

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot E
Area	Marshall County, WV	Well	SHL-22E-HS
Field	Marshall	Wellbore	SHL-22E-HS AWB
Facility	SHL-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	Edsaryar
Scale	0.999963	Report Generated	04/Aug/2015 at 23:23
Convergence at slot	0.69° West	Database/Source file	WellArchitectEasternDB/SHL-22E-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	56.35	56.93	1698369.77	552114.78	40°00'39.178"N	80°34'36.595"W
Facility Reference Pt			1698312.84	552058.43	40°00'38.614"N	80°34'37.318"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 584 (RKB) to Facility Vertical Datum	1342.01ft
Horizontal Reference Pt	Slot	Precision 584 (RKB) to Mean Sea Level	1342.01ft
Vertical Reference Pt	Precision 584 (RKB)	Precision 584 (RKB) to Mud Line at Slot (Slot E)	19.40ft
MD Reference Pt	Precision 584 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	145.00°



Actual Wellpath Report

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WELLPATH DATA (250 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	277.540	0.00	0.00	0.00	0.00	1698369.77	552114.78	40°00'39.178"N	80°34'36.595"W	0.00	0.000	0.00	0.00	0.00
19.40	0.000	277.540	19.40	0.00	0.00	0.00	1698369.77	552114.78	40°00'39.178"N	80°34'36.595"W	0.00	0.000	0.00	0.00	0.00
57.40	0.440	277.540	57.40	-0.10	0.02	-0.14	1698369.63	552114.80	40°00'39.178"N	80°34'36.597"W	0.15	277.540	1.16	1.16	0.00
107.40	0.350	280.690	107.40	-0.34	0.07	-0.49	1698369.28	552114.85	40°00'39.179"N	80°34'36.602"W	0.49	278.520	0.19	-0.18	6.30
157.40	0.340	290.340	157.40	-0.57	0.15	-0.77	1698369.00	552114.93	40°00'39.179"N	80°34'36.605"W	0.79	281.148	0.12	-0.02	19.30
207.40	0.310	268.590	207.40	-0.77	0.20	-1.05	1698368.72	552114.98	40°00'39.180"N	80°34'36.609"W	1.07	280.841	0.25	-0.06	-43.50
257.40	0.170	258.530	257.40	-0.87	0.18	-1.26	1698368.51	552114.96	40°00'39.180"N	80°34'36.612"W	1.27	278.274	0.29	-0.28	-20.12
307.40	0.310	250.650	307.40	-0.94	0.12	-1.46	1698368.31	552114.90	40°00'39.179"N	80°34'36.614"W	1.46	274.832	0.29	0.28	-15.76
357.40	0.280	249.240	357.40	-1.00	0.04	-1.70	1698368.07	552114.82	40°00'39.178"N	80°34'36.617"W	1.70	271.181	0.06	-0.06	-2.82
407.40	0.340	342.960	407.39	-1.17	0.13	-1.86	1698367.91	552114.91	40°00'39.179"N	80°34'36.619"W	1.86	274.115	0.91	0.12	187.44
457.40	0.160	322.140	457.39	-1.39	0.33	-1.94	1698367.83	552115.11	40°00'39.181"N	80°34'36.620"W	1.97	279.656	0.40	-0.36	-41.64
507.40	0.300	356.050	507.39	-1.57	0.52	-1.99	1698367.78	552115.30	40°00'39.183"N	80°34'36.621"W	2.06	284.511	0.38	0.28	67.82
557.40	0.300	326.050	557.39	-1.81	0.76	-2.08	1698367.69	552115.54	40°00'39.185"N	80°34'36.622"W	2.21	289.989	0.31	0.00	-60.00
607.40	0.250	345.600	607.39	-2.04	0.97	-2.18	1698367.59	552115.75	40°00'39.187"N	80°34'36.623"W	2.38	294.010	0.21	-0.10	39.10
657.40	0.220	320.200	657.39	-2.24	1.15	-2.27	1698367.50	552115.93	40°00'39.189"N	80°34'36.625"W	2.54	296.894	0.21	-0.06	-50.80
707.40	0.100	126.870	707.39	-2.29	1.20	-2.29	1698367.48	552115.98	40°00'39.189"N	80°34'36.625"W	2.59	297.568	0.64	-0.24	333.34
757.40	0.290	75.730	757.39	-2.21	1.20	-2.13	1698367.64	552115.98	40°00'39.190"N	80°34'36.623"W	2.45	299.378	0.48	0.38	-102.28
807.40	0.400	42.700	807.39	-2.20	1.36	-1.89	1698367.88	552116.14	40°00'39.191"N	80°34'36.620"W	2.33	305.710	0.45	0.22	-66.06
857.40	0.200	31.520	857.39	-2.27	1.56	-1.73	1698368.04	552116.34	40°00'39.193"N	80°34'36.618"W	2.33	312.119	0.41	-0.40	-22.36
907.40	0.160	353.680	907.39	-2.37	1.71	-1.69	1698368.08	552116.49	40°00'39.195"N	80°34'36.617"W	2.40	315.269	0.25	-0.08	-75.68
957.40	0.140	136.440	957.39	-2.37	1.73	-1.66	1698368.11	552116.51	40°00'39.195"N	80°34'36.617"W	2.40	316.276	0.57	-0.04	285.52
1007.40	0.480	86.330	1007.39	-2.20	1.70	-1.41	1698368.36	552116.48	40°00'39.195"N	80°34'36.614"W	2.21	320.436	0.81	0.68	-100.22
1057.40	0.440	58.710	1057.39	-2.08	1.81	-1.03	1698368.74	552116.59	40°00'39.196"N	80°34'36.609"W	2.09	330.354	0.45	-0.08	-55.24
1107.40	0.420	46.820	1107.39	-2.09	2.04	-0.74	1698369.03	552116.82	40°00'39.198"N	80°34'36.605"W	2.17	340.180	0.18	-0.04	-23.78
1157.40	0.340	61.450	1157.39	-2.10	2.24	-0.47	1698369.30	552117.02	40°00'39.200"N	80°34'36.602"W	2.29	348.099	0.25	-0.16	29.26
1184.40	0.290	50.660	1184.38	-2.10	2.32	-0.35	1698369.42	552117.10	40°00'39.201"N	80°34'36.600"W	2.34	351.459	0.29	-0.19	-39.96
273.40	0.720	258.490	1273.38	-2.34	2.35	-0.72	1698369.05	552117.13	40°00'39.200"N	80°34'36.605"W	2.46	342.918	1.11	0.48	-170.98
303.40	1.490	264.400	1303.38	-2.60	2.27	-1.29	1698368.48	552117.05	40°00'39.200"N	80°34'36.612"W	2.62	330.338	2.59	2.57	19.70
333.40	2.350	264.740	1333.36	-3.10	2.18	-2.30	1698367.47	552116.96	40°00'39.199"N	80°34'36.625"W	3.16	313.510	2.87	2.87	1.13
363.40	3.110	267.970	1363.33	-3.85	2.09	-3.72	1698366.05	552116.87	40°00'39.198"N	80°34'36.643"W	4.27	299.365	2.58	2.53	10.77

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Field	Marshall	Wellbore	SHL-22E-HS AWB
Facility	SHL-22 Pad		

