

**REFERENCE WELLPATH IDENTIFICATION**

Operator	NOBLE ENERGY	Slot	Slot B
Area	Marshall County, WV	Well	WEB-22B-HS
Field	Marshall	Wellbore	WEB-22B-HS (AWB)
Facility	WEB-22 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	0.999954	Report Generated	04/Jun/2014 at 16:22
Convergence at slot	0.65° West	Database/Source file	WA_Pennsylvania/WEB-22B-HS_AWB_.xml

**WELLPATH LOCATION**

	Local coordinates		Grid coordinates		Geographic coordinates	
	North(ft)	East(ft)	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-14.21	13.87	1713939.68	519838.33	39°55'22.008"N	80°31'11.797"W
Facility Reference Pt			1713925.81	519852.54	39°55'22.147"N	80°31'11.977"W
Field Reference Pt			609601.22	0.00	38°23'48.753"N	84°21'09.765"W

**WELLPATH DATUM**

Calculation method	Minimum curvature		18.60ft
Horizontal Reference Pt	Slot	Precision 542 (RT) to Facility Vertical Datum	1343.60ft
Vertical Reference Pt	Precision 542 (RT)	Precision 542 (RT) to Mean Sea Level	18.60ft
MD Reference Pt	Precision 542 (RT)	Precision 542 (RT) to Mud Line at Slot (Slot B)	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Origin	325.00°
		Section Azimuth	

APR 20 2015  
 Office of Oil and Gas  
 WV Dept. of Environmental Protection

# Actual Wellpath Report

WEB-22B-HS (AWP) Proj: 14898'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot B
NOBLE ENERGY	WEB-22B-HS
Area	Well
Marshall County, WV	WEB-22B-HS (AWB)
Marshall	Wellbore
Facility	WEB-22 Pad

