

Actual Wellpath Report

SHL 25A-HS (AWP) Proj: 13890'

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REFERENCE WELLPATH IDENTIFICATION

Operator	NOBLE ENERGY	Slot	Slot A
Area	Marshall County, WV	Well	SHL 25A-HS
Field	Marshall	Wellbore	SHL 25A-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	18/Jun/2014 at 13:25
Convergence at slot	0.67° West	Database/Source file	WA_Pennsylvania/SHL_25A-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	0.00	0.00	1705028.19	548357.37	40°00'02.826"N	80°33'10.462"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 A)	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 25A-HS
Field	Marshall	Wellbore	SHL 25A-HS (AWB)
Facility	SHL-25 Pad		

WELLPATH DATA (150 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	179.200	0.00	0.00	0.00	0.00	1705028.19	548357.37	40°00'02.826"N	80°33'10.462"W	0.00	0.000	0.00
26.00	0.000	179.200	26.00	0.00	0.00	0.00	1705028.19	548357.37	40°00'02.826"N	80°33'10.462"W	0.00	0.000	0.00
115.00	0.190	179.200	115.00	-0.12	-0.15	0.00	1705028.19	548357.22	40°00'02.825"N	80°33'10.462"W	0.15	179.200	0.21
215.00	0.220	188.040	215.00	-0.40	-0.50	-0.02	1705028.17	548356.87	40°00'02.822"N	80°33'10.463"W	0.50	182.556	0.04
315.00	0.430	190.450	315.00	-0.80	-1.06	-0.12	1705028.07	548356.31	40°00'02.816"N	80°33'10.464"W	1.07	186.304	0.21
415.00	0.430	196.860	414.99	-1.30	-1.79	-0.29	1705027.90	548355.58	40°00'02.809"N	80°33'10.466"W	1.81	189.333	0.05
515.00	0.360	183.040	514.99	-1.78	-2.46	-0.42	1705027.77	548354.91	40°00'02.802"N	80°33'10.467"W	2.50	189.670	0.12
615.00	0.230	170.150	614.99	-2.21	-2.97	-0.40	1705027.79	548354.40	40°00'02.797"N	80°33'10.467"W	3.00	187.697	0.15
715.00	0.280	168.670	714.99	-2.61	-3.41	-0.32	1705027.87	548353.96	40°00'02.793"N	80°33'10.466"W	3.43	185.353	0.05
771.00	0.410	170.470	770.99	-2.92	-3.74	-0.26	1705027.93	548353.63	40°00'02.789"N	80°33'10.465"W	3.75	183.968	0.23
1281.00	0.440	249.940	1280.98	-4.06	-6.22	-1.80	1705026.39	548351.15	40°00'02.765"N	80°33'10.484"W	6.47	196.126	0.11
1340.00	0.550	266.060	1339.98	-3.86	-6.31	-2.29	1705025.90	548351.06	40°00'02.764"N	80°33'10.491"W	6.72	199.958	0.30
1468.00	0.750	240.830	1467.97	-3.45	-6.76	-3.64	1705024.55	548350.61	40°00'02.759"N	80°33'10.508"W	7.68	208.269	0.27
1563.00	1.070	241.680	1562.96	-3.29	-7.49	-4.96	1705023.23	548349.88	40°00'02.752"N	80°33'10.525"W	8.98	213.527	0.34
1658.00	1.210	248.890	1657.94	-2.94	-8.27	-6.68	1705021.51	548349.10	40°00'02.744"N	80°33'10.547"W	10.63	218.921	0.21
1752.00	1.110	124.330	1751.93	-3.56	-9.14	-6.85	1705021.34	548348.23	40°00'02.735"N	80°33'10.549"W	11.42	216.854	2.19
1847.00	1.590	112.950	1846.90	-5.54	-10.17	-4.88	1705023.31	548347.20	40°00'02.725"N	80°33'10.523"W	11.28	205.616	0.58
1942.00	1.710	119.610	1941.86	-7.93	-11.39	-2.43	1705025.76	548345.98	40°00'02.714"N	80°33'10.492"W	11.64	192.054	0.24
1987.00	1.640	123.790	1986.84	-9.14	-12.08	-1.31	1705026.88	548345.29	40°00'02.707"N	80°33'10.477"W	12.15	186.203	0.31
2036.00	1.400	121.970	2035.83	-10.34	-12.78	-0.22	1705027.97	548344.59	40°00'02.700"N	80°33'10.463"W	12.79	180.995	0.50
