

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot E
Area	Marshall County, WV	Well	SHL 25E-HS
Field	Marshall	Wellbore	SHL 25E-HS (AWB)
Facility	SHL-25 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	Frisjesl
Scale	0.999962	Report Generated	5/21/2014 at 10:20:38 AM
Convergence at slot	0.67° West	Database/Source file	WA_EasternUS/SHL_25E-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	13.45	-43.07	1704985.12	548370.82	40°00'02.954"N	80°33'11.018"W
Facility Reference Pt			1705028.19	548357.37	40°00'02.826"N	80°33'10.462"W
Field Reference Pt			609601.22	0.00	38°23'48.753"N	84°21'09.765"W

WELLPATH DATUM

Calculation method	Minimum curvature	Nomac 79 (RT) to Facility Vertical Datum	26.00ft
Horizontal Reference Pt	Slot	Nomac 79 (RT) to Mean Sea Level	1351.00ft
Vertical Reference Pt	Nomac 79 (RT)	Nomac 79 (RT) to Mud Line at Slot (Slot E)	26.00ft
MD Reference Pt	Nomac 79 (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	325.00°

Received
Office of Oil & Gas

DEC 15 2014

51-01685

Actual Wellpath Report

SHL 25E-HS AWP Proj: 14580'

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Area	Marshall County, WV	Well	SHL 25E-HS
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WELLPATH DATA (160 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]
0.00†	0.000	68.490	0.00	0.00	0.00	0.00	1704985.12	548370.82	40°00'02.954"N	80°33'11.018"W	0.00	0.000	0.00
26.00	0.000	68.490	26.00	0.00	0.00	0.00	1704985.12	548370.82	40°00'02.954"N	80°33'11.018"W	0.00	0.000	0.00
88.30	0.140	68.490	88.30	-0.02	0.03	0.07	1704985.19	548370.85	40°00'02.955"N	80°33'11.017"W	0.08	68.490	0.22
181.60	0.130	40.820	181.60	-0.02	0.15	0.25	1704985.37	548370.97	40°00'02.956"N	80°33'11.015"W	0.29	58.666	0.07
274.90	0.050	343.170	274.90	0.05	0.27	0.30	1704985.42	548371.09	40°00'02.957"N	80°33'11.014"W	0.41	48.458	0.12
373.30	0.060	340.600	373.30	0.14	0.36	0.27	1704985.39	548371.18	40°00'02.958"N	80°33'11.014"W	0.45	37.376	0.01
468.10	0.070	19.770	468.10	0.22	0.46	0.28	1704985.40	548371.28	40°00'02.959"N	80°33'11.014"W	0.54	31.063	0.05
562.50	0.100	60.210	562.50	0.24	0.56	0.37	1704985.49	548371.38	40°00'02.960"N	80°33'11.013"W	0.67	33.544	0.07
656.70	0.200	100.160	656.70	0.12	0.57	0.60	1704985.72	548371.39	40°00'02.960"N	80°33'11.010"W	0.83	46.680	0.15
751.00	0.220	80.560	751.00	-0.08	0.57	0.94	1704986.06	548371.39	40°00'02.960"N	80°33'11.006"W	1.10	58.924	0.08
846.00	0.690	301.060	846.00	0.37	0.89	0.63	1704985.75	548371.71	40°00'02.963"N	80°33'11.010"W	1.09	35.286	0.91
940.60	0.660	291.830	940.59	1.35	1.39	-0.36	1704984.76	548372.21	40°00'02.968"N	80°33'11.023"W	1.44	345.392	0.12
1035.20	0.520	278.550	1035.18	2.10	1.66	-1.29	1704983.83	548372.48	40°00'02.971"N	80°33'11.035"W	2.10	322.024	0.21
1130.00	0.550	279.110	1129.98	2.71	1.79	-2.17	1704982.95	548372.61	40°00'02.972"N	80°33'11.046"W	2.81	309.582	0.03
1225.10	0.440	280.340	1225.08	3.29	1.93	-2.98	1704982.14	548372.75	40°00'02.973"N	80°33'11.056"W	3.55	302.947	0.12
1319.80	0.370	232.980	1319.78	3.54	1.81	-3.58	1704981.54	548372.63	40°00'02.972"N	80°33'11.064"W	4.01	296.835	0.35
1414.50	0.420	222.860	1414.47	3.45	1.37	-4.06	1704981.06	548372.19	40°00'02.968"N	80°33'11.070"W	4.28	288.676	0.09