## WELLPATH DATA (179 stations) † = interpolated/extrapolated station

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 [1/100ft]
0.00†	0.000	359.310	0.00	0.00	0.00	0.00	1713939.68	519838.33	39°55'22.008"N	80°31'11.797"W	0.00	0.000	0.00
18.60	0.000	359.310	18.60	0.00	0.00	0.00	1713939.68	519838.33	39°55'22.008"N	80°31'11.797"W	0.00	0.000	0.00
100.00	1.300	359.310	99.99	0.76	0.92	-0.01	1713939.67	519839.25	39°55'22.017"N	80°31'11.797"W	0.92	359.310	1.60
200.00	1.020	3.910	199.97	2.39	2.95	0.04	1713939.72	519841.28	39°55'22.037"N	80°31'11.797"W	2.95	0.699	0.29
300.00	0.700	11.610	299.96	3.50	4.43	0.22	1713939.90	519842.76	39°55'22.051"N	80°31'11.795"W	4.44	2.836	0.34
400.00	0.870	17.140	399.95	4.39	5.76	0.57	1713940.25	519844.09	39°55'22.065"N	80°31'11.790"W	5.78	5.618	0.19
440.00	0.870	23.080	439.95	4.74	6.33	0.77	1713940.45	519844.66	39°55'22.070"N	80°31'11.788"W	6.37	6.983	0.23
467.00	0.200	323.700	466.95	4.89	6.55	0.83	1713940.51	519844.88	39°55'22.072"N	80°31'11.787"W	6.60	7.196	2.92
621.00	6.780	217.440	620.59	2.42	-0.46	-4.87	1713934.82	519837.87	39°55'22.003"N	80°31'11.859"W	4.89	264.628	4.44
684.00	6.290	211.070	683.18	-0.11	-6.37	-8.91	1713930.77	519831.96	39°55'21.944"N	80°31'11.910"W	10.95	234.444	1.39
715.00	5.510	205.280	714.02	-1.53	-9.17	-10.42	1713929.26	519829.16	39°55'21.916"N	80°31'11.929"W	13.88	228.658	3.16
747.00	4.600	201.150	745.89	-3.01	-11.75	-11.54	1713928.14	519826.58	39°55'21.890"N	80°31'11.943"W	16.47	224.472	3.06
778.00	3.620	191.390	776.81	-4.38	-13.87	-12.18	1713927.50	519824.46	39°55'21.869"N	80°31'11.951"W	18.46	221.285	3.87
810.00	2.320	178.980	808.77	-5.61	-15.51	-12.37	1713927.31	519822.82	39°55'21.843"N	80°31'11.951"W	19.84	218.570	4.51
841.00	1.460	154.710	839.75	-6.52	-16.49	-12.19	1713927.49	519821.84	39°55'21.833"N	80°31'11.951"W	20.51	216.462	3.73
872.00	1.420	107.210	870.74	-7.21	-16.96	-11.65	1713928.03	519821.37	39°55'21.839"N	80°31'11.944"W	20.58	214.483	3.74
904.00	1.760	67.270	902.73	-7.63	-16.89	-10.82	1713928.86	519821.44	39°55'21.839"N	80°31'11.933"W	20.06	212.642	3.54
936.00	2.950	53.010	934.70	-7.71	-16.21	-9.71	1713929.97	519822.12	39°55'21.846"N	80°31'11.919"W	18.89	210.925	4.12
967.00	4.300	47.560	965.64	-7.53	-14.94	-8.21	1713931.47	519823.39	39°55'21.859"N	80°31'11.900"W	17.05	208.799	4.49
999.00	5.410	49.650	997.53	-7.23	-13.16	-6.18	1713933.50	519825.17	39°55'21.877"N	80°31'11.874"W	14.54	205.159	3.51
1030.00	5.630	43.340	1028.38	-6.79	-11.10	-4.02	1713935.66	519827.23	39°55'21.897"N	80°31'11.847"W	11.81	199.911	2.08
1062.00	4.600	43.020	1060.26	-6.21	-9.02	-2.07	1713937.61	519829.31	39°55'21.918"N	80°31'11.822"W	9.26	192.914	3.22
1093.00	3.990	35.470	1091.17	-5.59	-7.24	-0.60	1713939.08	519831.09	39°55'21.936"N	80°31'11.804"W	7.26	184.702	2.68
1125.00	3.360	24.380	1123.10	-4.71	-5.43	0.46	1713940.81	519832.90	39°55'21.954"N	80°31'11.790"W	5.44	175.144	2.64
1156.00	3.290	17.680	1154.04	-3.68	-3.70	1.13	1713940.14	519834.63	39°55'21.971"N	80°31'11.782"W	3.87	163.046	1.56
1188.00	2.030	4.700	1186.01	-2.69	-2.26	1.45	1713941.13	519836.07	39°55'21.985"N	80°31'11.778"W	2.69	147.267	4.34
1223.00	2.420	339.340	1220.98	-1.49	-0.95	1.24	1713940.92	519837.38	39°55'21.998"N	80°31'11.781"W	1.57	127.437	2.99
1333.00	2.270	332.020	1330.89	2.92	3.14	-0.60	1713939.08	519841.47	39°55'22.039"N	80°31'11.805"W	3.20	349.239	0.30
1396.00	2.720	2.850	1393.83	5.34	5.74	-1.11	1713938.57	519844.07	39°55'22.064"N	80°31'11.812"W	5.85	349.067	2.21
1427.00	2.940	6.080	1424.80	6.52	7.26	-0.99	1713938.69	519845.59	39°55'22.079"N	80°31'11.811"W	7.33	352.256	0.88
1522.00	5.570	39.050	1519.54	9.62	13.27	2.18	1713941.86	519851.60	39°55'22.139"N	80°31'11.771"W	13.45	9.311	3.67
1616.00	6.580	48.100	1613.01	11.52	20.41	9.06	1713948.74	519858.74	39°55'22.210"N	80°31'11.684"W	22.33	23.934	1.48
1711.00	5.590	49.510	1707.48	12.62	27.05	16.63	1713956.31	519865.38	39°55'22.277"N	80°31'11.587"W	31.75	31.582	1.05
1806.00	2.910	46.300	1802.21	13.43	31.72	21.89	1713961.57	519870.05	39°55'22.324"N	80°31'11.521"W	38.54	34.612	2.83
1895.00	1.040	48.040	1891.15	13.87	33.82	24.13	1713963.81	519872.15	39°55'22.345"N	80°31'11.492"W	41.54	35.502	2.10
1985.00	0.550	57.200	1981.14	13.95	34.60	25.10	1713964.78	519872.93	39°55'22.352"N	80°31'11.480"W	42.74	35.954	0.56
2074.00	0.410	33.000	2070.14	14.05	35.10	25.63	1713965.31	519873.43	39°55'22.357"N	80°31'11.473"W	43.46	36.336	0.27
2164.00	0.420	30.000	2160.14	14.08	35.48	26.12	1713965.80	519873.81	39°55'22.361"N	80°31'11.467"W	44.05	36.358	0.30
2255.00	0.330	34.490	2249.13	14.08	35.80	26.57	1713966.25	519874.12	39°55'22.364"N	80°31'11.461"W	44.58	36.586	0.28
2343.00	0.180	65.170	2339.13	14.15	36.07	26.85	1713966.52	519874.40	39°55'22.367"N	80°31'11.458"W	44.96	36.660	0.22
2433.00	0.280	24.390	2429.13	14.23	36.33	27.06	1713966.74	519874.66	39°55'22.370"N	80°31'11.455"W	45.30	36.686	0.21
2522.00	0.330	322.290	2518.13	14.60	36.73	27.00	1713966.68	519875.06	39°55'22.374"N	80°31'11.456"W	45.58	36.318	0.36
2613.00	0.100	286.390	2607.13	14.92	36.95	26.77	1713966.44	519875.28	39°55'22.376"N	80°31'11.459"W	45.63	35.917	0.29
2703.00	0.150	9.370	2697.13	15.06	37.09	26.71	1713966.39	519875.42	39°55'22.377"N	80°31'11.460"W	45.71	35.758	0.19
2793.00	0.250	349.010	2786.13	15.32	37.40	26.69	1713966.37	519875.73	39°55'22.380"N	80°31'11.460"W	45.95	35.517	0.14

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# Actual Wellpath Report

WEB-22B-HS (AWP) Proj: 14898'

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Operator	Slot	Slot B
NOBLE ENERGY	WEB-22B-HS	WEB-22B-HS
Area	Marshall County, WV	WEB-22B-HS (AWB)
Field	Marshall	
Facility	WEB-22 Pad	

