

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot A
Area	Marshall County, WV	Well	SHL-22A-HS
Field	Marshall	Wellbore	SHL-22A-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	30/Jun/2015 at 10:54
Convergence at slot	0.69° West	Database/Source file	WellArchitectEasternDB/SHL-22A-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	0.07	-0.07	1698312.77	552058.50	40°00'38.615"N	80°34'37.319"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	1342.04ft
Horizontal Reference Pt	Slot	Precision 584 (RKB) to Mean Sea Level	1342.04ft
Vertical Reference Pt	Precision 584 (RKB)	Precision 584 (RKB) to Mud Line at Slot (Slot A)	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°



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WELLPATH DATA (153 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	80.320	0.00	0.00	0.00	0.00	1698312.77	552058.50	40°00'38.615"N	80°34'37.319"W	0.00	0.000	0.00	0.00	0.00
19.40	0.000	80.320	19.40	0.00	0.00	0.00	1698312.77	552058.50	40°00'38.615"N	80°34'37.319"W	0.00	0.000	0.00	0.00	0.00
107.40	0.110	80.320	107.40	0.04	0.01	0.08	1698312.85	552058.51	40°00'38.615"N	80°34'37.318"W	0.08	80.320	0.12	0.13	0.00
207.40	0.500	45.840	207.40	0.01	0.33	0.49	1698313.26	552058.83	40°00'38.618"N	80°34'37.313"W	0.59	55.745	0.41	0.39	-34.48
307.40	0.380	25.480	307.40	-0.23	0.94	0.95	1698313.72	552059.44	40°00'38.624"N	80°34'37.307"W	1.33	45.272	0.20	-0.12	-20.36
407.40	0.550	336.970	407.39	-0.86	1.68	0.90	1698313.67	552060.18	40°00'38.632"N	80°34'37.308"W	1.91	28.236	0.41	0.17	-48.51
507.40	0.500	340.250	507.39	-1.75	2.53	0.57	1698313.34	552061.03	40°00'38.640"N	80°34'37.312"W	2.59	12.611	0.06	-0.05	3.28
607.40	0.610	355.840	607.38	-2.63	3.47	0.38	1698313.15	552061.97	40°00'38.649"N	80°34'37.315"W	3.49	6.248	0.19	0.11	15.59
707.40	0.210	37.620	707.38	-3.14	4.15	0.45	1698313.22	552062.65	40°00'38.656"N	80°34'37.314"W	4.17	6.238	0.47	-0.40	41.78
807.40	0.360	45.210	807.38	-3.25	4.52	0.79	1698313.56	552063.02	40°00'38.660"N	80°34'37.310"W	4.58	9.903	0.15	0.15	7.59
907.40	0.140	350.470	907.38	-3.41	4.86	0.99	1698313.76	552063.36	40°00'38.663"N	80°34'37.307"W	4.96	11.532	0.30	-0.22	-54.74
1007.40	0.300	53.280	1007.38	-3.53	5.13	1.18	1698313.95	552063.63	40°00'38.666"N	80°34'37.305"W	5.27	12.951	0.27	0.16	62.81
