

### REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot H
Area	Tyler County, WV	Well	SHR-3H-HS
Field	Tyler	Wellbore	SHR-3H-HS AWB
Facility	SHR-3 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	Edsaryar
Scale	0.999948	Report Generated	06/Mar/2015 at 18:37
Convergence at slot	0.85° West	Database/Source file	WellArchitectEasternDB\SHR-3H-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	-22.52	17.73	1623315.76	335720.92	39°24'50.680"N	80°49'59.800"W
Facility Reference Pt			1623298.03	335743.44	39°24'50.900"N	80°50'00.030"W
Field Reference Pt			609601.22	0.00	38°23'48.753"N	84°21'09.765"W

### WELLPATH DATUM

Calculation method	Minimum curvature	Precision 542 (RKB) to Facility Vertical Datum	770.42ft
Horizontal Reference Pt	Slot	Precision 542 (RKB) to Mean Sea Level	770.42ft
Vertical Reference Pt	Precision 542 (RKB)	Precision 542 (RKB) to Mud Line at Slot (Slot H)	18.50ft
MD Reference Pt	Precision 542 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	160.00°

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Environmental Protection

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# Actual Wellpath Report

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### WELLPATH DATA (175 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 [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
0.00†	0.000	117.300	0.00	0.00	0.00	0.00	1623315.76	335720.92	39°24'50.680"N	80°49'59.800"W	0.00	0.000	0.00	0.00	0.00
18.50	0.000	117.300	18.50	0.00	0.00	0.00	1623315.76	335720.92	39°24'50.680"N	80°49'59.800"W	0.00	0.000	0.00	0.00	0.00
118.50	0.530	117.300	118.50	0.34	-0.21	0.41	1623316.17	335720.71	39°24'50.678"N	80°49'59.795"W	0.46	117.300	0.53	0.53	0.00
218.50	0.190	162.040	218.50	0.85	-0.58	0.87	1623316.63	335720.34	39°24'50.674"N	80°49'59.789"W	1.05	123.686	0.42	-0.34	44.74
318.50	0.190	42.650	318.50	0.94	-0.62	1.04	1623316.30	335720.30	39°24'50.674"N	80°49'59.787"W	1.21	120.793	0.33	0.00	-119.39
418.50	0.220	31.560	418.50	0.74	-0.33	1.25	1623317.01	335720.59	39°24'50.677"N	80°49'59.784"W	1.29	104.891	0.05	0.03	-11.09
518.50	0.210	81.930	518.50	0.66	-0.14	1.53	1623317.29	335720.78	39°24'50.679"N	80°49'59.780"W	1.54	95.331	0.18	-0.01	50.37
618.50	0.160	114.370	618.49	0.79	-0.17	1.84	1623317.60	335720.75	39°24'50.679"N	80°49'59.777"W	1.85	95.427	0.11	-0.05	32.44
718.50	0.230	60.980	718.49	0.86	-0.14	2.14	1623317.90	335720.78	39°24'50.679"N	80°49'59.773"W	2.15	93.606	0.19	0.07	-53.39
818.50	0.510	41.570	818.49	0.62	0.30	2.61	1623318.37	335721.22	39°24'50.683"N	80°49'59.767"W	2.63	83.553	0.30	0.28	-19.41
