13764.00	90.520	327.140	5789.42	8041.57	6305.48	-5018.19	1632114.46	488825.01	8056.56	321.504	1.19
13859.00	90.400	324.600	5789.42	8136.55	6384.11	-5068.89	1632061.17	488903.63	8151.28	321.555	2.65
13954.00	90.430	323.990	5788.73	8231.54	6461.25	-5123.63	1632005.73	488980.77	8246.17	321.586	0.64
14049.00	90.650	323.400	5787.83	8326.51	6537.81	-5179.87	1631949.49	489057.32	8341.10	321.610	0.66
14143.00	90.650	323.390	5786.77	8421.48	6613.50	-5235.59	1631893.77	489133.02	8435.04	321.633	0.52





Actual Wellpath Report  
MND-6D-HS AWP Proj: 16755'  
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REFERENCE WELLPATH IDENTIFICATION

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

WELL PATH DATA (208 stations)

MD ftl	Inclination °	Azimuth °	TVD ftl	Vert Sect ftl	North ftl	East ftl	Grid East ftl	Grid North ftl	Closure Dist ftl	Closure Dir °	D/S ft/100ft
14238.00	91.020	321.370	5785.38	8515.38	6688.99	-5293.24	1631836.12	489208.50	8530.00	321.644	2.68
14332.00	91.080	323.320	5783.66	8609.26	6763.39	-5350.65	1631778.71	489282.90	8623.98	321.652	2.08
14427.00	91.080	325.370	5781.87	8704.23	6840.57	-5406.02	1631723.35	489360.07	8718.85	321.681	2.16
14522.00	91.080	326.150	5780.08	8799.20	6919.09	-5459.46	1631669.92	489438.58	8813.60	321.725	0.82
14616.00	91.110	327.280	5778.28	8893.14	6997.65	-5511.04	1631618.34	489517.14	8907.22	321.778	1.20
14711.00	91.050	326.710	5776.49	8988.07	7077.31	-5562.77	1631566.61	489596.79	9001.82	321.833	0.60
14806.00	91.140	324.890	5774.67	9083.04	7155.86	-5616.16	1631513.22	489675.34	9096.57	321.874	1.92
14900.00	91.200	321.660	5772.75	9176.96	7231.18	-5672.35	1631457.04	489750.66	9190.51	321.888	3.44
14994.00	91.170	322.470	5770.81	9270.82	7305.30	-5730.13	1631399.26	489824.77	9284.49	321.890	0.86
15089.00	91.080	325.390	5768.94	9365.77	7382.07	-5786.04	1631343.35	489901.55	9379.40	321.911	3.07
15184.00	90.800	325.280	5767.39	9460.76	7460.19	-5844.07	1631289.33	489979.66	9474.22	321.945	0.32
15279.00	90.740	325.040	5766.11	9555.75	7538.16	-5894.34	1631235.06	490057.62	9569.06	321.977	0.26
15374.00	90.800	323.250	5764.83	9650.74	7616.14	-5948.38	1631180.82	490135.59	9663.91	322.008	0.30
15469.00	90.920	323.250	5763.41	9745.72	7693.26	-6004.02	1631125.38	490212.71	9758.82	322.031	2.18
15564.00	90.890	320.870	5761.91	9840.57	7768.17	-6062.42	1631066.99	490287.61	9853.80	322.051	2.51
15658.00	91.080	321.810	5760.29	9934.37	7841.56	-6121.13	1631008.28	490361.00	9947.78	322.024	1.02
15753.00	91.020	324.900	5758.55	10029.30	7917.76	-6177.82	1630951.60	490437.20	10042.73	322.037	3.25
15848.00	91.110	326.840	5756.78	10124.27	7996.38	-6231.11	1630898.31	490515.81	10137.49	322.073	2.04
15942.00	91.050	325.820	5755.01	10218.22	8074.59	-6283.21	1630846.21	490594.02	10231.22	322.112	1.09
16037.00	90.990	325.420	5753.32	10313.20	8152.99	-6336.85	1630792.57	490672.41	10326.03	322.144	0.43
16131.00	91.140	324.810	5751.57	10407.17	8230.08	-6390.60	1630738.82	490749.50	10419.89	322.171	0.67
16225.00	91.050	325.840	5749.78	10501.17	8306.95	-6444.67	1630684.76	490826.37	10513.76	322.195	0.18
16320.00	91.080	325.540	5746.27	10691.11	8464.05	-6551.46	1630577.97	490904.55	10608.60	322.224	0.94
16510.00	91.140	327.630	5744.43	10788.03	8543.79	-6603.88	1630526.35	490983.46	10703.36	322.259	0.74
16605.00	91.110	327.160	5742.56	10880.93	8623.80	-6654.26	1630475.18	491062.31	10798.01	322.301	1.15
16732.00	91.080	324.610	5740.14	11007.88	8728.92	-6725.47	1630403.98	491143.20	10892.61	322.346	0.50
16755.00	91.080	324.610	5739.70	11030.87	8747.66	-6738.78	1630390.66	491267.06	11042.32	322.391	0.00