1107.40	0.390	48.820	1107.38	-3.57	5.51	1.65	1698314.42	552064.01	40°00'38.670"N	80°34'37.299"W	5.76	16.625	0.09	0.09	-4.46
1207.40	0.420	340.220	1207.37	-3.96	6.08	1.78	1698314.55	552064.58	40°00'38.675"N	80°34'37.297"W	6.34	16.298	0.46	0.03	-68.60
1307.40	0.750	99.210	1307.37	-3.86	6.32	2.30	1698315.07	552064.82	40°00'38.678"N	80°34'37.291"W	6.73	19.993	1.02	0.33	118.99
1407.40	1.080	100.840	1407.36	-2.73	6.04	3.87	1698316.64	552064.54	40°00'38.675"N	80°34'37.270"W	7.18	32.658	0.33	0.33	1.63
1507.40	1.010	101.950	1507.34	-1.41	5.68	5.66	1698318.43	552064.18	40°00'38.672"N	80°34'37.247"W	8.02	44.890	0.07	-0.07	1.11
1607.40	1.060	84.950	1607.33	-0.30	5.58	7.44	1698320.21	552064.08	40°00'38.671"N	80°34'37.224"W	9.30	53.140	0.31	0.05	-17.00
1707.40	1.110	100.540	1707.31	0.85	5.49	9.32	1698322.09	552063.99	40°00'38.670"N	80°34'37.200"W	10.81	59.515	0.30	0.05	15.59
1807.40	1.250	98.210	1807.29	2.29	5.15	11.35	1698324.12	552063.65	40°00'38.667"N	80°34'37.174"W	12.46	65.583	0.15	0.14	-2.33
1907.40	1.140	100.410	1907.27	3.74	4.82	13.41	1698326.18	552063.32	40°00'38.664"N	80°34'37.148"W	14.25	70.238	0.12	-0.11	2.20
2007.40	1.210	96.420	2007.24	5.15	4.52	15.43	1698328.20	552063.02	40°00'38.661"N	80°34'37.122"W	16.08	73.681	0.11	0.07	-3.99
2107.40	1.150	98.210	2107.22	6.54	4.26	17.48	1698330.25	552062.76	40°00'38.659"N	80°34'37.095"W	17.99	76.309	0.07	-0.06	1.79
2207.40	0.760	98.540	2207.21	7.68	4.02	19.13	1698331.90	552062.52	40°00'38.657"N	80°34'37.074"W	19.54	78.142	0.39	-0.39	0.33
2307.40	0.850	101.400	2307.20	8.67	3.77	20.51	1698333.28	552062.27	40°00'38.655"N	80°34'37.056"W	20.85	79.582	0.10	0.09	2.86
2407.40	0.540	99.140	2407.19	9.54	3.55	21.70	1698334.47	552062.05	40°00'38.653"N	80°34'37.041"W	21.99	80.712	0.31	-0.31	-2.26
2507.40	0.740	29.360	2507.19	9.59	4.04	22.48	1698335.25	552062.54	40°00'38.658"N	80°34'37.031"W	22.84	79.820	0.75	0.20	-69.78
2607.40	0.470	350.870	2607.18	8.94	5.01	22.74	1698335.50	552063.50	40°00'38.667"N	80°34'37.028"W	23.28	77.585	0.47	-0.27	-38.49
2707.40	0.510	302.060	2707.18	8.16	5.65	22.29	1698335.06	552064.15	40°00'38.673"N	80°34'37.034"W	23.00	75.787	0.41	0.04	-48.81
2807.40	0.680	295.210	2807.17	7.24	6.14	21.38	1698334.15	552064.63	40°00'38.678"N	80°34'37.045"W	22.24	73.988	0.18	0.17	-6.85