2131.00	0.980	127.030	2130.81	-12.19	-13.89	1.41	1705029.60	548343.48	40°00'02.689"N	80°33'10.442"W	13.96	174.199	0.46
2226.00	1.100	117.820	2225.79	-13.77	-14.80	2.87	1705031.06	548342.57	40°00'02.681"N	80°33'10.423"W	15.08	169.042	0.22
2320.00	1.010	130.800	2319.77	-15.38	-15.76	4.29	1705032.48	548341.61	40°00'02.671"N	80°33'10.405"W	16.34	164.773	0.27
2415.00	0.960	126.700	2414.76	-16.94	-16.79	5.56	1705033.75	548340.58	40°00'02.661"N	80°33'10.388"W	17.69	161.666	0.09
2509.00	0.380	127.660	2508.75	-17.99	-17.45	6.44	1705034.63	548339.92	40°00'02.655"N	80°33'10.377"W	18.60	159.738	0.62
2605.00	0.580	157.330	2604.75	-18.77	-18.09	6.88	1705035.07	548339.28	40°00'02.649"N	80°33'10.371"W	19.36	159.177	0.33
2699.00	0.250	175.570	2698.75	-19.41	-18.73	7.08	1705035.27	548338.64	40°00'02.642"N	80°33'10.369"W	20.03	159.299	0.37
2794.00	0.530	236.090	2793.75	-19.58	-19.19	6.73	1705034.92	548338.18	40°00'02.638"N	80°33'10.373"W	20.33	160.668	0.49
2889.00	0.810	253.060	2888.74	-19.36	-19.63	5.72	1705033.91	548337.74	40°00'02.633"N	80°33'10.386"W	20.45	163.742	0.36
2983.00	1.050	239.260	2982.73	-19.09	-20.26	4.35	1705032.54	548337.11	40°00'02.627"N	80°33'10.403"W	20.72	167.888	0.35
3078.00	1.360	252.350	3077.71	-18.69	-21.05	2.53	1705030.72	548336.32	40°00'02.619"N	80°33'10.427"W	21.20	173.157	0.43
3173.00	1.560	250.680	3172.67	-18.00	-21.82	0.23	1705028.42	548335.55	40°00'02.611"N	80°33'10.456"W	21.82	179.393	0.22
3233.00	1.530	247.390	3232.65	-17.61	-22.40	-1.28	1705026.91	548334.98	40°00'02.605"N	80°33'10.475"W	22.43	183.269	0.16
3372.00	1.710	253.520	3371.60	-16.56	-23.70	-4.98	1705023.21	548333.67	40°00'02.592"N	80°33'10.523"W	24.22	191.870	0.18
3467.00	0.850	77.820	3466.59	-16.38	-23.95	-5.65	1705022.54	548333.42	40°00'02.589"N	80°33'10.531"W	24.61	193.276	2.69
3561.00	1.420	52.230	3560.57	-16.59	-23.09	-4.05	1705024.14	548334.28	40°00'02.598"N	80°33'10.511"W	23.44	189.946	0.80
3656.00	0.280	229.610	3655.56	-16.56	-22.52	-3.30	1705024.89	548334.85	40°00'02.604"N	80°33'10.501"W	22.76	188.325	1.79
3751.00	0.650	223.060	3750.56	-16.69	-23.06	-3.84	1705024.35	548334.31	40°00'02.598"N	80°33'10.508"W	23.38	189.453	0.39
3846.00	0.830	210.710	3845.55	-17.08	-24.05	-4.56	1705023.63	548333.32	40°00'02.588"N	80°33'10.517"W	24.48	190.735	0.25
3941.00	1.280	214.330	3940.53	-17.74	-25.52	-5.51	1705022.68	548331.85	40°00'02.574"N	80°33'10.529"W	26.11	192.183	0.48
4036.00	0.700	233.970	4035.52	-18.13	-26.73	-6.58	1705021.61	548330.64	40°00'02.562"N	80°33'10.543"W	27.53	193.821	0.70
4130.00	0.390	286.970	4129.51	-17.89	-26.98	-7.35	1705020.84	548330.39	40°00'02.559"N	80°33'10.553"W	27.96	195.234	0.60
4225.00	0.810	266.320	4224.51	-17.28	-26.93	-8.33	1705019.86	548330.44	40°00'02.559"N	80°33'10.565"W	28.19	197.183	0.49
4320.00	1.120	257.050	4319.50	-16.58	-27.18	-9.90	1705018.29	548330.19	40°00'02.557"N	80°33'10.585"W	28.93	200.017	0.36
4415.00	0.670	185.410	4414.49	-16.66	-27.94	-10.86	1705017.33	548329.43	40°00'02.549"N	80°33'10.598"W	29.98	201.238	1.17

