



Actual Wellpath Report

MND-6B-HS AWP Proj: 18369'
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REFERENCE WELLPATH IDENTIFICATION	
Operator	NOBLE ENERGY
Area	Marshall County, WV
Field	Marshall
Facility	MND-6 Pad
Slot	Slot B
Well	MND-6B-HS
Wellbore	MND-6B-HS AWB

REPORT SETUP INFORMATION	
Projection System	NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet
Grid	Grid
North Reference	0.999946
Scale	0.999946
Convergence at slot	0.82° West
Software System	WellArchitect® 4.0.1
User	Corfbal
Report Generated	10/29/2014 at 1:54:42 PM
Database/Source file	WANorthEast/MND-6B-HS_AWB.xml

WELLPATH LOCATION			
	Local coordinates	Grid coordinates	Geographic coordinates
	North [ft]	East [ft]	Northing [US ft]
Slot Location	15.61	-19.68	482577.84
Facility Reference Pt			482512.23
Field Reference Pt			0.00
			39°49'03.526"N
			80°47'30.338"W
			39°49'03.375"N
			80°47'30.083"W
			38°23'48.753"N
			84°21'09.765"W

WELLPATH DATUM	
Calculation method	Nomac 79 (RKB) to Facility Vertical Datum
Horizontal Reference Pt	Nomac 79 (RKB) to Mean Sea Level
Vertical Reference Pt	Nomac 79 (RKB) to Mind Line at Slot (Slot B)
MD Reference Pt	Section Origin
Field Vertical Reference	Section Azimuth
	746.97ft
	746.97ft
	26.00ft
	N 0.00, E 0.00 ft
	325.00P

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REFERENCE WELLPATH IDENTIFICATION		Slot B
Operator	NOBLE ENERGY	MND-6B-HS
Area	Marshall County, WV	MND-6B-HS AWP
Field	Marshall	
Facility	MND-6 Pad	

MD (ft)	Inclination (°)	Azimuth (°)	TVB (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (ft)	DLS P(1000)
0.00	0.000	331.260	0.00	0.00	0.00	0.00	637158.10	482527.84	39°49'03.526"N	80°47'30.338"W	0.00	0.000	0.00
26.00	0.000	331.260	26.00	0.00	0.00	0.00	637158.10	482527.84	39°49'03.526"N	80°47'30.338"W	0.00	0.000	0.00
50.00	0.400	331.260	50.00	0.08	0.07	-0.04	637158.06	482527.91	39°49'03.527"N	80°47'30.339"W	0.08	331.260	1.67
100.00	0.460	283.180	100.00	0.41	0.27	-0.32	637157.78	482528.11	39°49'03.529"N	80°47'30.342"W	0.42	310.124	0.71
150.00	0.480	287.290	150.00	0.72	0.38	0.72	637157.39	482528.22	39°49'03.530"N	80°47'30.347"W	0.81	298.005	0.68
200.00	0.540	300.220	199.99	1.10	0.36	-1.12	637156.98	482528.40	39°49'03.532"N	80°47'30.353"W	1.25	296.639	0.26
250.00	0.810	310.890	249.99	1.66	0.91	-1.59	637156.51	482528.75	39°49'03.535"N	80°47'30.359"W	1.83	295.822	0.59
275.00	0.690	294.370	274.99	1.96	1.09	-1.86	637156.24	482529.03	39°49'03.537"N	80°47'30.362"W	2.16	300.343	0.98
309.00	0.380	303.750	308.99	2.24	1.24	-2.14	637155.96	482529.08	39°49'03.538"N	80°47'30.366"W	2.47	300.005	0.94
327.00	0.440	260.370	326.99	2.33	1.26	-2.26	637155.94	482529.10	39°49'03.538"N	80°47'30.367"W	2.58	299.111	1.72
342.00	0.560	293.200	341.99	2.41	1.28	-2.38	637155.72	482529.12	39°49'03.538"N	80°47'30.369"W	2.70	298.187	2.05
385.00	0.570	282.940	384.98	2.75	1.41	-2.78	637155.32	482529.25	39°49'03.540"N	80°47'30.374"W	3.12	296.824	0.24
432.00	0.740	275.660	431.98	3.12	1.49	-3.31	637154.79	482529.33	39°49'03.540"N	80°47'30.381"W	3.63	294.210	0.40
484.00	1.150	279.100	483.97	3.70	1.61	-4.16	637153.94	482529.45	39°49'03.541"N	80°47'30.392"W	4.46	291.090	0.80
525.00	0.810	249.740	524.97	4.06	1.57	-4.84	637153.26	482529.41	39°49'03.541"N	80°47'30.401"W	5.09	287.971	1.45
574.00	0.900	212.630	573.96	4.00	1.13	-5.37	637152.73	482528.97	39°49'03.537"N	80°47'30.407"W	5.49	281.837	1.12
621.00	1.000	212.820	620.96	3.71	0.87	-5.79	637152.31	482528.31	39°49'03.530"N	80°47'30.413"W	5.81	274.643	0.21
770.00	0.760	192.360	769.94	2.55	-1.59	-6.71	637151.39	482526.25	39°49'03.510"N	80°47'30.424"W	6.90	256.669	0.26
805.00	0.440	161.750	804.94	2.26	-1.94	-6.72	637151.38	482525.90	39°49'03.506"N	80°47'30.424"W	6.99	253.881	1.26
855.00	1.100	40.050	854.93	2.20	-1.76	-6.35	637151.75	482526.00	39°49'03.508"N	80°47'30.419"W	6.59	254.536	2.77
900.00	2.900	29.050	899.91	2.74	-0.57	-5.60	637152.51	482527.27	39°49'03.520"N	80°47'30.410"W	5.62	264.204	3.19
956.00	3.910	13.780	955.80	4.54	2.35	-4.55	637153.55	482530.19	39°49'03.549"N	80°47'30.397"W	5.12	297.373	2.92
1091.00	5.450	8.360	1090.37	12.23	13.17	-2.52	637155.58	482541.01	39°49'03.656"N	80°47'30.373"W	13.41	346.172	1.19
1184.00	4.690	1183.01	1183.01	18.13	21.28	-1.21	637156.89	482549.12	39°49'03.736"N	80°47'30.358"W	21.32	356.740	0.63
1278.00	5.400	5.390	1276.64	24.21	25.47	0.13	637157.97	482557.31	39°49'03.817"N	80°47'30.345"W	29.47	359.754	0.87
1374.00	5.340	1.200	1372.22	31.26	38.43	0.39	637158.49	482566.27	39°49'03.906"N	80°47'30.340"W	38.43	0.583	0.41
1466.00	3.290	353.690	1463.96	37.03	45.34	0.19	637158.29	482573.17	39°49'03.974"N	80°47'30.344"W	45.34	0.240	2.31
1561.00	1.300	292.360	1558.89	40.33	48.46	-1.11	637156.99	482576.29	39°49'04.005"N	80°47'30.361"W	48.47	358.692	3.05
1656.00	1.510	255.240	1653.86	41.67	48.55	3.31	637154.79	482576.39	39°49'04.005"N	80°47'30.390"W	48.66	356.096	0.96
1749.00	0.210	97.290	1746.85	41.98	48.21	-4.33	637153.77	482576.05	39°49'04.002"N	80°47'30.403"W	48.41	354.869	1.81