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

WELLPATH DATA (153 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]
2907.40	0.870	261.070	2907.16	6.39	6.27	20.09	1698332.86	552064.77	40°00'38.679"N	80°34'37.062"W	21.05	72.668	0.49	0.19	-34.14
3007.40	0.910	260.160	3007.15	5.72	6.02	18.56	1698331.33	552064.52	40°00'38.677"N	80°34'37.082"W	19.51	72.039	0.04	0.04	-0.91
3107.40	1.020	260.820	3107.14	4.99	5.74	16.90	1698329.67	552064.24	40°00'38.674"N	80°34'37.103"W	17.85	71.242	0.11	0.11	0.66
3207.40	1.080	264.820	3207.12	4.14	5.51	15.08	1698327.85	552064.01	40°00'38.671"N	80°34'37.126"W	16.06	69.924	0.09	0.06	4.00
3307.40	1.030	268.310	3307.10	3.17	5.40	13.24	1698326.01	552063.90	40°00'38.670"N	80°34'37.150"W	14.30	67.818	0.08	-0.05	3.49
3407.40	0.790	267.290	3407.09	2.31	5.34	11.66	1698324.43	552063.84	40°00'38.669"N	80°34'37.170"W	12.82	65.384	0.24	-0.24	-1.02
3507.40	0.830	244.900	3507.08	1.82	5.00	10.31	1698323.08	552063.50	40°00'38.666"N	80°34'37.187"W	11.46	64.129	0.32	0.04	-22.39
3607.40	0.910	253.720	3607.07	1.44	4.47	8.89	1698321.66	552062.97	40°00'38.660"N	80°34'37.206"W	9.96	63.311	0.16	0.08	8.82
3707.40	0.610	261.370	3707.06	0.95	4.17	7.61	1698320.38	552062.67	40°00'38.657"N	80°34'37.222"W	8.67	61.273	0.32	-0.30	7.65
3807.40	0.750	245.760	3807.05	0.59	3.82	6.48	1698319.25	552062.32	40°00'38.654"N	80°34'37.236"W	7.52	59.490	0.23	0.14	-15.61
3907.40	0.890	249.240	3907.04	0.28	3.28	5.16	1698317.93	552061.78	40°00'38.648"N	80°34'37.253"W	6.11	57.587	0.15	0.14	3.48
4007.40	0.590	230.470	4007.04	0.13	2.67	4.04	1698316.81	552061.17	40°00'38.642"N	80°34'37.268"W	4.84	56.485	0.38	-0.30	-18.77
4107.40	0.320	186.190	4107.03	0.38	2.07	3.61	1698316.38	552060.57	40°00'38.636"N	80°34'37.273"W	4.16	60.190	0.42	-0.27	-44.28
4207.40	0.400	199.620	4207.03	0.79	1.46	3.46	1698316.23	552059.96	40°00'38.630"N	80°34'37.275"W	3.76	67.113	0.12	0.08	13.43
4307.40	0.300	166.460	4307.03	1.23	0.88	3.41	1698316.18	552059.38	40°00'38.624"N	80°34'37.276"W	3.52	75.542	0.22	-0.10	-33.16
4407.40	0.290	175.720	4407.03	1.70	0.37	3.49	1698316.26	552058.87	40°00'38.619"N	80°34'37.274"W	3.51	83.920	0.05	-0.01	9.26
4507.40	0.230	82.450	4507.03	2.01	0.15	3.70	1698316.47	552058.65	40°00'38.617"N	80°34'37.272"W	3.71	87.753	0.38	-0.06	-93.27
4607.40	0.230	57.790	4607.03	2.11	0.28	4.07	1698316.84	552058.78	40°00'38.618"N	80°34'37.267"W	4.08	86.085	0.10	0.00	-24.66
4707.40	0.330	81.660	4707.02	2.25	0.43	4.53	1698317.30	552058.93	40°00'38.620"N	80°34'37.261"W	4.55	84.607	0.15	0.10	23.87
4807.40	0.460	119.190	4807.02	2.74	0.27	5.16	1698317.93	552058.77	40°00'38.618"N	80°34'37.253"W	5.17	86.968	0.28	0.13	37.53
4907.40	0.700	117.550	4907.02	3.64	-0.20	6.06	1698318.83	552058.30	40°00'38.614"N	80°34'37.241"W	6.06	91.937	0.24	0.24	-1.64
5007.40	0.880	127.150	5007.01	4.91	-0.95	7.21	1698319.98	552057.55	40°00'38.606"N	80°34'37.226"W	7.27	97.516	0.22	0.18	9.60
5107.40	0.990	149.140	5106.99	6.51	-2.16	8.26	1698321.03	552056.34	40°00'38.595"N	80°34'37.213"W	8.54	104.625	0.37	0.11	21.99
5207.40	1.000	152.780	5206.98	8.23	-3.67	9.11	1698321.88	552054.83	40°00'38.580"N	80°34'37.202"W	9.82	111.972	0.06	0.01	3.64
5307.40	0.950	143.620	5306.97	9.93	-5.12	10.00	1698322.77	552053.38	40°00'38.566"N	80°34'37.190"W	11.23	117.107	0.16	-0.05	-9.16
5407.40	0.880	158.520	5406.95	11.50	-6.50	10.77	1698323.54	552052.00	40°00'38.552"N	80°34'37.180"W	12.58	121.110	0.25	-0.07	14.90
5457.40	0.740	168.270	5456.95	12.17	-7.17	10.98	1698323.75	552051.33	40°00'38.545"N	80°34'37.177"W	13.11	123.164	0.39	-0.28	19.50
5498.00	0.650	173.050	5497.54	12.62	-7.66	11.06	1698323.83	552050.84	40°00'38.541"N	80°34'37.176"W	13.45	124.705	0.26	-0.22	11.77
5588.00	1.830	224.750	5587.52	13.32	-9.19	10.11	1698322.88	552049.31	40°00'38.525"N	80°34'37.188"W	13.66	132.264	1.68	1.31	57.44
5678.00	7.510	227.380	5677.19	14.36	-14.19	4.76	1698317.53	552044.31	40°00'38.475"N	80°34'37.256"W	14.97	161.447	6.31	6.31	2.92

