



# Actual Wellpath Report

SHL 25C-HS (AWP) Proj: 15474'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot C
Area	Marshall County, WV	Well	SHL 25C-HS
Field	Marshall	Wellbore	SHL 25C-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	Kroschr
Scale	0.999962	Report Generated	04/Jun/2014 at 16:55
Convergence at slot	0.67° West	Database/Source file	WA_Pennsylvania/SHL_25C-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	9.13	-28.59	1704999.60	548366.50	40°00'02.913"N	80°33'10.831"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 C)	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°

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Area	Marshall County, WV	Well	SHL 25C-HS
Field	Marshall	Wellbore	SHL 25C-HS (AWB)
Facility	SHL-25 Pad		

### WELLPATH DATA (189 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	308.550	0.00	0.00	0.00	0.00	1704999.60	548366.50	40°00'02.913"N	80°33'10.831"W	0.00	0.000	0.00
26.00	0.000	308.550	26.00	0.00	0.00	0.00	1704999.60	548366.50	40°00'02.913"N	80°33'10.831"W	0.00	0.000	0.00
115.00	0.630	308.550	115.00	0.47	0.30	-0.38	1704999.22	548366.80	40°00'02.916"N	80°33'10.836"W	0.49	308.550	0.71
215.00	0.530	298.600	214.99	1.41	0.87	-1.22	1704998.38	548367.37	40°00'02.922"N	80°33'10.847"W	1.50	305.489	0.14
315.00	0.480	294.110	314.99	2.18	1.26	-2.01	1704997.59	548367.76	40°00'02.926"N	80°33'10.857"W	2.37	302.149	0.06
415.00	0.650	318.840	414.98	3.11	1.86	-2.76	1704996.84	548368.36	40°00'02.931"N	80°33'10.867"W	3.33	303.944	0.29
515.00	0.680	302.960	514.98	4.22	2.61	-3.63	1704995.97	548369.11	40°00'02.939"N	80°33'10.878"W	4.47	305.681	0.19
615.00	0.320	145.960	614.98	4.49	2.70	-3.98	1704995.62	548369.20	40°00'02.940"N	80°33'10.883"W	4.81	304.192	0.98
715.00	0.750	139.270	714.97	3.56	1.97	-3.39	1704996.21	548368.47	40°00'02.933"N	80°33'10.875"W	3.92	300.191	0.43
815.00	0.420	142.560	814.97	2.54	1.19	-2.74	1704996.86	548367.69	40°00'02.925"N	80°33'10.866"W	2.99	293.398	0.33
915.00	0.580	215.800	914.96	2.01	0.49	-2.82	1704996.78	548366.99	40°00'02.918"N	80°33'10.867"W	2.86	279.775	0.61
1015.00	0.510	225.280	1014.96	1.77	-0.24	-3.43	1704996.17	548366.26	40°00'02.911"N	80°33'10.875"W	3.44	266.018	0.11
1115.00	0.560	245.030	1114.95	1.78	-0.76	-4.19	1704995.41	548365.74	40°00'02.905"N	80°33'10.885"W	4.26	259.738	0.19
1215.00	0.510	242.230	1214.95	1.92	-1.17	-5.02	1704994.58	548365.33	40°00'02.901"N	80°33'10.895"W	5.16	256.872	0.06
1315.00	0.430	243.410	1314.95	2.03	-1.55	-5.75	1704993.85	548364.95	40°00'02.897"N	80°33'10.905"W	5.96	254.949	0.08
1415.00	0.350	237.690	1414.94	2.10	-1.88	-6.35	1704993.25	548364.62	40°00'02.894"N	80°33'10.912"W	6.62	253.515	0.09
1515.00	0.740	224.600	1514.94	2.00	-2.50	-7.06	1704992.54	548364.00	40°00'02.888"N	80°33'10.921"W	7.49	250.487	0.41
1615.00	0.850	215.580	1614.93	1.64	-3.56	-7.94	1704991.66	548362.94	40°00'02.877"N	80°33'10.933"W	8.71	245.834	0.17
1715.00	0.620	201.490	1714.92	1.09	-4.67	-8.57	1704991.03	548361.83	40°00'02.866"N	80°33'10.941"W	9.76	241.417	0.29