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

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US Ft]	Grid North [US Ft]	Latitude	Longitude	Closeure Dist [ft]	Closeure Dir [°]	DLS [ft/100ft]
1846.00	0.800	1843.84	1843.84	41.61	48.35	-1.49	1637154.61	482576.18	39°49'04.003"N	80°47'30.392"W	48.47	335.867	0.63
1941.00	0.420	40.840	1938.84	41.44	48.76	-2.26	1637155.88	482576.60	39°49'04.008"N	80°47'30.381"W	48.83	356.924	0.55
2021.00	0.510	27.550	2018.84	41.68	49.30	-2.26	1637155.84	482577.14	39°49'04.013"N	80°47'30.376"W	49.33	357.371	0.17
2135.00	0.340	2132.83	2132.83	42.07	50.05	-1.87	1637156.23	482577.89	39°49'04.020"N	80°47'30.371"W	50.08	357.855	0.15
2230.00	0.170	331.520	2227.83	42.34	50.42	-1.81	1637156.29	482578.26	39°49'04.024"N	80°47'30.371"W	50.46	357.941	0.10
2324.00	0.440	321.420	2221.83	42.84	50.83	-2.10	1637156.00	482578.67	39°49'04.028"N	80°47'30.375"W	50.87	357.630	0.29
2419.00	0.430	338.660	2416.83	43.55	51.45	-2.46	1637155.64	482579.28	39°49'04.034"N	80°47'30.379"W	51.50	357.262	0.14
2514.00	0.690	316.370	2511.82	44.46	52.19	-2.98	1637155.12	482580.03	39°49'04.042"N	80°47'30.386"W	52.28	356.727	0.35
2608.00	0.620	314.200	2605.82	45.52	52.96	-3.74	1637154.36	482580.79	39°49'04.049"N	80°47'30.396"W	53.09	355.960	0.08
2703.00	0.620	340.560	2700.81	46.52	53.80	-1.28	1637153.82	482581.64	39°49'04.057"N	80°47'30.403"W	53.97	355.452	0.30
2798.00	0.560	336.450	2795.81	47.47	54.71	-4.64	1637153.46	482582.55	39°49'04.065"N	80°47'30.408"W	54.91	355.156	0.08
2892.00	1.010	9.250	2889.80	48.53	55.95	-4.69	1637153.41	482583.78	39°49'04.078"N	80°47'30.409"W	56.14	355.212	0.66
2988.00	6.030	36.890	2985.59	50.69	60.82	-1.52	1637156.58	482588.66	39°49'04.127"N	80°47'30.369"W	60.84	358.567	5.37
3082.00	8.050	40.510	3078.88	53.87	69.77	5.72	1637163.82	482597.61	39°49'04.216"N	80°47'30.278"W	70.01	4.685	2.30
3177.00	8.560	44.640	3172.88	56.81	79.86	15.01	1637173.11	482607.70	39°49'04.317"N	80°47'30.161"W	81.26	10.643	0.83
3271.00	9.520	50.110	3265.71	58.73	89.82	25.89	1637183.99	482617.66	39°49'04.417"N	80°47'30.023"W	95.48	16.077	1.37
3366.00	9.520	49.570	3359.41	60.14	99.96	37.90	1637195.99	482627.79	39°49'04.519"N	80°47'29.871"W	106.90	20.765	0.09
3461.00	12.980	54.760	3452.57	60.93	111.21	52.59	1637210.69	482639.05	39°49'04.633"N	80°47'29.685"W	123.00	25.310	3.79
3556.00	14.190	59.350	3544.91	60.11	123.32	71.32	1637229.41	482651.16	39°49'04.755"N	80°47'29.447"W	142.46	30.040	1.69
3651.00	11.420	56.820	3637.54	58.95	134.43	89.70	1637247.29	482662.26	39°49'04.867"N	80°47'29.228"W	161.33	33.566	2.97
3746.00	9.630	54.890	3730.94	58.67	144.14	103.57	1637261.67	482671.98	39°49'04.965"N	80°47'29.038"W	177.49	35.698	1.92
3841.00	8.830	54.800	3824.57	58.74	153.42	116.69	1637274.79	482681.25	39°49'05.059"N	80°47'28.871"W	192.76	37.257	0.24
3878.00	11.080	54.440	3860.95	58.80	157.32	122.17	1637280.26	482685.16	39°49'05.098"N	80°47'28.802"W	199.19	37.830	3.33
3907.00	11.500	58.730	3889.39	58.64	160.45	126.90	1637285.00	482688.28	39°49'05.130"N	80°47'28.742"W	204.57	38.342	3.24
4001.00	13.060	80.320	3981.29	53.49	167.10	145.39	1637303.48	482696.95	39°49'05.198"N	80°47'28.565"W	221.90	41.026	5.72
4096.00	13.140	72.160	4073.82	45.71	172.21	166.25	1637324.34	482700.04	39°49'05.252"N	80°47'28.240"W	239.37	43.991	1.95
4191.00	13.100	69.110	4166.35	39.90	179.36	186.59	1637344.68	482707.19	39°49'05.325"N	80°47'27.980"W	258.82	46.132	0.73
4286.00	13.140	64.250	4258.87	35.54	187.89	206.38	1637364.46	482715.72	39°49'05.412"N	80°47'27.728"W	279.10	47.684	1.16
4380.00	13.010	59.840	4350.43	32.91	197.85	225.15	1637383.24	482725.68	39°49'05.513"N	80°47'27.490"W	299.73	48.693	1.07
4475.00	13.100	57.550	4442.98	31.55	205.10	243.48	1637401.57	482736.83	39°49'05.628"N	80°47'27.257"W	320.88	49.358	0.35