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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]
5767.00	10.460	234.620	5765.09	15.18	-22.81	-6.11	1698306.66	552035.69	40°00'38.389"N	80°34'37.394"W	23.61	194.986	3.54	3.31	8.13
5857.00	15.810	230.730	5852.70	16.15	-35.31	-22.27	1698290.50	552023.19	40°00'38.263"N	80°34'37.600"W	41.75	212.240	6.02	5.94	-4.32
5946.00	19.900	226.900	5937.40	19.19	-53.34	-42.73	1698270.05	552005.16	40°00'38.083"N	80°34'37.860"W	68.34	218.694	4.78	4.60	-4.30
6036.00	26.440	229.410	6020.10	23.30	-76.87	-69.15	1698243.62	551981.63	40°00'37.847"N	80°34'38.196"W	103.40	221.975	7.35	7.27	2.79
6125.00	32.260	225.840	6097.65	29.02	-106.34	-101.27	1698211.50	551952.17	40°00'37.552"N	80°34'38.604"W	146.85	223.602	6.83	6.54	-4.01
6215.00	32.930	210.140	6173.61	43.15	-144.30	-130.84	1698181.94	551914.21	40°00'37.174"N	80°34'38.978"W	194.78	222.200	9.41	0.74	-17.44
6305.00	36.460	207.190	6247.60	65.92	-189.26	-155.35	1698157.42	551869.25	40°00'36.726"N	80°34'39.286"W	244.85	219.381	4.34	3.92	-3.28
6394.00	39.460	196.060	6317.85	96.08	-240.03	-175.29	1698137.49	551818.48	40°00'36.222"N	80°34'39.535"W	297.22	216.140	8.39	3.37	-12.51
6484.00	44.370	183.480	6384.92	138.79	-299.06	-185.13	1698127.64	551759.45	40°00'35.638"N	80°34'39.652"W	351.73	211.759	10.79	5.46	-13.98
6573.00	50.050	173.430	6445.44	193.27	-364.16	-183.11	1698129.66	551694.36	40°00'34.995"N	80°34'39.616"W	407.60	206.695	10.45	6.38	-11.29
6663.00	56.320	166.350	6499.39	258.60	-434.94	-170.31	1698142.47	551623.57	40°00'34.297"N	80°34'39.441"W	467.10	201.383	9.38	6.97	-7.87
6752.00	63.770	162.380	6543.81	331.31	-509.10	-149.45	1698163.33	551549.42	40°00'33.566"N	80°34'39.161"W	530.58	196.360	9.22	8.37	-4.46
6842.00	71.690	158.520	6577.90	411.52	-587.48	-121.53	1698191.24	551471.05	40°00'32.795"N	80°34'38.790"W	599.92	191.688	9.65	8.80	-4.29
6932.00	78.660	155.150	6600.92	496.62	-667.39	-87.30	1698225.48	551391.14	40°00'32.010"N	80°34'38.338"W	673.07	187.452	8.55	7.74	-3.74
7021.00	81.910	150.990	6615.94	583.45	-745.56	-47.57	1698265.21	551312.97	40°00'31.242"N	80°34'37.816"W	747.08	183.650	5.88	3.65	-4.67
7111.00	88.060	146.630	6623.81	672.84	-822.20	-1.16	1698311.61	551236.34	40°00'30.490"N	80°34'37.207"W	822.20	180.081	8.36	6.83	-4.84
7200.00	89.380	145.230	6625.80	761.80	-895.90	48.69	1698361.46	551162.64	40°00'29.768"N	80°34'36.556"W	897.22	176.889	2.16	1.48	-1.57
7290.00	89.450	143.960	6626.72	851.79	-969.25	100.83	1698413.59	551089.29	40°00'29.049"N	80°34'35.874"W	974.48	174.061	1.41	0.08	-1.41
7380.00	89.350	142.920	6627.66	941.75	-1041.53	154.43	1698467.20	551017.01	40°00'28.341"N	80°34'35.174"W	1052.92	171.566	1.16	-0.11	-1.16
7469.00	89.380	141.940	6628.65	1030.66	-1112.07	208.69	1698521.46	550946.47	40°00'27.650"N	80°34'34.466"W	1131.48	169.371	1.10	0.03	-1.10
7559.00	89.380	141.520	6629.62	1120.51	-1182.73	264.43	1698577.19	550875.82	40°00'26.959"N	80°34'33.739"W	1211.93	167.397	0.47	0.00	-0.47
7648.00	89.450	141.610	6630.53	1209.34	-1252.44	319.76	1698632.51	550806.11	40°00'26.277"N	80°34'33.017"W	1292.61	165.678	0.13	0.08	0.10
7738.00	89.350	141.500	6631.47	1299.17	-1322.92	375.71	1698688.47	550735.63	40°00'25.587"N	80°34'32.288"W	1375.24	164.145	0.17	-0.11	-0.12
7828.00	89.380	141.070	6632.47	1388.98	-1393.14	432.00	1698744.75	550665.41	40°00'24.899"N	80°34'31.554"W	1458.58	162.772	0.48	0.03	-0.48
7917.00	89.540	140.830	6633.31	1477.75	-1462.26	488.07	1698800.82	550596.30	40°00'24.222"N	80°34'30.822"W	1541.56	161.542	0.32	0.18	-0.27
8007.00	89.380	142.780	6634.16	1567.60	-1532.98	543.71	1698856.46	550525.58	40°00'23.531"N	80°34'30.097"W	1626.55	160.472	2.17	-0.18	2.17
8096.00	89.350	146.540	6635.14	1656.58	-1605.56	595.18	1698907.93	550453.00	40°00'22.820"N	80°34'29.424"W	1712.33	159.660	4.22	-0.03	4.22
8186.00	89.660	153.730	6635.92	1746.16	-1683.56	639.96	1698952.71	550375.01	40°00'22.054"N	80°34'28.837"W	1801.09	159.187	8.00	0.34	7.99
8276.00	89.480	156.000	6636.60	1834.82	-1765.03	678.19	1698990.93	550293.54	40°00'21.254"N	80°34'28.333"W	1890.84	158.981	2.53	-0.20	2.52
8365.00	89.570	153.500	6637.33	1922.52	-1845.52	716.15	1699028.89	550213.06	40°00'20.463"N	80°34'27.833"W	1979.59	158.791	2.81	0.10	-2.81