WELLPATH DATA (250 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]
1394.40	3.880	271.640	1394.27	-4.93	2.09	-5.61	1698364.16	552116.87	40°00'39.198"N	80°34'36.668"W	5.99	290.469	2.59	2.48	11.84
1424.40	4.490	274.010	1424.19	-6.28	2.21	-7.80	1698361.97	552116.99	40°00'39.199"N	80°34'36.696"W	8.10	285.794	2.11	2.03	7.90
1454.40	4.930	270.480	1454.09	-7.77	2.30	-10.26	1698359.51	552117.08	40°00'39.199"N	80°34'36.727"W	10.51	282.629	1.76	1.47	-11.77
1485.40	5.420	272.400	1484.96	-9.43	2.37	-13.05	1698356.72	552117.15	40°00'39.200"N	80°34'36.763"W	13.26	280.295	1.68	1.58	6.19
1515.40	6.270	273.270	1514.80	-11.30	2.52	-16.10	1698353.67	552117.30	40°00'39.201"N	80°34'36.803"W	16.30	278.906	2.85	2.83	2.90
1546.40	6.900	274.240	1545.60	-13.53	2.76	-19.65	1698350.12	552117.54	40°00'39.203"N	80°34'36.848"W	19.84	277.989	2.06	2.03	3.13
1576.40	7.250	277.200	1575.37	-15.94	3.13	-23.32	1698346.45	552117.91	40°00'39.206"N	80°34'36.896"W	23.53	277.638	1.68	1.17	9.87
1606.40	7.700	281.940	1605.12	-18.68	3.78	-27.17	1698342.60	552118.56	40°00'39.212"N	80°34'36.945"W	27.43	277.923	2.54	1.50	15.80
1636.40	8.160	284.810	1634.83	-21.78	4.74	-31.19	1698338.58	552119.52	40°00'39.221"N	80°34'36.997"W	31.55	278.642	2.02	1.53	9.57
1667.40	8.290	285.640	1665.51	-25.18	5.91	-35.47	1698334.30	552120.69	40°00'39.232"N	80°34'37.052"W	35.96	279.453	0.57	0.42	2.68
1699.40	8.330	285.740	1697.17	-28.76	7.16	-39.93	1698329.85	552121.94	40°00'39.244"N	80°34'37.110"W	40.56	280.162	0.13	0.13	0.31
1730.40	8.670	287.030	1727.83	-32.34	8.45	-44.32	1698325.45	552123.23	40°00'39.256"N	80°34'37.166"W	45.12	280.794	1.26	1.10	4.16
1760.40	9.510	287.600	1757.46	-36.09	9.86	-48.85	1698320.93	552124.64	40°00'39.270"N	80°34'37.225"W	49.83	281.415	2.82	2.80	1.90
1790.40	10.190	287.990	1787.01	-40.18	11.43	-53.73	1698316.04	552126.21	40°00'39.285"N	80°34'37.288"W	54.93	282.010	2.28	2.27	1.30
1821.40	10.360	288.440	1817.52	-44.61	13.16	-58.98	1698310.79	552127.94	40°00'39.301"N	80°34'37.355"W	60.43	282.577	0.61	0.55	1.45
1851.40	10.810	288.040	1847.01	-49.03	14.88	-64.22	1698305.55	552129.66	40°00'39.317"N	80°34'37.423"W	65.92	283.049	1.52	1.50	-1.33
1881.40	11.710	287.950	1876.43	-53.70	16.69	-69.79	1698299.98	552131.47	40°00'39.335"N	80°34'37.495"W	71.76	283.452	3.00	3.00	-0.30
1912.40	12.290	287.880	1906.75	-58.85	18.68	-75.92	1698293.85	552133.46	40°00'39.353"N	80°34'37.574"W	78.19	283.820	1.87	1.87	-0.23
1942.40	12.630	287.270	1936.04	-63.99	20.63	-82.09	1698287.68	552135.41	40°00'39.372"N	80°34'37.653"W	84.65	284.106	1.22	1.13	-2.03
1973.40	13.400	285.720	1966.25	-69.45	22.61	-88.79	1698280.99	552137.39	40°00'39.391"N	80°34'37.740"W	91.62	284.287	2.73	2.48	-5.00
2003.40	14.190	284.380	1995.38	-74.93	24.46	-95.70	1698274.08	552139.24	40°00'39.408"N	80°34'37.829"W	98.77	284.340	2.84	2.63	-4.47
2033.40	14.540	283.230	2024.44	-80.53	26.24	-102.92	1698266.85	552141.02	40°00'39.425"N	80°34'37.922"W	106.22	284.302	1.51	1.17	-3.83
2063.40	15.300	281.160	2053.43	-86.19	27.87	-110.47	1698259.30	552142.65	40°00'39.440"N	80°34'38.019"W	113.93	284.158	3.09	2.53	-6.90
2093.40	15.860	279.850	2082.33	-91.94	29.33	-118.39	1698251.38	552144.11	40°00'39.454"N	80°34'38.121"W	121.97	283.916	2.20	1.87	-4.37
2124.40	15.930	278.400	2112.15	-97.85	30.68	-126.78	1698243.00	552145.46	40°00'39.466"N	80°34'38.229"W	130.44	283.604	1.30	0.23	-4.68
2154.40	16.410	276.330	2140.96	-103.48	31.75	-135.06	1698234.71	552146.53	40°00'39.476"N	80°34'38.336"W	138.74	283.229	2.50	1.60	-6.90
2184.40	16.700	275.200	2169.72	-109.06	32.61	-143.57	1698226.21	552147.39	40°00'39.483"N	80°34'38.445"W	147.22	282.796	1.44	0.97	-3.77
2214.40	16.630	274.680	2198.46	-114.58	33.35	-152.14	1698217.64	552148.13	40°00'39.489"N	80°34'38.556"W	155.75	282.364	0.55	-0.23	-1.73
2244.40	17.200	274.470	2227.16	-120.14	34.04	-160.84	1698208.94	552148.82	40°00'39.495"N	80°34'38.667"W	164.40	281.951	1.91	1.90	-0.70
2275.40	17.430	274.710	2256.75	-126.02	34.78	-170.03	1698199.74	552149.56	40°00'39.501"N	80°34'38.786"W	173.56	281.561	0.78	0.74	0.77