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

WELLPATH DATA (150 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]
4509.00	0.980	230.120	4508.48	-17.15	-29.00	-11.53	1705016.66	548328.37	40°00'02.539"N	80°33'10.606"W	31.21	201.676	0.73
4604.00	1.090	230.020	4603.46	-17.29	-30.10	-12.84	1705015.35	548327.27	40°00'02.528"N	80°33'10.623"W	32.73	203.105	0.12
4699.00	1.320	246.880	4698.44	-17.15	-31.11	-14.54	1705013.65	548326.26	40°00'02.517"N	80°33'10.644"W	34.35	205.050	0.44
4793.00	1.070	293.930	4792.42	-16.17	-31.18	-16.34	1705011.85	548326.19	40°00'02.516"N	80°33'10.668"W	35.21	207.654	1.04
4888.00	1.120	279.630	4887.41	-14.76	-30.67	-18.07	1705010.12	548326.70	40°00'02.521"N	80°33'10.690"W	35.59	210.502	0.29
4983.00	1.650	279.130	4982.38	-13.16	-30.30	-20.33	1705007.86	548327.08	40°00'02.525"N	80°33'10.719"W	36.49	213.866	0.56
5078.00	1.300	308.760	5077.35	-11.17	-29.40	-22.52	1705005.67	548327.97	40°00'02.533"N	80°33'10.747"W	37.04	217.451	0.87
5173.00	1.420	287.360	5172.32	-9.20	-28.38	-24.49	1705003.70	548328.99	40°00'02.543"N	80°33'10.773"W	37.48	220.790	0.55
5267.00	0.960	17.100	5266.31	-7.80	-27.28	-25.37	1705002.82	548330.09	40°00'02.554"N	80°33'10.784"W	37.25	222.921	1.82
5347.00	1.090	30.910	5346.29	-7.07	-25.98	-24.78	1705003.41	548331.39	40°00'02.567"N	80°33'10.777"W	35.91	223.639	0.35
5424.00	2.560	94.630	5423.26	-7.87	-25.50	-22.69	1705005.50	548331.88	40°00'02.572"N	80°33'10.750"W	34.13	221.666	2.98
5518.00	10.400	98.750	5516.59	-15.09	-26.96	-12.19	1705016.00	548330.41	40°00'02.559"N	80°33'10.615"W	29.59	204.339	8.35
5613.00	10.490	104.980	5610.02	-27.64	-30.50	4.64	1705032.83	548326.87	40°00'02.526"N	80°33'10.398"W	30.85	171.357	1.19
5708.00	11.170	112.890	5703.33	-42.06	-36.31	21.47	1705049.66	548321.06	40°00'02.470"N	80°33'10.181"W	42.18	149.408	1.72
5803.00	11.150	115.220	5796.53	-57.83	-43.81	38.26	1705066.44	548313.57	40°00'02.398"N	80°33'09.964"W	58.16	138.869	0.48
5898.00	11.160	115.000	5889.74	-73.76	-51.60	54.90	1705083.09	548305.77	40°00'02.323"N	80°33'09.749"W	75.34	133.229	0.05
5992.00	11.110	113.090	5981.97	-89.33	-59.00	71.47	1705099.66	548298.37	40°00'02.252"N	80°33'09.535"W	92.68	129.540	0.40
6087.00	10.790	51.110	6075.54	-96.52	-57.00	86.86	1705115.05	548300.37	40°00'02.273"N	80°33'09.338"W	103.90	123.274	11.82
6182.00	12.300	5.030	6168.80	-88.15	-41.31	94.69	1705122.87	548316.07	40°00'02.429"N	80°33'09.240"W	103.31	113.568	9.57
6230.00	13.130	0.460	6215.63	-79.79	-30.76	95.18	1705123.37	548326.61	40°00'02.534"N	80°33'09.235"W	100.03	107.910	2.72
6277.00	17.390	359.690	6260.96	-69.66	-18.39	95.19	1705123.37	548338.98	40°00'02.656"N	80°33'09.237"W	96.95	100.937	9.07
6326.00	21.570	0.530	6307.14	-56.31	-2.06	95.23	1705123.42	548355.31	40°00'02.817"N	80°33'09.238"W	95.25	91.237	8.55
6372.00	26.010	0.270	6349.23	-41.18	16.49	95.35	1705123.54	548373.86	40°00'03.001"N	80°33'09.240"W	96.77	80.186	9.65
6467.00	35.880	349.710	6430.66	1.25	64.87	90.46	1705118.65	548422.24	40°00'03.478"N	80°33'09.310"W	111.32	54.356	11.82
6561.00	44.580	345.470	6502.37	57.30	124.03	77.24	1705105.43	548481.40	40°00'04.061"N	80°33'09.489"W	146.12	31.912	9.70
6656.00	47.570	347.490	6568.27	120.95	190.55	61.28	1705089.46	548547.92	40°00'04.717"N	80°33'09.704"W	200.16	17.826	3.50
6751.00	55.840	336.620	6627.20	192.09	261.11	38.00	1705066.19	548618.47	40°00'05.411"N	80°33'10.013"W	263.86	8.280	12.49
6846.00	65.920	331.130	6673.40	273.97	335.40	1.35	1705029.54	548692.76	40°00'06.141"N	80°33'10.496"W	335.40	0.231	11.74
6941.00	75.540	329.690	6704.72	363.14	413.27	-42.91	1704985.28	548770.62	40°00'06.905"N	80°33'11.076"W	415.49	354.073	10.23
7036.00	81.350	329.520	6723.74	455.88	493.52	-89.98	1704938.21	548850.87	40°00'07.693"N	80°33'11.693"W	501.65	349.667	6.12
7131.00	88.580	327.260	6732.07	550.28	574.05	-139.55	1704888.64	548931.39	40°00'08.483"N	80°33'12.342"W	590.77	346.336	7.97
7166.00	91.480	326.440	6732.05	585.25	603.35	-158.69	1704869.51	548960.69	40°00'08.770"N	80°33'12.592"W	623.87	345.264	8.61
7198.00	91.940	324.340	6731.10	617.24	629.67	-176.86	1704851.34	548987.02	40°00'09.028"N	80°33'12.830"W	654.04	344.311	6.72
7226.00	92.090	323.340	6730.11	645.21	652.26	-193.37	1704834.83	549009.61	40°00'09.250"N	80°33'13.045"W	680.32	343.487	3.61
7320.00	91.140	322.250	6727.46	739.10	727.10	-250.18	1704778.02	549084.44	40°00'09.983"N	80°33'13.786"W	768.94	341.013	1.54
7415.00	90.490	321.490	6726.11	833.95	801.82	-308.83	1704719.37	549159.16	40°00'10.714"N	80°33'14.551"W	859.24	338.935	1.05
7510.00	90.580	319.770	6725.22	928.67	875.26	-369.09	1704659.11	549232.59	40°00'11.433"N	80°33'15.337"W	949.89	337.135	1.81
7605.00	90.650	325.050	6724.20	1023.53	950.50	-427.02	1704601.19	549307.83	40°00'12.170"N	80°33'16.092"W	1042.02	335.808	5.56
7700.00	90.580	325.810	6723.18	1118.52	1028.72	-480.92	1704547.29	549386.05	40°00'12.936"N	80°33'16.797"W	1135.58	334.944	0.80
7794.00	90.490	326.820	6722.31	1212.49	1106.94	-533.05	1704495.16	549464.26	40°00'13.703"N	80°33'17.478"W	1228.60	334.287	1.08
7889.00	90.620	327.860	6721.39	1307.41	1186.91	-584.31	1704443.90	549544.23	40°00'14.488"N	80°33'18.149"W	1322.94	333.789	1.10
7984.00	90.740	327.780	6720.26	1402.29	1267.31	-634.90	1704393.31	549624.63	40°00'15.276"N	80°33'18.811"W	1417.46	333.390	0.15
8079.00	90.650	331.420	6719.11	1496.96	1349.23	-682.97	1704345.25	549706.55	40°00'16.080"N	80°33'19.441"W	1512.24	333.152	3.83
8174.00	90.740	330.570	6717.95	1591.43	1432.31	-729.03	1704299.19	549789.62	40°00'16.896"N	80°33'20.046"W	1607.17	333.024	0.90
8268.00	90.620	320.970	6716.84	1685.31	1509.93	-781.84	1704246.38	549867.24	40°00'17.657"N	80°33'20.736"W	1700.34	332.625	10.21