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]
2880.00	0.310	348.290	2876.13	15.73	37.83	26.60	1713966.28	519876.16	39°55'22.384"N	80°31'11.461"W	46.25	35.119	0.07
2969.00	0.340	326.470	2965.13	16.21	38.28	26.41	1713966.09	519876.61	39°55'22.389"N	80°31'11.464"W	46.51	34.600	0.14
3059.00	0.410	359.740	3055.13	16.74	38.83	26.26	1713965.94	519877.16	39°55'22.394"N	80°31'11.466"W	46.88	34.072	0.25
3148.00	0.250	1.530	3144.12	17.16	39.34	26.26	1713965.94	519877.67	39°55'22.399"N	80°31'11.466"W	47.30	33.728	0.18
3238.00	0.280	32.960	3234.12	17.40	39.72	26.39	1713966.07	519878.05	39°55'22.403"N	80°31'11.464"W	47.69	33.599	0.16
3327.00	0.350	9.830	3323.12	17.68	40.17	26.55	1713966.23	519878.50	39°55'22.408"N	80°31'11.462"W	48.16	33.465	0.16
3370.00	0.390	17.360	3366.12	17.86	40.44	26.62	1713966.30	519878.77	39°55'22.410"N	80°31'11.461"W	48.42	33.355	0.15
3459.00	0.400	69.100	3495.12	18.02	41.02	27.17	1713966.85	519879.35	39°55'22.416"N	80°31'11.454"W	49.20	33.520	0.27
3589.00	0.430	114.700	3585.12	17.65	40.99	27.77	1713967.45	519879.32	39°55'22.416"N	80°31'11.446"W	49.81	34.118	0.36
3679.00	0.370	65.550	3675.11	17.30	40.97	28.34	1713968.02	519879.32	39°55'22.416"N	80°31'11.439"W	49.82	34.676	0.37
3768.00	3.880	64.620	3764.04	16.75	42.38	31.33	1713971.01	519880.71	39°55'22.430"N	80°31'11.401"W	52.70	36.471	3.94
3858.00	9.430	63.100	3853.40	15.20	47.03	40.66	1713980.34	519885.35	39°55'22.477"N	80°31'11.282"W	62.17	40.848	6.17
3948.00	10.000	61.550	3942.11	13.27	54.08	54.11	1713993.78	519892.41	39°55'22.548"N	80°31'11.110"W	76.50	45.012	7.70
4037.00	8.290	60.780	4029.97	11.74	60.90	66.50	1714001.88	519899.23	39°55'22.617"N	80°31'10.952"W	90.17	47.518	1.93
4127.00	9.570	70.570	4118.88	9.08	66.55	79.22	1714018.90	519904.88	39°55'22.674"N	80°31'10.790"W	103.47	49.966	2.20
4216.00	13.100	72.390	4206.13	4.08	72.07	95.82	1714035.49	519910.40	39°55'22.731"N	80°31'10.578"W	119.89	53.051	3.99
4306.00	14.520	72.240	4293.53	-2.31	78.60	116.28	1714055.96	519916.92	39°55'22.797"N	80°31'10.316"W	140.35	55.945	1.58
4396.00	16.630	68.640	4380.22	-8.70	86.73	139.02	1714078.70	519925.06	39°55'22.880"N	80°31'10.025"W	163.86	58.042	2.58
4485.00	25.750	62.420	4463.13	-14.21	100.35	168.09	1714107.76	519938.67	39°55'23.018"N	80°31'09.654"W	195.76	59.162	10.54
4575.00	23.800	59.620	4544.84	-18.20	118.59	201.09	1714140.76	519956.91	39°55'23.202"N	80°31'09.233"W	233.45	59.471	2.53
4664.00	19.740	60.940	4627.48	-21.20	134.98	229.73	1714169.40	519973.30	39°55'23.367"N	80°31'08.868"W	266.45	59.564	4.59
4754.00	15.130	64.740	4713.32	-24.76	147.38	253.65	1714193.32	519985.70	39°55'23.492"N	80°31'08.563"W	293.36	59.842	5.27
4843.00	16.050	66.320	4799.05	-29.14	157.28	275.42	1714215.09	519995.60	39°55'23.593"N	80°31'08.285"W	317.16	60.272	1.14
4933.00	19.620	61.720	4884.71	-33.35	169.44	300.13	1714239.80	520007.76	39°55'23.716"N	80°31'07.970"W	344.65	60.553	4.26
5023.00	22.850	49.680	5023.35	-35.84	186.03	328.16	1714267.82	520024.35	39°55'23.883"N	80°31'07.612"W	377.22	60.451	4.00
5112.00	20.920	55.790	5051.18	-36.76	204.29	355.85	1714295.51	520042.61	39°55'24.066"N	80°31'07.260"W	410.32	60.140	2.26
5202.00	17.650	55.580	5136.12	-37.12	221.04	380.40	1714320.06	520059.36	39°55'24.235"N	80°31'06.947"W	439.96	59.840	3.63
5292.00	19.790	56.600	5221.35	-37.68	237.14	404.38	1714344.04	520075.46	39°55'24.396"N	80°31'06.642"W	468.78	59.611	2.41
5381.00	16.760	57.560	5305.85	-38.68	252.32	427.79	1714367.45	520090.64	39°55'24.549"N	80°31'06.343"W	496.66	59.467	3.42
5471.00	16.910	63.950	5392.01	-41.29	265.03	450.50	1714390.16	520103.35	39°55'24.677"N	80°31'06.054"W	522.68	59.531	2.06
5560.00	18.910	65.350	5476.69	-45.90	276.73	475.24	1714414.90	520115.05	39°55'24.796"N	80°31'05.738"W	549.94	59.788	2.30
5650.00	17.150	64.290	5562.27	-50.66	288.57	500.45	1714440.11	520126.89	39°55'24.915"N	80°31'05.416"W	577.69	60.031	1.99
5740.00	17.610	58.170	5648.16	-53.56	301.51	523.98	1714463.63	520139.83	39°55'25.046"N	80°31'05.116"W	604.54	60.083	2.09
5829.00	20.070	59.520	5732.39	-55.51	316.36	548.58	1714488.24	520150.68	39°55'25.195"N	80°31'04.802"W	633.27	60.028	2.81
5919.00	18.360	60.010	5817.37	-57.96	331.28	574.17	1714513.82	520169.59	39°55'25.346"N	80°31'04.476"W	662.88	60.016	1.91
6008.00	18.040	54.310	5901.93	-59.02	346.33	597.50	1714537.15	520184.64	39°55'25.497"N	80°31'04.179"W	690.62	59.902	2.03
6098.00	19.900	54.700	5987.04	-58.77	363.31	621.32	1714560.97	520201.62	39°55'25.668"N	80°31'03.876"W	719.75	59.684	1.50
6121.00	19.860	60.086	6008.66	-58.80	367.77	627.75	1714567.40	520206.09	39°55'25.712"N	80°31'03.794"W	727.55	59.636	2.07
6214.00	16.790	54.990	6096.94	-58.99	384.38	651.81	1714591.45	520222.69	39°55'25.879"N	80°31'03.488"W	756.70	59.471	3.31
6304.00	16.500	55.520	6183.17	-59.11	399.08	672.99	1714612.64	520237.39	39°55'26.027"N	80°31'03.218"W	782.42	59.332	0.36
6394.00	18.440	62.602	6269.02	-61.27	412.72	696.24	1714635.89	520251.64	39°55'26.164"N	80°31'02.921"W	809.38	59.341	3.36
6483.00	19.640	46.250	6353.22	-61.01	429.41	719.63	1714659.28	520267.72	39°55'26.332"N	80°31'02.624"W	838.01	59.175	6.36
6573.00	20.450	24.260	6437.89	-50.66	454.24	737.05	1714676.69	520292.55	39°55'26.509"N	80°31'02.404"W	865.78	58.535	8.38
6662.00	25.410	35.860	6520.03	-26.74	487.61	742.99	1714682.63	520325.91	39°55'26.707"N	80°31'02.332"W	888.70	56.724	12.41
6752.00	29.260	339.300	6600.12	10.75	527.58	734.72	1714674.36	520365.88	39°55'27.303"N	80°31'02.444"W	904.52	54.319	10.68