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WELLPATH DATA (250 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]
2305.40	17.450	274.900	2285.37	-131.78	35.54	-178.99	1698190.78	552150.31	40°00'39.508"N	80°34'38.901"W	182.49	281.229	0.20	0.07	0.63
2335.40	17.960	275.220	2313.95	-137.65	36.34	-188.08	1698181.70	552151.12	40°00'39.515"N	80°34'39.018"W	191.56	280.936	1.73	1.70	1.07
2365.40	18.700	275.230	2342.43	-143.74	37.20	-197.48	1698172.30	552151.98	40°00'39.522"N	80°34'39.139"W	200.95	280.668	2.47	2.47	0.03
2395.40	18.790	275.050	2370.84	-149.96	38.06	-207.08	1698162.70	552152.84	40°00'39.530"N	80°34'39.262"W	210.55	280.415	0.36	0.30	-0.60
2428.40	18.660	274.630	2402.09	-156.74	38.96	-217.64	1698152.14	552153.74	40°00'39.537"N	80°34'39.398"W	221.09	280.149	0.57	-0.39	-1.27
2460.40	18.640	273.750	2432.41	-163.21	39.71	-227.84	1698141.94	552154.48	40°00'39.543"N	80°34'39.529"W	231.27	279.886	0.88	-0.06	-2.75
2490.40	19.360	273.780	2460.78	-169.32	40.35	-237.59	1698132.19	552155.13	40°00'39.548"N	80°34'39.655"W	240.99	279.638	2.40	2.40	0.10
2521.40	19.440	273.880	2490.02	-175.78	41.03	-247.86	1698121.92	552155.81	40°00'39.554"N	80°34'39.787"W	251.23	279.400	0.28	0.26	0.32
2551.40	19.170	273.560	2518.33	-181.98	41.68	-257.76	1698112.02	552156.46	40°00'39.559"N	80°34'39.914"W	261.11	279.185	0.97	-0.90	-1.07
2581.40	19.600	273.720	2546.63	-188.20	42.31	-267.69	1698102.09	552157.09	40°00'39.564"N	80°34'40.042"W	271.02	278.982	1.44	1.43	0.53
2612.40	20.040	274.060	2575.79	-194.80	43.02	-278.18	1698091.60	552157.80	40°00'39.570"N	80°34'40.177"W	281.49	278.792	1.47	1.42	1.10
2642.40	19.810	274.430	2604.00	-201.27	43.78	-288.38	1698081.40	552158.56	40°00'39.576"N	80°34'40.308"W	291.68	278.633	0.87	-0.77	1.23
2672.40	19.380	274.160	2632.26	-207.64	44.53	-298.41	1698071.37	552159.31	40°00'39.583"N	80°34'40.437"W	301.71	278.488	1.46	-1.43	-0.90
2702.40	19.840	274.360	2660.52	-214.01	45.28	-308.45	1698061.33	552160.06	40°00'39.589"N	80°34'40.566"W	311.76	278.352	1.55	1.53	0.67
2733.40	20.600	274.530	2689.61	-220.82	46.11	-319.13	1698050.65	552160.89	40°00'39.596"N	80°34'40.703"W	322.45	278.222	2.46	2.45	0.55
2763.40	20.320	274.450	2717.72	-227.49	46.93	-329.59	1698040.20	552161.71	40°00'39.603"N	80°34'40.838"W	332.91	278.105	0.94	-0.93	-0.27
2793.40	20.910	273.830	2745.80	-234.16	47.70	-340.12	1698029.66	552162.47	40°00'39.609"N	80°34'40.973"W	343.45	277.983	2.10	1.97	-2.07
2823.40	21.490	274.140	2773.77	-240.98	48.45	-350.94	1698018.84	552163.23	40°00'39.615"N	80°34'41.113"W	354.27	277.860	1.97	1.93	1.03
2854.40	21.360	274.020	2802.62	-248.12	49.26	-362.24	1698007.54	552164.03	40°00'39.622"N	80°34'41.258"W	365.57	277.743	0.44	-0.42	-0.39
2884.40	21.740	274.920	2830.53	-255.13	50.12	-373.22	1697996.56	552164.89	40°00'39.629"N	80°34'41.399"W	376.57	277.648	1.68	1.27	3.00
2914.40	21.260	275.230	2858.44	-262.20	51.09	-384.18	1697985.61	552165.87	40°00'39.637"N	80°34'41.540"W	387.56	277.575	1.64	-1.60	1.03
2944.40	20.900	274.670	2886.43	-269.13	52.02	-394.93	1697974.86	552166.80	40°00'39.645"N	80°34'41.678"W	398.34	277.504	1.38	-1.20	-1.87
2975.40	21.320	274.670	2915.35	-276.26	52.93	-406.05	1697963.73	552167.71	40°00'39.653"N	80°34'41.821"W	409.49	277.427	1.35	1.35	0.00
3005.40	21.150	275.000	2943.31	-283.22	53.84	-416.88	1697952.90	552168.62	40°00'39.661"N	80°34'41.961"W	420.34	277.360	0.69	-0.57	1.10
3035.40	20.800	274.670	2971.33	-290.10	54.75	-427.58	1697942.20	552169.53	40°00'39.668"N	80°34'42.098"W	431.07	277.297	1.23	-1.17	-1.10
3066.40	21.200	274.650	3000.27	-297.19	55.65	-438.65	1697931.13	552170.43	40°00'39.676"N	80°34'42.241"W	442.17	277.230	1.29	1.29	-0.06
3096.40	21.160	274.640	3028.24	-304.10	56.53	-449.46	1697920.33	552171.31	40°00'39.683"N	80°34'42.380"W	453.00	277.169	0.13	-0.13	-0.03
3126.40	20.860	275.000	3056.25	-310.99	57.43	-460.18	1697909.61	552172.21	40°00'39.691"N	80°34'42.518"W	463.75	277.114	1.09	-1.00	1.20
3156.40	21.270	275.790	3084.24	-317.98	58.45	-470.91	1697898.88	552173.23	40°00'39.700"N	80°34'42.656"W	474.52	277.075	1.66	1.37	2.63
3182.40	21.220	276.230	3108.47	-324.16	59.43	-480.28	1697889.51	552174.21	40°00'39.708"N	80°34'42.776"W	483.94	277.054	0.64	-0.19	1.69



Actual Wellpath Report

SHL-22E-HS AWP Proj: 17323'
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REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot E
Area	Marshall County, WV	Well	SHL-22E-HS
Field	Marshall	Wellbore	SHL-22E-HS AWB
Facility	SHL-22 Pad		

WELLPATH DATA (250 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]
3265.00	20.060	277.300	3185.77	-343.55	62.86	-509.19	1697860.60	552177.63	40°00'39.739"N	80°34'43.148"W	513.06	277.037	1.48	-1.40	1.30
3306.00	20.340	275.200	3224.25	-352.88	64.40	-523.26	1697846.53	552179.17	40°00'39.752"N	80°34'43.329"W	527.21	277.016	1.90	0.68	-5.12
3396.00	22.210	275.500	3308.11	-374.03	67.44	-555.78	1697814.02	552182.22	40°00'39.778"N	80°34'43.748"W	559.85	276.919	2.08	2.08	0.33
3486.00	25.460	276.890	3390.43	-398.00	71.40	-591.92	1697777.87	552186.17	40°00'39.813"N	80°34'44.213"W	596.21	276.878	3.66	3.61	1.54
3575.00	30.910	275.840	3468.84	-425.74	76.02	-633.69	1697736.11	552190.80	40°00'39.854"N	80°34'44.750"W	638.23	276.841	6.15	6.12	-1.18
3665.00	33.640	271.480	3544.94	-455.69	79.02	-681.62	1697688.18	552193.79	40°00'39.878"N	80°34'45.367"W	686.18	276.613	3.98	3.03	-4.84
3755.00	35.860	269.970	3618.89	-485.62	79.65	-732.91	1697636.89	552194.42	40°00'39.878"N	80°34'46.026"W	737.22	276.202	2.65	2.47	-1.68
3844.00	38.010	270.380	3690.02	-516.43	79.82	-786.38	1697583.42	552194.59	40°00'39.873"N	80°34'46.713"W	790.42	275.795	2.43	2.42	0.46
3934.00	38.100	270.760	3760.89	-548.70	80.37	-841.86	1697527.94	552195.14	40°00'39.872"N	80°34'47.426"W	845.69	275.453	0.28	0.10	0.42
4024.00	38.100	271.480	3831.71	-581.44	81.45	-897.38	1697472.42	552196.23	40°00'39.876"N	80°34'48.140"W	901.07	275.186	0.49	0.00	0.80
4113.00	38.080	272.240	3901.76	-614.37	83.24	-952.26	1697417.55	552198.01	40°00'39.887"N	80°34'48.845"W	955.89	274.995	0.53	-0.02	0.85
4203.00	38.160	273.010	3972.57	-648.29	85.78	-1007.75	1697362.05	552200.56	40°00'39.906"N	80°34'49.559"W	1011.40	274.865	0.54	0.09	0.86
4293.00	38.280	272.510	4043.27	-682.39	88.46	-1063.37	1697306.44	552203.24	40°00'39.926"N	80°34'50.274"W	1067.04	274.755	0.37	0.13	-0.56
4382.00	38.210	272.530	4113.17	-715.94	90.88	-1118.41	1697251.40	552205.66	40°00'39.943"N	80°34'50.981"W	1122.10	274.646	0.08	-0.08	0.02
4472.00	37.950	273.810	4184.02	-750.24	93.95	-1173.83	1697195.98	552208.73	40°00'39.967"N	80°34'51.694"W	1177.59	274.576	0.92	-0.29	1.42
4561.00	37.810	272.740	4254.27	-784.09	97.07	-1228.39	1697141.43	552211.85	40°00'39.991"N	80°34'52.396"W	1232.22	274.518	0.75	-0.16	-1.20
4651.00	38.080	271.560	4325.24	-817.51	99.15	-1283.69	1697086.13	552213.92	40°00'40.005"N	80°34'53.107"W	1287.51	274.417	0.86	0.30	-1.31
4741.00	37.940	271.240	4396.15	-850.40	100.50	-1339.09	1697030.73	552215.28	40°00'40.012"N	80°34'53.819"W	1342.86	274.292	0.27	-0.16	-0.36
4830.00	40.290	273.720	4465.20	-884.58	102.96	-1395.17	1696974.65	552217.74	40°00'40.030"N	80°34'54.540"W	1398.97	274.221	3.17	2.64	2.79
4920.00	38.110	273.860	4534.95	-920.21	106.72	-1451.93	1696919.90	552221.50	40°00'40.060"N	80°34'55.270"W	1455.85	274.204	2.42	-2.42	0.16
5009.00	39.090	273.190	4604.50	-954.79	110.13	-1507.35	1696862.48	552224.91	40°00'40.087"N	80°34'55.982"W	1511.37	274.179	1.20	1.10	-0.75
5099.00	37.860	273.110	4674.96	-989.38	113.21	-1563.26	1696806.57	552227.98	40°00'40.111"N	80°34'56.701"W	1567.35	274.142	1.37	-1.37	-0.09
5188.00	38.880	274.520	4744.74	-1024.01	116.89	-1618.38	1696751.46	552231.67	40°00'40.141"N	80°34'57.410"W	1622.59	274.131	1.51	1.15	1.58
5278.00	38.600	275.670	4814.94	-1060.28	121.89	-1674.47	1696695.36	552236.67	40°00'40.184"N	80°34'58.132"W	1678.90	274.163	0.86	-0.31	1.28
5368.00	36.420	275.340	4886.32	-1095.88	127.15	-1729.21	1696640.82	552241.93	40°00'40.229"N	80°34'58.834"W	1733.69	274.206	2.43	-2.42	-0.37
5457.00	37.330	275.010	4957.52	-1130.33	131.97	-1782.21	1696587.63	552246.74	40°00'40.270"N	80°34'59.518"W	1787.08	274.235	1.05	1.02	-0.37
5547.00	38.500	274.550	5028.52	-1165.71	136.57	-1837.32	1696532.53	552251.35	40°00'40.309"N	80°35'00.227"W	1842.38	274.251	1.34	1.30	-0.51
5636.00	38.130	274.310	5098.35	-1200.76	140.83	-1892.33	1696477.51	552255.61	40°00'40.345"N	80°35'00.934"W	1897.56	274.256	0.45	-0.42	-0.27
5726.00	38.220	272.510	5169.11	-1235.32	144.14	-1947.85	1696421.99	552258.92	40°00'40.371"N	80°35'01.648"W	1953.18	274.232	1.24	0.10	-2.00
5816.00	37.870	272.900	5239.98	-1269.24	146.76	-2003.25	1696366.59	552261.53	40°00'40.390"N	80°35'02.361"W	2008.62	274.190	0.47	-0.39	0.43