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REFERENCE WELLPATH IDENTIFICATION

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

WELLPATH DATA (216 stations)

ID	True Inclin	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	BLS
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]			[ft]	[°]	[1/1000]
4570.00	13.120	61.360	4535.50	29.87	219.94	262.03	1637420.11	482747.77	39°49'05.737"N	80°47'27.021"W	342.10	49.990	0.91
4664.00	13.020	63.600	4627.08	26.20	228.92	281.25	1637439.34	482756.75	39°49'05.828"N	80°47'26.776"W	162.64	50.857	1.74
4759.00	12.980	67.280	4719.64	21.41	216.95	301.06	1637459.15	482764.78	39°49'05.910"N	80°47'26.524"W	383.12	51.796	0.31
4853.00	13.030	60.980	4811.23	18.06	246.17	320.08	1637478.16	482774.00	39°49'06.004"N	80°47'26.282"W	403.79	52.436	1.51
4948.00	13.530	61.370	4903.69	15.73	256.71	339.19	1637497.27	482784.53	39°49'06.111"N	80°47'26.030"W	495.38	52.880	0.52
5043.00	13.550	64.310	4996.05	12.72	266.87	358.96	1637517.04	482794.70	39°49'06.214"N	80°47'25.788"W	447.30	53.371	0.75
5137.00	13.500	66.270	5087.44	8.79	276.06	378.93	1637537.01	482803.89	39°49'06.308"N	80°47'25.534"W	468.82	53.925	0.49
5232.00	13.560	64.760	5179.81	4.74	285.27	399.15	1637557.23	482813.10	39°49'06.402"N	80°47'25.276"W	480.62	54.447	0.18
5327.00	14.110	57.810	5273.51	3.58	290.45	408.57	1637566.64	482818.27	39°49'06.454"N	80°47'25.156"W	501.28	54.599	3.89
5426.00	15.570	52.340	5370.87	1.60	297.66	418.82	1637576.90	482823.48	39°49'06.527"N	80°47'25.026"W	313.82	54.599	4.16
5520.00	16.730	45.400	5475.06	5.00	306.09	428.42	1637586.49	482833.91	39°49'06.612"N	80°47'24.905"W	526.53	54.456	4.84
5615.00	18.180	29.040	5561.83	9.53	317.73	437.16	1637595.23	482845.55	39°49'06.728"N	80°47'24.795"W	540.42	53.990	10.41
5710.00	20.170	17.930	5649.35	17.28	331.25	442.95	1637601.03	482859.07	39°49'06.862"N	80°47'24.723"W	553.12	53.210	9.22
5805.00	20.340	7.580	5737.68	28.88	348.07	446.75	1637604.83	482875.89	39°49'07.029"N	80°47'24.678"W	566.34	52.077	7.17
5900.00	20.230	0.680	5826.92	39.08	361.19	447.70	1637605.78	482889.01	39°49'07.159"N	80°47'24.668"W	575.24	51.165	6.10
6000.00	22.700	359.140	5920.03	55.89	381.68	447.66	1637605.73	482909.50	39°49'07.361"N	80°47'24.672"W	588.28	49.548	4.52
6100.00	30.620	352.130	6013.88	92.66	424.05	444.06	1637602.14	482931.87	39°49'07.780"N	80°47'24.725"W	614.01	46.320	8.96
6200.00	33.690	347.830	6103.68	115.34	448.66	439.67	1637597.75	482976.48	39°49'08.022"N	80°47'24.787"W	628.18	44.420	8.14
6300.00	38.130	341.610	6192.56	141.83	475.76	432.19	1637590.26	483003.57	39°49'08.289"N	80°47'24.888"W	642.75	42.252	11.96
6400.00	44.240	334.300	6282.68	172.59	504.98	420.28	1637578.36	483072.79	39°49'08.576"N	80°47'25.046"W	656.99	39.770	16.02
6500.00	49.030	331.900	6374.26	205.68	534.80	405.19	1637563.26	483062.61	39°49'08.869"N	80°47'25.245"W	670.96	37.149	11.19
6600.00	53.670	331.160	6466.86	243.69	568.43	386.94	1637545.02	483096.24	39°49'09.198"N	80°47'25.485"W	687.63	34.244	9.54
6700.00	58.910	329.920	6556.38	281.76	601.73	368.12	1637526.20	483129.53	39°49'09.525"N	80°47'25.732"W	705.40	31.457	11.61
6800.00	68.770	327.820	6643.77	365.83	672.82	324.50	1637482.58	483201.62	39°49'10.231"N	80°47'26.004"W	747.89	25.715	10.68
6900.00	78.540	326.890	6728.18	456.81	750.48	275.37	1637433.46	483278.27	39°49'10.981"N	80°47'26.348"W	799.40	20.150	10.33
7000.00	84.140	326.910	6808.78	550.63	829.12	224.10	1637382.19	483356.91	39°49'11.751"N	80°47'27.019"W	858.87	15.125	5.89
7100.00	90.580	326.130	6882.18	624.49	890.74	183.35	1637329.52	483438.53	39°49'12.354"N	80°47'28.153"W	909.42	11.631	8.77
7200.00	90.770	324.720	6951.94	645.49	908.03	171.43	1637293.32	483435.82	39°49'12.524"N	80°47'28.309"W	924.07	10.691	6.76
7300.00	90.770	323.350	7010.70	739.46	984.10	116.23	1637274.32	483511.89	39°49'13.267"N	80°47'29.030"W	900.95	6.736	1.46
7400.00	90.770	325.360	7069.43	834.45	1061.53	61.22	1637219.31	483589.31	39°49'14.025"N	80°47'29.749"W	1063.30	3.490	9.34