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Operator	NOBLE ENERGY	Slot	Slot B
Area	Marshall County, WV	Well	WEB-22B-HS
Field	Marshall	Wellbore	WEB-22B-HS (AWB)
Facility	WEB-22 Pad		

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]
6841.00	38.790	338.300	6673.80	59.07	573.93	716.68	1714656.33	520412.24	39°55'27.760"N	80°31'02.682"W	918.17	51.312	10.73
6931.00	49.250	336.620	6738.43	120.06	631.58	692.66	1714632.31	520469.88	39°55'28.327"N	80°31'02.999"W	937.38	47.641	11.69
7021.00	59.430	333.670	6790.84	191.96	697.78	661.86	1714601.87	520536.08	39°55'28.977"N	80°31'03.408"W	961.75	43.487	11.62
7110.00	69.670	341.080	6829.08	270.23	771.88	631.22	1714570.87	520610.17	39°55'29.706"N	80°31'03.808"W	997.11	39.276	13.73
7200.00	78.690	337.130	6853.60	354.12	852.65	600.32	1714539.97	520690.94	39°55'30.501"N	80°31'04.216"W	1042.78	35.148	10.87
7289.00	81.230	334.500	6869.11	440.19	932.57	564.41	1714504.07	520770.86	39°55'31.287"N	80°31'04.689"W	1090.07	31.183	4.08
7379.00	80.160	333.070	6883.67	527.96	1012.25	525.18	1714464.84	520850.53	39°55'32.070"N	80°31'05.204"W	1140.38	27.421	1.97
7469.00	89.600	332.330	6891.69	616.69	1091.82	484.11	1714423.77	520930.09	39°55'32.851"N	80°31'05.743"W	1194.33	23.913	10.52
7558.00	91.140	333.230	6891.11	704.86	1170.95	443.40	1714383.06	521009.23	39°55'33.629"N	80°31'06.277"W	1252.10	20.740	2.00
7648.00	91.790	328.360	6888.81	794.35	1249.46	399.52	1714339.18	521087.73	39°55'34.400"N	80°31'06.851"W	1311.78	17.732	5.46
7738.00	92.400	322.920	6885.52	884.25	1323.68	348.78	1714288.44	521161.95	39°55'35.127"N	80°31'07.513"W	1368.86	14.761	6.08
7827.00	90.710	320.450	6883.10	973.06	1393.48	293.62	1714233.29	521231.74	39°55'35.811"N	80°31'08.231"W	1424.08	11.899	3.36
7917.00	90.650	323.230	6882.04	1062.90	1464.23	238.03	1714177.70	521302.49	39°55'36.504"N	80°31'08.955"W	1483.45	9.233	3.09
8006.00	90.800	325.670	6880.91	1151.89	1536.63	186.29	1714125.96	521374.89	39°55'37.214"N	80°31'09.630"W	1547.88	6.912	2.75
8096.00	90.800	323.250	6879.65	1241.87	1609.85	133.98	1714073.66	521448.11	39°55'37.931"N	80°31'10.312"W	1615.42	4.758	2.69
8185.00	91.020	321.780	6878.24	1330.77	1680.47	79.83	1714019.51	521518.72	39°55'38.623"N	80°31'11.017"W	1682.36	1.67	1.67
8275.00	92.160	320.620	6876.90	1420.62	1751.23	24.24	1713963.92	521589.48	39°55'39.316"N	80°31'11.741"W	1751.40	0.793	0.41
8365.00	90.430	323.010	6876.03	1510.53	1822.60	-30.59	1713909.09	521660.84	39°55'40.015"N	80°31'12.455"W	1822.85	359.039	1.24
8454.00	90.400	323.830	6875.39	1599.49	1894.06	-83.62	1713856.06	521732.30	39°55'40.715"N	80°31'13.146"W	1895.91	357.472	0.92
8544.00	90.430	324.860	6874.74	1689.48	1967.19	-136.08	1713803.60	521805.43	39°55'41.432"N	80°31'13.830"W	1971.89	356.043	1.14
8634.00	90.460	325.770	6874.04	1779.48	2041.19	-187.30	1713752.39	521879.43	39°55'42.158"N	80°31'14.498"W	2049.77	354.757	1.01
8723.00	90.580	324.070	6873.23	1868.47	2114.02	-238.44	1713701.25	521952.25	39°55'42.872"N	80°31'15.165"W	2127.43	353.565	1.91
8813.00	90.650	324.850	6872.26	1958.46	2187.25	-290.75	1713648.94	522025.48	39°55'43.589"N	80°31'15.848"W	2206.49	352.428	0.87