1815.00	0.640	196.610	1814.92	0.45	-5.71	-8.93	1704990.67	548360.79	40°00'02.856"N	80°33'10.945"W	10.60	237.409	0.06
1915.00	0.310	161.600	1914.91	-0.16	-6.50	-9.01	1704990.59	548360.00	40°00'02.848"N	80°33'10.946"W	11.11	234.172	0.43
2015.00	0.210	151.520	2014.91	-0.60	-6.92	-8.83	1704990.77	548359.58	40°00'02.844"N	80°33'10.944"W	11.22	231.925	0.11
2115.00	0.430	180.510	2114.91	-1.09	-7.46	-8.75	1704990.85	548359.04	40°00'02.839"N	80°33'10.942"W	11.49	229.562	0.27
2215.00	0.170	188.170	2214.91	-1.50	-7.98	-8.77	1704990.83	548358.52	40°00'02.834"N	80°33'10.943"W	11.86	227.718	0.26
2315.00	0.420	229.720	2314.91	-1.64	-8.36	-9.07	1704990.53	548358.14	40°00'02.830"N	80°33'10.946"W	12.34	227.339	0.31
2415.00	0.070	234.250	2414.91	-1.68	-8.63	-9.40	1704990.20	548357.87	40°00'02.827"N	80°33'10.951"W	12.77	227.440	0.35
2515.00	0.330	273.010	2514.91	-1.50	-8.65	-9.74	1704989.86	548357.85	40°00'02.827"N	80°33'10.955"W	13.03	228.377	0.28
2615.00	0.220	261.720	2614.90	-1.24	-8.67	-10.22	1704989.38	548357.83	40°00'02.827"N	80°33'10.961"W	13.40	229.693	0.12
2715.00	0.510	241.600	2714.90	-1.10	-8.91	-10.80	1704988.80	548357.59	40°00'02.824"N	80°33'10.968"W	14.00	230.486	0.31
2815.00	0.530	238.410	2814.90	-1.02	-9.36	-11.58	1704988.02	548357.14	40°00'02.820"N	80°33'10.979"W	14.89	231.061	0.04
2915.00	0.580	236.590	2914.89	-0.98	-9.88	-12.40	1704987.20	548356.62	40°00'02.814"N	80°33'10.989"W	15.86	231.451	0.05
3015.00	0.670	256.780	3014.89	-0.75	-10.29	-13.39	1704986.21	548356.21	40°00'02.810"N	80°33'11.002"W	16.89	232.453	0.24
3115.00	0.660	245.000	3114.88	-0.43	-10.67	-14.48	1704985.12	548355.83	40°00'02.806"N	80°33'11.016"W	17.99	233.619	0.14
3215.00	0.610	244.890	3214.87	-0.24	-11.14	-15.49	1704984.11	548355.36	40°00'02.802"N	80°33'11.028"W	19.08	234.273	0.05
3305.00	0.680	242.840	3304.87	-0.09	-11.59	-16.40	1704983.20	548354.91	40°00'02.797"N	80°33'11.040"W	20.08	234.752	0.08
3373.00	0.700	226.030	3372.86	-0.10	-12.06	-17.05	1704982.55	548354.44	40°00'02.792"N	80°33'11.048"W	20.89	234.735	0.30
3467.00	0.830	262.250	3466.86	0.13	-12.55	-18.14	1704981.46	548353.95	40°00'02.787"N	80°33'11.062"W	22.06	235.326	0.52
3562.00	0.780	267.940	3561.85	0.79	-12.67	-19.47	1704980.13	548353.83	40°00'02.786"N	80°33'11.079"W	23.23	236.954	0.10
3657.00	1.060	266.460	3656.83	1.60	-12.74	-20.99	1704978.61	548353.76	40°00'02.785"N	80°33'11.099"W	24.56	238.741	0.30
3751.00	1.150	245.110	3750.82	2.22	-13.19	-22.72	1704976.68	548353.31	40°00'02.780"N	80°33'11.121"W	26.27	239.851	0.45
3846.00	0.700	247.720	3845.80	2.52	-13.82	-24.12	1704975.48	548352.68	40°00'02.774"N	80°33'11.139"W	27.80	240.195	0.48
3893.00	0.580	0.510	3892.80	2.77	-13.69	-24.38	1704975.22	548352.81	40°00'02.775"N	80°33'11.142"W	27.96	240.693	2.27
3941.00	3.080	60.950	3940.78	2.84	-12.82	-23.25	1704976.35	548353.68	40°00'02.784"N	80°33'11.128"W	26.55	241.135	5.91
3987.00	3.650	62.430	3986.70	2.52	-11.54	-20.87	1704978.73	548354.96	40°00'02.797"N	80°33'11.098"W	23.85	241.066	1.25
4035.00	4.100	53.250	4034.59	2.38	-9.81	-18.15	1704981.46	548356.69	40°00'02.814"N	80°33'11.063"W	20.63	241.613	1.59