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

MD [ft]	Inclination [°]	Asimuth [°]	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 [ft/100ft]
6652.00	90.770	326.440	5908.15	929.42	1140.42	8.30	1637166.40	483668.20	39°49'14.797"N	80°47'10.442"W	1140.45	0.417	0.01
6747.00	89.978	322.440	5907.53	1024.39	1217.74	-46.86	1637111.24	483745.51	39°49'15.553"N	80°47'31.163"W	1218.64	357.986	4.19
6842.00	90.890	322.080	5906.82	1119.28	1292.91	-104.94	1637053.16	483820.68	39°49'16.289"N	80°47'32.659"W	1377.51	353.269	2.06
6936.00	90.980	324.010	5905.29	1213.21	1368.01	-161.45	1636996.66	483895.78	39°49'17.022"N	80°47'33.371"W	1461.88	351.508	2.16
7031.00	91.110	326.060	5903.56	1308.19	1445.85	-215.88	1636942.24	483973.61	39°49'17.789"N	80°47'34.064"W	1547.03	349.992	0.77
7125.00	91.050	325.340	5901.78	1402.17	1523.49	-268.84	1636889.28	484051.24	39°49'18.543"N	80°47'34.751"W	1634.56	348.664	2.40
7220.00	91.080	327.620	5900.02	1497.11	1602.67	-321.29	1636836.83	484130.42	39°49'19.318"N	80°47'35.394"W	1724.24	347.597	2.70
7315.00	90.890	330.180	5898.38	1591.87	1684.00	-370.35	1636787.77	484211.74	39°49'20.114"N	80°47'36.025"W	1814.83	346.671	1.19
7410.00	90.770	329.060	5897.01	1686.55	1765.94	-418.59	1636739.74	484293.68	39°49'21.705"N	80°47'36.667"W	1908.79	345.751	2.48
7505.00	90.770	326.700	5895.73	1781.42	1845.39	-468.89	1636689.24	484374.13	39°49'22.469"N	80°47'37.373"W	2004.76	343.984	0.48
7599.00	90.710	325.590	5894.52	1875.39	1924.44	-521.25	1636636.88	484452.18	39°49'23.246"N	80°47'38.079"W	2174.39	343.222	0.10
7695.00	90.830	326.030	5893.23	1971.37	2003.84	-575.19	1636582.84	484531.57	39°49'24.099"N	80°47'39.461"W	2264.13	342.501	1.12
7789.00	90.770	326.100	5891.91	2065.34	2081.83	-627.66	1636530.47	484609.55	39°49'25.531"N	80°47'40.170"W	2355.00	341.814	0.35
7883.00	90.890	325.050	5890.55	2159.33	2159.35	-680.80	1636477.34	484687.07	39°49'26.295"N	80°47'40.876"W	2446.25	340.588	0.68
7978.00	90.770	325.360	5889.18	2254.32	2237.36	-735.00	1636423.14	484765.08	39°49'27.057"N	80°47'42.312"W	2537.64	340.008	0.92
8073.00	90.800	325.370	5887.88	2349.31	2315.52	-788.99	1636369.16	484843.23	39°49'28.348"N	80°47'43.029"W	2628.96	339.481	1.75
8168.00	90.680	324.740	5886.65	2444.30	2393.38	-843.40	1636314.75	484921.09	39°49'30.123"N	80°47'44.397"W	2720.70	339.054	2.52
8263.00	90.890	323.890	5885.35	2539.28	2470.54	-898.81	1636259.34	485009.27	39°49'31.557"N	80°47'45.139"W	2813.42	338.648	2.97
8358.00	90.740	325.550	5884.00	2634.27	2548.08	-953.67	1636204.48	485098.24	39°49'33.239"N	80°47'46.946"W	2906.22	338.157	4.95
8453.00	90.620	327.940	5882.87	2729.21	2627.51	-1005.76	1636152.40	485185.20	39°49'35.903"N	80°47'47.625"W	3008.77	337.588	2.44
8548.00	90.650	325.120	5881.81	2824.16	2706.74	-1058.14	1636100.02	485274.43	39°49'38.855"N	80°47'48.448"W	3176.10	336.997	1.55
8642.00	90.680	320.470	5880.72	2918.06	2781.59	-1114.96	1636043.20	485369.27	39°49'41.557"N	80°47'49.302"W	3284.29	336.418	0.46
8737.00	90.770	318.150	5879.52	3012.58	2853.61	-1176.89	1635981.28	485461.23	39°49'44.448"W	80°47'49.448"W	3354.68	335.913	4.30
8832.00	90.680	316.680	5878.32	3106.73	2923.55	-1241.17	1635921.00	485551.36	39°49'47.189"W	80°47'49.802"W	3446.29	335.561	5.44
8926.00	90.620	316.230	5877.25	3199.69	2991.69	-1305.91	1635852.26	485645.18	39°49'50.211"W	80°47'50.211"W	3539.70	335.276	0.99
9021.00	90.860	320.330	5876.02	3294.01	3062.59	-1369.10	1635789.08	485742.96	39°49'53.595"N	80°47'50.621"W	3633.09	335.002	0.40
9115.00	90.770	325.440	5874.69	3387.90	3137.51	-1425.20	1635732.38	485840.41	39°49'56.624"N	80°47'51.300"W	3727.12	334.786	4.51
9210.00	90.860	325.400	5873.34	3482.89	3215.30	-1480.32	1635677.86	485939.95					
9305.00	91.140	324.760	5871.68	3577.88	3292.75	-1535.30	1635622.88	486040.41					
9400.00	91.420	329.040	5869.55	3672.78	3372.29	-1587.16	1635571.03	486142.95					



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REFERENCE WELLPATH IDENTIFICATION