8902.00	90.740	325.950	6871.18	2047.45	2260.50	-341.29	1713598.41	522098.72	39°55'44.308"N	80°31'16.507"W	2286.12	351.414	1.24
8992.00	90.740	326.730	6870.02	2137.42	2335.41	-391.17	1713548.53	522173.63	39°55'45.042"N	80°31'17.158"W	2367.94	350.492	0.87
9081.00	90.770	326.130	6868.85	2226.38	2409.56	-440.38	1713499.33	522247.77	39°55'45.769"N	80°31'17.800"W	2449.47	349.643	0.67
9171.00	90.740	325.390	6867.66	2316.37	2483.95	-491.01	1713448.69	522322.16	39°55'46.499"N	80°31'18.461"W	2532.02	348.818	0.82
9260.00	90.770	325.100	6866.49	2405.36	2557.07	-541.74	1713397.96	522395.27	39°55'47.216"N	80°31'19.123"W	2613.82	348.038	0.33
9350.00	90.770	323.930	6865.28	2495.34	2630.34	-593.98	1713345.73	522468.55	39°55'47.934"N	80°31'19.804"W	2696.57	347.275	1.30
9440.00	90.740	322.460	6864.09	2585.29	2702.44	-647.89	1713291.82	522542.60	39°55'48.640"N	80°31'20.507"W	2778.98	346.518	1.63
9529.00	90.740	321.940	6862.94	2674.17	2772.71	-702.44	1713237.28	522616.91	39°55'49.329"N	80°31'21.217"W	2860.31	345.784	0.58
9618.00	90.770	322.770	6861.77	2763.07	2843.18	-756.79	1713182.93	522691.37	39°55'50.019"N	80°31'21.925"W	2942.17	345.095	0.93
9708.00	90.680	322.250	6860.63	2852.98	2914.58	-811.56	1713128.16	522765.72	39°55'50.718"N	80°31'22.638"W	3025.46	344.440	0.59
9798.00	90.620	323.540	6859.61	2942.91	2986.35	-865.85	1713073.87	522840.54	39°55'51.421"N	80°31'23.346"W	3109.34	343.831	1.43
9887.00	90.680	324.070	6858.60	3031.88	3058.17	-918.41	1713021.32	522915.36	39°55'52.125"N	80°31'24.031"W	3193.10	343.284	0.60
9977.00	90.650	323.650	6857.56	3121.86	3130.85	-971.48	1712968.25	522990.03	39°55'52.837"N	80°31'24.723"W	3278.11	342.761	0.47
10066.00	90.620	324.290	6856.57	3210.84	3202.82	-1023.83	1712915.90	523064.10	39°55'53.540"N	80°31'25.405"W	3362.48	342.273	0.72
10156.00	90.680	326.810	6855.55	3300.82	3277.03	-1074.73	1712865.00	523138.20	39°55'54.247"N	80°31'26.069"W	3448.76	341.843	2.80
10246.00	90.430	327.760	6854.68	3390.75	3352.74	-1123.37	1712816.36	523212.91	39°55'55.013"N	80°31'26.705"W	3535.94	341.476	1.09
10336.00	90.460	327.160	6853.98	3480.66	3428.61	-1171.78	1712767.96	523286.78	39°55'55.757"N	80°31'27.337"W	3623.32	341.131	0.67
10425.00	90.430	325.120	6853.29	3569.64	3502.51	-1221.36	1712718.38	523360.68	39°55'56.482"N	80°31'27.985"W	3709.36	340.776	2.29
10515.00	90.400	324.710	6852.64	3659.63	3576.16	-1273.09	1712666.65	523434.32	39°55'57.204"N	80°31'28.659"W	3796.01	340.405	0.46
10605.00	90.430	322.990	6851.98	3749.61	3648.83	-1326.18	1712613.56	523508.98	39°55'57.916"N	80°31'29.351"W	3882.36	340.026	1.91
10694.00	90.370	321.640	6851.36	3838.51	3719.26	-1380.58	1712559.16	523583.71	39°55'58.606"N	80°31'30.060"W	3967.23	339.635	1.52
10784.00	90.280	324.680	6850.85	3928.45	3791.27	-1434.54	1712505.21	523659.42	39°55'59.312"N	80°31'30.763"W	4053.60	339.274	3.38

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# Actual Wellpath Report

WEB-22B-HS (AWP) Proj: 14898'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot B
NOBLE ENERGY	WEB-22B-HS	WEB-22B-HS
Area	Well	Wellbore
Marshall County, WV	WEB-22B-HS (AWB)	WEB-22B-HS (AWB)
Field	Well	Wellbore
Marshall		
Facility	Well	Wellbore
WEB-22 Pad		