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Actual Wellpath Report

SHL-22A-HS AWP Proj: 13912'
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REFERENCE WELLPATH IDENTIFICATION

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

WELLPATH DATA (153 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]
8455.00	89.820	148.540	6637.81	2012.00	-1924.22	759.74	1699072.48	550134.35	40°00'19.690"N	80°34'27.261"W	2068.77	158.454	5.52	0.28	-5.51
8545.00	89.910	147.190	6638.03	2101.88	-2000.43	807.61	1699120.35	550058.15	40°00'18.943"N	80°34'26.634"W	2157.30	158.015	1.50	0.10	-1.50
8634.00	90.120	142.830	6638.00	2190.86	-2073.33	858.63	1699171.37	549985.25	40°00'18.228"N	80°34'25.967"W	2244.09	157.504	4.90	0.24	-4.90
8724.00	90.180	139.770	6637.77	2280.66	-2143.56	914.90	1699227.63	549915.03	40°00'17.541"N	80°34'25.233"W	2330.64	156.887	3.40	0.07	-3.40
8814.00	89.850	141.100	6637.74	2370.38	-2212.94	972.22	1699284.95	549845.65	40°00'16.862"N	80°34'24.486"W	2417.09	156.282	1.52	-0.37	1.48
8903.00	89.880	143.720	6637.95	2459.28	-2283.45	1026.51	1699339.24	549775.14	40°00'16.172"N	80°34'23.778"W	2503.57	155.794	2.94	0.03	2.94
8993.00	89.380	143.730	6638.53	2549.25	-2356.01	1079.76	1699392.48	549702.58	40°00'15.461"N	80°34'23.082"W	2591.65	155.378	0.56	-0.56	0.01
9083.00	89.380	143.390	6639.51	2639.22	-2428.41	1133.21	1699445.94	549630.19	40°00'14.752"N	80°34'22.384"W	2679.80	154.984	0.38	0.00	-0.38
9172.00	89.350	144.700	6640.49	2728.20	-2500.44	1185.46	1699498.19	549558.15	40°00'14.046"N	80°34'21.702"W	2767.23	154.634	1.47	-0.03	1.47
9262.00	89.420	144.260	6641.46	2818.19	-2573.69	1237.75	1699550.47	549484.91	40°00'13.329"N	80°34'21.019"W	2855.86	154.316	0.50	0.08	-0.49
9351.00	89.420	144.700	6642.36	2907.18	-2646.13	1289.45	1699602.17	549412.48	40°00'12.619"N	80°34'20.343"W	2943.58	154.020	0.49	0.00	0.49
9441.00	89.320	144.560	6643.35	2997.17	-2719.51	1341.55	1699654.27	549339.09	40°00'11.900"N	80°34'19.663"W	3032.41	153.743	0.19	-0.11	-0.16
9531.00	89.480	145.050	6644.29	3087.17	-2793.05	1393.42	1699706.13	549265.55	40°00'11.179"N	80°34'18.985"W	3121.34	153.486	0.57	0.18	0.54
9620.00	89.420	145.050	6645.15	3176.16	-2866.00	1444.40	1699757.11	549192.61	40°00'10.465"N	80°34'18.319"W	3209.40	153.253	0.07	-0.07	0.00
9710.00	89.600	145.340	6645.92	3266.16	-2939.90	1495.77	1699808.48	549118.72	40°00'09.740"N	80°34'17.647"W	3298.53	153.034	0.38	0.20	0.32
9799.00	89.780	144.830	6646.40	3355.16	-3012.87	1546.71	1699859.42	549045.74	40°00'09.025"N	80°34'16.982"W	3386.70	152.826	0.61	0.20	-0.57
9889.00	90.120	146.860	6646.48	3445.14	-3087.35	1597.23	1699909.94	548971.27	40°00'08.295"N	80°34'16.321"W	3476.04	152.645	2.29	0.38	2.26
9978.00	89.940	146.460	6646.43	3534.11	-3161.70	1646.15	1699958.86	548896.92	40°00'07.566"N	80°34'15.681"W	3564.57	152.496	0.49	-0.20	-0.45
10068.00	90.060	146.050	6646.43	3624.08	-3236.54	1696.14	1700008.85	548822.09	40°00'06.833"N	80°34'15.027"W	3654.05	152.343	0.47	0.13	-0.46
10157.00	90.030	145.380	6646.36	3713.08	-3310.07	1746.28	1700058.98	548748.56	40°00'06.112"N	80°34'14.372"W	3742.47	152.185	0.75	-0.03	-0.75
10247.00	89.690	144.300	6646.58	3803.07	-3383.65	1798.10	1700110.80	548674.98	40°00'05.391"N	80°34'13.695"W	3831.74	152.013	1.26	-0.38	-1.20
10337.00	89.660	144.840	6647.09	3893.07	-3456.98	1850.28	1700162.98	548601.65	40°00'04.672"N	80°34'13.013"W	3921.00	151.843	0.60	-0.03	0.60
10426.00	89.660	144.480	6647.62	3982.07	-3529.58	1901.76	1700214.45	548529.06	40°00'03.961"N	80°34'12.341"W	4009.32	151.684	0.40	0.00	-0.40
10516.00	89.600	143.840	6648.20	4072.05	-3602.54	1954.45	1700267.15	548456.10	40°00'03.246"N	80°34'11.652"W	4098.56	151.519	0.71	-0.07	-0.71
10605.00	89.660	143.190	6648.78	4161.02	-3674.09	2007.37	1700320.06	548384.55	40°00'02.545"N	80°34'10.961"W	4186.71	151.350	0.73	0.07	-0.73
10695.00	89.630	143.310	6649.33	4250.98	-3746.21	2061.22	1700373.91	548312.44	40°00'01.839"N	80°34'10.259"W	4275.82	151.180	0.14	-0.03	0.13
10784.00	89.690	142.680	6649.86	4339.92	-3817.28	2114.79	1700427.47	548241.37	40°00'01.143"N	80°34'09.559"W	4363.93	151.013	0.71	0.07	-0.71
10874.00	89.600	142.760	6650.42	4429.85	-3888.89	2169.30	1700481.98	548169.76	40°00'00.442"N	80°34'08.848"W	4453.01	150.846	0.13	-0.10	0.09
10964.00	89.660	142.990	6651.00	4519.79	-3960.65	2223.62	1700536.30	548098.01	39°59'59.733"N	80°34'08.139"W	4542.16	150.689	0.26	0.07	0.26
11053.00	89.660	145.300	6651.53	4608.77	-4032.77	2275.74	1700588.43	548025.88	39°59'59.033"N	80°34'07.458"W	4630.58	150.563	2.60	0.00	2.60