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Field	Marshall	Wellbore	SHL 25C-HS (AWB)
Facility	SHL-25 Pad		

**WELLPATH DATA (189 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]
4086.00	4.270	53.500	4085.45	2.48	-7.59	-15.16	1704984.44	548358.91	40°00'02.837"N	80°33'11.025"W	16.95	243.415	0.34
4130.00	4.160	43.820	4129.33	2.83	-5.46	-12.74	1704986.86	548361.04	40°00'02.858"N	80°33'10.994"W	13.86	246.796	1.63
4177.00	4.460	46.970	4176.20	3.42	-2.98	-10.22	1704989.38	548363.52	40°00'02.883"N	80°33'10.962"W	10.65	253.730	0.81
4225.00	5.390	53.840	4224.02	3.73	-0.38	-7.04	1704992.56	548366.12	40°00'02.909"N	80°33'10.921"W	7.05	266.916	2.29
4272.00	6.770	46.160	4270.76	4.20	2.84	-3.26	1704996.34	548369.34	40°00'02.941"N	80°33'10.873"W	4.32	311.127	3.40
4319.00	7.860	44.090	4317.38	5.23	7.07	0.98	1705000.58	548373.57	40°00'02.983"N	80°33'10.820"W	7.14	7.885	2.39
4368.00	9.650	45.000	4365.80	6.58	12.38	6.21	1705005.81	548378.88	40°00'03.036"N	80°33'10.753"W	13.85	26.656	3.66
4414.00	10.410	50.280	4411.10	7.59	17.76	12.14	1705011.74	548384.26	40°00'03.090"N	80°33'10.678"W	21.51	34.346	2.59
4460.00	11.880	54.890	4456.23	7.94	23.14	19.21	1705018.81	548389.64	40°00'03.144"N	80°33'10.588"W	30.08	39.693	3.73
4509.00	13.000	63.300	4504.09	7.15	28.52	28.26	1705027.86	548395.02	40°00'03.199"N	80°33'10.472"W	40.15	44.737	4.34
4554.00	14.820	63.860	4547.76	5.54	33.33	37.95	1705037.55	548399.83	40°00'03.247"N	80°33'10.349"W	50.51	48.707	4.06
4604.00	17.380	62.410	4595.80	3.59	39.61	50.31	1705049.91	548406.11	40°00'03.311"N	80°33'10.191"W	64.03	51.788	5.18
4654.00	19.250	60.080	4643.26	1.89	47.18	64.07	1705063.67	548413.68	40°00'03.387"N	80°33'10.015"W	79.57	53.635	4.02
4698.00	18.560	57.410	4684.89	0.96	54.57	76.26	1705075.86	548421.07	40°00'03.461"N	80°33'09.859"W	93.77	54.415	2.51
4735.00	17.910	54.560	4720.03	0.75	61.04	85.86	1705085.45	548427.54	40°00'03.527"N	80°33'09.737"W	105.34	54.590	2.98
4793.00	18.780	56.430	4775.09	0.59	71.37	100.90	1705100.50	548437.87	40°00'03.630"N	80°33'09.545"W	123.59	54.727	1.81
4825.00	19.820	57.210	4805.29	0.25	77.16	109.75	1705109.35	548443.66	40°00'03.689"N	80°33'09.432"W	134.16	54.892	3.35
4855.00	20.180	58.270	4833.48	-0.24	82.63	118.43	1705118.03	548449.13	40°00'03.744"N	80°33'09.322"W	144.41	55.095	1.70
4888.00	21.250	59.930	4864.34	-1.08	88.62	128.45	1705128.04	548455.12	40°00'03.804"N	80°33'09.194"W	156.06	55.396	3.70
4922.00	22.800	60.340	4895.86	-2.22	94.97	139.51	1705139.10	548461.47	40°00'03.868"N	80°33'09.053"W	168.76	55.754	4.58
4952.00	23.320	60.300	4923.47	-3.31	100.79	149.71	1705149.31	548467.29	40°00'03.927"N	80°33'08.923"W	180.48	56.051	1.73
4982.00	23.150	58.860	4951.03	-4.26	106.78	159.92	1705159.51	548473.28	40°00'03.987"N	80°33'08.792"W	192.29	56.268	1.98
5030.00	19.590	56.190	4995.73	-5.06	116.14	174.69	1705174.28	548482.64	40°00'04.081"N	80°33'08.604"W	209.77	56.382	7.69
5077.00	15.750	55.610	5040.50	-5.29	124.13	186.50	1705186.09	548490.63	40°00'04.162"N	80°33'08.453"W	224.04	56.353	8.18
5123.00	16.390	57.150	5084.70	-5.60	131.18	197.11	1705196.70	548497.67	40°00'04.233"N	80°33'08.318"W	236.77	56.355	1.67
5171.00	18.580	58.830	5130.48	-6.36	138.81	209.34	1705208.93	548505.31	40°00'04.309"N	80°33'08.162"W	251.18	56.452	4.68
5234.00	20.670	58.930	5189.82	-7.80	149.75	227.45	1705227.05	548516.24	40°00'04.420"N	80°33'07.931"W	272.32	56.641	3.32
5282.00	21.400	57.900	5234.62	-8.82	158.77	242.13	1705241.72	548525.27	40°00'04.510"N	80°33'07.744"W	289.54	56.746	1.70
5329.00	21.620	57.740	5278.35	-9.67	167.95	256.71	1705256.30	548534.44	40°00'04.603"N	80°33'07.558"W	306.77	56.806	0.48
5376.00	21.700	58.190	5322.03	-10.57	177.15	271.42	1705271.01	548543.64	40°00'04.695"N	80°33'07.370"W	324.12	56.868	0.39
5424.00	21.850	59.870	5366.60	-11.82	186.31	286.69	1705286.28	548552.81	40°00'04.788"N	80°33'07.176"W	341.91	56.981	1.34
5518.00	21.830	60.590	5453.86	-15.01	203.68	317.04	1705316.63	548570.17	40°00'04.963"N	80°33'06.788"W	376.83	57.282	0.29
5613.00	21.730	61.060	5542.08	-18.58	220.86	347.82	1705347.40	548587.35	40°00'05.136"N	80°33'06.395"W	412.01	57.585	0.21
5708.00	21.460	61.810	5630.41	-22.50	237.58	378.52	1705378.11	548604.07	40°00'05.305"N	80°33'06.003"W	446.91	57.886	0.41
5803.00	22.430	63.760	5718.52	-27.32	253.80	410.10	1705409.68	548620.29	40°00'05.469"N	80°33'05.600"W	482.28	58.248	1.28
5898.00	22.540	62.580	5806.30	-32.48	270.20	442.52	1705442.10	548636.69	40°00'05.635"N	80°33'05.186"W	518.49	58.592	0.49
5993.00	20.500	56.630	5894.69	-35.36	287.74	472.58	1705472.16	548654.23	40°00'05.811"N	80°33'04.802"W	553.29	58.664	3.14
6087.00	21.240	53.320	5982.52	-35.33	306.96	499.98	1705499.56	548673.45	40°00'06.005"N	80°33'04.453"W	586.69	58.452	1.48
6136.00	19.490	50.290	6028.46	-34.40	317.49	513.39	1705512.97	548683.98	40°00'06.110"N	80°33'04.282"W	603.63	58.267	4.17
6182.00	19.730	46.440	6071.79	-32.61	327.74	524.92	1705524.50	548694.23	40°00'06.213"N	80°33'04.136"W	618.84	58.021	2.86
6230.00	22.560	40.950	6116.56	-29.17	340.28	536.83	1705536.41	548706.77	40°00'06.338"N	80°33'03.985"W	635.59	57.630	7.19
6277.00	24.220	30.980	6159.71	-23.05	355.37	547.71	1705547.28	548721.85	40°00'06.488"N	80°33'03.847"W	652.89	57.023	9.12
6327.00	24.790	22.790	6205.22	-13.29	373.83	557.05	1705556.63	548740.31	40°00'06.672"N	80°33'03.730"W	670.86	56.135	6.88
6372.00	24.980	20.550	6246.05	-2.88	391.42	564.04	1705563.62	548757.91	40°00'06.847"N	80°33'03.643"W	686.55	55.241	2.14
6418.00	27.660	21.230	6287.27	8.55	410.48	571.32	1705570.89	548776.96	40°00'07.036"N	80°33'03.552"W	703.49	54.304	5.86