1509.10	0.400	220.240	1509.07	3.29	0.87	-4.51	1704980.61	548371.69	40°00'02.962"N	80°33'11.076"W	4.59	280.871	0.03
1604.00	0.570	211.300	1603.97	3.02	0.21	-4.97	1704980.15	548371.03	40°00'02.956"N	80°33'11.082"W	4.97	272.416	0.20
1698.80	0.470	200.530	1698.76	2.61	-0.56	-5.35	1704979.77	548370.26	40°00'02.948"N	80°33'11.086"W	5.38	264.049	0.15
1793.20	0.470	185.980	1793.16	2.10	-1.31	-5.52	1704979.60	548369.51	40°00'02.941"N	80°33'11.089"W	5.68	256.708	0.13
1887.90	0.390	180.700	1887.86	1.54	-2.01	-5.57	1704979.55	548368.81	40°00'02.934"N	80°33'11.089"W	5.92	250.121	0.09
1982.40	0.340	167.980	1982.36	1.03	-2.61	-5.51	1704979.61	548368.21	40°00'02.928"N	80°33'11.088"W	6.10	244.677	0.10
2076.80	0.280	124.090	2076.75	0.55	-3.01	-5.27	1704979.85	548367.81	40°00'02.924"N	80°33'11.085"W	6.07	240.222	0.25
2171.50	0.160	159.290	2171.45	0.21	-3.27	-5.03	1704980.09	548367.55	40°00'02.922"N	80°33'11.082"W	5.99	236.987	0.19
2266.40	0.160	194.800	2266.35	-0.01	-3.52	-5.01	1704980.11	548367.30	40°00'02.919"N	80°33'11.082"W	6.13	234.943	0.10
2361.50	0.200	224.570	2361.45	-0.12	-3.76	-5.16	1704979.96	548367.06	40°00'02.917"N	80°33'11.084"W	6.39	233.908	0.11
2456.30	0.290	231.630	2456.25	-0.17	-4.03	-5.47	1704979.65	548366.79	40°00'02.914"N	80°33'11.087"W	6.79	233.601	0.10
2551.10	0.330	232.830	2551.05	-0.19	-4.35	-5.87	1704979.25	548366.47	40°00'02.911"N	80°33'11.093"W	7.31	233.508	0.04
2645.50	0.390	237.320	2645.45	-0.19	-4.68	-6.36	1704978.76	548366.14	40°00'02.907"N	80°33'11.099"W	7.90	233.639	0.07
2740.30	0.400	250.500	2740.25	-0.09	-4.97	-6.94	1704978.18	548365.85	40°00'02.905"N	80°33'11.106"W	8.54	234.422	0.10
2835.10	0.410	260.730	2835.04	0.15	-5.13	-7.59	1704977.53	548365.69	40°00'02.903"N	80°33'11.115"W	9.16	235.935	0.08
2929.90	0.380	266.150	2929.84	0.46	-5.21	-8.24	1704976.88	548365.61	40°00'02.902"N	80°33'11.123"W	9.75	237.701	0.05
3024.70	0.370	257.060	3024.64	0.74	-5.30	-8.85	1704976.27	548365.52	40°00'02.901"N	80°33'11.131"W	10.32	239.097	0.06
3119.60	0.330	253.500	3119.54	0.94	-5.44	-9.41	1704975.71	548365.38	40°00'02.900"N	80°33'11.138"W	10.87	239.953	0.05
3214.10	0.380	254.780	3214.04	1.13	-5.60	-9.98	1704975.14	548365.22	40°00'02.898"N	80°33'11.145"W	11.44	240.674	0.05
3309.00	0.500	265.260	3308.93	1.45	-5.72	-10.69	1704974.43	548365.10	40°00'02.897"N	80°33'11.154"W	12.13	241.850	0.15
3403.70	0.750	259.140	3403.63	1.91	-5.87	-11.71	1704973.41	548364.95	40°00'02.895"N	80°33'11.167"W	13.10	243.374	0.27
3498.50	1.000	251.380	3498.42	2.40	-6.25	-13.11	1704972.01	548364.57	40°00'02.891"N	80°33'11.185"W	14.52	244.494	0.29
3592.90	1.070	250.340	3592.80	2.86	-6.81	-14.72	1704970.40	548364.01	40°00'02.885"N	80°33'11.206"W	16.22	245.160	0.08
3687.50	1.080	253.620	3687.38	3.38	-7.36	-16.40	1704968.72	548363.46	40°00'02.880"N	80°33'11.227"W	17.98	245.832	0.07
3782.30	1.010	254.680	3782.17	3.95	-7.83	-18.07	1704967.05	548362.99	40°00'02.875"N	80°33'11.249"W	19.69	246.558	0.08
3877.00	1.160	252.880	3876.85	4.52	-8.34	-19.79	1704965.33	548362.48	40°00'02.870"N	80°33'11.271"W	21.47	247.154	0.16
3971.80	1.200	237.560	3971.63	4.86	-9.15	-21.54	1704963.58	548361.67	40°00'02.861"N	80°33'11.293"W	23.41	246.984	0.33
4066.30	0.930	250.630	4066.12	5.11	-9.94	-23.10	1704962.02	548360.88	40°00'02.854"N	80°33'11.313"W	25.15	246.726	0.38