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

MD	Inclination	Asimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Chasre Dist	Chasre Dir	DTS
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]	[°N]	[°W]	[ft]	[°]	[ft/1000]
9494.00	91.290	341.770	5867.33	3766.37	3453.76	-1633.99	635524.20	485981.41	39°49'77.423"N	80°47'51.916"W	3820.78	334.681	2.27
9589.00	91.510	329.780	5865.01	3860.91	3536.40	-1680.80	635477.40	486064.04	39°49'38.233"N	80°47'52.531"W	3915.50	334.579	1.48
9684.00	91.390	328.500	5862.61	3967.92	3617.92	-1729.51	635428.69	486145.56	39°49'59.031"N	80°47'53.170"W	4010.05	334.540	1.35
9778.00	91.260	326.670	5860.43	4049.51	3697.25	-1779.88	635378.32	486224.88	39°49'59.808"N	80°47'53.840"W	4103.37	334.294	1.95
9873.00	91.110	323.360	5858.47	4144.47	3775.05	-1834.33	635323.87	486302.68	39°49'40.369"N	80°47'54.542"W	4197.12	334.014	3.49
9968.00	90.950	320.380	5856.76	4239.30	3849.76	-1892.97	635265.23	486377.39	39°49'41.299"N	80°47'55.308"W	4289.99	333.816	3.14
10063.00	91.050	319.800	5855.10	4333.94	3922.62	-1953.91	635204.30	486450.24	39°49'42.010"N	80°47'56.102"W	4382.32	333.521	0.82
10158.00	90.990	318.830	5853.41	4428.46	3994.65	-2015.83	635142.38	486522.26	39°49'42.713"N	80°47'56.909"W	4474.46	333.223	1.02
10252.00	90.980	320.100	5851.79	4522.00	4066.08	-2076.91	635081.30	486593.69	39°49'43.410"N	80°47'57.705"W	4563.80	332.942	1.35
10347.00	90.920	324.590	5850.22	4616.86	4141.26	-2134.95	635023.29	486666.87	39°49'44.145"N	80°47'58.531"W	4659.18	332.728	4.73
10441.00	91.080	329.600	5848.58	4710.76	4220.14	-2185.97	634972.25	486747.75	39°49'44.917"N	80°47'59.122"W	4759.69	332.617	5.33
10536.00	90.520	334.040	5847.25	4805.05	4303.85	-2230.82	634927.41	486831.43	39°49'45.738"N	80°47'59.722"W	4847.65	332.601	4.71
10632.00	90.740	332.700	5846.19	4900.02	4389.66	-2273.84	634884.38	486917.25	39°49'46.580"N	80°48'00.289"W	4943.63	332.616	1.41
10727.00	90.920	330.120	5844.82	4994.41	4473.06	-2319.30	634838.93	487000.65	39°49'47.397"N	80°48'00.887"W	5038.59	332.593	2.72
10822.00	90.580	329.250	5843.57	5089.08	4555.08	-2367.21	634791.07	487082.67	39°49'48.207"N	80°48'01.517"W	5134.46	332.540	0.94
10917.00	90.800	325.300	5842.43	5183.98	4635.00	-2418.53	634739.71	487162.58	39°49'48.983"N	80°48'02.189"W	5228.05	332.445	4.21
11012.00	91.110	323.700	5840.85	5278.96	4712.32	-2473.69	634684.55	487239.90	39°49'49.740"N	80°48'02.910"W	5322.13	332.303	1.72
11107.00	91.020	323.260	5839.08	5373.91	4788.66	-2530.21	634628.03	487316.23	39°49'50.486"N	80°48'03.649"W	5416.01	332.149	0.47
11202.00	91.080	325.410	5837.34	5468.85	4864.85	-2586.93	634571.31	487392.42	39°49'51.231"N	80°48'04.390"W	5509.90	331.998	0.17
11296.00	91.430	323.010	5835.29	5562.78	4940.11	-2643.21	634515.04	487467.67	39°49'51.966"N	80°48'05.125"W	5602.79	331.851	0.56
11391.00	91.420	324.070	5832.93	5657.72	5016.49	-2699.65	634458.60	487544.05	39°49'52.713"N	80°48'05.863"W	5696.78	331.713	1.12
11485.00	91.290	322.470	5830.71	5751.65	5091.80	-2755.85	634402.41	487619.36	39°49'53.449"N	80°48'06.597"W	5789.74	331.576	1.71
11581.00	91.110	323.250	5828.70	5847.56	5168.31	-2813.79	634344.46	487695.87	39°49'54.197"N	80°48'07.354"W	5884.63	331.435	0.83
11675.00	91.140	326.480	5826.85	5941.53	5245.16	-2867.87	634282.39	487772.71	39°49'54.948"N	80°48'08.061"W	5977.99	331.332	3.44
11770.00	90.740	327.280	5825.30	6036.46	5324.71	-2919.77	634220.19	487849.26	39°49'55.727"N	80°48'08.741"W	6072.70	331.262	9.94
11865.00	90.650	327.950	5824.14	6131.36	5404.92	-2970.67	634187.60	487926.46	39°49'56.512"N	80°48'09.408"W	6167.50	331.206	0.69
11960.00	90.800	328.480	5822.94	6226.20	5485.66	-3020.72	634137.55	488013.20	39°49'57.303"N	80°48'10.065"W	6262.36	331.160	0.60
12054.00	90.740	329.060	5821.68	6319.99	5566.03	-3069.45	634088.82	488093.56	39°49'58.090"N	80°48'10.704"W	6356.28	331.125	0.62
12149.00	90.770	328.460	5820.43	6414.78	5647.25	-3118.71	634039.56	488174.78	39°49'58.886"N	80°48'11.351"W	6451.19	331.090	0.63
12244.00	90.890	325.230	5819.05	6509.71	5726.76	-3170.65	633987.62	488255.29	39°49'59.663"N	80°48'12.032"W	6545.91	331.029	1.40

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WV Department of
Environmental Protection