## WELLPATH DATA (179 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 [7/100ft]
10873.00	90.150	327.070	6850.52	4017.43	3864.94	-1484.46	1712455.29	523703.09	39°56'00.034°N	80°31'31.415°W	4140.22	338.989	2.69
10963.00	90.280	326.410	6850.18	4107.39	3940.20	-1533.82	1712405.93	523778.34	39°56'00.772°N	80°31'32.059°W	4228.21	338.730	0.75
11053.00	90.220	330.670	6849.79	4197.20	4016.95	-1580.78	1712358.97	523855.09	39°56'01.525°N	80°31'32.673°W	4316.80	338.519	4.73
11143.00	90.220	333.300	6849.45	4285.53	4095.52	-1622.58	1712317.17	523933.65	39°56'02.297°N	80°31'33.221°W	4405.23	338.387	2.96
11232.00	90.340	332.320	6849.01	4374.69	4175.57	-1663.71	1712276.05	524013.70	39°56'03.083°N	80°31'33.761°W	4494.81	338.276	1.10
11322.00	90.740	329.430	6848.16	4464.20	4254.18	-1707.50	1712232.26	524092.30	39°56'03.855°N	80°31'34.335°W	4584.06	338.131	3.24
11411.00	90.620	326.590	6847.10	4553.06	4329.65	-1754.65	1712185.12	524167.77	39°56'04.596°N	80°31'34.951°W	4671.69	337.939	3.19
11501.00	90.460	323.380	6846.25	4643.05	4403.35	-1806.28	1712133.49	524241.47	39°56'05.318°N	80°31'35.625°W	4759.42	337.696	3.57
11591.00	90.250	320.120	6845.70	4732.89	4474.01	-1861.99	1712077.78	524312.13	39°56'06.010°N	80°31'36.350°W	4846.01	337.404	3.63
11680.00	90.250	320.800	6845.31	4821.61	4542.65	-1918.65	1712021.13	524380.76	39°56'06.682°N	80°31'37.087°W	4931.21	337.103	0.76
11770.00	90.180	322.050	6844.97	4911.43	4613.01	-1974.76	1711969.82	524451.12	39°56'07.371°N	80°31'37.818°W	5017.92	336.825	1.39
11859.00	90.220	321.300	6844.66	5000.28	4682.83	-2029.95	1711909.82	524520.93	39°56'08.055°N	80°31'38.537°W	5103.88	336.564	0.84
11949.00	90.180	321.280	6844.34	5090.09	4753.06	-2086.24	1711853.54	524591.16	39°56'08.742°N	80°31'39.269°W	5190.75	336.302	0.05
12039.00	90.520	321.730	6843.79	5179.92	4823.49	-2142.26	1711797.53	524661.59	39°56'09.432°N	80°31'39.999°W	5277.82	336.053	0.63
12128.00	90.490	322.090	6843.01	5268.79	4893.54	-2197.16	1711742.63	524731.63	39°56'10.118°N	80°31'40.714°W	5364.16	335.820	0.41
12218.00	90.340	326.770	6842.36	5358.76	4966.72	-2249.49	1711690.29	524804.81	39°56'10.835°N	80°31'41.397°W	5452.39	335.634	5.20
12307.00	90.680	331.610	6841.57	5447.49	5043.14	-2295.06	1711644.73	524881.22	39°56'11.585°N	80°31'42.119°W	5540.81	335.530	5.45
12397.00	90.740	330.980	6840.47	5536.94	5122.07	-2338.29	1711601.50	524960.15	39°56'12.360°N	80°31'42.559°W	5630.56	335.463	0.70
12487.00	90.740	327.010	6839.33	5626.70	5199.19	-2384.63	1711555.16	525037.27	39°56'13.117°N	80°31'43.165°W	5719.97	335.361	4.41
12576.00	90.680	323.320	6838.23	5715.67	5272.22	-2435.46	1711504.34	525110.30	39°56'13.833°N	80°31'43.829°W	5807.56	335.206	4.15
12666.00	90.710	321.860	6836.06	5894.50	5414.39	-2544.19	1711395.61	525252.46	39°56'14.524°N	80°31'44.245°W	5982.35	334.831	0.82
12755.00	90.740	321.850	6834.92	5984.35	5485.16	-2599.78	1711340.03	525323.23	39°56'15.919°N	80°31'44.569°W	6070.08	334.641	0.04
12845.00	90.620	320.540	6833.86	6073.15	5554.51	-2655.55	1711284.26	525392.58	39°56'16.598°N	80°31'44.695°W	6156.67	334.448	1.48
13024.00	90.740	321.080	6832.80	6162.90	5624.26	-2712.41	1711227.40	525462.32	39°56'17.281°N	80°31'44.743°W	6244.16	334.253	0.61
13113.00	90.620	321.530	6831.74	6251.70	5693.63	-2768.16	1711171.65	525531.69	39°56'18.161°W	80°31'44.816°W	6330.89	334.072	0.33
13203.00	90.400	323.100	6830.94	6341.59	5764.77	-2823.29	1711116.53	525602.82	39°56'18.657°N	80°31'44.879°W	6418.99	333.907	1.96
13293.00	90.250	327.080	6830.43	6431.57	5838.55	-2874.78	1711065.04	525676.60	39°56'19.380°N	80°31'44.951°W	6507.92	333.785	4.43
13382.00	90.340	329.720	6829.97	6520.40	5921.41	-2921.41	1711018.45	525752.40	39°56'20.124°N	80°31'45.161°W	6596.53	333.713	2.97
13472.00	90.400	327.770	6829.39	6610.21	5991.28	-2968.10	1710971.72	525829.33	39°56'20.879°N	80°31'45.772°W	6686.19	333.646	2.17
13561.00	90.250	326.370	6828.88	6699.14	6065.98	-3016.48	1710923.34	525904.02	39°56'21.611°N	80°31'46.404°W	6774.61	333.560	1.58
13651.00	90.340	326.090	6828.42	6789.12	6140.79	-3066.51	1710873.32	525978.83	39°56'22.345°N	80°31'47.037°W	6863.88	333.464	0.33
13740.00	90.310	325.840	6827.92	6878.11	6214.55	-3116.32	1710823.51	526052.58	39°56'23.068°N	80°31'47.707°W	6952.13	333.368	0.28
13830.00	90.310	325.270	6827.43	6968.10	6288.77	-3167.23	1710772.60	526126.80	39°56'23.796°N	80°31'48.372°W	7041.30	333.269	0.63
14099.00	90.340	324.640	6826.45	7148.10	6436.13	-3270.58	1710724.15	526200.15	39°56'24.520°N	80°31'49.042°W	7129.45	333.162	0.35
14279.00	90.220	320.450	6825.07	7416.54	6646.63	-3437.97	1710501.87	526484.64	39°56'27.301°N	80°31'50.900°W	7483.14	332.650	0.41
14368.00	90.310	321.190	6824.61	7505.30	6715.62	-3494.20	1710445.65	526553.63	39°56'27.977°N	80°31'51.632°W	7570.27	332.512	0.85
14458.00	90.310	327.650	6824.08	7595.25	6788.77	-3546.54	1710393.31	526626.78	39°56'28.694°N	80°31'52.315°W	7659.37	332.417	7.18
14548.00	90.430	331.260	6823.50	7684.96	6866.27	-3592.27	1710347.58	526704.27	39°56'29.454°N	80°31'53.013°W	7749.20	332.383	4.01
14638.00	90.310	331.150	6822.91	7774.43	6945.14	-3635.62	1710304.24	526783.14	39°56'30.229°N	80°31'53.720°W	7839.18	332.369	0.18
14727.00	90.310	329.630	6822.43	7863.03	7022.51	-3679.59	1710260.51	526860.51	39°56'30.988°N	80°31'54.428°W	7928.12	332.347	1.71
14817.00	90.370	327.790	6821.90	7952.84	7099.42	-3726.33	1710213.53	526937.41	39°56'31.743°N	80°31'55.161°W	8017.94	332.306	2.05
14874.00	90.310	326.650	6821.56	8009.79	7147.34	-3757.19	1710182.67	526985.33	39°56'32.513°N	80°31'55.911°W	8074.71	332.270	2.00
14898.00	90.310	326.650	6821.43	8033.78	7167.39	-3770.38	1710169.48	527005.33	39°56'33.245°N	80°31'56.644°W	8098.60	332.254	0.00