51-01685

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Facility	SHL-25 Pad		

WELLPATH DATA (160 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 [ft/100ft]
4161.10	0.890	255.200	4160.90	5.57	-10.38	-24.54	1704960.58	548360.44	40°00'02.849"N	80°33'11.331"W	26.64	247.072	0.09
4256.20	0.880	248.060	4255.99	5.99	-10.84	-25.93	1704959.19	548359.98	40°00'02.844"N	80°33'11.349"W	28.11	247.310	0.12
4350.70	0.900	245.900	4350.48	6.30	-11.42	-27.28	1704957.84	548359.40	40°00'02.838"N	80°33'11.367"W	29.57	247.293	0.04
4445.50	1.040	244.410	4445.27	6.58	-12.09	-28.74	1704956.38	548358.73	40°00'02.832"N	80°33'11.385"W	31.18	247.181	0.15
4540.00	1.190	244.470	4539.75	6.88	-12.88	-30.40	1704954.73	548357.94	40°00'02.824"N	80°33'11.406"W	33.01	247.028	0.16
4634.80	1.250	245.120	4634.53	7.22	-13.74	-32.22	1704952.90	548357.08	40°00'02.815"N	80°33'11.430"W	35.03	246.900	0.06
4729.30	1.350	245.470	4729.00	7.61	-14.64	-34.17	1704950.95	548356.18	40°00'02.806"N	80°33'11.455"W	37.17	246.808	0.11
4824.00	1.670	239.160	4823.67	7.91	-15.81	-36.37	1704948.75	548355.01	40°00'02.794"N	80°33'11.483"W	39.66	246.505	0.38
4918.70	4.740	222.030	4918.21	7.13	-19.42	-40.17	1704944.95	548351.40	40°00'02.758"N	80°33'11.531"W	44.62	244.196	3.36
5013.60	7.720	232.130	5012.54	5.93	-26.25	-47.83	1704937.29	548344.57	40°00'02.689"N	80°33'11.628"W	54.56	241.241	3.33
5080.00	9.680	228.490	5078.18	5.08	-32.69	-55.54	1704929.59	548338.13	40°00'02.625"N	80°33'11.726"W	64.44	239.517	3.06
5117.00	11.030	224.760	5114.57	4.09	-37.27	-60.36	1704924.77	548333.56	40°00'02.579"N	80°33'11.788"W	70.93	238.308	4.07
5143.00	11.860	223.970	5140.06	3.14	-40.95	-63.96	1704921.16	548329.87	40°00'02.542"N	80°33'11.835"W	75.95	237.370	3.25
5238.00	17.830	231.560	5231.85	0.40	-57.04	-82.15	1704902.97	548313.78	40°00'02.381"N	80°33'12.065"W	100.01	235.227	6.60
5332.00	21.560	231.180	5320.34	-1.62	-76.82	-106.89	1704878.24	548294.00	40°00'02.183"N	80°33'12.380"W	131.63	234.296	3.97
5427.00	25.130	228.110	5407.55	-5.20	-101.24	-135.52	1704849.61	548269.58	40°00'01.938"N	80°33'12.744"W	169.16	233.238	3.97
5522.00	30.220	225.560	5491.66	-11.55	-131.47	-167.62	1704817.50	548239.36	40°00'01.636"N	80°33'13.152"W	213.03	231.893	5.50
5617.00	34.450	223.610	5571.91	-20.78	-167.68	-203.24	1704781.88	548203.15	40°00'01.274"N	80°33'13.604"W	263.49	230.477	4.59
5712.00	40.050	223.480	5647.50	-32.20	-209.35	-242.84	1704742.29	548161.48	40°00'00.858"N	80°33'14.106"W	320.62	229.236	5.90
5806.00	40.290	222.450	5719.33	-44.84	-253.72	-284.16	1704700.97	548117.11	40°00'00.414"N	80°33'14.631"W	380.95	228.240	0.75
5901.00	40.250	223.000	5791.82	-57.90	-298.83	-325.83	1704659.31	548072.00	39°59'59.964"N	80°33'15.159"W	442.11	227.475	0.38
5996.00	39.000	224.010	5864.99	-69.98	-342.78	-367.53	1704617.60	548028.06	39°59'59.525"N	80°33'15.688"W	502.57	226.996	1.48
6091.00	41.760	226.650	5937.35	-80.27	-386.00	-411.32	1704573.82	547984.83	39°59'59.092"N	80°33'16.244"W	564.07	226.818	3.42
6186.00	40.820	227.540	6008.73	-88.90	-428.68	-457.23	1704527.91	547942.16	39°59'58.665"N	80°33'16.828"W	626.76	226.846	1.17
6280.00	40.720	228.640	6079.93	-96.29	-469.68	-502.91	1704482.23	547901.16	39°59'58.255"N	80°33'17.409"W	688.13	226.957	0.77
6375.00	41.710	235.440	6151.42	-99.48	-508.11	-552.22	1704432.92	547862.73	39°59'57.869"N	80°33'18.036"W	750.41	227.382	4.83
6470.00	42.920	246.400	6221.77	-92.83	-539.03	-607.97	1704377.18	547831.81	39°59'57.557"N	80°33'18.748"W	812.51	228.439	7.86
6564.00	45.820	252.270	6288.98	-76.49	-562.12	-669.44	1704315.71	547808.72	39°59'57.322"N	80°33'19.534"W	874.15	229.980	5.34
6659.00	51.190	258.000	6351.93	-51.88	-580.21	-738.17	1704246.97	547790.63	39°59'57.135"N	80°33'20.415"W	938.91	231.832	7.23
6754.00	50.910	263.880	6411.69	-19.60	-591.85	-811.08	1704174.08	547779.00	39°59'57.012"N	80°33'21.350"W	1004.05	233.882	4.82
6849.00	50.960	273.380	6471.64	21.17	-593.60	-884.66	1704100.49	547777.24	39°59'56.986"N	80°33'22.295"W	1065.36	236.139	7.76
6944.00	54.020	285.580	6529.61	73.91	-581.07	-958.71	1704026.45	547789.77	39°59'57.101"N	80°33'23.248"W	1121.06	238.780	10.67
7038.00	58.860	293.140	6581.62	137.56	-555.01	-1032.46	1703952.70	547815.84	39°59'57.350"N	80°33'24.199"W	1172.18	241.739	8.45
7133.00	65.870	301.280	6625.71	211.97	-516.42	-1107.08	1703878.08	547854.42	39°59'57.723"N	80°33'25.164"W	1221.61	244.992	10.58
7227.00	72.180	310.910	6659.41	294.89	-464.69	-1177.77	1703807.39	547906.15	39°59'58.226"N	80°33'26.080"W	1266.13	248.468	11.68
7322.00	79.320	317.790	6682.81	385.28	-400.35	-1243.47	1703741.70	547970.49	39°59'58.854"N	80°33'26.934"W	1306.33	252.153	10.28
7417.00	85.630	325.100	6695.26	479.17	-326.76	-1302.06	1703683.11	548044.07	39°59'59.574"N	80°33'27.698"W	1342.44	255.912	10.11
7481.00	90.490	326.600	6697.42	543.10	-273.84	-1337.96	1703647.22	548096.99	40°00'00.093"N	80°33'28.167"W	1365.69	258.433	7.95
7512.00	90.550	325.660	6697.14	574.09	-248.10	-1355.23	1703629.94	548122.73	40°00'00.345"N	80°33'28.393"W	1377.75	259.626	3.04
7606.00	90.430	326.220	6696.34	668.08	-170.23	-1407.87	1703577.30	548200.60	40°00'01.109"N	80°33'29.081"W	1418.13	263.106	0.61
7701.00	90.490	323.490	6695.58	763.07	-92.56	-1462.55	1703522.62	548278.26	40°00'01.870"N	80°33'29.795"W	1465.48	266.379	2.87
7796.00	90.430	321.510	6694.81	857.97	-17.20	-1520.38	1703464.80	548353.62	40°00'02.608"N	80°33'30.550"W	1520.48	269.352	2.09
7891.00	90.310	319.870	6694.20	952.69	56.30	-1580.56	1703404.62	548427.12	40°00'03.327"N	80°33'31.334"W	1581.57	272.040	1.73
7985.00	90.370	322.570	6693.64	1046.48	129.57	-1639.43	1703345.75	548500.39	40°00'04.044"N	80°33'32.102"W	1644.54	274.519	2.87
8080.00	90.430	326.390	6692.98	1141.46	206.88	-1694.61	1703290.57	548577.69	40°00'04.802"N	80°33'32.822"W	1707.19	276.960	4.02