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REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot E
Area	Marshall County, WV	Well	SHL-22E-HS
Field	Marshall	Wellbore	SHL-22E-HS AWB
Facility	SHL-22 Pad		

WELLPATH DATA (250 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]
5905.00	38.050	271.820	5310.15	-1302.46	149.01	-2057.95	1696311.90	552263.79	40°00'40.406"N	80°35'03.064"W	2063.34	274.141	0.77	0.20	-1.21
5995.00	38.010	272.060	5381.05	-1335.78	150.89	-2113.37	1696256.49	552265.66	40°00'40.418"N	80°35'03.776"W	2118.75	274.084	0.17	-0.04	0.27
6084.00	37.990	271.360	5451.18	-1368.53	152.52	-2168.14	1696201.72	552267.30	40°00'40.427"N	80°35'04.480"W	2173.49	274.024	0.48	-0.02	-0.79
6174.00	38.110	271.110	5522.05	-1401.32	153.72	-2223.59	1696146.26	552268.49	40°00'40.433"N	80°35'05.193"W	2228.90	273.955	0.22	0.13	-0.28
6263.00	38.200	270.110	5592.04	-1433.33	154.30	-2278.57	1696091.29	552269.08	40°00'40.432"N	80°35'05.900"W	2283.79	273.874	0.70	0.10	-1.12
6353.00	38.220	270.820	5662.76	-1465.63	154.76	-2334.24	1696035.62	552269.53	40°00'40.430"N	80°35'06.615"W	2339.36	273.793	0.49	0.02	0.79
6443.00	38.380	271.580	5733.39	-1498.58	155.93	-2390.01	1695979.86	552270.70	40°00'40.435"N	80°35'07.332"W	2395.09	273.733	0.55	0.18	0.84
6532.00	38.570	272.310	5803.06	-1531.86	157.81	-2445.35	1695924.52	552272.58	40°00'40.446"N	80°35'08.044"W	2450.43	273.692	0.55	0.21	0.82
6622.00	38.420	272.210	5873.50	-1565.78	160.01	-2501.32	1695868.54	552274.79	40°00'40.462"N	80°35'08.763"W	2506.44	273.660	0.18	-0.17	-0.11
6711.00	38.610	272.670	5943.14	-1599.47	162.37	-2556.69	1695813.17	552277.15	40°00'40.478"N	80°35'09.475"W	2561.85	273.634	0.39	0.21	0.52
6748.00	38.300	272.120	5972.11	-1613.44	163.34	-2579.68	1695790.19	552278.11	40°00'40.485"N	80°35'09.771"W	2584.85	273.623	1.25	-0.84	-1.49
6837.00	39.930	263.380	6041.22	-1643.69	161.06	-2635.66	1695734.21	552275.84	40°00'40.456"N	80°35'10.490"W	2640.58	273.497	6.46	1.83	-9.82
6927.00	45.040	248.120	6107.75	-1664.72	145.81	-2694.10	1695675.78	552260.59	40°00'40.298"N	80°35'11.238"W	2698.04	273.098	12.75	5.68	-16.96
7016.00	46.810	246.960	6169.65	-1678.59	121.38	-2753.18	1695616.70	552236.16	40°00'40.050"N	80°35'11.994"W	2755.86	272.524	2.20	1.99	-1.30
7106.00	53.320	245.180	6227.40	-1691.78	93.36	-2816.20	1695553.68	552208.14	40°00'39.765"N	80°35'12.799"W	2817.75	271.899	7.39	7.23	-1.98
7196.00	59.980	238.650	6276.88	-1700.66	57.87	-2882.35	1695487.53	552172.65	40°00'39.407"N	80°35'13.644"W	2882.94	271.150	9.56	7.40	-7.26
7285.00	64.870	231.670	6318.11	-1700.77	12.77	-2946.97	1695422.92	552127.55	40°00'38.953"N	80°35'14.467"W	2946.99	270.248	8.86	5.49	-7.84
7375.00	65.840	223.460	6355.69	-1690.17	-42.38	-3007.25	1695362.63	552072.40	40°00'38.401"N	80°35'15.233"W	3007.55	269.193	8.36	1.08	-9.12
7465.00	66.390	213.630	6392.21	-1666.89	-106.65	-3058.44	1695311.45	552008.14	40°00'37.760"N	80°35'15.881"W	3060.29	268.003	10.00	0.61	-10.92
7554.00	67.850	205.100	6426.87	-1631.43	-178.04	-3098.57	1695271.32	551936.75	40°00'37.050"N	80°35'16.385"W	3103.68	266.712	8.98	1.64	-9.58
7644.00	69.930	199.630	6459.30	-1586.15	-255.65	-3130.47	1695239.42	551859.14	40°00'36.279"N	80°35'16.783"W	3140.89	265.331	6.12	2.31	-6.08
7733.00	72.120	191.250	6488.28	-1532.58	-336.70	-3152.81	1695217.08	551778.10	40°00'35.475"N	80°35'17.058"W	3170.74	263.904	9.24	2.46	-9.42
7823.00	74.840	182.030	6513.92	-1468.15	-422.29	-3162.73	1695207.16	551692.50	40°00'34.628"N	80°35'17.172"W	3190.80	262.395	10.27	3.02	-10.24
7913.00	77.760	173.270	6535.28	-1394.59	-509.55	-3159.11	1695210.79	551605.25	40°00'33.766"N	80°35'17.112"W	3199.94	260.837	10.00	3.24	-9.73
8002.00	81.200	165.180	6551.55	-1314.86	-595.42	-3142.73	1695227.16	551519.39	40°00'32.920"N	80°35'16.888"W	3198.64	259.272	9.74	3.87	-9.09
8092.00	84.700	155.820	6562.62	-1228.89	-679.50	-3112.93	1695256.96	551435.31	40°00'32.093"N	80°35'16.492"W	3186.23	257.687	11.03	3.89	-10.40
8181.00	88.770	146.580	6567.70	-1140.67	-757.25	-3070.16	1695299.72	551357.56	40°00'31.329"N	80°35'15.930"W	3162.17	256.145	11.33	4.57	-10.38
8271.00	88.310	144.340	6569.99	-1050.71	-831.36	-3019.16	1695350.73	551283.45	40°00'30.603"N	80°35'15.263"W	3131.53	254.605	2.54	-0.51	-2.49
8361.00	88.370	143.660	6572.60	-960.76	-904.14	-2966.28	1695403.61	551210.68	40°00'29.890"N	80°35'14.573"W	3101.01	253.048	0.76	0.07	-0.76
8450.00	89.110	143.470	6574.55	-871.81	-975.72	-2913.43	1695456.45	551139.09	40°00'29.189"N	80°35'13.882"W	3072.48	251.484	0.86	0.83	-0.21