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Actual Wellpath Report

SHL-22A-HS AWP Proj: 13912'

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REFERENCE WELLPATH IDENTIFICATION

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

WELLPATH DATA (153 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]
11143.00	89.570	146.870	6652.13	4698.75	-4107.46	2325.96	1700638.64	547951.20	39°59'58.300"N	80°34'06.802"W	4720.31	150.478	1.75	-0.10	1.74
11232.00	89.690	148.020	6652.71	4787.66	-4182.47	2373.85	1700686.53	547876.19	39°59'57.565"N	80°34'06.175"W	4809.18	150.422	1.30	0.13	1.29
11322.00	89.660	147.170	6653.22	4877.57	-4258.45	2422.08	1700734.75	547800.21	39°59'56.820"N	80°34'05.544"W	4899.07	150.370	0.95	-0.03	-0.94
11411.00	89.660	144.740	6653.75	4966.55	-4332.19	2471.90	1700784.57	547726.48	39°59'56.097"N	80°34'04.892"W	4987.80	150.291	2.73	0.00	-2.73
11501.00	89.660	144.450	6654.28	5056.54	-4405.55	2524.04	1700836.71	547653.12	39°59'55.378"N	80°34'04.211"W	5077.36	150.191	0.32	0.00	-0.32
11591.00	89.720	145.530	6654.77	5146.54	-4479.26	2575.67	1700888.34	547579.41	39°59'54.656"N	80°34'03.537"W	5167.00	150.100	1.20	0.07	1.20
11680.00	89.690	147.530	6655.23	5235.50	-4553.50	2624.75	1700937.42	547505.18	39°59'53.928"N	80°34'02.895"W	5255.82	150.040	2.25	-0.03	2.25
11770.00	90.060	146.900	6655.42	5325.44	-4629.16	2673.49	1700986.15	547429.52	39°59'53.186"N	80°34'02.257"W	5345.71	149.992	0.81	0.41	-0.70
11859.00	89.910	146.510	6655.45	5414.40	-4703.55	2722.34	1701035.01	547355.13	39°59'52.457"N	80°34'01.618"W	5434.57	149.938	0.47	-0.17	-0.44
11949.00	89.940	143.660	6655.56	5504.39	-4777.34	2773.85	1701086.51	547281.34	39°59'51.733"N	80°34'00.945"W	5524.24	149.859	3.17	0.03	-3.17
12038.00	89.850	141.520	6655.73	5593.30	-4848.03	2827.92	1701140.58	547210.65	39°59'51.041"N	80°34'00.240"W	5612.53	149.744	2.41	-0.10	-2.40
12128.00	89.880	141.150	6655.94	5683.12	-4918.31	2884.14	1701196.80	547140.38	39°59'50.353"N	80°33'59.506"W	5701.58	149.612	0.41	0.03	-0.41
12218.00	89.510	144.100	6656.42	5773.03	-4989.82	2938.77	1701251.43	547068.88	39°59'49.653"N	80°33'58.794"W	5790.91	149.504	3.30	-0.41	3.28
12307.00	89.750	145.690	6656.99	5862.02	-5062.63	2989.95	1701302.60	546996.07	39°59'48.940"N	80°33'58.125"W	5879.62	149.434	1.81	0.27	1.79
12397.00	89.690	144.840	6657.43	5952.02	-5136.59	3041.23	1701353.88	546922.11	39°59'48.215"N	80°33'57.455"W	5969.39	149.371	0.95	-0.07	-0.94
12486.00	89.690	142.360	6657.91	6040.99	-5208.21	3094.04	1701406.69	546850.49	39°59'47.513"N	80°33'56.766"W	6057.93	149.287	2.79	0.00	-2.79
12576.00	89.600	143.090	6658.47	6130.91	-5279.83	3148.54	1701461.19	546778.88	39°59'46.812"N	80°33'56.054"W	6147.35	149.191	0.82	-0.10	0.81
12666.00	89.690	143.170	6659.03	6220.86	-5351.83	3202.54	1701515.19	546706.88	39°59'46.107"N	80°33'55.350"W	6236.85	149.104	0.13	0.10	0.09
12755.00	89.660	143.920	6659.53	6309.83	-5423.41	3255.42	1701568.07	546635.30	39°59'45.406"N	80°33'54.659"W	6325.44	149.026	0.84	-0.03	0.84
12845.00	89.480	145.610	6660.21	6399.83	-5496.92	3307.35	1701619.99	546561.80	39°59'44.685"N	80°33'53.981"W	6415.19	148.966	1.89	-0.20	1.88
12934.00	89.570	147.150	6660.95	6488.79	-5571.02	3356.62	1701669.26	546487.69	39°59'43.959"N	80°33'53.337"W	6504.09	148.930	1.73	0.10	1.73
13024.00	89.720	147.530	6661.50	6578.72	-5646.79	3405.19	1701717.83	546411.93	39°59'43.216"N	80°33'52.701"W	6594.06	148.909	0.45	0.17	0.42
13113.00	89.750	147.800	6661.92	6667.62	-5721.99	3452.79	1701765.43	546336.73	39°59'42.478"N	80°33'52.078"W	6683.03	148.892	0.31	0.03	0.30
13203.00	89.820	146.320	6662.25	6757.56	-5797.52	3501.73	1701814.36	546261.20	39°59'41.737"N	80°33'51.438"W	6772.99	148.868	1.65	0.08	-1.64
13293.00	89.450	143.710	6662.83	6847.55	-5871.25	3553.32	1701865.96	546187.48	39°59'41.015"N	80°33'50.764"W	6862.78	148.817	2.93	-0.41	-2.90
13382.00	89.380	142.440	6663.74	6936.49	-5942.39	3606.79	1701919.42	546116.34	39°59'40.318"N	80°33'50.066"W	6951.33	148.744	1.43	-0.08	-1.43
13472.00	89.320	143.720	6664.76	7026.43	-6014.34	3660.85	1701973.47	546044.39	39°59'39.614"N	80°33'49.361"W	7040.89	148.672	1.42	-0.07	1.42
13561.00	89.570	148.510	6665.62	7115.39	-6088.20	3710.45	1702023.08	545970.54	39°59'38.889"N	80°33'48.712"W	7129.77	148.640	5.39	0.28	5.38
13651.00	89.480	150.270	6666.37	7205.12	-6165.65	3756.27	1702068.90	545893.09	39°59'38.129"N	80°33'48.112"W	7219.75	148.649	1.96	-0.10	1.96
13740.00	89.480	145.610	6667.17	7293.97	-6241.05	3803.50	1702116.12	545817.69	39°59'37.390"N	80°33'47.493"W	7308.72	148.641	5.24	0.00	-5.24