3-101685

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot E
Area	Marshall County, WV	Well	SHL 25E-HS
Field	Marshall	Wellbore	SHL 25E-HS (AWB)
Facility	SHL-25 Pad		

WELLPATH DATA (160 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]
8175.00	90.520	325.230	6692.19	1236.44	285.46	-1748.00	1703237.19	548656.26	40°00'05.572"N	80°33'33.520"W	1771.15	279.275	1.22
8269.00	90.280	326.160	6691.53	1330.43	363.10	-1800.97	1703184.22	548733.91	40°00'06.333"N	80°33'34.213"W	1837.21	281.399	1.02
8364.00	90.550	324.030	6690.85	1425.42	441.01	-1855.33	1703129.87	548811.81	40°00'07.097"N	80°33'34.923"W	1907.02	283.371	2.26
8459.00	90.400	325.190	6690.06	1520.42	518.45	-1910.34	1703074.85	548889.25	40°00'07.856"N	80°33'35.642"W	1979.44	285.184	1.23
8554.00	90.430	322.250	6689.37	1615.38	595.02	-1966.55	1703018.65	548965.82	40°00'08.606"N	80°33'36.375"W	2054.60	286.834	3.09
8649.00	90.060	321.310	6688.96	1710.23	669.65	-2025.32	1702959.88	549040.45	40°00'09.336"N	80°33'37.142"W	2133.16	288.296	1.06
8744.00	90.090	325.090	6688.84	1805.16	745.71	-2082.22	1702902.98	549116.50	40°00'10.081"N	80°33'37.884"W	2211.72	289.704	3.98
8839.00	90.250	328.230	6688.56	1900.11	825.07	-2134.43	1702850.78	549195.85	40°00'10.859"N	80°33'38.567"W	2288.34	291.134	3.31
8934.00	90.430	325.610	6687.99	1995.05	904.66	-2186.27	1702798.93	549275.44	40°00'11.640"N	80°33'39.245"W	2366.05	292.479	2.76
9029.00	89.910	327.140	6687.71	2090.02	983.76	-2238.88	1702746.33	549354.54	40°00'12.415"N	80°33'39.933"W	2445.48	293.721	1.70
9124.00	90.370	328.990	6687.48	2184.88	1064.38	-2289.13	1702696.09	549435.15	40°00'13.206"N	80°33'40.591"W	2524.48	294.937	2.01
9219.00	90.590	326.910	6686.68	2279.74	1144.89	-2339.53	1702645.68	549515.67	40°00'13.996"N	80°33'41.251"W	2604.65	296.076	2.20
9313.00	90.340	324.230	6685.92	2373.72	1222.41	-2392.67	1702592.54	549593.19	40°00'14.756"N	80°33'41.946"W	2686.85	297.062	2.86
9408.00	90.280	323.400	6685.41	2468.70	1299.09	-2448.76	1702536.46	549669.86	40°00'15.507"N	80°33'42.678"W	2772.01	297.946	0.88
9503.00	90.150	323.860	6685.05	2563.67	1375.58	-2505.09	1702480.13	549746.35	40°00'16.256"N	80°33'43.414"W	2857.92	298.772	0.50
9598.00	89.850	326.290	6685.05	2658.67	1453.47	-2559.48	1702425.74	549824.23	40°00'17.020"N	80°33'44.124"W	2943.38	299.591	2.58
9693.00	90.030	327.430	6685.15	2753.61	1533.01	-2611.41	1702373.81	549903.77	40°00'17.799"N	80°33'44.804"W	3028.14	300.415	1.21
9787.00	90.000	328.050	6685.13	2847.51	1612.50	-2661.59	1702323.64	549983.26	40°00'18.579"N	80°33'45.460"W	3111.94	301.209	0.66
9882.00	90.000	327.630	6685.13	2942.39	1692.92	-2712.15	1702273.08	550063.68	40°00'19.368"N	80°33'46.122"W	3197.15	301.972	0.44
9977.00	90.090	326.990	6685.05	3037.31	1772.88	-2763.46	1702221.77	550143.63	40°00'20.152"N	80°33'46.794"W	3283.26	302.682	0.68
10072.00	90.030	324.790	6684.95	3132.29	1851.53	-2816.73	1702168.50	550222.27	40°00'20.923"N	80°33'47.490"W	3370.78	303.318	2.32
10167.00	89.940	321.540	6684.98	3227.23	1927.55	-2873.68	1702111.56	550298.30	40°00'21.668"N	80°33'48.234"W	3460.27	303.852	3.42