918.50	0.480	78.690	918.49	0.47	0.71	3.32	1623319.08	335721.63	39°24'50.687"N	80°49'59.758"W	3.39	77.920	0.32	-0.03	37.12
1018.50	0.440	73.310	1018.49	0.55	0.90	4.10	1623319.86	335721.82	39°24'50.689"N	80°49'59.748"W	4.20	77.576	0.06	-0.04	-5.38
1118.50	0.220	198.240	1118.48	0.73	0.83	4.41	1623320.17	335721.75	39°24'50.689"N	80°49'59.744"W	4.48	79.321	0.59	-0.22	124.93
1218.50	0.410	241.030	1218.48	0.93	0.48	4.03	1623319.79	335721.40	39°24'50.685"N	80°49'59.749"W	4.06	83.280	0.29	0.19	42.79
1318.50	0.210	255.930	1318.48	0.97	0.26	3.54	1623319.30	335721.18	39°24'50.683"N	80°49'59.755"W	3.55	85.845	0.21	-0.20	14.90
1418.50	0.190	313.460	1418.48	0.80	0.33	3.24	1623319.00	335721.25	39°24'50.684"N	80°49'59.759"W	3.26	84.247	0.19	-0.02	57.53
1518.50	0.190	16.750	1518.48	0.52	0.60	3.17	1623318.93	335721.52	39°24'50.686"N	80°49'59.760"W	3.23	79.293	0.20	0.00	63.29
1618.50	0.290	13.460	1618.48	0.18	1.00	3.28	1623319.04	335721.92	39°24'50.690"N	80°49'59.758"W	3.43	72.963	0.10	0.10	-3.29
1718.50	0.360	82.630	1718.48	0.03	1.29	3.65	1623319.41	335722.21	39°24'50.693"N	80°49'59.754"W	3.87	70.514	0.37	0.07	69.17
1818.50	0.360	99.640	1818.48	0.26	1.28	4.27	1623320.03	335722.20	39°24'50.693"N	80°49'59.746"W	4.46	73.329	0.11	0.00	17.01
1918.50	0.420	129.110	1918.47	0.73	0.99	4.86	1623320.62	335721.91	39°24'50.691"N	80°49'59.738"W	4.96	78.441	0.21	0.06	29.47
2018.50	0.370	138.970	2018.47	1.36	0.45	5.21	1623320.97	335721.37	39°24'50.685"N	80°49'59.734"W	5.23	85.100	0.27	-0.05	39.86
2118.50	0.300	139.500	2118.47	1.77	-0.04	5.07	1623320.83	335720.88	39°24'50.680"N	80°49'59.735"W	5.07	90.447	0.34	-0.07	60.72
2129.50	0.280	135.250	2129.47	1.79	-0.08	5.03	1623320.79	335720.84	39°24'50.680"N	80°49'59.736"W	5.03	90.877	0.26	-0.18	-37.27
2200.00	0.420	138.350	2199.97	1.71	-0.12	4.96	1623320.72	335720.47	39°24'50.676"N	80°49'59.737"W	4.98	95.192	0.51	0.20	-81.19
2223.00	1.030	130.700	2222.97	1.71	-0.74	5.01	1623320.77	335720.18	39°24'50.673"N	80°49'59.736"W	5.06	98.371	2.65	2.65	10.26
2273.00	1.900	129.750	2272.95	1.96	-2.00	5.19	1623320.95	335718.92	39°24'50.661"N	80°49'59.733"W	5.57	111.077	1.74	1.74	3.08
2362.00	2.690	120.220	2361.89	2.00	-4.62	3.66	1623319.42	335716.30	39°24'50.635"N	80°49'59.733"W	5.89	141.664	2.84	0.89	71.94
2452.00	1.140	249.000	2451.84	1.01	-5.59	1.03	1623316.79	335715.33	39°24'50.625"N	80°49'59.786"W	5.69	169.594	2.31	-1.72	51.98
2542.00	1.090	249.880	2541.84	0.93	-5.01	0.92	1623316.68	335715.91	39°24'50.631"N	80°49'59.787"W	5.10	169.564	2.33	-0.06	156.44