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REFERENCE WELLPATH IDENTIFICATION

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

WELLPATH DATA (153 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]
13830.00	90.550	138.110	6667.15	7383.77	-6311.79	3859.04	1702171.66	545746.96	39°59'36.697"N	80°33'46.769"W	7398.03	148.558	8.42	1.19	-8.35
13887.00	89.260	137.820	6667.25	7440.34	-6354.12	3897.21	1702209.83	545704.62	39°59'36.283"N	80°33'46.272"W	7454.07	148.478	2.32	-2.26	-0.51
13912.00	89.260	137.820	6667.57	7465.14	-6372.65	3913.99	1702226.61	545686.10	39°59'36.102"N	80°33'46.054"W	7478.64	148.442	0.00	0.00	0.00

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SHL-22A-HS LP Rev-3		6618.00	-802.96	2.09	1698314.86	551255.57	40°00'30.681"N	80°34'37.169"W	point
SHL-22A-HS BHL Rev-3		6677.41	-6379.61	3906.62	1702219.24	545679.14	39°59'36.033"N	80°33'46.148"W	point
SHL-22 Pad LL		7002.04	-0.07	0.07	1698312.84	552058.43	40°00'38.614"N	80°34'37.318"W	polygon

WELLPATH COMPOSITION - Ref Wellbore: SHL-22A-HS AWB

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
19.40	5457.40	Generic gyro - northseeking (Standard)	01_MS Gyro <8-3/4"> (100'-5450')	SHL-22A-HS AWB
5457.40	13887.00	NaviTrak (AT Curve Short Spaced)	02_BHI AT Curve <8-1/2"> (5457.4')(5498'-13887')	SHL-22A-HS AWB
13887.00	13912.00	Blind Drilling (std)	Projection to bit	SHL-22A-HS AWB