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REFERENCE WELLPATH IDENTIFICATION			
Operator	NOBLE ENERGY	Slot	Slot A
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Field	Marshall	Wellbore	SHL 25A-HS (AWB)
Facility	SHL-25 Pad		

WELLPATH DATA (150 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]
8363.00	90.740	319.480	6715.71	1779.97	1582.94	-842.61	1704185.61	549940.24	40°00'18.371"N	80°33'21.528"W	1793.23	331.973	1.57
8458.00	90.920	322.440	6714.33	1874.71	1656.71	-902.43	1704125.79	550014.01	40°00'19.093"N	80°33'22.308"W	1886.55	331.422	3.12
8552.00	90.950	325.610	6712.80	1968.67	1732.76	-957.64	1704070.59	550090.06	40°00'19.838"N	80°33'23.028"W	1979.78	331.072	3.37
8647.00	91.050	322.900	6711.14	2063.64	1809.84	-1013.12	1704015.11	550167.14	40°00'20.593"N	80°33'23.753"W	2074.11	330.761	2.85
8742.00	90.950	325.350	6709.48	2158.61	1886.80	-1068.78	1703959.45	550244.10	40°00'21.348"N	80°33'24.480"W	2168.48	330.471	2.58
8836.00	90.860	327.030	6708.00	2252.57	1964.90	-1121.08	1703907.16	550322.19	40°00'22.113"N	80°33'25.164"W	2262.22	330.293	1.79
8931.00	91.140	327.660	6706.34	2347.48	2044.87	-1172.33	1703855.91	550402.16	40°00'22.897"N	80°33'25.834"W	2357.08	330.174	0.73
9027.00	90.060	324.580	6705.33	2443.44	2124.55	-1225.84	1703802.40	550481.84	40°00'23.679"N	80°33'26.534"W	2452.83	330.016	3.40
9121.00	89.910	324.320	6705.36	2537.44	2201.03	-1280.49	1703747.75	550558.31	40°00'24.428"N	80°33'27.248"W	2546.41	329.811	0.32
9216.00	89.910	323.790	6705.51	2632.42	2277.94	-1336.25	1703691.99	550635.22	40°00'25.182"N	80°33'27.976"W	2640.94	329.604	0.56
9312.00	89.880	322.930	6705.68	2728.38	2354.97	-1393.54	1703634.70	550712.25	40°00'25.936"N	80°33'28.724"W	2736.39	329.385	0.90
9406.00	90.830	322.390	6705.10	2822.30	2429.70	-1450.56	1703577.69	550786.98	40°00'26.668"N	80°33'29.468"W	2829.76	329.162	1.16
9501.00	89.510	320.640	6704.82	2917.12	2504.06	-1509.67	1703518.58	550861.33	40°00'27.396"N	80°33'30.239"W	2923.94	328.915	2.31
9596.00	88.920	323.080	6706.12	3011.96	2578.77	-1568.33	1703459.92	550936.03	40°00'28.127"N	80°33'31.004"W	3018.23	328.693	2.64
9690.00	88.950	326.330	6707.87	3105.93	2655.46	-1622.63	1703405.63	551012.73	40°00'28.879"N	80°33'31.713"W	3111.98	328.573	3.46
9785.00	88.980	326.590	6709.58	3200.88	2734.63	-1675.11	1703353.15	551091.89	40°00'29.655"N	80°33'32.399"W	3206.90	328.510	0.28
9880.00	88.920	323.740	6711.32	3295.86	2812.59	-1729.36	1703298.90	551169.85	40°00'30.419"N	80°33'33.108"W	3301.72	328.414	3.00
9974.00	88.920	324.180	6713.10	3389.83	2888.58	-1784.66	1703243.61	551245.84	40°00'31.164"N	80°33'33.830"W	3395.42	328.291	0.47
10069.00	89.780	327.420	6714.17	3484.80	2967.14	-1838.04	1703190.22	551324.39	40°00'31.934"N	80°33'34.528"W	3490.32	328.223	3.53
10163.00	89.880	325.900	6714.45	3578.75	3045.67	-1889.70	1703138.56	551402.92	40°00'32.704"N	80°33'35.204"W	3584.28	328.182	1.62
10258.00	89.880	327.590	6714.65	3673.71	3125.11	-1941.80	1703086.47	551482.35	40°00'33.483"N	80°33'35.885"W	3679.25	328.145	1.78