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Area	Tyler County, WV	Well	SHR-3H-HS
Field	Tyler	Wellbore	SHR-3H-HS AWB
Facility	SHR-3 Pad		

WELLPATH DATA (175 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [%/100ft]	Build Rate [%/100ft]	Turn Rate [%/100ft]
2631.00	1.120	85.010	2630.82	5.16	-4.57	2.55	1623318.31	335716.35	39°24'50.635"N	80°49'59.767"W	5.23	150.817	0.46	0.03	23.76
2721.00	0.410	105.360	2720.81	5.58	-4.57	3.74	1623319.50	335716.35	39°24'50.635"N	80°49'59.752"W	5.91	140.756	0.83	-0.79	22.61
2811.00	0.390	140.290	2810.81	6.05	-4.90	4.24	1623320.00	335716.02	39°24'50.632"N	80°49'59.745"W	6.48	139.084	0.27	-0.02	38.81
2900.00	0.410	348.660	2899.81	6.02	-4.82	4.37	1623320.13	335716.10	39°24'50.633"N	80°49'59.743"W	6.51	137.556	0.87	0.02	-170.37
2990.00	0.280	308.480	2989.81	5.52	-4.36	4.14	1623319.90	335716.56	39°24'50.637"N	80°49'59.746"W	6.01	136.518	0.30	-0.14	-44.64
3079.00	0.060	17.310	3078.81	5.29	-4.18	3.98	1623319.74	335716.74	39°24'50.639"N	80°49'59.748"W	5.78	136.417	0.30	-0.25	77.34
3169.00	0.260	290.430	3168.81	5.12	-4.07	3.80	1623319.56	335716.85	39°24'50.640"N	80°49'59.751"W	5.57	136.913	0.29	0.22	-96.53
3259.00	0.090	43.160	3258.81	4.96	-3.94	3.66	1623319.42	335716.98	39°24'50.642"N	80°49'59.753"W	5.38	137.132	0.34	-0.19	125.26
3348.00	0.500	9.520	3347.80	4.59	-3.51	3.77	1623319.53	335717.41	39°24'50.646"N	80°49'59.751"W	5.15	132.934	0.48	0.46	-37.80
3438.00	0.170	17.550	3437.80	4.14	-3.00	3.88	1623319.64	335717.92	39°24'50.651"N	80°49'59.750"W	4.90	127.685	0.37	-0.37	8.92
3528.00	0.360	300.190	3527.80	3.82	-2.73	3.67	1623319.43	335718.19	39°24'50.654"N	80°49'59.753"W	4.58	126.577	0.40	0.21	-85.96
3618.00	0.250	236.960	3617.80	3.65	-2.69	3.27	1623319.03	335718.23	39°24'50.654"N	80°49'59.758"W	4.23	129.495	0.37	-0.12	-70.26
3707.00	0.390	169.310	3706.80	3.99	-3.10	3.16	1623318.92	335717.82	39°24'50.650"N	80°49'59.759"W	4.42	134.413	0.42	0.16	-76.01
3797.00	0.940	79.120	3796.79	4.41	-3.26	3.94	1623319.70	335717.66	39°24'50.648"N	80°49'59.749"W	5.11	129.570	1.13	0.61	-100.21
3886.00	0.840	80.860	3885.78	4.65	-3.02	5.30	1623321.06	335717.90	39°24'50.651"N	80°49'59.732"W	6.10	119.628	0.12	-0.11	1.96
3976.00	0.590	110.610	3975.78	5.07	-3.07	6.39	1623322.15	335717.85	39°24'50.651"N	80°49'59.718"W	7.09	115.699	0.49	-0.28	33.06
4065.00	0.380	140.370	4064.77	5.65	-3.46	7.00	1623322.76	335717.46	39°24'50.647"N	80°49'59.710"W	7.81	116.304	0.36	-0.24	33.44
4155.00	0.250	117.550	4154.77	6.08	-3.78	7.37	1623323.13	335717.14	39°24'50.644"N	80°49'59.705"W	8.28	117.176	0.20	-0.14	-25.36
4244.00	0.620	214.320	4243.77	6.50	-4.27	7.27	1623323.03	335716.65	39°24'50.639"N	80°49'59.707"W	8.43	120.433	0.78	0.42	108.73
4334.00	0.610	211.220	4333.77	7.08	-5.08	6.75	1623322.51	335715.84	39°24'50.631"N	80°49'59.713"W	8.45	126.992	0.04	-0.01	-3.44
4423.00	0.540	245.100	4422.76	7.42	-5.66	6.12	1623321.88	335715.26	39°24'50.625"N	80°49'59.721"W	8.34	132.782	0.38	-0.08	38.07
4513.00	0.470	0.520	4512.76	7.11	-5.47	5.74	1623321.50	335715.45	39°24'50.627"N	80°49'59.726"W	7.93	133.643	0.95	-0.08	128.24
4603.00	0.660	354.130	4602.76	6.26	-4.59	5.69	1623321.45	335716.33	39°24'50.635"N	80°49'59.727"W	7.31	128.888	0.22	0.21	-7.10
4692.00	0.550	308.990	4691.75	5.39	-3.81	5.31	1623321.06	335717.11	39°24'50.643"N	80°49'59.732"W	6.53	125.686	0.53	-0.12	-50.72
4782.00	0.510	299.320	4781.75	4.72	-3.34	4.62	1623320.38	335717.38	39°24'50.648"N	80°49'59.741"W	5.70	125.882	0.11	-0.04	-10.74
4871.00	1.230	267.520	4870.74	4.13	-3.19	3.32	1623319.08	335717.73	39°24'50.649"N	80°49'59.757"W	4.60	133.849	0.94	0.81	-35.73
4961.00	1.920	281.510	4960.70	3.05	-2.93	0.88	1623316.64	335717.99	39°24'50.651"N	80°49'59.788"W	3.06	163.322	0.87	0.77	15.54
5007.00	3.500	290.390	5006.65	1.74	-2.29	-1.19	1623314.57	335718.63	39°24'50.657"N	80°49'59.815"W	2.58	207.549	3.54	3.43	19.30
5051.00	4.050	290.550	5050.55	-0.14	-1.27	-3.91	1623311.85	335719.65	39°24'50.667"N	80°49'59.850"W	4.11	251.938	1.25	1.25	0.36
5141.00	8.760	287.070	5139.97	-6.34	1.85	-13.44	1623302.32	335722.77	39°24'50.696"N	80°49'59.972"W	13.57	277.858	5.25	5.23	-3.87