02/03/2017

Actual Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION

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

MD (ft)	Inclination (°)	Azimuth (°)	TWB (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	Di.S (ft/100ft)
12339.00	90.650	321.340	5817.77	6604.64	5802.90	-3227.44	1633930.84	488330.41	39°50'00.408"N	80°48'12.773"W	6640.03	330.918	4.10
12453.00	91.170	321.720	5816.28	6698.45	5876.48	-3285.91	1633872.38	488404.00	39°50'01.127"N	80°48'13.536"W	6732.77	330.787	0.69
12528.00	91.020	323.170	5814.46	6791.34	5951.78	-3343.80	1633814.46	488479.29	39°50'01.863"N	80°48'14.292"W	6826.76	330.652	1.53
12623.00	91.020	321.770	5812.77	6888.23	6027.21	-3401.53	1633756.76	488554.71	39°50'02.600"N	80°48'15.046"W	6920.81	330.561	1.26
12717.00	90.860	320.870	5811.22	6982.04	6100.68	-3460.14	1633698.15	488628.11	39°50'03.318"N	80°48'15.811"W	7013.62	330.459	1.18
12811.00	90.890	320.080	5809.80	7075.73	6173.18	-3519.95	1633638.34	488700.67	39°50'04.025"N	80°48'16.591"W	7106.21	330.308	0.84
12906.00	90.620	321.650	5808.54	7170.47	6246.86	-3579.91	1633578.39	488774.35	39°50'04.745"N	80°48'17.374"W	7199.93	330.184	1.68
13001.00	90.620	322.560	5807.52	7265.35	6321.82	-3638.25	1633520.05	488849.31	39°50'05.477"N	80°48'18.135"W	7293.99	330.079	0.96
13095.00	90.580	324.070	5806.53	7359.30	6397.19	-3694.40	1633463.90	488924.68	39°50'06.214"N	80°48'18.869"W	7387.33	329.993	1.61
13190.00	91.240	325.940	5805.03	7454.28	6475.00	-3748.88	1633409.43	489002.48	39°50'06.979"N	80°48'19.582"W	7481.96	329.900	2.06
13285.00	91.570	329.150	5802.71	7549.15	6555.13	-3799.84	1633358.47	489082.61	39°50'07.760"N	80°48'20.250"W	7576.84	329.800	3.40
13380.00	91.200	327.540	5800.41	7643.95	6635.97	-3849.68	1633308.64	489163.44	39°50'08.551"N	80°48'20.904"W	7671.77	329.681	1.74
13474.00	90.950	327.280	5798.65	7737.85	6715.16	-3900.30	1633258.02	489242.62	39°50'09.326"N	80°48'21.567"W	7765.67	329.551	0.38
13570.00	91.020	324.790	5797.00	7833.82	6794.76	-3953.92	1633204.40	489322.22	39°50'10.105"N	80°48'22.269"W	7861.44	329.405	2.59
13664.00	90.410	323.870	5795.81	7927.78	6870.63	-4009.39	1633148.93	489403.69	39°50'10.848"N	80°48'22.995"W	7954.92	329.274	2.14
13759.00	90.370	325.440	5795.15	8022.76	6947.63	-4065.02	1633093.31	489475.08	39°50'11.600"N	80°48'23.722"W	8049.47	329.168	2.71
13854.00	90.520	324.930	5794.41	8117.76	7025.62	-4119.25	1633039.08	489553.07	39°50'12.363"N	80°48'24.432"W	8144.18	329.016	0.56
13949.00	90.460	327.260	5793.60	8212.73	7104.46	-4172.24	1632986.09	489631.91	39°50'13.140"N	80°48'25.126"W	8238.99	329.576	2.45
14043.00	90.460	327.400	5792.84	8306.65	7183.59	-4222.98	1632935.36	489711.03	39°50'13.909"N	80°48'25.791"W	8332.92	329.550	0.15
14138.00	90.680	327.700	5791.90	8401.55	7263.75	-4273.95	1632884.30	489791.15	39°50'14.694"N	80°48'26.459"W	8427.85	329.528	0.95
14232.00	90.680	331.350	5790.78	8495.24	7344.75	-4321.61	1632836.73	489872.18	39°50'15.487"N	80°48'27.085"W	8521.83	329.528	3.88
14327.00	90.650	333.840	5789.68	8589.39	7429.07	-4365.33	1632793.01	489955.50	39°50'16.314"N	80°48'27.661"W	8616.68	329.461	2.62
14422.00	90.680	329.390	5788.57	8683.73	7512.62	-4410.48	1632747.87	490040.04	39°50'17.137"N	80°48'28.255"W	8711.59	329.584	4.68
14516.00	90.710	324.270	5787.43	8777.64	7591.27	-4461.89	1632696.46	490118.69	39°50'17.903"N	80°48'28.929"W	8805.45	329.554	5.45
14611.00	90.650	324.540	5786.31	8872.63	7668.52	-4517.18	1632641.17	490195.93	39°50'18.699"N	80°48'29.659"W	8900.66	329.500	0.29
14706.00	90.680	322.320	5785.20	8967.58	7744.81	-4573.77	1632584.58	490272.21	39°50'19.404"N	80°48'30.392"W	8994.52	329.456	2.34
14800.00	90.740	319.460	5784.04	9061.32	7817.73	-4633.06	1632525.30	490345.13	39°50'20.116"N	80°48'31.165"W	9087.47	329.348	3.04
14895.00	90.710	319.830	5782.84	9155.90	7890.12	-4694.57	1632463.79	490417.52	39°50'20.823"N	80°48'31.967"W	9181.12	329.248	0.39
14989.00	91.020	323.860	5781.42	9249.73	7964.01	-4752.62	1632405.74	490491.41	39°50'21.545"N	80°48'32.725"W	9274.31	329.175	4.30
15084.00	91.080	322.920	5779.66	9344.67	8040.26	-4809.27	1632349.10	490567.63	39°50'22.290"N	80°48'33.465"W	9368.82	329.114	0.94



Actual Wellpath Report
MND-6B-HS AWP Proj: 18369
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REFERENCE WELLPATH IDENTIFICATION