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### Actual Wellpath Report

MND-6D-HS AWP Proj: 16755'

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REFERENCE WELL PATH IDENTIFICATION

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



TARGETS	Name	MID [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
MND-6D-HS BHL Rev-2		5736.77	8744.03	-6744.17	1630385.28	491263.42	39°50'28.882"N	80°48'58.770"W	point	
MND-6D-HS LP Rev-2		5900.00	232.63	-784.42	1636344.69	482752.50	39°49'05.631"N	80°47'40.803"W	point	
MND-6 Pad LL		6499.96	11.62	43.59	1637172.66	482531.50	39°49'03.564"N	80°47'30.152"W	polygon	



**Actual Wellpath Report**  
 MND-6D-HS AWP Proj: 16755'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot D
Area	Marshall County, WV	Well	MND-6D-HS
Field	Marshall	Wellbore	MND-6D-HS AWB
Facility	MND-6 Pad		

WELLPATH COMPOSITION - Ret Wellbore MND-6D-HS AWB Ret Wellpath MND-6D-HS AWP Proj: 16755' Log Name/Comment

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment
26.00	100.00	Generic gyro - northseeking (Standard)	02 MS Gyro <14.3/4> (100'-665')
100.00	151.00	ISCWSA MWD, Rev. 2 (Standard)	01 Aps EM <14.3/4> (151'-703) Proj: 760'
151.00	200.00	Generic gyro - northseeking (Standard)	02 MS Gyro <14.3/4> (100'-665')
200.00	265.00	ISCWSA MWD, Rev. 2 (Standard)	01 Aps EM <14.3/4> (151'-703) Proj: 760'
265.00	300.00	Generic gyro - northseeking (Standard)	02 MS Gyro <14.3/4> (100'-665')
300.00	329.00	ISCWSA MWD, Rev. 2 (Standard)	01 Aps EM <14.3/4> (151'-703) Proj: 760'
329.00	400.00	Generic gyro - northseeking (Standard)	02 MS Gyro <14.3/4> (100'-665')
400.00	431.00	ISCWSA MWD, Rev. 2 (Standard)	01 Aps EM <14.3/4> (151'-703) Proj: 760'
431.00	500.00	Generic gyro - northseeking (Standard)	02 MS Gyro <14.3/4> (100'-665')
500.00	525.00	ISCWSA MWD, Rev. 2 (Standard)	01 Aps EM <14.3/4> (151'-703) Proj: 760'
525.00	600.00	Generic gyro - northseeking (Standard)	02 MS Gyro <14.3/4> (100'-665')
600.00	621.00	ISCWSA MWD, Rev. 2 (Standard)	01 Aps EM <14.3/4> (151'-703) Proj: 760'
621.00	665.00	Generic gyro - northseeking (Standard)	02 MS Gyro <14.3/4> (100'-665')
665.00	700.00	Generic gyro - northseeking (Standard)	03 MS Gyro GWD <12-1/4> (675'-955')
700.00	703.00	ISCWSA MWD, Rev. 2 (Standard)	01 Aps EM <14.3/4> (151'-703) Proj: 760'
703.00	703.00	ISCWSA MWD, Rev. 2 (Standard)	03 Aps EM <12-1/4> (703)'(725'-2012)
2012.00	4081.00	Navittrak (MagCorr)	04 BHI MWD <8-3/4> (2012)'(2143'-4081)'
4081.00	16732.00	Navittrak (AT Curve Short Spaced)	05 BHI AT Curve <8-3/4> (4081)'(4107'-16732)'
16732.00	16755.00	Blind Drilling (Std)	Projection to bit

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Actual Wellpath Report  
MND-6D-HS AWP Proj: 16755  
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02/03/2017

REFERENCE WELLPATH IDENTIFICATION

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

COMMENTS

Wellpath general comments  
 APl: 47-051-01763-0000  
 BHI Job #: 6650024  
 Rig: Nomac 79  
 Duration: 11.06.2014 - 11.13.2014  
 MS Gyro <14-3/4" > (100'-665')  
 APS EM <14-3/4" > (151'-703')  
 APS EM <12-1/4" > (703')(725'-2012')  
 BHI MWD <8-3/4" > (2012')(2143'-4081')  
 BHI AT Curve <8-3/4" > (4081')(4107'-16732')  
 MD Projected to TD: 16755'