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5230.00	13.480	287.500	5227.27	-16.75	6.97	-29.82	1623285.94	335727.89	39°24'50.744"N	80°50'00.181"W	30.62	283.149	5.30	5.30	0.48
5320.00	18.320	275.700	5313.83	-29.28	11.53	-53.92	1623261.84	335732.45	39°24'50.786"N	80°50'00.489"W	55.14	282.069	6.44	5.38	-13.11
5409.00	22.830	274.920	5397.13	-42.62	14.40	-85.06	1623230.71	335735.32	39°24'50.810"N	80°50'00.886"W	86.27	279.610	5.08	5.07	-0.88
5499.00	23.680	274.410	5479.81	-57.45	17.29	-120.47	1623195.29	335738.21	39°24'50.833"N	80°50'01.338"W	121.71	278.166	0.97	5.04	-0.57
5588.00	23.770	270.610	5561.30	-71.15	18.85	-156.23	1623159.54	335739.77	39°24'50.843"N	80°50'01.794"W	157.36	276.881	1.72	0.10	-4.27
5678.00	23.840	252.180	5643.76	-78.24	13.47	-191.73	1623124.04	335734.39	39°24'50.785"N	80°50'02.245"W	192.21	274.020	8.24	0.08	-20.48
5768.00	23.630	239.340	5726.20	-75.59	-1.30	-224.59	1623091.19	335719.62	39°24'50.634"N	80°50'02.661"W	224.59	269.668	5.74	-0.23	-14.27
5857.00	23.550	226.780	5807.81	-65.27	-22.59	-252.90	1623062.87	335698.34	39°24'50.420"N	80°50'03.018"W	253.91	264.897	5.64	-0.09	-14.11
5947.00	26.710	207.310	5889.42	-44.43	-52.93	-275.33	1623040.44	335667.99	39°24'50.116"N	80°50'03.298"W	280.37	259.118	9.79	3.51	-21.63
6037.00	34.020	195.480	5967.10	-10.14	-95.26	-291.37	1623024.41	335625.66	39°24'49.696"N	80°50'03.494"W	306.54	251.895	10.46	8.12	-13.14
6127.00	43.020	185.930	6037.50	38.12	-150.22	-301.29	1623014.49	335570.70	39°24'49.151"N	80°50'03.610"W	336.66	243.499	11.96	10.00	-10.61
6216.00	51.900	176.060	6097.69	99.28	-215.57	-302.02	1623013.76	335505.36	39°24'48.505"N	80°50'03.607"W	371.06	234.482	12.88	9.98	-11.09
6306.00	62.480	171.010	6146.41	172.72	-290.57	-293.32	1623022.45	335430.37	39°24'47.765"N	80°50'03.482"W	412.88	225.270	12.66	11.76	-5.61
6395.00	64.370	168.790	6186.23	251.13	-368.92	-279.35	1623036.42	335352.02	39°24'46.993"N	80°50'03.289"W	462.75	217.134	3.08	2.12	-2.49
6485.00	71.100	166.550	6220.32	333.62	-450.23	-261.54	1623054.23	335270.72	39°24'46.192"N	80°50'03.047"W	520.68	210.153	7.82	7.48	-2.49
6575.00	77.750	164.910	6244.47	419.83	-534.19	-240.16	1623075.61	335186.76	39°24'45.366"N	80°50'02.759"W	585.70	204.208	7.59	7.39	-1.82
6664.00	84.390	163.740	6258.28	507.46	-618.79	-216.42	1623099.36	335102.16	39°24'44.533"N	80°50'02.440"W	655.54	199.277	7.57	7.46	-1.31
6754.00	89.540	161.880	6263.04	597.19	-704.62	-189.86	1623125.91	335016.34	39°24'43.689"N	80°50'02.085"W	729.75	195.080	6.08	5.72	-2.07
6843.00	90.150	158.790	6263.28	686.17	-788.42	-159.91	1623155.85	334932.55	39°24'42.865"N	80°50'01.688"W	804.47	191.466	3.54	0.69	-3.47
6933.00	89.970	158.570	6263.19	776.15	-872.26	-127.19	1623188.57	334848.71	39°24'42.041"N	80°50'01.255"W	881.48	188.296	0.32	-0.20	-0.24
7023.00	89.910	157.730	6263.28	866.10	-955.79	-93.70	1623222.07	334765.18	39°24'41.221"N	80°50'00.813"W	960.37	185.599	0.94	-0.07	-0.93
7112.00	89.910	159.190	6263.42	955.07	-1038.57	-61.02	1623254.74	334682.41	39°24'40.407"N	80°50'00.381"W	1040.36	183.363	1.64	0.00	1.64
7202.00	90.000	158.610	6263.49	1045.05	-1122.54	-28.62	1623287.14	334598.44	39°24'39.582"N	80°49'59.952"W	1122.90	181.461	0.65	0.10	-0.64
7291.00	90.030	158.490	6263.47	1134.02	-1205.37	3.92	1623330.68	334515.61	39°24'38.769"N	80°49'59.111"W	1205.38	179.813	0.14	0.03	-0.13
7381.00	89.850	161.190	6263.56	1224.01	-1289.85	34.94	1623350.70	334433.14	39°24'37.116"N	80°49'58.709"W	1290.32	178.448	3.01	-0.20	3.00
7470.00	90.220	158.960	6263.51	1313.01	-1373.52	65.27	1623381.02	334347.48	39°24'37.116"N	80°49'58.709"W	1375.07	177.279	2.54	0.42	-2.51
7560.00	90.180	159.470	6263.19	1403.00	-1457.66	97.21	1623412.96	334263.34	39°24'36.289"N	80°49'58.286"W	1460.90	176.185	0.57	-0.04	0.57
7650.00	90.000	158.900	6263.05	1492.99	-1541.78	129.19	1623444.94	334179.22	39°24'35.462"N	80°49'57.863"W	1547.19	175.210	0.66	-0.20	-0.63
7739.00	90.090	159.860	6262.98	1581.98	-1625.08	160.53	1623476.28	334095.93	39°24'34.644"N	80°49'57.448"W	1632.99	174.359	1.08	0.10	1.08
7829.00	90.340	160.280	6262.65	1671.98	-1709.69	191.21	1623506.96	334011.32	39°24'33.812"N	80°49'57.041"W	1720.35	173.619	0.54	0.28	0.47