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

MB [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 [ft]	DLS [ft/100ft]
15178.00	91.110	320.510	5777.88	9438.30	8114.02	-4867.49	163220.88	490641.41	39°50'23.0111°N	80°48'34.226°W	9462.02	329.041	2.56
15274.00	91.050	317.990	5776.07	9513.98	8186.40	-4930.52	163227.86	490713.78	39°50'23.717°N	80°48'35.047°W	9556.52	328.940	3.25
15368.00	91.050	317.950	5774.35	9627.15	8235.88	-4993.81	163216.57	490783.26	39°50'24.394°N	80°48'35.871°W	9648.71	328.831	0.60
15463.00	91.140	323.970	5772.53	9721.85	8329.62	-5053.60	163210.78	490856.99	39°50'25.114°N	80°48'36.651°W	9742.76	328.755	6.34
15558.00	91.050	328.380	5770.71	9816.79	8408.59	-5106.46	163205.92	490931.87	39°50'25.886°N	80°48'37.344°W	9837.03	328.730	1.64
15653.00	90.920	328.840	5769.08	9911.59	8489.59	-5155.94	163202.45	491016.95	39°50'26.680°N	80°48'37.993°W	9932.61	328.729	0.50
15748.00	90.950	328.370	5767.53	10006.39	8570.67	-5205.42	163195.97	491098.03	39°50'27.474°N	80°48'38.643°W	10027.60	328.727	0.50
15842.00	90.740	328.450	5766.14	10100.21	8650.73	-5254.66	163190.74	491178.09	39°50'28.258°N	80°48'39.289°W	10121.59	328.725	0.24
15937.00	91.200	333.170	5764.46	10194.68	8733.63	-5300.97	163185.43	491260.98	39°50'29.071°N	80°48'39.898°W	10216.48	328.744	5.00
16031.00	92.060	331.020	5761.71	10287.91	8816.66	-5344.94	163181.46	491344.01	39°50'29.885°N	80°48'40.477°W	10310.28	328.774	2.43
16125.00	91.750	326.650	5758.38	10381.63	8897.03	-5393.55	163176.85	491424.37	39°50'30.672°N	80°48'41.115°W	10404.20	328.775	4.66
16220.00	91.570	319.430	5755.83	10476.47	8972.85	-5450.60	163170.80	491500.19	39°50'31.413°N	80°48'41.861°W	10498.03	328.723	7.60
16315.00	91.290	316.400	5753.46	10570.70	9043.33	-5514.25	163164.16	491570.67	39°50'32.100°N	80°48'42.600°W	10591.92	328.627	3.20
16410.00	91.290	320.000	5751.32	10665.00	9114.12	-5577.54	163158.87	491641.45	39°50'32.791°N	80°48'43.314°W	10685.32	328.515	3.79
16505.00	91.320	325.010	5749.15	10759.85	9189.45	-5635.34	163153.08	491716.78	39°50'33.527°N	80°48'44.068°W	10779.75	328.482	5.27
16600.00	91.320	328.690	5746.96	10854.76	9268.95	-5687.26	163147.16	491796.28	39°50'34.305°N	80°48'44.950°W	10874.67	328.467	3.87
16695.00	91.200	327.940	5744.80	10949.58	9349.77	-5737.15	163142.27	491877.09	39°50'35.096°N	80°48'45.604°W	10969.64	328.466	0.79
16790.00	91.230	327.660	5742.71	11044.44	9430.14	-5787.76	163137.06	491957.45	39°50'35.883°N	80°48'46.268°W	11064.61	328.460	0.30
16884.00	90.620	325.990	5741.19	11138.39	9508.39	-5839.80	163131.63	492035.71	39°50'36.649°N	80°48'46.950°W	11158.53	328.443	2.81
16979.00	90.430	322.670	5740.32	11233.36	9585.12	-5895.79	163126.65	492112.43	39°50'37.396°N	80°48'47.682°W	11253.22	328.404	2.56
17074.00	90.460	322.780	5739.59	11328.29	9660.72	-5953.33	163120.510	492188.02	39°50'38.138°N	80°48'48.434°W	11347.76	328.357	0.12
17168.00	90.400	321.920	5738.88	11422.18	9735.14	-6010.74	163114.69	492262.44	39°50'38.865°N	80°48'49.184°W	11441.24	328.308	0.92
17263.00	90.620	322.300	5738.03	11517.06	9810.11	-6069.09	163108.93	492337.40	39°50'39.597°N	80°48'49.946°W	11535.69	328.257	0.46
17357.00	90.740	323.350	5736.92	11610.98	9885.00	-6125.88	163103.56	492412.29	39°50'40.329°N	80°48'50.688°W	11629.26	328.213	1.12
17452.00	90.710	326.540	5735.73	11705.96	9962.75	-6180.43	163097.81	492487.04	39°50'41.060°N	80°48'51.402°W	11724.09	328.186	3.16
17547.00	90.650	328.740	5734.59	11800.85	10042.99	-6231.27	163092.17	492570.27	39°50'41.875°N	80°48'52.068°W	11819.07	328.182	2.32
17642.00	90.650	328.170	5733.51	11895.67	10123.95	-6280.97	163087.48	492651.22	39°50'42.668°N	80°48'52.721°W	11914.06	328.184	0.60
17736.00	90.830	326.940	5732.30	11989.57	10203.26	-6331.40	163082.06	492730.54	39°50'43.444°N	80°48'53.382°W	12008.05	328.179	1.32
17831.00	90.920	325.940	5730.85	12084.52	10282.42	-6383.91	163077.45	492809.69	39°50'44.219°N	80°48'54.070°W	12102.99	328.166	1.06
17926.00	90.860	326.920	5729.35	12179.48	10361.56	-6436.43	163072.08	492888.83	39°50'44.984°N	80°48'54.758°W	12197.84	328.152	1.35

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Actual Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION

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

WELLPATH DATA (216 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 [P/100ft]
18021.00	90.920	323.776	5727.86	12274.45	10439.69	-6490.44	1630668.02	492966.95	39°50'45.758"N	80°48'55.465"W	12292.80	328.130	3.32
18116.00	90.920	324.708	5726.34	12369.43	10516.76	-6545.95	1630611.51	493044.02	39°50'46.511"N	80°48'56.191"W	12387.57	328.101	0.98
18211.00	90.740	325.080	5724.96	12464.42	10594.47	-6600.39	1630557.88	493121.72	39°50'47.277"N	80°48'56.906"W	12482.41	328.076	0.44
18305.00	90.650	324.210	5723.82	12558.41	10671.13	-6654.97	1630503.50	493198.37	39°50'48.021"N	80°48'57.618"W	12576.23	328.051	0.93
18349.00	90.680	324.480	5723.38	12596.41	10702.00	-6677.12	163048.35	493229.25	39°50'48.323"N	80°48'57.907"W	12614.15	328.039	0.71
18369.00	90.680	324.480	5723.07	12622.41	10723.16	-6692.23	1630466.24	493250.41	39°50'48.530"N	80°48'58.105"W	12640.10	328.032	0.00