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

WELLPATH DATA (189 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]
6466.00	28.510	21.380	6329.62	21.08	431.53	579.53	1705579.10	548798.01	40°00'07.245"N	80°33'03.450"W	722.54	53.328	1.78
6512.00	31.090	17.980	6369.54	34.32	453.05	587.20	1705586.77	548819.53	40°00'07.458"N	80°33'03.355"W	741.66	52.348	6.70
6561.00	35.690	9.460	6410.46	52.16	479.21	593.46	1705593.03	548845.69	40°00'07.718"N	80°33'03.278"W	762.78	51.079	13.39
6656.00	44.720	1.650	6482.99	98.88	540.12	598.99	1705598.57	548906.60	40°00'08.320"N	80°33'03.216"W	806.55	47.958	10.87
6750.00	50.600	358.850	6546.28	155.63	609.56	599.21	1705598.79	548976.04	40°00'09.006"N	80°33'03.224"W	854.76	44.510	6.63
6845.00	56.650	353.280	6602.62	221.15	685.77	593.83	1705593.40	549052.24	40°00'09.759"N	80°33'03.304"W	907.15	40.890	7.92
6940.00	62.270	343.170	6650.97	296.24	765.64	576.96	1705576.54	549132.11	40°00'10.546"N	80°33'03.533"W	958.69	37.001	10.90
7035.00	68.440	335.890	6690.61	379.74	846.37	546.68	1705546.26	549212.84	40°00'11.340"N	80°33'03.934"W	1007.58	32.859	9.52
7130.00	74.960	335.260	6720.42	468.36	928.45	509.40	1705508.98	549294.91	40°00'12.147"N	80°33'04.426"W	1059.01	28.752	6.89
7224.00	82.440	330.870	6738.84	559.55	1010.53	467.64	1705467.22	549376.99	40°00'12.953"N	80°33'04.974"W	1113.49	24.833	9.18
7319.00	89.110	326.890	6745.84	654.00	1091.56	418.70	1705418.29	549458.02	40°00'13.748"N	80°33'05.616"W	1169.11	20.986	8.17
7353.00	90.220	325.020	6746.03	687.99	1119.73	399.67	1705399.25	549486.19	40°00'14.025"N	80°33'05.864"W	1188.92	19.643	6.40
7413.00	90.400	323.880	6745.71	747.99	1168.55	364.79	1705364.37	549535.00	40°00'14.503"N	80°33'06.320"W	1224.16	17.337	1.92
7508.00	90.340	323.000	6745.10	842.95	1244.85	308.20	1705307.79	549611.30	40°00'15.250"N	80°33'07.058"W	1282.44	13.906	0.93
7603.00	90.310	323.310	6744.56	937.90	1320.88	251.23	1705250.82	549687.32	40°00'15.995"N	80°33'07.802"W	1344.56	10.769	0.33
7698.00	90.280	322.780	6744.07	1032.84	1396.79	194.12	1705193.71	549763.23	40°00'16.739"N	80°33'08.547"W	1410.22	7.912	0.56
7792.00	90.370	323.230	6743.54	1126.78	1471.87	137.56	1705137.15	549838.31	40°00'17.474"N	80°33'09.285"W	1478.28	5.339	0.49
7887.00	90.310	325.400	6742.97	1221.77	1549.02	82.15	1705081.74	549915.46	40°00'18.230"N	80°33'10.009"W	1551.20	3.036	2.29
7982.00	90.250	327.420	6742.51	1316.73	1628.15	29.59	1705029.19	549994.59	40°00'19.006"N	80°33'10.696"W	1628.42	1.041	2.13
8077.00	90.250	326.710	6742.09	1411.67	1707.88	-22.06	1704977.54	550074.32	40°00'19.788"N	80°33'11.372"W	1708.03	359.260	0.75
8171.00	90.370	326.830	6741.58	1505.62	1786.51	-73.57	1704926.03	550152.94	40°00'20.559"N	80°33'12.045"W	1788.03	357.642	0.18
8266.00	90.310	326.090	6741.02	1600.59	1865.69	-126.06	1704873.55	550232.12	40°00'21.335"N	80°33'12.732"W	1869.95	356.135	0.78
8361.00	90.120	325.830	6740.66	1695.58	1944.41	-179.24	1704820.37	550310.84	40°00'22.107"N	80°33'13.427"W	1952.66	354.733	0.34
8456.00	90.310	326.460	6740.31	1790.56	2023.31	-232.16	1704767.45	550389.73	40°00'22.880"N	80°33'14.119"W	2036.58	353.454	0.69
8551.00	90.120	326.590	6739.95	1885.52	2102.55	-284.56	1704715.05	550468.96	40°00'23.657"N	80°33'14.804"W	2121.72	352.292	0.24
8646.00	90.430	327.260	6739.49	1980.47	2182.15	-336.40	1704663.21	550548.56	40°00'24.438"N	80°33'15.482"W	2207.93	351.236	0.78
8741.00	90.370	327.900	6738.83	2075.37	2262.34	-387.33	1704612.28	550628.75	40°00'25.225"N	80°33'16.149"W	2295.26	350.285	0.68
8835.00	90.310	327.150	6738.27	2169.27	2341.64	-437.80	1704561.82	550708.05	40°00'26.002"N	80°33'16.809"W	2382.22	349.410	0.80
8930.00	90.280	326.780	6737.78	2264.22	2421.28	-489.59	1704510.03	550787.69	40°00'26.783"N	80°33'17.487"W	2470.28	348.569	0.39
9025.00	90.340	325.890	6737.27	2359.19	2500.35	-542.25	1704457.37	550866.75	40°00'27.558"N	80°33'18.176"W	2558.47	347.764	0.94
9120.00	90.180	326.150	6736.84	2454.17	2579.12	-595.35	1704404.28	550945.52	40°00'28.331"N	80°33'18.870"W	2646.95	347.002	0.32
9215.00	90.120	326.390	6736.59	2549.15	2658.13	-648.10	1704351.53	551024.53	40°00'29.105"N	80°33'19.559"W	2736.00	346.298	0.26
9310.00	89.780	324.050	6736.67	2644.14	2736.15	-702.28	1704297.34	551102.55	40°00'29.870"N	80°33'20.268"W	2824.84	345.605	2.49
9404.00	90.090	323.440	6736.78	2738.12	2811.96	-757.87	1704241.76	551178.34	40°00'30.613"N	80°33'20.993"W	2912.30	344.916	0.73
9499.00	90.490	323.760	6736.30	2833.09	2888.42	-814.25	1704185.39	551254.80	40°00'31.362"N	80°33'21.729"W	3000.99	344.257	0.54
9594.00	90.710	323.850	6735.30	2928.06	2965.08	-870.35	1704129.29	551331.46	40°00'32.113"N	80°33'22.462"W	3090.18	343.641	0.25
9690.00	90.830	324.420	6734.01	3024.04	3042.87	-926.58	1704073.05	551409.25	40°00'32.875"N	80°33'23.196"W	3180.82	343.064	0.61
9784.00	90.220	322.610	6733.15	3118.00	3118.44	-982.47	1704017.17	551484.82	40°00'33.615"N	80°33'23.926"W	3269.55	342.513	2.03
9879.00	91.540	324.280	6731.69	3212.95	3194.74	-1039.04	1703960.60	551561.11	40°00'34.363"N	80°33'24.664"W	3359.46	341.984	2.24
9973.00	89.690	324.590	6730.69	3306.94	3271.20	-1093.71	1703905.93	551637.57	40°00'35.112"N	80°33'25.378"W	3449.19	341.513	2.00
10068.00	89.540	324.480	6731.32	3401.93	3348.57	-1148.83	1703850.82	551714.94	40°00'35.870"N	80°33'26.098"W	3540.16	341.064	0.20
10163.00	90.400	324.620	6731.37	3496.93	3425.96	-1203.93	1703795.72	551792.32	40°00'36.628"N	80°33'26.818"W	3631.34	340.638	0.92
10258.00	90.430	327.280	6730.69	3591.90	3504.66	-1257.11	1703742.54	551871.02	40°00'37.400"N	80°33'27.513"W	3723.30	340.267	2.80
10353.00	89.690	332.650	6730.59	3686.51	3586.87	-1304.65	1703695.01	551953.23	40°00'38.207"N	80°33'28.137"W	3816.78	340.012	5.71
10447.00	90.280	331.080	6730.61	3779.83	3669.76	-1348.97	1703650.68	552036.12	40°00'39.021"N	80°33'28.719"W	3909.85	339.817	1.78