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REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot E
Area	Marshall County, WV	SHL-22E-HS
Field	Marshall	SHL-22E-HS AWB
Facility	SHL-22 Pad	

WELLPATH DATA (250 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]
8540.00	89.660	143.070	6575.52	-781.86	-1047.85	-2859.61	1695510.27	551066.97	40°00'28.483"N	80°35'13.180"W	3045.55	249.876	0.76	0.61	-0.44
8630.00	90.220	141.530	6575.61	-691.96	-1119.06	-2804.58	1695565.30	550995.76	40°00'27.786"N	80°35'12.461"W	3019.59	248.247	1.82	0.62	-1.71
8719.00	90.250	141.560	6575.25	-603.12	-1188.75	-2749.23	1695620.65	550926.07	40°00'27.104"N	80°35'11.739"W	2995.23	246.617	0.05	0.03	0.03
8809.00	90.150	145.780	6574.93	-513.17	-1261.24	-2695.92	1695673.95	550853.59	40°00'26.394"N	80°35'11.043"W	2976.36	244.928	4.69	-0.11	4.69
8898.00	90.220	146.590	6574.65	-424.19	-1335.19	-2646.39	1695723.48	550779.65	40°00'25.669"N	80°35'10.395"W	2964.14	243.228	0.91	0.08	0.91
8988.00	89.850	146.260	6574.59	-334.22	-1410.17	-2596.62	1695773.25	550704.66	40°00'24.934"N	80°35'09.744"W	2954.83	241.495	0.55	-0.41	-0.37
9078.00	89.780	146.660	6574.88	-244.25	-1485.19	-2546.89	1695822.98	550629.65	40°00'24.199"N	80°35'09.093"W	2948.29	239.752	0.45	-0.08	0.44
9167.00	89.780	147.810	6575.22	-155.32	-1560.02	-2498.73	1695871.14	550554.82	40°00'23.465"N	80°35'08.463"W	2945.73	238.022	1.29	0.00	1.29
9257.00	89.880	147.330	6575.49	-65.41	-1635.99	-2450.46	1695919.40	550478.86	40°00'22.720"N	80°35'07.831"W	2946.39	236.272	0.54	0.11	-0.53
9347.00	89.820	147.330	6575.73	24.52	-1711.75	-2401.88	1695967.98	550403.10	40°00'21.977"N	80°35'07.195"W	2949.43	234.524	0.07	-0.07	0.00
9436.00	89.910	145.920	6575.94	113.48	-1786.07	-2352.92	1696016.94	550328.78	40°00'21.249"N	80°35'06.554"W	2954.03	232.798	1.59	0.10	-1.58
9526.00	89.750	141.810	6576.20	203.44	-1838.74	-2299.86	1696070.00	550256.11	40°00'20.537"N	80°35'05.861"W	2957.07	231.055	4.57	-0.18	-4.57
9615.00	89.420	135.640	6576.85	291.86	-1925.59	-2241.18	1696128.67	550189.26	40°00'19.883"N	80°35'05.097"W	2954.79	229.331	6.94	-0.37	-6.93
9705.00	89.450	140.790	6577.74	381.20	-1992.68	-2181.24	1696188.62	550122.18	40°00'19.227"N	80°35'04.316"W	2954.41	227.587	5.72	0.03	5.72
9794.00	89.450	145.510	6578.59	470.12	-2063.87	-2127.88	1696241.97	550050.99	40°00'18.530"N	80°35'03.619"W	2964.36	225.875	5.30	0.00	5.30
9884.00	89.420	146.580	6579.48	560.10	-2138.52	-2077.61	1696292.24	549976.34	40°00'17.799"N	80°35'02.962"W	2981.57	224.172	1.19	-0.03	1.19
9974.00	89.540	146.840	6580.30	650.06	-2213.75	-2028.22	1696341.63	549901.12	40°00'17.061"N	80°35'02.315"W	3002.39	222.496	0.32	0.13	0.29
10063.00	89.880	146.830	6580.75	739.01	-2288.25	-1979.53	1696390.32	549826.62	40°00'16.331"N	80°35'01.678"W	3025.66	220.863	0.38	0.38	-0.01
10153.00	89.780	143.660	6581.01	829.00	-2362.18	-1928.23	1696441.62	549752.69	40°00'15.606"N	80°35'01.008"W	3049.26	219.224	3.52	-0.11	-3.52
10242.00	89.820	142.720	6581.33	917.95	-2433.44	-1874.90	1696494.94	549681.44	40°00'14.908"N	80°35'00.311"W	3071.95	217.613	1.06	0.04	-1.06
10332.00	89.780	144.050	6581.64	1007.92	-2505.67	-1821.23	1696548.61	549609.20	40°00'14.201"N	80°34'59.611"W	3097.62	216.011	1.48	-0.04	1.48
10421.00	89.820	148.620	6581.95	1096.87	-2579.73	-1771.90	1696597.93	549535.15	40°00'13.475"N	80°34'58.965"W	3129.64	214.483	5.13	0.04	5.13
10511.00	89.660	150.820	6582.36	1186.56	-2657.44	-1726.53	1696643.31	549457.44	40°00'12.713"N	80°34'58.370"W	3169.05	213.012	2.45	-0.18	2.44
10600.00	89.690	151.350	6582.86	1275.05	-2735.35	-1683.50	1696686.34	549379.54	40°00'11.948"N	80°34'57.805"W	3211.90	211.611	0.60	0.03	0.60
10690.00	89.720	146.010	6583.33	1364.83	-2812.20	-1636.73	1696733.10	549302.68	40°00'11.194"N	80°34'57.192"W	3253.82	210.200	5.93	0.03	-5.93
10780.00	89.690	144.270	6583.79	1454.83	-2886.05	-1585.29	1696784.54	549228.84	40°00'10.470"N	80°34'56.520"W	3292.78	208.780	1.93	-0.03	-1.93
10869.00	89.690	142.840	6584.27	1543.80	-2957.64	-1532.42	1696837.41	549157.25	40°00'09.769"N	80°34'55.830"W	3331.06	207.390	1.61	0.00	-1.61
0959.00	89.630	142.480	6584.81	1633.72	-3029.19	-1477.83	1696891.99	549085.70	40°00'09.069"N	80°34'55.117"W	3370.46	206.006	0.41	-0.07	-0.40
1048.00	89.630	142.170	6585.38	1722.62	-3099.64	-1423.44	1696946.39	549015.26	40°00'08.379"N	80°34'54.407"W	3410.85	204.666	0.35	0.00	-0.35
11138.00	89.170	138.650	6586.32	1812.31	-3168.98	-1366.10	1697003.73	548945.93	40°00'07.701"N	80°34'53.660"W	3450.89	203.320	3.94	-0.51	-3.91