10352.00	90.060	328.830	6714.70	3767.56	3205.00	-1991.32	1703036.95	551562.25	40°00'34.269"N	80°33'36.534"W	3773.25	328.147	1.33
10447.00	90.460	327.420	6714.27	3862.41	3285.67	-2041.48	1702986.79	551642.91	40°00'35.058"N	80°33'37.191"W	3868.24	328.146	1.54
10541.00	90.370	327.740	6713.59	3956.31	3365.02	-2091.87	1702936.40	551722.26	40°00'35.836"N	80°33'37.850"W	3962.23	328.133	0.35
10636.00	90.430	326.980	6712.93	4051.23	3445.02	-2143.11	1702885.16	551802.25	40°00'36.620"N	80°33'38.521"W	4057.22	328.115	0.80
10731.00	90.310	324.690	6712.31	4146.21	3523.61	-2196.46	1702831.82	551880.84	40°00'37.391"N	80°33'39.218"W	4152.14	328.063	2.41
10825.00	90.250	323.310	6711.85	4240.19	3599.66	-2251.71	1702776.57	551956.89	40°00'38.136"N	80°33'39.940"W	4245.91	327.973	1.47
10921.00	90.150	323.160	6711.52	4336.15	3676.56	-2309.17	1702719.12	552033.79	40°00'38.889"N	80°33'40.690"W	4341.59	327.868	0.19
11015.00	90.280	323.580	6711.17	4430.11	3752.00	-2365.25	1702663.04	552109.22	40°00'39.628"N	80°33'41.422"W	4435.30	327.773	0.47
11110.00	90.370	321.830	6710.63	4525.03	3827.57	-2422.81	1702605.48	552184.79	40°00'40.368"N	80°33'42.173"W	4529.93	327.667	1.84
11205.00	90.460	322.720	6709.94	4619.92	3902.71	-2480.93	1702547.35	552259.92	40°00'41.104"N	80°33'42.931"W	4624.52	327.556	0.94
11299.00	90.220	326.910	6709.38	4713.89	3979.52	-2535.09	1702493.21	552336.73	40°00'41.856"N	80°33'43.639"W	4718.39	327.501	4.46
11394.00	90.370	325.910	6708.89	4808.86	4058.65	-2587.64	1702440.65	552415.86	40°00'42.632"N	80°33'44.326"W	4813.37	327.480	1.06
11489.00	90.400	324.550	6708.25	4903.86	4136.68	-2641.82	1702386.48	552493.89	40°00'43.397"N	80°33'45.034"W	4908.29	327.436	1.43
11583.00	89.970	323.740	6707.95	4997.85	4212.87	-2696.88	1702331.42	552570.07	40°00'44.143"N	80°33'45.754"W	5002.14	327.375	0.98
11678.00	89.850	323.900	6708.10	5092.82	4289.55	-2752.96	1702275.34	552646.75	40°00'44.895"N	80°33'46.486"W	5096.96	327.308	0.21
11773.00	90.250	324.430	6708.02	5187.81	4366.57	-2808.57	1702219.73	552723.76	40°00'45.649"N	80°33'47.212"W	5191.82	327.251	0.70
11867.00	90.220	323.860	6707.63	5281.80	4442.75	-2863.63	1702164.67	552799.95	40°00'46.396"N	80°33'47.932"W	5285.68	327.196	0.61
11962.00	90.280	323.690	6707.22	5376.78	4519.39	-2919.77	1702108.53	552876.58	40°00'47.146"N	80°33'48.665"W	5380.52	327.135	0.19
12057.00	90.150	323.540	6706.86	5471.75	4595.87	-2976.13	1702052.18	552953.06	40°00'47.895"N	80°33'49.400"W	5475.34	327.074	0.21
12151.00	90.400	323.460	6706.41	5565.72	4671.43	-3032.04	1701996.27	553028.61	40°00'48.636"N	80°33'50.130"W	5569.16	327.014	0.28
12246.00	90.460	328.030	6705.69	5660.68	4749.93	-3085.50	1701942.82	553107.11	40°00'49.405"N	80°33'50.829"W	5664.11	326.993	4.81
12341.00	90.520	329.630	6704.88	5755.46	4831.21	-3134.66	1701889.65	553188.39	40°00'50.202"N	80°33'51.474"W	5759.05	327.023	1.69
12435.00	90.680	329.110	6703.90	5849.18	4912.09	-3182.55	1701845.76	553269.26	40°00'50.996"N	80°33'52.101"W	5852.97	327.061	0.58
12530.00	90.650	329.450	6702.79	5943.91	4993.75	-3231.08	1701797.24	553350.92	40°00'51.797"N	80°33'52.737"W	5947.89	327.096	0.36