51.01682



REFERENCE WELLPATH IDENTIFICATION

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

WELLPATH DATA (189 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]
10542.00	88.400	321.980	6731.71	3874.69	3748.92	-1401.30	1703598.35	552115.27	40°00'39.797"N	80°33'29.403"W	4002.26	339.505	9.78
10637.00	89.540	318.690	6733.41	3969.34	3822.03	-1461.92	1703537.74	552188.37	40°00'40.512"N	80°33'30.193"W	4092.08	339.068	3.66
10731.00	91.110	324.540	6732.88	4063.14	3895.67	-1520.26	1703479.40	552262.02	40°00'41.233"N	80°33'30.954"W	4181.80	338.682	6.44
10826.00	90.620	322.230	6731.45	4158.08	3971.91	-1576.91	1703422.75	552338.25	40°00'41.980"N	80°33'31.694"W	4273.49	338.346	2.49
10921.00	90.460	319.630	6730.55	4252.83	4045.66	-1636.78	1703362.88	552412.00	40°00'42.702"N	80°33'32.474"W	4364.22	337.973	2.74
11015.00	91.020	318.570	6729.34	4346.32	4116.70	-1698.32	1703301.35	552483.04	40°00'43.397"N	80°33'33.276"W	4453.26	337.582	1.28
11111.00	91.350	316.300	6727.35	4441.46	4187.39	-1763.24	1703236.43	552553.72	40°00'44.087"N	80°33'34.121"W	4543.48	337.165	2.39
11205.00	90.740	321.750	6725.64	4534.90	4258.32	-1824.84	1703174.83	552624.65	40°00'44.781"N	80°33'34.923"W	4632.85	336.803	5.83
11301.00	90.150	324.270	6724.89	4630.83	4334.99	-1882.60	1703117.08	552701.31	40°00'45.532"N	80°33'35.677"W	4726.13	336.526	2.70
11396.00	90.060	322.910	6724.72	4725.80	4411.44	-1938.98	1703060.69	552777.76	40°00'46.281"N	80°33'36.413"W	4818.76	336.273	1.43
11491.00	91.230	331.620	6723.64	4820.62	4491.27	-1990.30	1703009.38	552857.59	40°00'47.064"N	80°33'37.085"W	4912.51	336.100	9.25
11585.00	90.000	328.090	6722.64	4914.26	4572.54	-2037.50	1702962.18	552938.85	40°00'47.861"N	80°33'37.704"W	5005.95	335.983	3.98
11680.00	92.370	326.470	6720.67	5009.16	4652.44	-2088.83	1702910.85	553018.75	40°00'48.645"N	80°33'38.375"W	5099.84	335.821	3.02
11775.00	92.000	331.820	6717.05	5103.81	4733.90	-2137.50	1702862.18	553100.21	40°00'49.444"N	80°33'39.013"W	5194.11	335.699	5.64
11869.00	91.290	331.690	6714.35	5197.11	4816.68	-2181.97	1702817.72	553182.98	40°00'50.257"N	80°33'39.597"W	5287.85	335.629	0.77
11964.00	90.920	327.340	6712.51	5291.78	4898.51	-2230.14	1702769.55	553264.81	40°00'51.060"N	80°33'40.229"W	5382.28	335.522	4.59
12059.00	90.980	324.940	6710.94	5386.74	4977.38	-2283.06	1702716.63	553343.68	40°00'51.833"N	80°33'40.921"W	5476.01	335.360	2.53
12153.00	90.620	321.650	6709.63	5480.68	5052.72	-2339.23	1702660.46	553419.02	40°00'52.571"N	80°33'41.654"W	5567.95	335.158	3.52
12248.00	90.280	320.530	6708.88	5575.45	5126.64	-2398.90	1702600.80	553492.94	40°00'53.295"N	80°33'42.432"W	5660.14	334.924	1.23
12342.00	90.460	322.960	6708.27	5669.29	5200.45	-2457.09	1702542.61	553566.74	40°00'54.017"N	80°33'43.191"W	5751.69	334.710	2.59
12437.00	90.430	325.280	6707.54	5764.27	5277.42	-2512.77	1702486.93	553643.71	40°00'54.771"N	80°33'43.918"W	5845.09	334.539	2.44
12532.00	90.430	322.300	6706.82	5859.24	5354.06	-2568.88	1702430.82	553720.34	40°00'55.522"N	80°33'44.651"W	5938.44	334.368	3.14