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OBJECTS  
Name  
WEB-22B-HS BHL-Rev-1  
WEB-22B-HS LP-Rev-1

MD [ft] TVD [ft] North [ft] East [ft] Grid East [US ft] Grid North [US ft] Latitude Longitude Shape  
6892.00 6892.00 7165.67 -3771.91 1710167.95 527003.66 39°56'32.392°N 80°31'02.264°W point  
6892.00 6892.00 1062.17 501.81 1714441.47 520900.45 39°55'32.560°N 80°31'05.511°W point

WEB-22B-HS BHL Plat	6913.00	7165.67	-3771.91	1710167.95	577003.66	39°56'32.392"N	80°32'01.264"W	point
WEB-22B-HS LP Plat	6913.00	1062.17	501.81	1714441.47	520900.45	39°55'32.560"N	80°31'05.511"W	point

WELLPATH COMPOSITION - Ref Wellbore: WEB-22B-HS (AWB) Ref Wellpath: WEB-22B-HS (AWP) Proj: 14898								
Start MD [ft]	End MD [ft]	Positional Uncertainty Model			Log Name/Comment	Wellbore		
18.60	440.00	Generic gyro - northseeking (Standard)	VES Gyro Surveys 17 1/2" (100'-440')			WEB-22B-HS (AWB)		
440.00	1223.00	ISOWSA MWD, Rev. 2 (Standard)	BHI MWD Surveys 12 1/4" (440')(467'-1223)Proj: 1278			WEB-22B-HS (AWB)		
1223.00	3370.00	NavITrak (Standard)	BHI UPA Surveys (1223)(1333'-3370)			WEB-22B-HS (AWB)		
3370.00	6098.00	NavITrak (MagCorr)	BHI MWD <8-3/4"> (3370)(3499'-6098)			WEB-22B-HS (AWB)		
6098.00	14874.00	NavITrak (AT Curve Short Spaced)	BHI AT Curve <8-3/4"> (6098)(6121'-14874)			WEB-22B-HS (AWB)		
14874.00	14898.00	Blind Drilling (std)	Projection to bit			WEB-22B-HS (AWB)		

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**Actual Wellpath Report**  
 WEB-22B-HS (AWP) Proj: 14898'

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**REFERENCE WELLPATH IDENTIFICATION**

Operator	NOBLE ENERGY	Slot	Slot B
Area	Marshall County, WV	Well	WEB-22B-HS
Field	Marshall	Wellbore	WEB-22B-HS (AWB)
Facility	WEB-22 Pad		