51-01671

REFERENCE WELLPATH IDENTIFICATION

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

WELLPATH DATA (150 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]
12625.00	90.580	328.700	6701.78	6038.67	5075.24	-3279.90	1701748.42	553432.41	40°00'52.597"N	80°33'53.377"W	6042.83	327.127	0.79
12720.00	90.620	327.370	6700.78	6133.53	5155.83	-3330.19	1701698.13	553512.99	40°00'53.387"N	80°33'54.036"W	6137.81	327.141	1.40
12815.00	90.550	324.510	6699.81	6228.50	5234.52	-3383.39	1701644.94	553591.68	40°00'54.159"N	80°33'54.731"W	6232.78	327.123	3.01
12910.00	91.020	322.460	6698.51	6323.45	5310.86	-3439.91	1701588.42	553668.02	40°00'54.907"N	80°33'55.469"W	6327.57	327.068	2.21
13004.00	90.490	322.040	6697.27	6417.33	5385.18	-3497.45	1701530.88	553742.33	40°00'55.634"N	80°33'56.220"W	6421.24	326.998	0.72
13099.00	90.550	321.450	6696.41	6512.18	5459.78	-3556.27	1701472.07	553816.93	40°00'56.364"N	80°33'56.987"W	6515.84	326.921	0.62
13194.00	90.620	322.170	6695.44	6607.02	5534.44	-3615.00	1701413.34	553891.59	40°00'57.095"N	80°33'57.754"W	6610.46	326.848	0.76
13289.00	90.520	323.260	6694.49	6701.94	5610.02	-3672.54	1701355.79	553967.16	40°00'57.835"N	80°33'58.505"W	6705.21	326.790	1.15
13383.00	90.520	324.390	6693.64	6795.92	5685.89	-3728.02	1701300.31	554043.04	40°00'58.579"N	80°33'59.229"W	6799.08	326.749	1.20
13478.00	90.490	326.320	6692.80	6890.91	5764.04	-3782.03	1701246.31	554121.18	40°00'59.345"N	80°33'59.935"W	6894.05	326.729	2.03
13573.00	90.460	327.500	6692.01	6985.85	5843.63	-3833.89	1701194.45	554200.77	40°01'00.125"N	80°34'00.614"W	6989.04	326.732	1.24
13668.00	90.400	328.620	6691.30	7080.71	5924.24	-3884.15	1701144.20	554281.38	40°01'00.916"N	80°34'01.272"W	7084.01	326.750	1.18
13762.00	90.620	326.930	6690.46	7174.59	6003.76	-3934.27	1701094.08	554360.89	40°01'01.696"N	80°34'01.928"W	7177.99	326.763	1.81
13866.00	90.490	325.880	6689.46	7278.55	6090.38	-3991.81	1701036.54	554447.51	40°01'02.545"N	80°34'02.681"W	7281.98	326.758	1.02
13890.00	90.490	325.880	6689.25	7302.55	6110.25	-4005.27	1701023.08	554467.37	40°01'02.740"N	80°34'02.857"W	7305.98	326.755	0.00