12626.00	90.370	320.710	6706.17	5953.06	5427.62	-2627.39	1702372.32	553793.91	40°00'56.242"N	80°33'45.414"W	6030.11	334.169	1.69
12720.00	90.340	323.050	6705.58	6046.91	5501.57	-2685.41	1702314.30	553867.85	40°00'56.966"N	80°33'46.171"W	6121.98	333.982	2.49
12815.00	90.400	327.110	6704.97	6141.89	5579.45	-2739.78	1702259.93	553945.72	40°00'57.729"N	80°33'46.882"W	6215.83	333.847	4.27
12910.00	90.490	328.070	6704.23	6236.78	5659.64	-2790.69	1702209.02	554025.92	40°00'58.516"N	80°33'47.548"W	6310.27	333.753	1.01
13005.00	90.520	325.760	6703.39	6331.72	5739.23	-2842.54	1702157.17	554105.50	40°00'59.296"N	80°33'48.227"W	6404.60	333.652	2.43
13100.00	90.370	325.530	6702.66	6426.71	5817.66	-2896.15	1702103.56	554183.93	40°01'00.065"N	80°33'48.927"W	6498.68	333.535	0.29
13195.00	90.460	327.390	6701.97	6521.67	5896.84	-2948.64	1702051.08	554263.10	40°01'00.841"N	80°33'49.614"W	6592.96	333.433	1.96
13289.00	90.740	328.620	6700.98	6615.54	5976.55	-2998.44	1702001.28	554342.81	40°01'01.623"N	80°33'50.266"W	6686.54	333.357	1.34
13384.00	90.740	327.010	6699.76	6710.41	6056.94	-3049.04	1701950.68	554423.20	40°01'02.412"N	80°33'50.929"W	6781.09	333.280	1.69
13478.00	90.620	322.670	6698.64	6804.38	6133.77	-3103.15	1701896.57	554500.02	40°01'03.165"N	80°33'51.636"W	6874.06	333.165	4.62
13573.00	90.710	320.110	6697.54	6899.18	6207.99	-3162.42	1701837.30	554574.24	40°01'03.891"N	80°33'52.409"W	6967.07	333.005	2.70
13668.00	90.710	320.100	6696.36	6993.83	6280.87	-3223.35	1701776.38	554647.12	40°01'04.604"N	80°33'53.203"W	7059.70	332.833	0.01
13762.00	90.430	322.760	6695.43	7087.63	6354.35	-3281.95	1701717.78	554720.60	40°01'05.323"N	80°33'53.967"W	7151.85	332.684	2.85
13858.00	90.310	326.160	6694.81	7183.61	6432.46	-3337.74	1701661.99	554798.70	40°01'06.089"N	80°33'54.696"W	7246.86	332.576	3.54
13951.00	90.400	326.010	6694.23	7276.59	6509.63	-3389.63	1701610.10	554875.87	40°01'06.845"N	80°33'55.375"W	7339.27	332.494	0.19
14046.00	90.150	328.340	6693.77	7371.52	6589.46	-3441.12	1701558.61	554955.70	40°01'07.628"N	80°33'56.049"W	7433.86	332.426	2.47
14141.00	90.150	333.320	6693.52	7465.99	6672.38	-3487.41	1701512.33	555038.62	40°01'08.442"N	80°33'56.656"W	7528.80	332.406	5.24
14236.00	90.250	332.190	6693.19	7560.12	6756.84	-3530.90	1701468.84	555123.07	40°01'09.272"N	80°33'57.228"W	7623.79	332.410	1.19
14331.00	90.340	325.620	6692.70	7654.85	6838.15	-3579.94	1701419.81	555204.37	40°01'10.069"N	80°33'57.871"W	7718.56	332.367	6.92
14425.00	90.430	320.690	6692.07	7748.77	6913.35	-3636.29	1701363.46	555279.57	40°01'10.806"N	80°33'58.606"W	7811.33	332.256	5.25
14520.00	90.370	324.100	6691.41	7843.66	6988.60	-3694.25	1701305.50	555354.82	40°01'11.543"N	80°33'59.363"W	7904.93	332.139	3.59
14615.00	90.460	323.550	6690.72	7938.63	7065.28	-3750.32	1701249.43	555431.50	40°01'12.294"N	80°34'00.095"W	7998.94	332.040	0.59
14709.00	90.770	323.810	6689.71	8032.60	7141.01	-3805.99	1701193.76	555507.23	40°01'13.036"N	80°34'00.822"W	8091.95	331.943	0.43