10261.00	90.150	323.900	6684.90	3321.15	2002.34	-2930.61	1702054.63	550373.08	40°00'22.400"N	80°33'48.976"W	3549.35	304.343	2.52
10356.00	90.150	324.920	6684.65	3416.15	2079.59	-2985.90	1701999.34	550450.33	40°00'23.157"N	80°33'49.699"W	3638.72	304.856	1.07
10451.00	90.090	323.820	6684.45	3511.14	2156.81	-3041.24	1701944.00	550527.54	40°00'23.913"N	80°33'50.422"W	3728.40	305.344	1.16
10545.00	90.060	324.570	6684.33	3605.13	2233.04	-3096.23	1701889.01	550603.77	40°00'24.660"N	80°33'51.140"W	3817.48	305.800	0.80
10640.00	90.150	324.870	6684.16	3700.13	2310.60	-3151.10	1701834.14	550681.32	40°00'25.420"N	80°33'51.857"W	3907.47	306.251	0.33
10735.00	90.120	323.590	6683.93	3795.12	2387.67	-3206.63	1701778.62	550758.40	40°00'26.175"N	80°33'52.582"W	3997.93	306.672	1.35
10830.00	90.150	321.960	6683.71	3890.04	2463.32	-3264.10	1701721.15	550834.04	40°00'26.916"N	80°33'53.332"W	4089.29	307.041	1.72
10924.00	90.030	322.060	6683.56	3983.91	2537.40	-3321.96	1701663.29	550908.12	40°00'27.641"N	80°33'54.087"W	4180.17	307.374	0.17
11019.00	90.090	322.980	6683.46	4078.82	2612.79	-3379.76	1701605.49	550983.50	40°00'28.380"N	80°33'54.841"W	4271.94	307.706	0.97
11114.00	90.060	322.630	6683.34	4173.75	2688.46	-3437.19	1701548.06	551059.18	40°00'29.121"N	80°33'55.590"W	4363.73	308.031	0.37
11209.00	90.090	324.070	6683.21	4268.71	2764.68	-3493.90	1701491.36	551135.39	40°00'29.867"N	80°33'56.331"W	4455.42	308.354	1.52
11304.00	90.460	323.360	6682.76	4363.69	2841.26	-3550.12	1701435.14	551211.96	40°00'30.617"N	80°33'57.065"W	4547.10	308.671	0.84
11399.00	90.090	323.150	6682.30	4458.64	2917.38	-3606.95	1701378.31	551288.08	40°00'31.363"N	80°33'57.807"W	4639.10	308.967	0.45
11494.00	90.220	325.720	6682.05	4553.63	2994.65	-3662.20	1701323.06	551365.35	40°00'32.120"N	80°33'58.528"W	4730.71	309.273	2.71
11589.00	90.150	326.900	6681.74	4648.60	3073.69	-3714.90	1701270.37	551444.39	40°00'32.895"N	80°33'59.218"W	4821.62	309.604	1.24
11684.00	91.110	329.820	6680.69	4743.42	3154.56	-3764.72	1701220.55	551525.25	40°00'33.688"N	80°33'59.870"W	4911.66	309.960	3.24
11778.00	90.090	325.920	6679.71	4837.28	3234.14	-3814.70	1701170.57	551604.83	40°00'34.469"N	80°34'00.525"W	5001.16	310.292	4.29
11873.00	89.750	325.630	6679.84	4932.27	3312.69	-3868.14	1701117.14	551683.38	40°00'35.239"N	80°34'01.223"W	5092.78	310.577	0.47
11968.00	90.120	326.180	6679.95	5027.26	3391.36	-3921.39	1701063.89	551762.04	40°00'36.010"N	80°34'01.920"W	5184.46	310.854	0.70
12062.00	90.030	325.860	6679.83	5121.24	3469.31	-3973.93	1701011.35	551839.99	40°00'36.774"N	80°34'02.607"W	5275.24	311.122	0.35
12157.00	90.000	325.430	6679.80	5216.23	3547.73	-4027.54	1700957.74	551918.41	40°00'37.543"N	80°34'03.307"W	5367.26	311.376	0.45
12251.00	90.090	325.560	6679.73	5310.23	3625.20	-4080.79	1700904.50	551995.87	40°00'38.302"N	80°34'04.004"W	5458.47	311.617	0.17
12346.00	90.680	327.850	6679.09	5405.18	3704.60	-4132.93	1700852.35	552075.27	40°00'39.080"N	80°34'04.686"W	5550.24	311.872	2.49