**COMMENTS**

Wellpath general comments  
 API:47-051-01721-0000  
 Rig: Precision Drilling 542  
 BHI Job#: 6234439  
 Duration: 05/20/2014-06/01/2014  
 VES Gyro <17 1/4"> (100'-440')  
 BHI MWD Surveys <12 1/4">(440')(467'-1223')  
 BHI UPA Surveys <12 1/4">(1233')(1333'-3370')  
 BHI MWD Surveys <8 3/4">(3370')(3349'-6098')  
 BHI AT Curve <8 3/4">(6098')(6121'-14874')  
 TD Projected to MD:14898'

Received

APR 20 2015

Office of Oil and Gas  
 WV Dept. of Environmental Protection

06/12/2015



**NOBLE ENERGY**

Location: Marshall County, WV  
 Field: Marshall  
 Facility: WEB-22 Pad

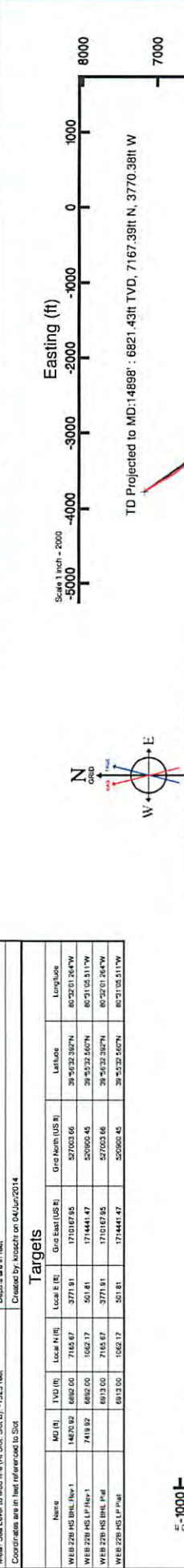
Slot: Slot B  
 Well: WEB-22B-HS  
 Wellbore: WEB-22B-HS-PWB

**noble energy**

Design Comment		MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (100ft)	VS (ft)
Tie On		1223.00	2.420	339.340	1220.98	-0.95	1.24	0.00	-1.49
End of Tangent		1278.00	2.420	339.340	1275.93	1.22	0.42	0.00	0.76
End of 3D Arc (J)		1516.90	5.000	50.000	1514.41	12.64	6.62	2.00	6.55
End of Tangent (J)		1716.90	5.000	1713.65	23.84	19.98	19.98	0.00	8.07
End of Drop (J)		1883.56	0.000	59.678	1880.10	28.51	25.54	3.00	8.71
End of Tangent (J)		3750.00	0.000	59.678	3746.54	28.51	25.54	0.00	8.71
End of Build (J)		4392.32	19.270	59.678	4376.82	82.53	117.90	3.00	-0.02
End of Tangent (J)		6402.78	19.270	59.678	6274.65	417.49	690.62	0.00	-54.14
LP		7419.92	90.000	325.000	6892.00	1082.17	501.81	9.00	582.25
BHL		14870.92	90.000	325.000	6892.00	7165.67	-3771.91	0.00	8033.26

Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
WEB-22 Pad	1713925.810	519852.540	80°31'11.977"W
Slot	Local E (ft)	Local N (ft)	Longitude
Slot B	-14.21	13.87	80°31'11.797"W
Precision 542 (RT) to Mud line (A Slot, Slot B)	18.6ft		
Precision 542 (RT) to Mean Sea Level	1343.8ft		
For reference wellbore is WEB-22B-HS (NPT) line B-0			
True vertical depths are referenced to Precision 542 (RT)			
Measured depths are referenced to Precision 542 (RT)			
Precision 542 (RT) to Mean Sea Level: 1343.6 feet			
Mean Sea Level to Mud line (A Slot, Slot B): -1325 feet			
Coordinates are in feet referenced to Slot			

Targets			
Name	MD (ft)	Local N (ft)	Local E (ft)
WEB-22B-HS BHL line 1	14870.92	7165.67	3771.91
WEB-22B-HS LP line 1	7419.92	1082.17	501.81
WEB-22B-HS BHL PWB	6419.00	7165.67	3771.91
WEB-22B-HS LP PWB	6419.00	1082.17	501.81



Name	MD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
VES Gyro <17.1/4°>(100-440) : 1.30° Inc, 100.00ft MD, 99.99ft TVD, 0.76ft VS	100.00	99.99	0.76	1714000.00	519852.54	38°55'32.382"N	80°31'05.317"W
BHI MWD Surveys <12.1/4°>(440)(467-1223) : 0.20° Inc, 467.00ft MD, 466.95ft TVD, 4.89ft VS	467.00	466.95	4.89	1714441.47	520600.45	38°55'32.567"N	80°31'05.317"W
BHI UPA Surveys <12.1/4°>(1233-3370) : 2.27° Inc, 1333.00ft MD, 1330.89ft TVD, 2.92ft VS	1333.00	1330.89	2.92	1714441.47	520600.45	38°55'32.567"N	80°31'05.317"W
BHI MWD Surveys <8.314°>(3349-6098) : 0.37° Inc, 3349.00ft MD, 3345.12ft TVD, 17.77ft VS	3349.00	3345.12	17.77	1714441.47	520600.45	38°55'32.567"N	80°31'05.317"W
BHI AT Curve <8.314°>(6098)(6121-14874) : 19.86° Inc, 6121.00ft MD, 6098.56ft TVD, -58.80ft VS	6121.00	6098.56	-58.80	1714441.47	520600.45	38°55'32.567"N	80°31'05.317"W