51.01682



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

51-01682

WELLPATH DATA (189 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]
14804.00	90.710	324.480	6688.48	8127.58	7218.00	-3861.63	1701138.12	555584.22	40°01'13.790"N	80°34'01.549"W	8186.07	331.853	0.71
14899.00	90.620	323.600	6687.38	8222.56	7294.89	-3917.41	1701082.34	555661.10	40°01'14.543"N	80°34'02.278"W	8280.19	331.764	0.93
14994.00	90.710	326.330	6686.28	8317.55	7372.67	-3971.94	1701027.82	555738.87	40°01'15.305"N	80°34'02.990"W	8374.52	331.687	2.88
15089.00	90.650	326.420	6685.15	8412.51	7451.77	-4024.54	1700975.22	555817.97	40°01'16.081"N	80°34'03.679"W	8469.11	331.627	0.11
15183.00	90.740	324.630	6684.01	8506.50	7529.25	-4077.75	1700922.02	555895.45	40°01'16.840"N	80°34'04.374"W	8562.57	331.561	1.91
15278.00	90.680	320.470	6682.83	8601.38	7604.64	-4135.50	1700864.27	555970.84	40°01'17.578"N	80°34'05.128"W	8656.38	331.462	4.38
15373.00	90.400	324.240	6681.94	8696.26	7679.85	-4193.51	1700806.26	556046.04	40°01'18.315"N	80°34'05.885"W	8750.18	331.364	3.98
15449.00	90.460	324.200	6681.37	8772.25	7741.50	-4237.94	1700761.83	556107.70	40°01'18.919"N	80°34'06.465"W	8825.59	331.302	0.09
15474.00	90.460	324.200	6681.17	8797.25	7761.78	-4252.56	1700747.21	556127.97	40°01'19.117"N	80°34'06.657"W	8850.40	331.282	0.00

TARGETS										
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape	
SHL 25C-HS BHL:Plat		6653.00	7767.02	-4240.30	1700759.47	556133.21	40°01'19.171"N	80°34'06.500"W	point	
SHL 25C-HS BHL:Rev-1		6702.33	7767.02	-4240.30	1700759.47	556133.21	40°01'19.171"N	80°34'06.500"W	point	
SHL 25C-HS LP:Plat		6745.00	1090.92	434.36	1705433.94	549457.38	40°00'13.744"N	80°33'05.414"W	point	

WELLPATH COMPOSITION - Ref Wellbore: SHL 25C-HS (AWB) Ref Wellpath: SHL 25C-HS (AWP) Proj: 15474'				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	3305.00	Generic gyro - northseeking (Standard)	01_12 1/4" VES Gyro Surveys (100'-3290')	SHL 25C-HS (AWB)
3305.00	5171.00	NaviTrak (MagCorr)	02_BHI MWD Surveys 8 3/4"(3305')(3373'-5171')	SHL 25C-HS (AWB)
5171.00	15449.00	NaviTrak (MagCorr)	03_BHI AT Curve <8-3/4"> (5171')(5234'-15449')	SHL 25C-HS (AWB)
15449.00	15474.00	Blind Drilling (std)	Projection to bit	SHL 25C-HS (AWB)

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

51-01682

COMMENTS
<p><b>Wellpath general comments</b>            API:47-051-01682-0000            Rig: Nomac 79            BHI Job #: 6389945            Duration: 05/21/2014-05/30/2014            VES Gyro &lt;12 1/4"&gt;(100'-3290')            BHI MWD Surveys &lt;8 3/4"&gt;(3305')(3373'-5171')            BHI AT Curve &lt;8 3/4"&gt;(5171')(5234-15449')            TD Projected to MD: 15474'</p>