REFERENCE WELLPATH IDENTIFICATION

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

COMMENTS

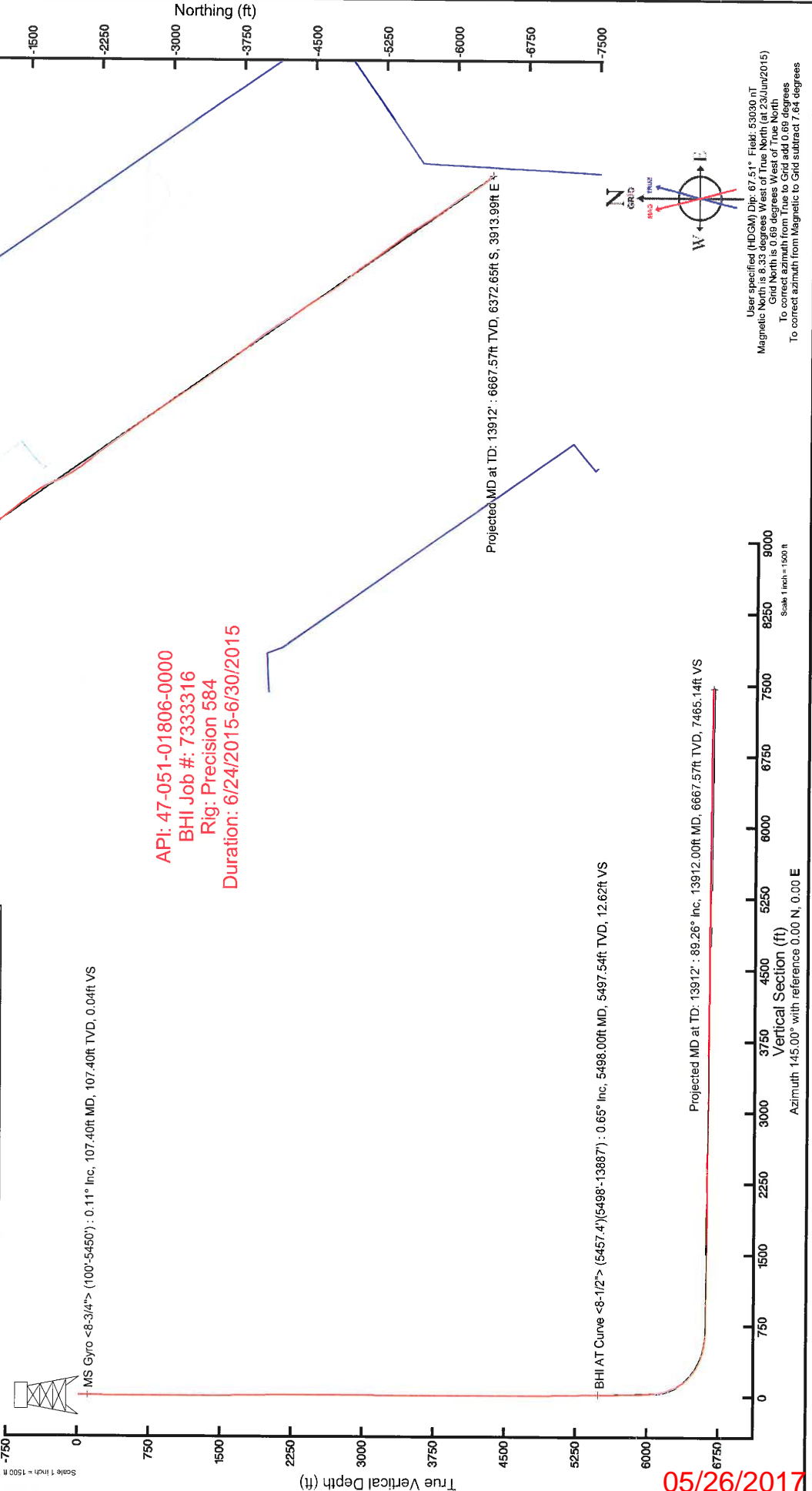
Wellpath general comments
 API: 47-051-01806-0000
 BHI Job #: 7333316
 Rig: Precision 584
 Duration: 6/24/2015-6/30/2015
 MS Gyro <8-3/4"> (100'-5450')
 BHI AT Curve <8-1/2"> (5457.4')(5498'-13887')
 Projected MD at ID: 13912'

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

Slot: Slot A
 Well: SHL-22A-HS
 Wellbore: SHL-22A-HS.PWB

R/W reference wellbore is SHL-22A-HS.PWB Rev:0.0 True vertical depths are referenced to Precision 584 (RKB) Measured depths are referenced to Precision 584 (RKB) Precision 584 (RKB) to Mean Sea Level: 1342.04 feet Mean Sea Level to Mud line (At Slot A): -1322.64 feet Coordinates are in feet referenced to Slot A Created by software on 30-Jun-2015			
Grid System: NAD27 / Lambert West Virginia SP, Northern Zone (ft), US feet North Reference: Grid North Scale: True distance Depths are in feet Coordinates are in feet			
Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
SHL-22 Pad	1698312.840	552058.430	80°34'37.318"W
Slot	Local N (ft)	Local E (ft)	Local W (ft)
Slot A	0.07	-0.07	80°34'37.318"W
Precision 584 (RKB) to Mud line (At Slot: Slot A)	19.4 ft		
Mean Sea Level to Mud line (At Slot: Slot A)	-1322.64 ft		
Precision 584 (RKB) to Mean Sea Level	1342.04 ft		

MS Gyro $\langle -8-3/4 \rangle$: 0.11° Inc, 107.40ft MD, 107.40ft TVD, 0.04ft VS



API: 47-051-01806-0000
 BHI Job #: 7333316
 Rig: Precision 584
 Duration: 6/24/2015-6/30/2015

05/26/2017

User specified (HDCM) Dip: 87.51° East: 53030.1 T
 Magnetic North is 8.33 degrees West of True North (as of 23-Jun-2015)
 Grid North is 0.69 degrees West of True North
 To correct azimuth from True to Grid add 0.69 degrees
 To correct azimuth from Magnetic to Grid subtract 7.64 degrees