51-01685

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot E
Area	Marshall County, WV	Well	SHL 25E-HS
Field	Marshall	Wellbore	SHL 25E-HS (AWB)
Facility	SHL-25 Pad		

WELLPATH DATA (160 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]
12440.00	91.350	326.220	6677.42	5499.10	3783.45	-4184.07	1700801.22	552154.12	40°00'39.854"N	80°34'05.355"W	5641.00	312.121	1.87
12535.00	90.800	321.620	6675.64	5594.04	3860.19	-4239.99	1700745.30	552230.86	40°00'40.605"N	80°34'06.085"W	5733.99	312.315	4.88
12629.00	90.280	317.700	6674.75	5687.61	3931.82	-4300.83	1700684.47	552302.48	40°00'41.306"N	80°34'06.878"W	5827.21	312.434	4.21
12724.00	90.060	319.230	6674.47	5781.99	4002.93	-4363.82	1700621.48	552373.59	40°00'42.001"N	80°34'07.698"W	5921.68	312.530	1.63
12818.00	90.180	322.680	6674.28	5875.74	4075.93	-4423.02	1700562.28	552446.58	40°00'42.716"N	80°34'08.470"W	6014.67	312.661	3.67
12913.00	90.120	325.510	6674.03	5970.72	4152.87	-4478.73	1700506.57	552523.52	40°00'43.469"N	80°34'09.198"W	6107.81	312.838	2.98
13008.00	90.250	326.760	6673.72	6065.70	4231.75	-4531.66	1700453.64	552602.40	40°00'44.243"N	80°34'09.890"W	6200.29	313.040	1.32
13103.00	90.310	327.400	6673.26	6160.64	4311.49	-4583.29	1700402.01	552682.14	40°00'45.025"N	80°34'10.566"W	6292.50	313.250	0.68
13198.00	90.150	328.950	6672.87	6255.49	4392.21	-4633.38	1700351.92	552762.85	40°00'45.816"N	80°34'11.222"W	6384.34	313.469	1.64
13292.00	90.150	328.920	6672.63	6349.26	4472.73	-4681.89	1700303.42	552843.37	40°00'46.606"N	80°34'11.858"W	6474.98	313.691	0.03
13387.00	90.800	330.200	6671.84	6443.96	4554.63	-4730.02	1700255.29	552925.26	40°00'47.410"N	80°34'12.489"W	6566.41	313.918	1.51
13482.00	91.110	331.240	6670.26	6538.47	4637.48	-4776.47	1700208.84	553008.11	40°00'48.223"N	80°34'13.098"W	6657.39	314.154	1.14
13576.00	90.250	327.230	6669.14	6632.19	4718.22	-4824.54	1700160.77	553088.86	40°00'49.015"N	80°34'13.728"W	6748.17	314.362	4.36
13671.00	89.750	326.000	6669.14	6727.15	4797.55	-4876.82	1700108.50	553168.18	40°00'49.793"N	80°34'14.412"W	6841.04	314.531	1.40
13766.00	90.060	324.990	6669.30	6822.14	4875.83	-4930.63	1700054.69	553246.46	40°00'50.560"N	80°34'15.116"W	6934.32	314.680	1.11
13861.00	90.710	326.460	6668.66	6917.13	4954.33	-4984.13	1700001.19	553324.95	40°00'51.330"N	80°34'15.815"W	7027.58	314.828	1.69
13955.00	90.310	325.820	6667.82	7011.11	5032.39	-5036.50	1699948.82	553403.00	40°00'52.095"N	80°34'16.500"W	7119.78	314.977	0.80
14049.00	90.400	326.250	6667.24	7105.09	5110.35	-5089.01	1699896.31	553480.96	40°00'52.859"N	80°34'17.187"W	7212.05	315.120	0.47
14144.00	90.120	325.580	6666.81	7200.07	5189.02	-5142.25	1699843.07	553559.64	40°00'53.630"N	80°34'17.884"W	7305.39	315.259	0.76
14239.00	90.250	324.160	6666.50	7295.07	5266.72	-5196.92	1699788.41	553637.33	40°00'54.392"N	80°34'18.598"W	7399.07	315.382	1.50
14334.00	90.520	323.350	6665.86	7390.05	5343.33	-5253.08	1699732.25	553713.94	40°00'55.142"N	80°34'19.332"W	7493.07	315.488	0.90
14429.00	90.370	321.230	6665.13	7484.93	5418.48	-5311.19	1699674.14	553789.09	40°00'55.878"N	80°34'20.090"W	7587.40	315.573	2.24
14523.00	90.000	323.000	6664.82	7578.81	5492.67	-5368.91	1699616.43	553863.27	40°00'56.604"N	80°34'20.843"W	7680.79	315.653	1.92
14555.00	90.770	323.720	6664.61	7610.79	5518.34	-5388.00	1699597.33	553888.94	40°00'56.856"N	80°34'21.092"W	7712.50	315.685	3.29
14580.00	90.770	323.720	6664.27	7635.79	5538.49	-5402.80	1699582.54	553909.09	40°00'57.053"N	80°34'21.285"W	7737.26	315.711	0.00