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# Actual Wellpath Report

SHR-3H-HS AWP Proj: 15364'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot H
Area	Tyler County, WV	Well	SHR-3H-HS
Field	Tyler	Wellbore	SHR-3H-HS AWB
Facility	SHR-3 Pad		

## WELLPATH DATA (175 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
7918.00	90.180	160.120	6262.24	1760.98	-1793.43	221.35	1623537.10	333927.59	39°24'32.989"N	80°49'56.641"W	1807.04	172.964	0.25	-0.18	-0.18
8008.00	90.250	159.910	6261.90	1850.98	-1878.01	252.11	1623567.86	333843.01	39°24'32.158"N	80°49'56.233"W	1894.86	172.354	0.25	0.08	-0.23
8097.00	90.310	162.590	6261.47	1939.95	-1962.28	280.72	1623596.46	333758.75	39°24'31.329"N	80°49'55.853"W	1982.25	171.859	3.01	0.07	3.01
8187.00	90.000	164.490	6261.23	2029.77	-2048.58	306.22	1623621.96	333672.45	39°24'30.480"N	80°49'55.512"W	2071.34	171.498	2.14	-0.34	2.11
8276.00	89.880	163.060	6261.32	2118.58	-2134.04	331.09	1623646.83	333587.00	39°24'29.639"N	80°49'55.170"W	2159.57	171.181	1.91	-0.13	-1.61
8366.00	89.910	161.400	6261.48	2208.51	-2219.74	358.55	1623674.29	333501.30	39°24'28.796"N	80°49'54.813"W	2248.51	170.824	1.84	0.03	-1.84
8456.00	90.150	158.190	6261.44	2298.49	-2304.19	389.63	1623705.37	333416.86	39°24'27.966"N	80°49'54.401"W	2336.90	170.402	3.58	0.27	-3.57
8545.00	89.940	154.260	6261.37	2387.28	-2385.62	425.51	1623741.24	333335.43	39°24'27.167"N	80°49'53.929"W	2423.27	169.887	4.42	-0.24	-4.42
8634.00	90.060	152.980	6261.37	2475.73	-2465.35	465.05	1623780.78	333255.70	39°24'26.384"N	80°49'53.410"W	2508.83	169.318	1.44	0.13	-1.44
8724.00	89.570	154.160	6261.66	2565.16	-2545.94	505.11	1623820.84	333175.12	39°24'25.594"N	80°49'52.884"W	2595.57	168.778	1.42	-0.54	1.31
8813.00	89.880	154.580	6262.08	2653.73	-2626.18	543.60	1623859.34	333094.88	39°24'24.807"N	80°49'52.379"W	2681.86	168.305	0.59	0.35	0.47
8903.00	89.420	156.790	6262.63	2743.47	-2708.19	580.66	1623896.39	333012.87	39°24'24.002"N	80°49'51.891"W	2769.74	167.899	2.51	-0.51	2.46
8993.00	89.510	158.460	6263.48	2833.38	-2791.41	614.92	1623930.64	332929.66	39°24'23.184"N	80°49'51.439"W	2858.34	167.577	1.86	0.10	1.86
9082.00	89.600	163.620	6264.17	2922.34	-2875.55	643.82	1623959.55	332845.52	39°24'22.357"N	80°49'51.055"W	2946.75	167.380	5.80	0.10	5.80
9171.00	89.110	165.530	6265.17	3011.04	-2961.34	667.49	1623983.22	332759.74	39°24'21.513"N	80°49'50.737"W	3035.63	167.298	2.22	-0.55	2.15
9261.00	89.660	165.650	6266.13	3100.61	-3048.50	689.89	1624005.61	332672.59	39°24'20.654"N	80°49'50.436"W	3125.59	167.249	0.63	0.61	0.13
9350.00	89.970	164.030	6266.42	3189.29	-3134.40	713.16	1624028.88	332586.69	39°24'19.809"N	80°49'50.123"W	3214.51	167.182	1.85	0.35	-1.82
9440.00	90.030	161.740	6266.42	3279.17	-3220.41	739.65	1624055.37	332500.69	39°24'18.963"N	80°49'49.769"W	3304.26	167.065	2.55	0.07	-2.54
9529.00	90.340	159.140	6266.13	3368.16	-3304.26	769.44	1624085.16	332416.84	39°24'18.139"N	80°49'49.374"W	3392.67	166.892	2.94	0.35	-2.92
9619.00	89.690	157.440	6266.11	3458.11	-3387.88	802.73	1624118.45	332333.23	39°24'17.317"N	80°49'48.934"W	3481.68	166.670	2.02	-0.72	-1.89
9708.00	89.880	157.050	6266.45	3547.01	-3469.95	837.16	1624152.87	332251.16	39°24'16.511"N	80°49'48.480"W	3569.51	166.436	0.49	0.21	-0.44
9798.00	90.250	157.110	6266.34	3636.89	-3552.84	872.21	1624187.92	332168.27	39°24'15.697"N	80°49'48.018"W	3658.34	166.207	0.42	0.41	0.07
9887.00	90.280	158.560	6265.93	3725.83	-3635.26	905.78	1624221.49	332085.85	39°24'14.887"N	80°49'47.575"W	3746.41	166.009	1.63	0.03	1.63
9977.00	90.340	165.820	6265.44	3815.70	-3720.89	933.29	1624249.00	332000.23	39°24'14.045"N	80°49'47.208"W	3836.15	165.919	8.07	0.07	8.07
10067.00	89.850	168.730	6265.29	3904.96	-3808.67	953.11	1624268.82	331912.46	39°24'13.181"N	80°49'46.939"W	3926.12	165.950	3.28	0.54	3.23
10156.00	90.180	164.840	6265.27	3993.32	-3895.30	973.45	1624289.16	331825.83	39°24'12.328"N	80°49'46.664"W	4015.09	165.969	4.39	0.37	-4.37
0246.00	90.180	163.810	6264.99	4083.07	-3981.95	997.77	1624313.48	331739.19	39°24'11.475"N	80°49'46.338"W	4105.05	165.933	1.14	0.00	-1.14
0335.00	90.430	162.820	6264.51	4171.91	-4067.20	1023.32	1624339.03	331653.94	39°24'10.636"N	80°49'45.996"W	4193.96	165.877	1.15	0.28	-1.11
0425.00	89.940	161.100	6264.22	4261.86	-4152.77	1051.19	1624366.89	331568.38	39°24'09.794"N	80°49'45.625"W	4283.75	165.795	1.99	-0.54	-1.91
0514.00	90.430	160.220	6263.94	4350.85	-4236.75	1080.67	1624396.37	331484.40	39°24'08.969"N	80°49'45.234"W	4372.40	165.691	1.13	0.55	-0.99

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# Actual Wellpath Report

SHR-3H-HS AWP Proj: 15364'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot H
Area	Tyler County, WV	Well	SHR-3H-HS
Field	Tyler	Wellbore	SHR-3H-HS AWB
Facility	SHR-3 Pad		