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
MND-6B-HS BHL Rev-1		5728.67	10720.18	-6696.37	1630462.10	493247.42	39°50'48.500"N	80°48'58.158"W	point
MND-6B-HS LP Rev-1		5917.00	899.77	179.94	1637338.03	483427.56	39°49'12.443"N	80°47'28.198"W	point
MND-6 Pad LL		6495.99	3.66	14.56	1637172.66	482531.50	39°49'03.564"N	80°47'30.152"W	polygon

WELLPATH COMPOSITION - Ref Wellbore MND-6B-HS AWB Ref Wellpath MND-6B-HS AWP Proj 18369

Start MD [ft]	End MD [ft]	Log Name/Comment
26.00	275.00	01 Gyro -14-3/4"> (50-275)
275.00	621.00	02 AFS EM <14-3/4"> (275) (309-621) Prof: 758
621.00	2021.00	03 AFS EM <12-1/4"> (621) (770-2021)
2021.00	3841.00	04 BHI MWD -8-3/4"> (2021) (2155-3841)
3841.00	18343.00	05 BHI AT Curve: 8-3/4"> (3841) (3878-18343)
18343.00	18369.00	Projection to bit



Actual Wellpath Report
MND-6B-HS AWP Proj: 18369
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REFERENCE WELLPATH IDENTIFICATION

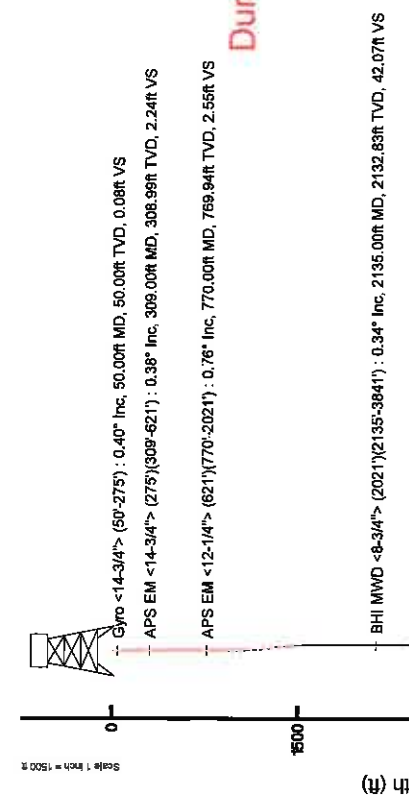
Operator	Area	Field	Facility	Slot	Well	Wellbore	Slot B
NOBLE ENERGY	Marshall County, WV	Marshall	MND-6 Pad	Well	MND-6B-HS	MND-6B-HS AWB	MND-6B-HS

COMMENTS

Wellpath general comments
API: 47-051-01744-0000
BHI Job #: 6650146A
Rig: Nomac 79
Duration: 10.03.2014 - 10.15.2014
Gyro <14-3/4"> (50'-275')
APS EM <14-3/4"> (275')(309'-621')
APS EM <12-1/4"> (621')(770'-2021')
BHI MWD <8-3/4"> (2021')(2135'-3841')
BHI AT Curve <8-3/4"> (3841')(3878'-18343')
Projected MD at TD: 18369

Location: Marshall County, WV
 Field: Marshall
 Facility: MND-6 Pad
 Slot: Slot B
 Well: MND-6B-HS
 Wellbore: MND-6B-HS PWB

Plot reference wellpath is MND-6B-HS PWB Rev-1.0 True vertical depths are referenced to Normac 78 (RKB) Measured depths are referenced to Normac 78 (RKB) Normac 78 (RKB) is Mean Sea Level, 746.97 feet Mean Sea Level to Mud line (At Slot: Slot B) = -720.97 feet Coordinates are in feet referenced to Slot			
Grid System: NAD83 / Lambert West Virginia SP, Northern Zone (FWD), US feet North Reference: GHD north Scale: True distance Depths are in feet Created by: geobase on 10/23/2014			
Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
MND-6 Pad	1637177.760	482512.230	80°47'30.083"W
Slot	Local E (ft)	Grid North (US ft)	Longitude
Slot B	-19.66	482527.840	80°47'30.338"W
Normac 78 (RKB) to Mud line (At Slot: Slot B) Mean Sea Level to Mud line (At Slot: Slot B) Normac 78 (RKB) to Mean Sea Level			
			746.97ft

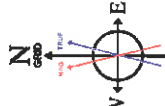


API: 47-051-01744-0000
 Rig: Normac 79
 BHI Job #: 6650146A
 Duration: 10/03/2014 - 10/15/2014

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User specified (MDCM) Dip: 67.25° Field: 52780.17°
 Magnetic declination: 67.25° True North (at 529262014)
 Grid North is 0.00 degrees from True North
 To correct azimuth from True to Grid add 0.00 degrees
 To correct azimuth from Magnetic to Grid subtract 6.86 degrees

BHI AT Curve <8-3/4"> (3841)(3878-18343) : 3860.95ft TVD, 157.32ft N, 122.17ft E
 BHI MWD <8-3/4"> (2021)(2135-3841) : 2132.83ft TVD, 50.05ft N, 1.87ft W
 APS EM <12-1/4"> (621)(770-2021) : 769.94ft TVD, 1.59ft S, 6.71ft W
 APS EM <14-3/4"> (275)(309-621) : 308.99ft TVD, 1.24ft N, 2.14ft W
 Gyro <14-3/4"> (50-275) : 50.00ft TVD, 0.07ft N, 0.04ft W

Projected MD at TD: 18369' : 90.68° Inc, 18369.00ft MD, 5723.07ft TVD, 12622.41ft VS
 Scale: 1 inch = 1500 ft
 Vertical Section (ft)
 Azimuth 325.00° with reference 0.00 N, 0.00 E