Received
Office of Oil & Gas

DEC 15 2014

51-01685

REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot E
Area	Marshall County, WV	Well	SHL 25E-HS
Field	Marshall	Wellbore	SHL 25E-HS (AWB)
Facility	SHL-25 Pad		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SHL 25E-HS BHL:Plat		6623.00	5524.66	-5405.84	1699579.50	553895.26	40°00'56.916"N	80°34'21.322"W	point
SHL 25E-HS BHL:Rev-1		6660.93	5524.66	-5405.84	1699579.50	553895.26	40°00'56.916"N	80°34'21.322"W	point
SHL 25E-HS LP:Plat		6693.00	-274.93	-1344.91	1703640.26	548095.90	40°00'00.081"N	80°33'28.256"W	point
SHL 25E-HS LP:Rev-1		6698.00	-274.93	-1344.91	1703640.26	548095.90	40°00'00.081"N	80°33'28.256"W	point

WELLPATH COMPOSITION - Ref Wellbore: SHL 25E-HS (AWB) Ref Wellpath: SHL 25E-HS AWP Proj: 14580'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	5013.60	Generic gyro - northseeking (Standard)	04 Gyro Surveys 8 3/4" (88.3'-5013.6')	SHL 25E-HS (AWB)
5013.60	14555.00	NaviTrak (MagCorr)	05 BHI ATCurve Surveys 8 3/4" (5013.6')(5080'-14555')	SHL 25E-HS (AWB)
14555.00	14580.00	Blind Drilling (std)	Projection to bit	SHL 25E-HS (AWB)

51-01685

REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot E
Area	Marshall County, WV	Well	SHL 25E-HS
Field	Marshall	Wellbore	SHL 25E-HS (AWB)
Facility	SHL-25 Pad		

COMMENTS
<p>Wellpath general comments API: 47-051-01686-0000 BHI Job #: 6369603 Rig: Nomac 79 Duration: 05/12/14-05/18/14 Gyro Svys <8-3/4"> (88.3'-5013.6') BHI AT Curve <8-3/4"> (5013.6')(5080'-14555') Projected MD at TD: 14580'</p>

51-01685

Received
 Office of Oil & Gas
 DEC 15 2014



NOBLE ENERGY



Location: Marshall County, WV
 Field: Marshall
 Facility: SHL-25 Pad

Slot: Slot E
 Well: SHL 25E-HS
 Wellbore: SHL 25E-HS (PWB)