## WELLPATH DATA (175 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
10604.00	89.910	158.160	6263.67	4440.84	-4320.87	1112.64	1624428.34	331400.28	39°24'08.142"N	80°49'44.811"W	4461.83	165.560	2.36	-0.58	-2.29
10694.00	90.370	158.380	6263.45	4530.79	-4404.47	1145.96	1624461.66	331316.69	39°24'07.321"N	80°49'44.371"W	4551.11	165.416	0.57	0.51	0.24
10783.00	90.920	161.470	6262.45	4619.78	-4488.05	1176.50	1624492.20	331233.11	39°24'06.499"N	80°49'43.966"W	4639.69	165.311	3.53	0.62	3.47
10873.00	90.520	162.810	6261.32	4709.70	-4573.71	1204.10	1624519.80	331147.46	39°24'05.657"N	80°49'43.598"W	4729.55	165.251	1.55	-0.44	1.49
10962.00	90.520	164.270	6260.51	4798.53	-4659.05	1229.32	1624545.01	331062.12	39°24'04.877"N	80°49'43.261"W	4818.51	165.219	1.64	0.00	1.64
11052.00	90.770	163.460	6259.50	4888.32	-4745.50	1254.33	1624570.02	330975.68	39°24'03.967"N	80°49'42.926"W	4908.47	165.194	0.94	0.28	-0.90
11142.00	91.110	163.130	6258.02	4978.16	-4831.69	1280.19	1624595.88	330889.49	39°24'03.119"N	80°49'42.580"W	4998.41	165.160	0.53	0.38	-0.37
11231.00	89.230	158.440	6257.75	5067.12	-4915.70	1309.48	1624625.16	330805.48	39°24'02.293"N	80°49'42.192"W	5087.13	165.084	5.68	-2.11	-5.27
11321.00	90.340	158.750	6258.09	5157.09	-4999.50	1342.32	1624658.01	330721.70	39°24'01.469"N	80°49'41.757"W	5176.56	164.971	1.28	1.23	0.34
11411.00	90.150	159.110	6257.71	5247.07	-5083.48	1374.68	1624690.36	330637.72	39°24'00.644"N	80°49'41.330"W	5266.07	164.868	0.45	-0.21	0.40
11500.00	89.970	158.670	6257.61	5336.06	-5166.50	1406.73	1624722.41	330554.70	39°23'59.828"N	80°49'40.906"W	5354.59	164.769	0.53	-0.20	-0.49
11589.00	89.170	157.350	6258.28	5425.00	-5249.02	1440.05	1624755.74	330472.18	39°23'59.018"N	80°49'40.466"W	5442.98	164.659	1.73	-0.90	-1.48
11679.00	89.380	155.570	6259.42	5514.81	-5331.52	1475.99	1624791.67	330389.69	39°23'58.208"N	80°49'39.992"W	5532.06	164.526	1.99	0.23	-1.98
11769.00	89.660	153.920	6260.18	5604.43	-5412.92	1514.39	1624830.07	330308.30	39°23'57.409"N	80°49'39.488"W	5620.77	164.370	1.86	0.31	-1.83
11858.00	89.420	154.430	6260.89	5692.97	-5493.03	1553.16	1624868.83	330228.19	39°23'56.623"N	80°49'38.979"W	5708.38	164.212	0.63	-0.27	0.57
11948.00	89.720	154.840	6261.57	5782.57	-5574.35	1591.71	1624907.39	330146.88	39°23'55.825"N	80°49'38.473"W	5797.14	164.064	0.56	0.33	0.46
12038.00	89.910	154.460	6261.86	5872.18	-5655.68	1630.25	1624945.92	330065.55	39°23'55.027"N	80°49'37.967"W	5885.95	163.920	0.47	0.21	-0.42
12127.00	89.690	157.540	6262.17	5960.95	-5736.97	1666.44	1624982.11	329984.26	39°23'54.229"N	80°49'37.490"W	5974.10	163.803	3.47	-0.25	3.46
12217.00	89.750	160.360	6262.61	6050.92	-5820.96	1698.76	1625014.43	329900.28	39°23'53.403"N	80°49'37.063"W	6063.77	163.731	3.13	0.07	3.13
12306.00	89.750	161.030	6263.00	6139.92	-5904.95	1728.19	1625045.85	329816.29	39°23'52.578"N	80°49'36.672"W	6152.65	163.687	0.75	0.00	0.75
12396.00	90.090	161.760	6263.12	6229.89	-5990.25	1756.90	1625072.56	329731.00	39°23'51.739"N	80°49'36.291"W	6242.58	163.654	0.89	0.38	0.81
12485.00	90.650	164.450	6262.55	6318.75	-6075.40	1782.76	1625098.42	329645.85	39°23'50.901"N	80°49'35.945"W	6331.56	163.646	3.09	0.63	3.02
12575.00	89.910	163.050	6262.11	6408.55	-6161.80	1807.95	1625123.61	329559.46	39°23'50.051"N	80°49'35.608"W	6421.56	163.648	1.76	-0.82	-1.56
12665.00	90.000	160.500	6262.18	6498.50	-6247.28	1836.09	1625151.75	329473.98	39°23'49.210"N	80°49'35.234"W	6511.51	163.622	2.84	0.10	-2.83
12755.00	89.820	161.070	6262.32	6588.49	-6332.26	1865.71	1625181.37	329389.00	39°23'48.375"N	80°49'34.840"W	6601.40	163.583	0.66	-0.20	0.63
12844.00	90.120	163.640	6262.36	6677.41	-6417.07	1892.69	1625208.34	329304.20	39°23'47.541"N	80°49'34.481"W	6690.37	163.567	2.91	0.34	2.89
12934.00	90.220	166.890	6262.10	6767.02	-6504.10	1915.57	1625231.23	329217.18	39°23'46.684"N	80°49'34.173"W	6780.32	163.589	3.61	0.11	3.61
13023.00	90.000	166.330	6261.93	6855.42	-6590.68	1936.18	1625251.84	329130.60	39°23'45.831"N	80°49'33.894"W	6869.19	163.628	0.68	-0.25	-0.63
13113.00	90.400	164.480	6261.61	6945.02	-6677.77	1958.86	1625274.52	329043.52	39°23'44.974"N	80°49'33.589"W	6959.15	163.651	2.10	0.44	-2.06
13202.00	90.280	159.880	6261.08	7033.93	-6762.47	1986.09	1625301.74	328958.81	39°23'44.141"N	80°49'33.226"W	7048.09	163.633	5.17	-0.15	5.17

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# Actual Wellpath Report

SHR-3H-HS AWP Proj: 15364'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot H
Area	Tyler County, WV	SHR-3H-HS
Field	Tyler	SHR-3H-HS AWB
Facility	SHR-3 Pad	