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# NOBLE ENERGY



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

Slot: Slot C  
 Well: SHL 25C-HS  
 Wellbore: SHL 25C-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 C	9.13	-28.59	1704999.600	548366.500	40°00'02.913"N	80°33'10.831"W
Nomac 79 (RT) to Mud line (At Slot: Slot C)				26ft		
Mean Sea Level to Mud line (At Slot: Slot C)				-1325ft		
Nomac 79 (RT) to Mean Sea Level				1351ft		
Plot reference wellpath is SHL 25C-HS (PWP) Rev-D.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 C) -1325 feet			Depths are in feet			
Coordinates are in feet referenced to Slot			Created by: kroschr on 04/Jun/2014			

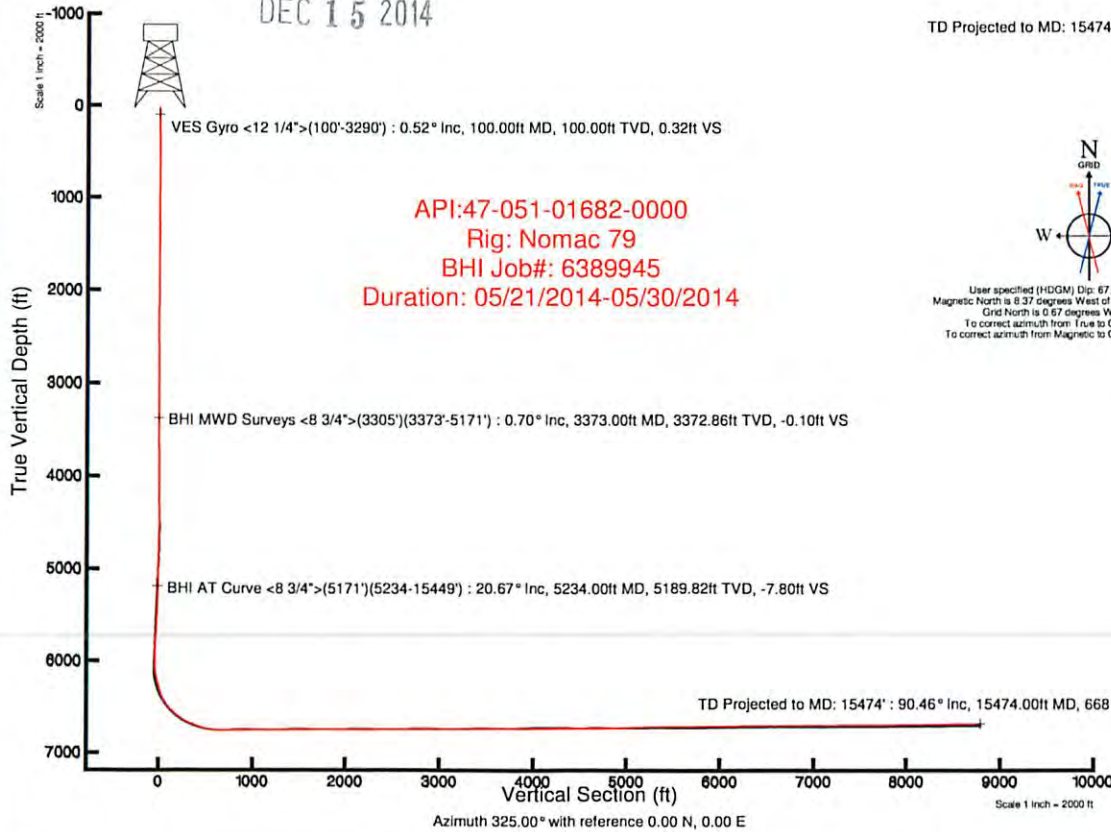
### Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (*/100ft)	VS (ft)
Tie On	4414.00	10.410	50.280	4411.10	17.76	12.14	0.00	7.59
Projection	4466.00	11.740	51.540	4462.13	24.06	19.89	2.60	8.29
End of 3D Arc (J)	4784.49	20.967	60.726	4767.46	72.18	95.15	3.00	4.56
End of Tangent (J)	6147.50	20.967	60.726	6040.21	310.68	520.58	0.00	-44.10
End of 3D Arc	6768.37	50.000	358.000	6554.54	617.52	613.69	7.00	153.84
LP	7327.00	90.300	325.000	6745.00	1090.92	434.36	9.00	644.50
BHL	15477.12	90.300	325.000	6702.33	7767.02	-4240.30	0.00	8794.51

### Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SHL 25C HS BHL Plat	6653.00	7767.02	-4240.30	1700759.47	556133.21	40°01'19.171"N	80°34'06.500"W	
SHL 25C HS BHL Rev-1	15477.12	6702.33	7767.02	-4240.30	1700759.47	556133.21	40°01'19.171"N	80°34'06.500"W
SHL 25C HS LP Plat	7327.00	6745.00	1090.92	434.36	1705433.94	549457.38	40°02'13.744"N	80°33'05.414"W

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TD Projected to MD: 15474° : 6681.17ft TVD, 7761.78ft N, 4252.56ft W



User specified (HDGM) Dip: 67.54° Field: 53199 nT  
 Magnetic North is 8.37 degrees West of True North (at 21/May/2014)  
 Grid North is 0.67 degrees West of True North  
 To correct azimuth from True to Grid add 0.67 degrees  
 To correct azimuth from Magnetic to Grid subtract 7.70 degrees