Location Information

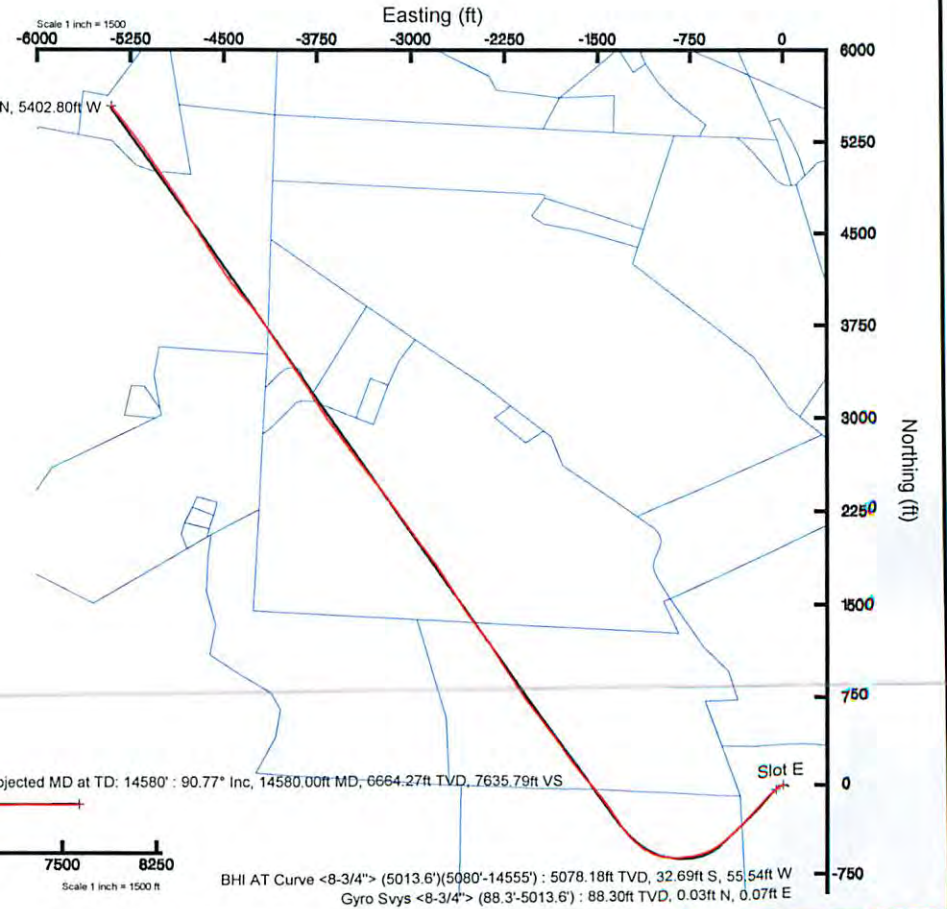
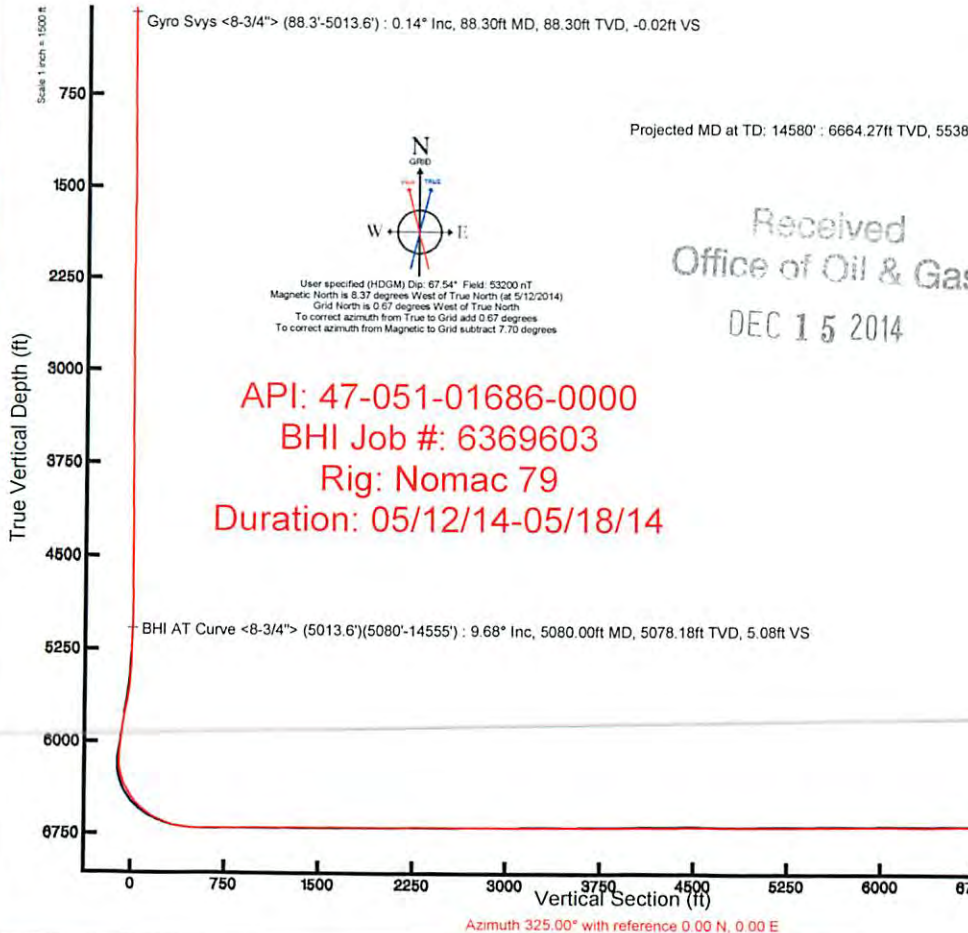
Facility Name		Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	
SHL-25 Pad		1705028.190	548357.370	40°00'02.826"N	80°33'10.462"W	
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot E	13.45	-43.07	1704985.120	548370.820	40°00'02.954"N	80°33'11.018"W
Nomac 79 (RT) to Mud line (At Slot: Slot E)				26ft		
Mean Sea Level to Mud line (At Slot: Slot E)				-1325ft		
Nomac 79 (RT) to Mean Sea Level				1351ft		
Plot reference wellpath is SHL 25E-HS PWP Rev-C 0						
True vertical depths are referenced to Nomac 79 (RT)			Grid System: NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet			
Measured depths are referenced to Nomac 79 (RT)			North Reference: Grid north			
Nomac 79 (RT) to Mean Sea Level: 1351 feet			Scale: True distance			
Mean Sea Level to Mud line (At Slot: Slot E): -1325 feet			Depths are in feet			
Coordinates are in feet referenced to Slot			Created by: frjesl on 5/21/2014			

Well Profile Data

Design Comment	MD (ft)	Inc (")	Az (")	TVD (ft)	Local N (ft)	Local E (ft)	DLS (/100ft)	VS (ft)
Tie On	5013.60	7.720	232.130	5012.54	-26.25	-47.83	0.00	5.93
End of 3D Arc	5140.00	11.540	227.410	5137.14	-40.03	-63.85	3.08	3.84
End of 3D Arc (J)	5719.15	40.481	224.778	5652.13	-216.45	-242.74	5.00	-38.07
End of Tangent (J)	6313.23	40.481	224.778	6103.99	-490.21	-514.39	0.00	-106.51
End of 3D Arc	6783.85	50.000	270.000	6443.64	-601.74	-810.45	7.00	-28.06
LP	7496.63	90.300	325.000	6698.00	-274.93	-1344.91	9.00	546.20
BHL	14576.72	90.300	325.000	6660.93	5524.66	-5405.84	0.00	7626.20

Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SHL 25E-HS BHL Plat	6623.00	5524.66	-5405.84	1699579.50	553895.26	40°00'56.916"N	80°34'21.322"W	
SHL 25E-HS BHL Rev-1	14576.72	6660.93	5524.66	-5405.84	1699579.50	553895.26	40°00'56.916"N	80°34'21.322"W
SHL 25E-HS LP Plat	6693.00	-274.93	-1344.91	1703640.26	548095.90	40°00'00.081"N	80°33'28.256"W	
SHL 25E-HS LP Rev-1	7496.63	6660.00	-274.93	-1344.91	1703640.26	548095.90	40°00'00.081"N	80°33'28.256"W



57-01685