## WELLPATH DATA (175 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
13292.00	90.280	156.110	6260.64	7123.86	-6845.90	2019.81	1625335.46	328875.39	39°23'43.321"N	80°49'32.781"W	7137.65	163.562	4.19	0.00	-4.19
13381.00	90.090	153.960	6260.36	7212.52	-6926.58	2057.37	1625373.02	328794.72	39°23'42.529"N	80°49'32.288"W	7225.67	163.457	2.43	-0.21	-2.42
13471.00	90.220	152.150	6260.11	7301.85	-7006.81	2098.15	1625413.79	328714.50	39°23'41.742"N	80°49'31.753"W	7314.20	163.330	2.02	0.14	-2.01
13560.00	90.180	157.210	6259.80	7390.44	-7087.23	2136.20	1625451.84	328634.08	39°23'40.953"N	80°49'31.253"W	7402.17	163.226	5.69	-0.04	5.69
13650.00	90.250	158.440	6259.46	7480.37	-7170.57	2170.17	1625485.81	328550.74	39°23'40.135"N	80°49'30.805"W	7491.78	163.162	1.37	0.08	1.37
13740.00	90.370	159.900	6258.98	7570.36	-7254.68	2202.17	1625517.81	328466.63	39°23'39.308"N	80°49'30.382"W	7581.56	163.114	1.63	0.13	1.62
13829.00	90.310	161.220	6258.45	7659.35	-7338.61	2231.79	1625547.43	328382.71	39°23'38.483"N	80°49'29.989"W	7670.47	163.085	1.48	-0.07	1.48
13919.00	90.150	160.720	6258.09	7749.34	-7423.69	2261.13	1625576.77	328297.64	39°23'37.646"N	80°49'29.599"W	7760.40	163.060	0.58	-0.18	-0.56
14008.00	90.220	156.970	6257.80	7838.30	-7506.67	2293.25	1625608.88	328214.65	39°23'36.831"N	80°49'29.174"W	7849.15	163.012	4.21	0.08	-4.21
14098.00	90.280	157.150	6257.41	7928.18	-7589.56	2328.33	1625643.96	328131.78	39°23'36.017"N	80°49'28.712"W	7938.67	162.945	0.21	0.07	0.20
14187.00	90.150	157.560	6257.07	8017.09	-7671.69	2362.59	1625678.22	328049.64	39°23'35.210"N	80°49'28.260"W	8027.25	162.883	0.48	-0.15	0.46
14277.00	89.780	156.480	6256.74	8107.06	-7755.56	2395.23	1625710.86	327965.78	39°23'34.386"N	80°49'27.829"W	8117.01	162.837	2.62	0.14	2.61
14367.00	89.880	156.480	6256.69	8197.00	-7839.11	2428.66	1625744.28	327882.24	39°23'33.565"N	80°49'27.387"W	8206.70	162.786	3.85	-0.56	-3.81
14456.00	90.180	154.900	6256.95	8285.75	-7920.21	2465.29	1625780.92	327801.14	39°23'32.769"N	80°49'26.906"W	8295.03	162.710	1.78	0.11	-1.78
14546.00	90.180	156.450	6256.91	8375.49	-8002.22	2502.36	1625817.99	327719.13	39°23'31.964"N	80°49'26.418"W	8384.35	162.635	1.75	0.33	1.72
14636.00	90.950	158.850	6256.02	8465.40	-8085.45	2536.58	1625852.21	327635.91	39°23'31.147"N	80°49'25.967"W	8474.00	162.582	2.80	0.86	2.67
14725.00	89.850	159.250	6255.40	8554.38	-8168.56	2568.41	1625884.03	327552.80	39°23'30.330"N	80°49'25.546"W	8562.83	162.546	1.32	-1.24	0.45
14815.00	90.280	158.700	6255.30	8644.37	-8252.57	2600.69	1625916.31	327468.80	39°23'29.505"N	80°49'25.119"W	8652.66	162.508	0.78	0.48	-0.61
14904.00	90.150	158.720	6254.96	8733.35	-8335.50	2633.01	1625948.63	327385.88	39°23'28.690"N	80°49'24.692"W	8741.47	162.470	0.15	-0.15	0.02
14994.00	90.400	160.540	6254.53	8823.34	-8419.86	2664.34	1625979.95	327301.52	39°23'27.861"N	80°49'24.277"W	8831.35	162.441	2.04	0.28	2.02
15084.00	90.250	160.440	6254.02	8913.33	-8504.69	2694.39	1626010.01	327216.69	39°23'27.027"N	80°49'23.878"W	8921.30	162.421	0.20	-0.17	-0.11
15173.00	90.890	162.350	6253.13	9002.30	-8589.03	2722.78	1626038.40	327132.35	39°23'26.197"N	80°49'23.501"W	9010.28	162.411	2.26	0.72	2.15
15263.00	90.800	162.990	6251.81	9092.19	-8674.94	2749.59	1626065.20	327046.45	39°23'25.352"N	80°49'23.143"W	9100.26	162.414	0.72	-0.10	0.71
15339.00	90.400	164.460	6251.01	9168.02	-8747.89	2770.89	1626086.50	326973.51	39°23'24.634"N	80°49'22.858"W	9176.24	162.424	2.00	-0.53	1.93
15364.00	90.400	164.460	6250.84	9192.95	-8771.97	2777.58	1626093.19	326949.42	39°23'24.397"N	80°49'22.769"W	9201.22	162.436	0.00	0.00	0.00



# Actual Wellpath Report

SHR-3H-HS AWP Proj: 15364'  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot H
Area	Tyler County, WV	Well	SHR-3H-HS
Field	Tyler	Wellbore	SHR-3H-HS AWB
Facility	SHR-3 Pad		

## TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SHR-3H-HS BHL Rev-2	6263.00	6263.00	-8779.17	2755.14	1626070.75	326942.23	39°23'24.323"N	80°49'23.053"W	point
SHR-3H-HS LP Rev-2	6263.00	6263.00	-660.00	-200.00	1623115.77	335060.96	39°24'44.128"N	80°50'02.223"W	point