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SHL 25A-HS BHL:Rev-1		6661.00	6096.06	-4008.16	1701020.19	554453.19	40°01'02.599"N	80°34'02.892"W	point
SHL 25A-HS BHL:Rev-2		6680.91	6096.06	-4008.16	1701020.19	554453.19	40°01'02.599"N	80°34'02.892"W	point
SHL 25A-HS LP:Rev-1		6726.00	570.88	-139.39	1704888.81	548928.23	40°00'08.452"N	80°33'12.339"W	point
SHL 25A-HS LP:Rev-2		6728.00	570.88	-139.39	1704888.81	548928.23	40°00'08.452"N	80°33'12.339"W	point

WELLPATH COMPOSITION - Ref Wellbore: SHL 25A-HS (AWB) Ref Wellpath: SHL 25A-HS (AWP) Proj: 13890'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	771.00	Generic gyro - northseeking (Standard)	01_VES Gyro Surveys 17 1/2" (100'-756')	SHL 25A-HS (AWB)
771.00	3233.00	NaviTrak (Standard)	02_BHI MWD Surveys 12 1/4" (771')(1281'-3233') Proj: 3285'	SHL 25A-HS (AWB)
3233.00	5347.00	NaviTrak (MagCorr)	03_BHI LCP 8 3/4" (3233')(3372'-5347')	SHL 25A-HS (AWB)
5347.00	13866.00	NaviTrak (MagCorr)	04_BHI AT Curve <8-3/4"> (5347')(5424'-13866')	SHL 25A-HS (AWB)
13866.00	13890.00	Blind Drilling (std)	Projection to bit	SHL 25A-HS (AWB)

Received
Office of Oil & Gas
DEC 15 2014

51-01671

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

COMMENTS
<p>Wellpath general comments API: 47-051-01671-0000 Rig: Nomac 79 BHI Job #: 6323806A Duration: 06/11/2014-06/17/2014 VES Gyro Surveys (100'-756') BHI MWD Surveys (771')(1281'-3233') BHI LCP (3233')(3372'-5347') BHI AT Curve (5347')(5424'-13866') TD Projected to MD: 13890'</p>

51-01671

Received
 Office of Oil & Gas
 DEC 15 2014



NOBLE ENERGY



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

Slot: Slot A
Well: SHL 25A-HS
Wellbore: SHL 25A-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 A	0.00	0.00	1705028.190	548357.370	40°00'02.826"N	80°33'10.462"W
Nomac 79 (RT) to Mud line (At Slot: Slot A)				26ft		
Mean Sea Level to Mud line (At Slot: Slot A)				-1325ft		
Nomac 79 (RT) to Mean Sea Level				1351ft		
Plot reference wellpath is SHL 25A-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 A): -1325 feet			Depths are in feet			
Coordinates are in feet referenced to Slot			Created by: kroschr on 18/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	3233.00	1.530	247.390	3232.65	-22.40	-1.28	0.00	-17.61
Projection	3285.00	1.530	247.390	3284.63	-22.93	-2.56	0.00	-17.31
End of Drop	3361.50	0.000	108.741	3361.13	-23.32	-3.50	2.00	-17.09
KOP	5400.00	0.000	108.741	5399.63	-23.32	-3.50	0.00	-17.09
End of Build (J)	5665.52	10.621	108.741	5663.62	-31.21	19.73	4.00	-36.88
End of Tangent (J)	6011.72	10.621	108.741	6003.90	-51.71	80.16	0.00	-88.33
End of 3D Arc	6380.13	28.000	358.000	6357.51	25.99	110.13	9.00	-41.88
LP	7126.77	90.400	325.000	6728.00	570.88	-139.39	9.00	547.59
BHL	13871.93	90.400	325.000	6680.91	6096.06	-4008.16	0.00	7292.59