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Actual Wellpath Report

SHL-22E-HS AWP Proj: 17323'

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REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot E
Area	Marshall County, WV	Well	SHL-22E-HS
Field	Marshall	Wellbore	SHL-22E-HS AWB
Facility	SHL-22 Pad		

WELLPATH DATA (250 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]
11228.00	89.290	140.200	6587.53	1901.88	-3237.33	-1307.56	1697062.26	548877.58	40°00'07.032"N	80°34'52.897"W	3491.42	201.994	1.73	0.13	1.72
11317.00	89.260	145.360	6588.66	1990.77	-3308.17	-1253.75	1697116.07	548806.74	40°00'06.338"N	80°34'52.195"W	3537.78	200.756	5.80	-0.03	5.80
11407.00	89.230	147.390	6589.85	2080.73	-3383.10	-1203.92	1697165.90	548731.81	40°00'05.604"N	80°34'51.543"W	3590.93	199.589	2.26	-0.03	2.26
11496.00	89.420	148.010	6590.89	2169.63	-3458.32	-1156.37	1697213.45	548656.59	40°00'04.866"N	80°34'50.920"W	3646.53	198.488	0.73	0.21	0.70
11586.00	89.320	148.570	6591.88	2259.47	-3534.88	-1109.06	1697262.75	548580.03	40°00'04.115"N	80°34'50.301"W	3704.78	197.419	0.63	-0.11	0.62
11675.00	89.260	147.270	6592.99	2348.35	-3610.29	-1061.80	1697308.01	548504.63	40°00'03.376"N	80°34'49.682"W	3763.19	196.389	1.46	-0.07	-1.46
11765.00	89.260	147.440	6594.15	2438.27	-3686.06	-1013.26	1697356.55	548428.86	40°00'02.633"N	80°34'49.046"W	3822.79	195.370	0.19	0.00	0.19
11855.00	89.690	148.440	6594.97	2528.14	-3762.33	-965.49	1697404.32	548352.59	40°00'01.885"N	80°34'48.421"W	3884.24	194.393	1.21	0.48	1.11
11944.00	90.220	147.050	6595.04	2617.04	-3837.60	-917.99	1697451.82	548277.33	40°00'01.147"N	80°34'47.799"W	3945.87	193.453	1.67	0.60	-1.56
12034.00	90.180	144.990	6594.73	2707.02	-3912.22	-867.69	1697502.11	548202.71	40°00'00.415"N	80°34'47.141"W	4007.29	192.505	2.29	-0.04	-2.29
12123.00	89.780	145.500	6594.76	2796.02	-3985.35	-816.96	1697552.85	548129.59	39°59'59.699"N	80°34'46.478"W	4068.22	191.585	0.73	-0.45	0.57
12213.00	89.850	145.290	6595.05	2886.01	-4059.42	-765.84	1697603.96	548055.51	39°59'58.973"N	80°34'45.810"W	4131.03	190.684	0.25	0.08	-0.23
12302.00	89.690	143.340	6595.41	2975.00	-4131.71	-713.93	1697655.87	547983.23	39°59'58.265"N	80°34'45.132"W	4192.93	189.804	2.20	-0.18	-2.19
12392.00	89.570	138.570	6595.99	3064.75	-4201.58	-657.25	1697712.54	547913.36	39°59'57.581"N	80°34'44.393"W	4252.68	188.891	5.30	-0.13	-5.30
12482.00	89.260	136.170	6596.91	3153.94	-4267.79	-596.31	1697773.49	547847.15	39°59'56.934"N	80°34'43.600"W	4309.25	187.954	2.69	-0.34	-2.67
12571.00	89.080	142.590	6598.20	3242.46	-4335.31	-538.40	1697831.39	547779.64	39°59'56.274"N	80°34'42.845"W	4368.61	187.079	7.22	-0.20	7.21
12661.00	89.080	144.550	6599.65	3332.42	-4407.71	-484.97	1697884.82	547707.25	39°59'55.564"N	80°34'42.147"W	4434.30	186.279	2.18	0.00	2.18
12750.00	89.480	145.590	6600.76	3421.41	-4480.67	-434.01	1697935.78	547634.29	39°59'54.850"N	80°34'41.481"W	4501.64	185.533	1.25	0.45	1.17
12840.00	89.380	149.270	6601.66	3511.31	-4556.49	-385.57	1697984.21	547558.46	39°59'54.106"N	80°34'40.847"W	4572.78	184.837	4.09	-0.11	4.09
12929.00	89.600	150.030	6602.45	3600.01	-4633.29	-340.60	1698029.18	547481.67	39°59'53.352"N	80°34'40.258"W	4645.80	184.204	0.89	0.25	0.85
13019.00	89.570	147.690	6603.10	3689.80	-4710.32	-294.07	1698075.71	547404.64	39°59'52.597"N	80°34'39.648"W	4719.49	183.572	2.60	-0.03	-2.60
13109.00	89.600	144.920	6603.76	3779.76	-4785.19	-244.14	1698125.64	547329.78	39°59'51.863"N	80°34'38.995"W	4791.41	182.921	3.08	0.03	-3.08
13198.00	89.820	147.060	6604.21	3868.74	-4858.96	-194.37	1698175.41	547256.01	39°59'51.140"N	80°34'38.344"W	4862.85	182.291	2.42	0.25	2.40
13288.00	89.780	147.250	6604.52	3958.68	-4934.57	-145.55	1698224.22	547180.40	39°59'50.398"N	80°34'37.705"W	4936.72	181.690	0.22	-0.04	0.21
13378.00	89.540	143.860	6605.05	4048.56	-5008.78	-94.66	1698275.12	547106.19	39°59'49.671"N	80°34'37.040"W	5009.67	181.083	3.78	-0.27	-3.77
13467.00	89.660	140.840	6605.68	4137.55	-5079.24	-40.30	1698329.47	547035.74	39°59'48.981"N	80°34'36.331"W	5079.40	180.455	3.40	0.13	-3.39
13557.00	89.450	138.860	6606.37	4227.18	-5148.02	17.73	1698387.50	546966.96	39°59'48.308"N	80°34'35.575"W	5148.05	179.803	2.21	-0.23	-2.20
13646.00	89.320	136.980	6607.33	4315.49	-5214.07	77.37	1698447.13	546900.91	39°59'47.663"N	80°34'34.798"W	5214.65	179.150	2.12	-0.15	-2.11
13736.00	89.380	137.540	6608.35	4404.67	-5280.17	138.44	1698508.21	546834.82	39°59'47.017"N	80°34'34.003"W	5281.98	178.498	0.63	0.07	0.62
13825.00	89.350	141.560	6609.34	4493.24	-5347.88	196.17	1698565.93	546767.11	39°59'46.355"N	80°34'33.251"W	5351.47	177.899	4.52	-0.03	4.52

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REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot E
Area	Marshall County, WV	Well	SHL-22E-HS
Field	Marshall	Wellbore	SHL-22E-HS AWB
Facility	SHL-22 Pad		