## WELLPATH COMPOSITION - Ref Wellbore: SHR-3H-HS AWB Ref Wellpath: SHR-3H-HS AWP Proj: 15364'

Start MD [ft]	End MD [ft]	Positional Uncertainty	Model	Log Name/Comment	Wellbore
18.50	2129.50	Generic gyro - northseeking (Standard)		01_MS Gyro <12-1/4"> (100'-2111')	SHR-3H-HS AWB
2129.50	2200.00	Generic gyro - northseeking (Standard)		03_Gyrodata SS <8-3/4"> (2200')	SHR-3H-HS AWB
2200.00	5007.00	NaviTrak (MagCorr)		04_BHI MWD <8-3/4"> (2200')(2223'-5007')	SHR-3H-HS AWB
5007.00	15339.00	NaviTrak (AT Curve Short Spaced)		05_BHI AT Curve <8-3/4"> (5007')(5051'-15339')	SHR-3H-HS AWB
15339.00	15364.00	Blind Drilling (std)		Projection to bit	SHR-3H-HS AWB





# Actual Wellpath Report

SHR-3H-HS AWP Proj: 15364'  
Page 9 of 9



## REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot H
Area	Tyler County, WV	Well	SHR-3H-HS
Field	Tyler	Wellbore	SHR-3H-HS AWB
Facility	SHR-3 Pad		

## COMMENTS

Wellpath general comments  
 API: 47-095-02196-0000  
 BHI Job #: 7024843  
 Rig: Precision 542  
 Duration: 2/25/2015-3/4/2015  
 MS Gyro <12-1/4"> (100'-2111')  
 BHI MWD <8-3/4"> (2200')(2223'-5007')  
 BHI AT Curve <8-3/4"> (5007')(5051'-15339')  
 Projected MD at TD: 15364'

01/27/2017

Location: Tyler County, WV  
 Field: Tyler  
 Facility: SHR-3 Pad

Slot: Slot H  
 Well: SHR-3H-HS  
 Wellbore: SHR-3HHS PWB

Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude
SHR-3 Pad	1623294.030	335743.440	36°24'50.800"N
Slot	Local E (ft)	Local N (ft)	Latitude
Slot H	-22.52	17.73	36°24'50.800"N
Precision E42 (RK6) to Midline (A Slot, Slot H)			18.6ft
Mean Sea Level to Midline (A Slot, Slot H)			-751.92ft
Precision E42 (RK6) to Mean Sea Level			770.40ft

For reference wellbore is SHR-3HHS PWB Rev-3.0  
 True vertical depths are referenced to Precision E42 (RK6)  
 Measured depths are referenced to Precision E42 (RK6)  
 Precision E42 (RK6) to Mean Sea Level: 770.40 feet  
 Mean Sea Level to Midline (A Slot, Slot H): -751.92 feet  
 Coordinates are in feet unless noted to the contrary

Scale: 1 inch = 1500'

MS Gyro <12-1/4"> (100-2111'): 118.50ft TVD, 0.21ft S, 0.41ft E  
 Gyrodale SS <8-3/4"> (2200'): 2199.97ft TVD, 0.45ft S, 4.96ft E  
 BHI MWD <8-3/4"> (2200')(2223-5007'): 2222.97ft TVD, 0.74ft S, 5.01ft E  
 BHI AT Curve <8-3/4"> (5007')(5051-15339'): 5050.55ft TVD, 1.27ft S, 3.81ft W

Slot H

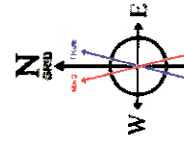
API: 47-095-02196-0000  
 BHI Job #: 7024843  
 Rig: Precision 542  
 Duration: 2/25/2015-3/4/2015



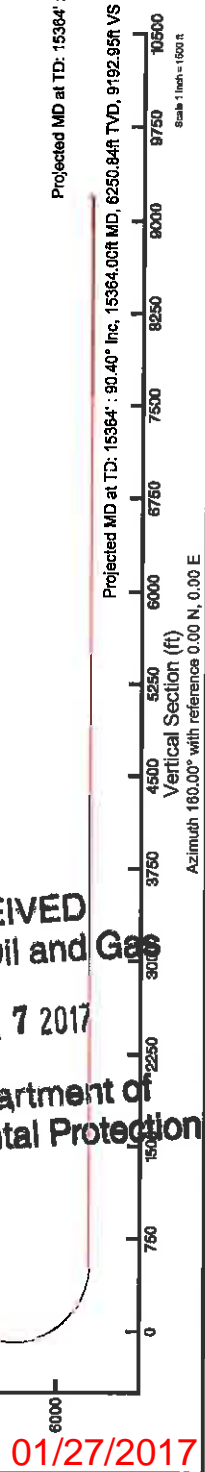
Gyrodale SS <8-3/4"> (2200'): 0.42" Inc, 2200.00ft MD, 2199.97ft TVD, 2.12ft VS  
 BHI MWD <8-3/4"> (2200')(2223-5007'): 1.03" Inc, 2222.00ft MD, 2222.97ft TVD, 2.41ft VS

BHI AT Curve <8-3/4"> (5007')(5051-15339'): 4.05" Inc, 5050.55ft MD, 5050.55ft TVD, -C.14ft VS

RECEIVED  
 Office of Oil and Gas  
 JAN 17 2017  
 WV Department of  
 Environmental Protection



User specified (HDGM) Dip: 86.92° Flcht: 52347 nT  
 Magnetic North is 7.58 degrees West of True North (at 20Feb2015)  
 Grid North is 0.85 degrees West of True North  
 To correct azimuth from True to Grid add 0.85 degrees  
 To correct azimuth from Magnetic to Grid subtract 6.73 degrees



1/27/2017

Projected MD at TD: 15364' : 90.40" Inc, 15364.00ft MD, 6250.84ft TVD, 9192.99ft VS

Projected MD at TD: 15364' : 6250.84ft TVD, 8771.97ft S, 2777.58ft E

Scale: 1 inch = 1000'

Vertical Section (ft)  
 Azimuth 160.00° with reference 0.00 N, 0.00 E