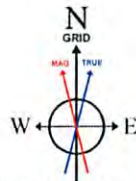
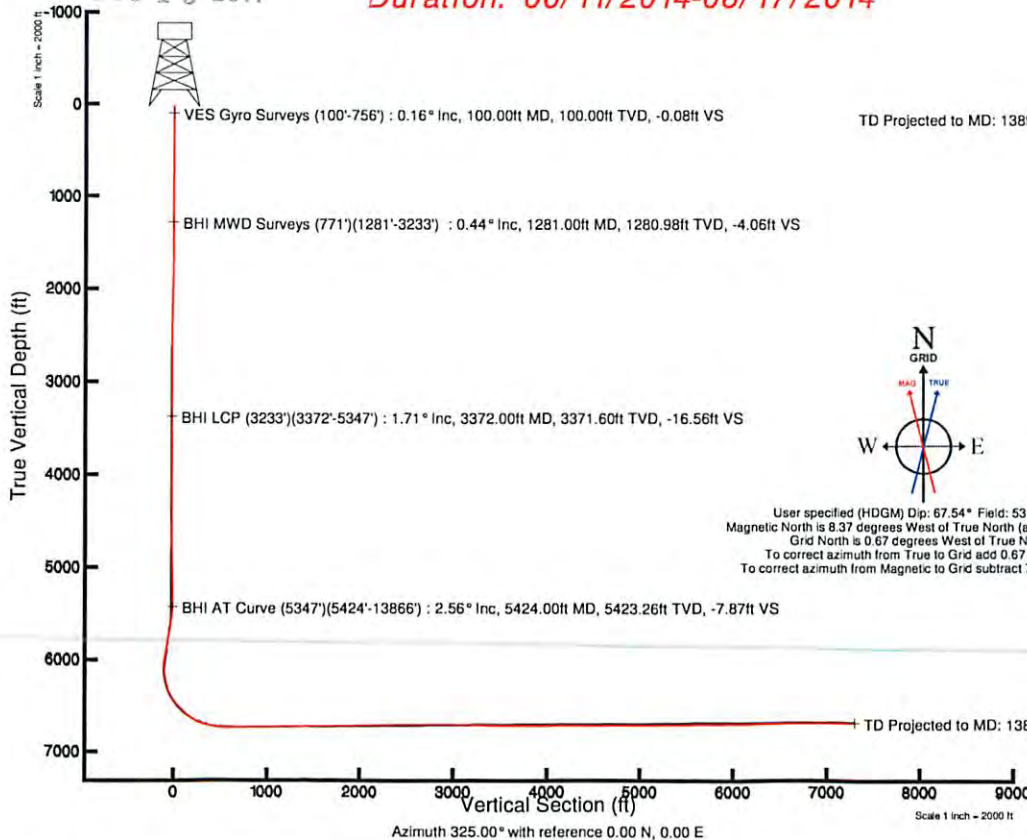
Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SHL 25A HS BHL-Rev-1	6661.00	6096.06	-4008.16	1701020.19	554453.19	40°01'02.599"N	80°34'02.892"W	
SHL 25A HS BHL-Rev-2	13871.93	6680.91	-4008.16	1701020.19	554453.19	40°01'02.599"N	80°34'02.892"W	
SHL 25A HS LP-Rev-1	6726.00	570.88	-139.39	1704888.81	548928.23	40°00'08.452"N	80°33'12.339"W	
SHL 25A HS LP-Rev-2	7126.77	6728.00	570.88	1704888.81	548928.23	40°00'08.452"N	80°33'12.339"W	

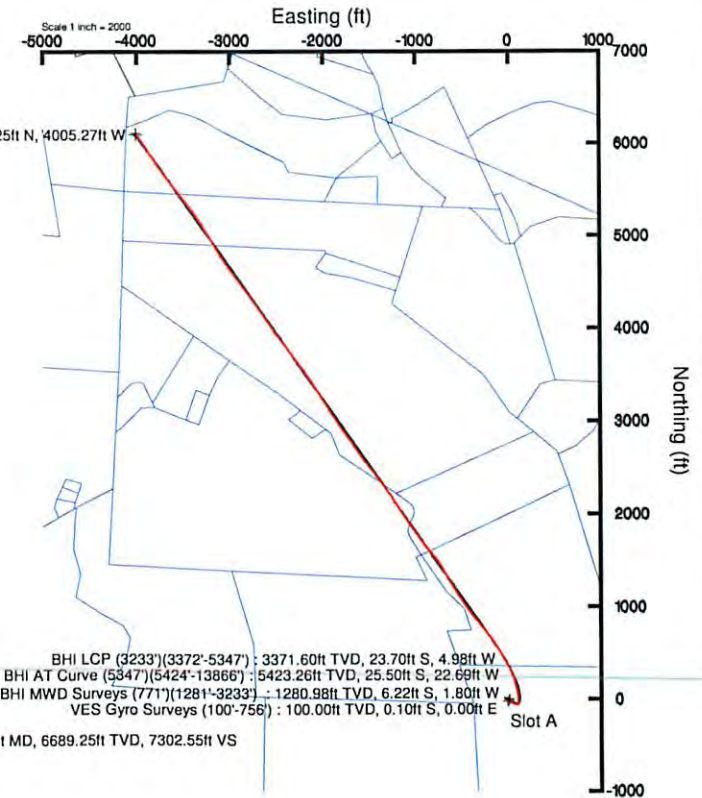
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Office of Oil & Gas

DEC 15 2014

API: 47-051-01671-0000
Rig: Nomac 79
BHI Job #: 6323806A
Duration: 06/11/2014-06/17/2014



User specified (HDGM) Dip: 67.54° Field: 53198 nT
Magnetic North is 8.37 degrees West of True North (at 19/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



BHI LCP (3233°)(3372°-5347°) : 3371.60ft TVD, 23.70ft S, 4.98ft W
BHI AT Curve (5347°)(5424°-13866°) : 5423.26ft TVD, 25.50ft S, 22.69ft W
BHI MWD Surveys (771°)(1281°-3233°) : 1280.98ft TVD, 6.22ft S, 1.80ft W
VES Gyro Surveys (100°-756°) : 100.00ft TVD, 0.10ft S, 0.00ft E

TD Projected to MD: 13890' : 6689.25ft TVD, 6110.25ft N, 4005.27ft W

TD Projected to MD: 13890' : 90.49° Inc, 13890.00ft MD, 6689.25ft TVD, 7302.55ft VS

51-01671