WELLPATH DATA (250 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]
13915.00	89.350	145.070	6610.36	4583.18	-5420.03	249.92	1698619.68	546694.96	39°59'45.648"N	80°34'32.550"W	5425.79	177.360	3.90	0.00	3.90
14005.00	89.200	151.280	6611.50	4672.99	-5496.46	297.36	1698667.11	546618.53	39°59'44.898"N	80°34'31.929"W	5504.50	176.903	6.90	-0.17	6.90
14094.00	89.080	150.360	6612.84	4761.52	-5574.16	340.74	1698710.50	546540.84	39°59'44.136"N	80°34'31.359"W	5584.56	176.502	1.04	-0.13	-1.03
14184.00	89.140	144.980	6614.23	4851.38	-5650.17	388.85	1698758.61	546464.83	39°59'43.390"N	80°34'30.729"W	5663.53	176.063	5.98	0.07	-5.98
14273.00	89.140	144.900	6615.57	4940.37	-5723.01	439.97	1698809.72	546391.99	39°59'42.676"N	80°34'30.061"W	5739.90	175.604	0.09	0.00	-0.09
14363.00	89.350	145.570	6616.76	5030.36	-5796.94	491.28	1698861.04	546318.07	39°59'41.952"N	80°34'29.391"W	5817.72	175.156	0.78	0.23	0.74
14452.00	89.540	147.080	6617.62	5119.33	-5871.00	540.63	1698910.38	546244.01	39°59'41.226"N	80°34'28.745"W	5895.84	174.739	1.71	0.21	1.70
14542.00	89.350	146.920	6618.49	5209.27	-5946.47	589.64	1698959.39	546168.54	39°59'40.486"N	80°34'28.104"W	5975.64	174.337	0.28	-0.21	-0.18
14632.00	89.480	146.640	6619.41	5299.22	-6021.76	638.95	1699008.69	546093.25	39°59'39.748"N	80°34'27.459"W	6055.57	173.943	0.34	0.14	-0.31
14721.00	89.380	143.570	6620.29	5388.21	-6094.75	689.85	1699059.60	546020.27	39°59'39.032"N	80°34'26.794"W	6133.67	173.542	3.45	-0.11	-3.45
14811.00	89.170	142.600	6621.43	5478.15	-6166.70	743.91	1699113.65	545948.32	39°59'38.328"N	80°34'26.088"W	6211.41	173.121	1.10	-0.23	-1.08
14901.00	89.260	145.550	6622.67	5568.12	-6239.56	796.70	1699166.44	545875.46	39°59'37.614"N	80°34'25.399"W	6290.22	172.724	3.28	0.10	3.28
14990.00	89.140	146.450	6623.91	5657.10	-6313.34	846.46	1699216.20	545801.68	39°59'36.891"N	80°34'24.748"W	6369.83	172.364	1.02	-0.13	1.01
15080.00	89.050	146.190	6625.33	5747.06	-6388.22	896.37	1699266.10	545726.80	39°59'36.157"N	80°34'24.096"W	6450.81	172.013	0.31	-0.10	-0.29
15169.00	89.140	146.420	6626.74	5836.03	-6462.26	945.74	1699315.47	545652.77	39°59'35.431"N	80°34'23.450"W	6531.10	171.674	0.28	0.10	0.26
15259.00	89.200	148.160	6628.04	5925.94	-6537.98	994.36	1699364.10	545577.05	39°59'34.688"N	80°34'22.814"W	6613.16	171.352	1.93	0.07	1.93
15348.00	89.260	147.320	6629.24	6014.83	-6613.23	1041.86	1699411.59	545501.80	39°59'33.950"N	80°34'22.192"W	6694.80	171.047	0.95	0.07	-0.94
15438.00	89.320	146.190	6630.35	6104.78	-6688.50	1091.20	1699460.93	545426.54	39°59'33.213"N	80°34'21.547"W	6776.92	170.734	1.26	0.07	-1.26
15527.00	89.480	144.420	6631.28	6193.77	-6761.67	1141.85	1699511.58	545353.38	39°59'32.495"N	80°34'20.885"W	6857.40	170.415	2.00	0.18	-1.99
15617.00	89.540	143.710	6632.05	6283.76	-6834.53	1194.67	1699564.39	545280.51	39°59'31.782"N	80°34'20.195"W	6938.16	170.085	0.79	0.07	-0.79
15707.00	89.510	143.310	6632.80	6373.72	-6906.89	1248.19	1699617.91	545208.16	39°59'31.073"N	80°34'19.496"W	7018.77	169.756	0.45	-0.03	-0.44
15796.00	89.540	143.080	6633.54	6462.68	-6978.15	1301.51	1699671.23	545136.90	39°59'30.375"N	80°34'18.800"W	7098.48	169.435	0.26	0.03	-0.26
15886.00	89.570	142.870	6634.24	6552.62	-7050.00	1355.70	1699725.42	545065.06	39°59'29.671"N	80°34'18.093"W	7179.16	169.115	0.24	0.03	-0.23
15975.00	89.350	143.340	6635.07	6641.56	-7121.17	1409.13	1699778.84	544993.89	39°59'28.974"N	80°34'17.396"W	7259.25	168.807	0.58	-0.25	0.53
16065.00	89.820	145.040	6635.73	6731.55	-7194.15	1461.78	1699831.50	544920.91	39°59'28.259"N	80°34'16.708"W	7341.16	168.514	1.96	0.52	1.89
16154.00	89.910	146.090	6635.94	6820.54	-7267.55	1512.11	1699881.82	544847.51	39°59'27.540"N	80°34'16.051"W	7423.20	168.247	1.18	0.10	1.18
6244.00	89.850	146.360	6636.13	6910.52	-7342.37	1562.14	1699931.85	544772.70	39°59'26.807"N	80°34'15.396"W	7506.70	167.989	0.31	-0.07	0.30
6334.00	89.570	145.590	6636.58	7000.51	-7416.96	1612.50	1699982.21	544698.11	39°59'26.076"N	80°34'14.738"W	7590.22	167.734	0.91	-0.31	-0.86
6423.00	89.540	144.990	6637.27	7089.50	-7490.11	1663.18	1700032.88	544624.96	39°59'25.359"N	80°34'14.076"W	7672.55	167.481	0.67	-0.03	-0.67
6513.00	89.630	145.100	6637.92	7179.50	-7563.88	1714.74	1700084.45	544551.20	39°59'24.636"N	80°34'13.402"W	7755.81	167.227	0.16	0.10	0.12



Actual Wellpath Report

SHL-22E-HS AWP Proj: 17323'
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REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot E
Area	Marshall County, WV	Well	SHL-22E-HS
Field	Marshall	Wellbore	SHL-22E-HS AWB
Facility	SHL-22 Pad		

WELLPATH DATA (250 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]
16602.00	89.540	144.660	6638.57	7268.50	-7636.67	1765.94	1700135.64	544478.40	39°59'23.922"N	80°34'12.733"W	7838.20	166.980	0.50	-0.10	-0.49
16692.00	89.570	144.060	6639.27	7358.49	-7709.81	1818.38	1700188.08	544405.27	39°59'23.206"N	80°34'12.048"W	7921.35	166.729	0.67	0.03	-0.67
16782.00	89.510	144.590	6639.99	7448.48	-7782.92	1870.87	1700240.56	544332.16	39°59'22.490"N	80°34'11.363"W	8004.62	166.484	0.59	-0.07	0.59
16871.00	89.720	144.870	6640.59	7537.48	-7855.58	1922.26	1700291.95	544259.50	39°59'21.778"N	80°34'10.692"W	8087.35	166.250	0.39	0.24	0.31
16961.00	89.660	146.150	6641.07	7627.47	-7929.76	1973.22	1700342.91	544185.33	39°59'21.051"N	80°34'10.026"W	8171.58	166.026	1.42	-0.07	1.42
17050.00	89.720	146.430	6641.56	7716.45	-8003.79	2022.61	1700392.30	544111.30	39°59'20.325"N	80°34'09.380"W	8255.40	165.818	0.32	0.07	0.31
17140.00	89.720	145.390	6642.00	7806.43	-8078.33	2073.05	1700442.74	544036.77	39°59'19.594"N	80°34'08.720"W	8340.08	165.607	1.16	0.00	-1.16
17229.00	89.660	144.850	6642.48	7895.43	-8151.34	2123.95	1700493.64	543963.76	39°59'18.879"N	80°34'08.055"W	8423.50	165.395	0.61	-0.07	-0.61
17298.00	89.600	144.870	6642.92	7964.43	-8207.76	2163.66	1700533.35	543907.34	39°59'18.326"N	80°34'07.536"W	8488.15	165.232	0.09	-0.09	0.03
17323.00	89.600	144.870	6643.10	7989.43	-8228.20	2178.05	1700547.73	543886.89	39°59'18.125"N	80°34'07.349"W	8511.59	165.174	0.00	0.00	0.00

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY		Slot	Slot E
Area	Marshall County, WV		Well	SHL-22E-HS
Field	Marshall		Wellbore	SHL-22E-HS AWB
Facility	SHL-22 Pad			

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SHL-22E-HS LP Rev-3		6568.00	-794.10	-3030.45	1695339.44	551320.71	40°00'30.970"N	80°35'15.414"W	point
SHL-22E-HS LP Plat		6585.01	-584.75	-3177.46	1695192.43	551530.05	40°00'33.021"N	80°35'17.336"W	point
SHL-22E-HS BHL Rev-3		6647.21	-8229.48	2175.85	1700545.54	543885.62	39°59'18.113"N	80°34'07.377"W	point
SHL-22 Pad LL		7002.01	-56.35	-56.93	1698312.84	552058.43	40°00'38.614"N	80°34'37.318"W	polygon

WELLPATH COMPOSITION - Ref Wellbore: SHL-22E-HS AWB Ref Wellpath: SHL-22E-HS AWP Proj: 17323'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment
19.40	1184.40	Generic gyro - northseeking (Standard)	01_MS Gyro <17-1/2"> (50'-1177')
1184.40	3182.40	ISCWSA MWD, Rev. 2 (Standard)	02_SDI MWD <12-1/4"> (1177')(1266'-3175')
3182.40	17298.00	NaviTrak (AT Curve Short Spaced)	03_BHI AT Curve <8-3/4"> (3182.4')(3265'-17298')
17298.00	17323.00	Blind Drilling (std)	Projection to bit
			Wellbore



Actual Wellpath Report

SHL-22E-HS AWP Proj: 17323'
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REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot E
Area	Marshall County, WV	Well	SHL-22E-HS
Field	Marshall	Wellbore	SHL-22E-HS AWB
Facility	SHL-22 Pad		

COMMENTS

Wellpath general comments

API: 47-051-01811-0000
 BHI Job #: 7372167
 Rig: Precision 584
 Duration: 7/27/2015-8/2/2015
 MS Gyro <17-1/2"> (50'-1177')
 SDI MWD <12-1/4"> (1177')(1266'-3175')
 BHI AT Curve <8-3/4"> (3182.4')(3265'-17298')
 Projected MD at TD: 17323'

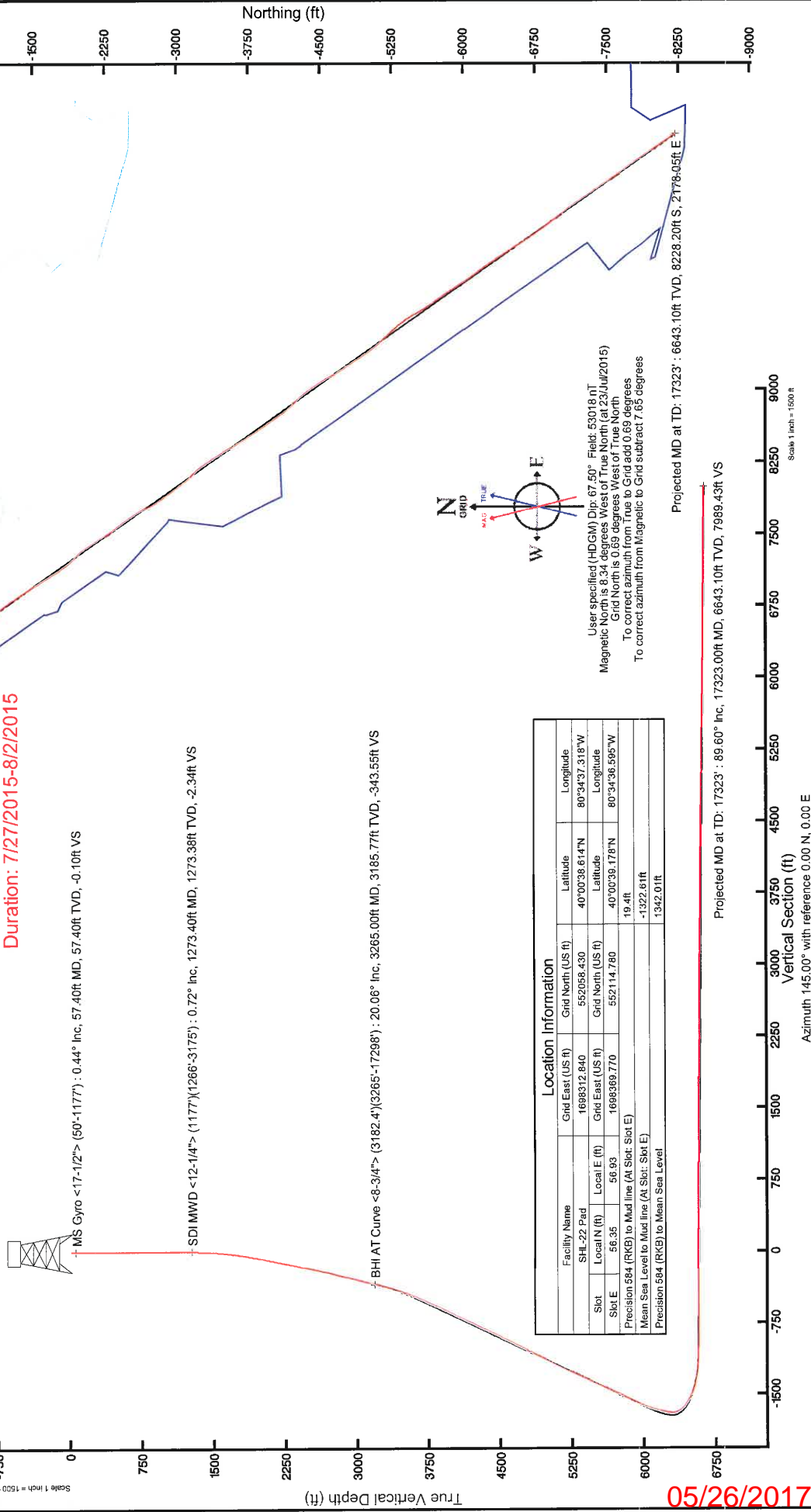
05/26/2017

Location: Marshall County, WV
 Field: Marshall
 Facility: SHL-22_Pad

Slot: Slot E
 Well: SHL-22E-HS
 Wellbore: SHL-22E-HS PWB

Photoreference wellpath is SHL-22E-HS PWB Rev#3.0	Grid System: NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet
True vertical depths are referenced to Precision 584 (RKB)	North Reference: Grid north
Measured depths are referenced to Precision 584 (RKB)	Scale: True distance
Precision 584 (RKB) to Mean Sea Level: 1342.01 feet	Depths are in feet
Mean Sea Level to Mud line (At Slot Slot E): -1322.61 feet	Created by: wellstar on 05/09/2015
Coordinates are in feet referenced to SUT	

API: 47-051-01811-0000
 BHI Job #: 7372167
 Rig: Precision 584
 Duration: 7/27/2015-8/2/2015



Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
SHL-22 Pad	1698312.840	5520558.430	80°34'37.318"W
Slot	Local N (ft)	Grid East (US ft)	Longitude
Slot E	56.93	1698369.770	80°34'36.595"W
Precision 584 (RKB) to Mud line (At Slot Slot E)		552114.780	
Mean Sea Level to Mud line (At Slot Slot E)		19.4ft	
Precision 584 (RKB) to Mean Sea Level		-1322.61ft	
		1342.01ft	

1109/26/17