

# HG ENERGY



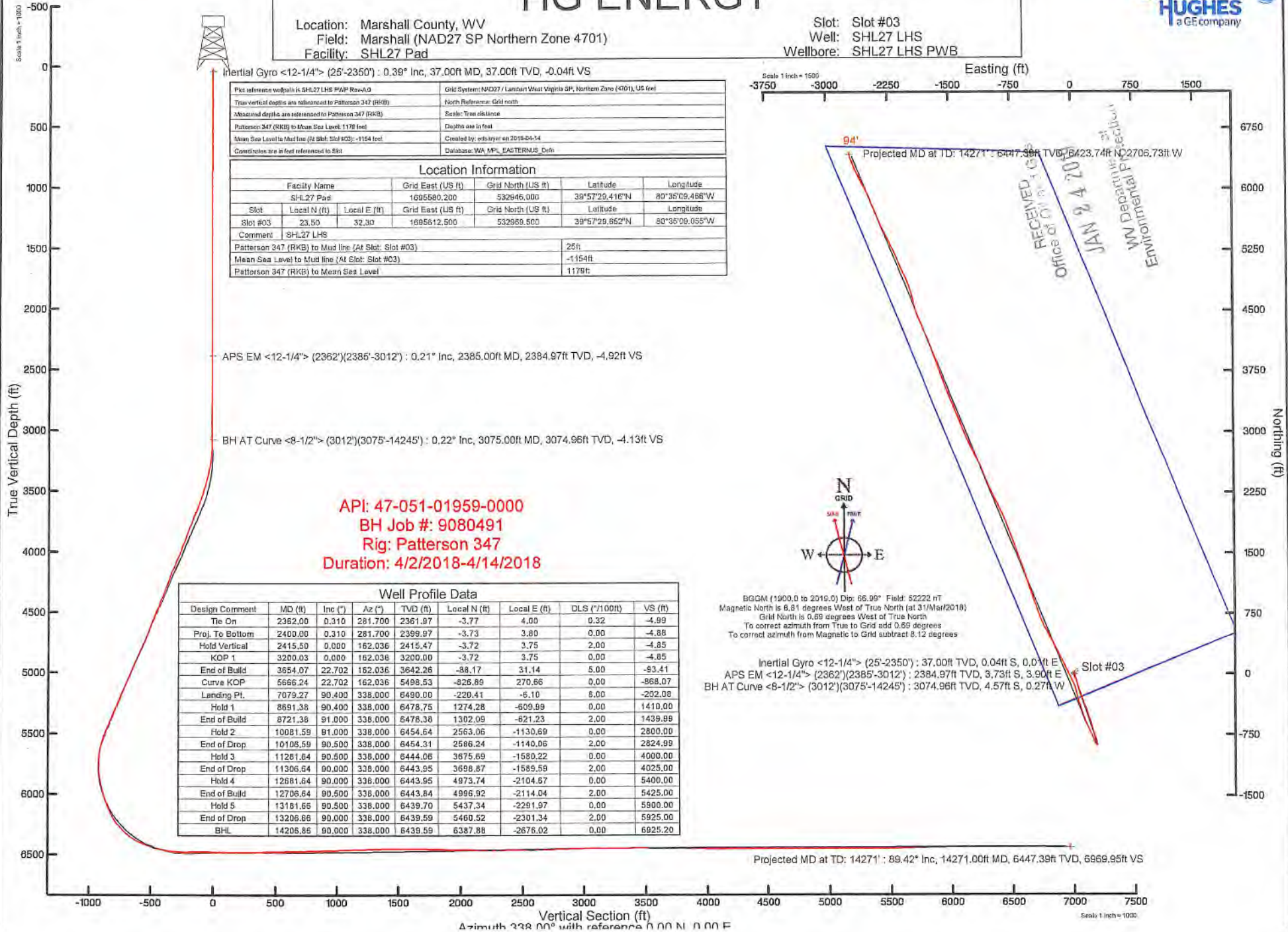
Location: Marshall County, WV  
 Field: Marshall (NAD27 SP Northern Zone 4701)  
 Facility: SHL27 Pad

Slot: Slot #03  
 Well: SHL27 LHS  
 Wellbore: SHL27 LHS PWB

Plot reference wellpath is SHL27 LHS PWB Rev-A-0		Grid System: NAD27 / Landmark West Virginia SP, Northern Zone (4701), US feet
True vertical depths are referenced to Patterson 347 (RKB)		North Reference: Grid north
Measured depths are referenced to Patterson 347 (RKB)		Scale: True distance
Patterson 347 (RKB) to Mean Sea Level: 1178 feet		Depths are in feet
Mean Sea Level to Mud line (At Slot: Slot #03): -1154 feet		Created by: rchayler on 2018-04-14
Coordinates are in feet referenced to Slot		Database: WA, MP, EASTERNUS_Defn

### Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude		
SHL27 Pad	1695580.200	532846.000	39°57'29.416"N	80°35'09.486"W		
Slot	Local E (ft)	Local N (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot #03	23.50	32.30	1695612.500	532869.500	39°57'29.652"N	80°35'09.055"W
Comment: SHL27 LHS						
Patterson 347 (RKB) to Mud line (At Slot: Slot #03)			25ft			
Mean Sea Level to Mud line (At Slot: Slot #03)			-1154ft			
Patterson 347 (RKB) to Mean Sea Level			1178ft			



API: 47-051-01959-0000  
 BH Job #: 9080491  
 Rig: Patterson 347  
 Duration: 4/2/2018-4/14/2018

### Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	2362.00	0.310	281.700	2361.97	-3.77	4.00	0.32	-4.99
Proj. To Bottom	2400.00	0.310	281.700	2399.97	-3.73	3.80	0.00	-4.88
Hold Vertical	2415.50	0.000	162.036	2415.47	-3.72	3.75	2.00	-4.85
KOP 1	3200.03	0.000	162.036	3200.00	-3.72	3.75	0.00	-4.85
End of Build	3654.07	22.702	162.036	3642.26	-88.17	31.14	5.00	-83.41
Curve KOP	5686.24	22.702	162.036	5498.53	-826.89	270.66	0.00	-868.07
Landing Pt.	7079.27	90.400	338.000	6490.00	-220.41	-6.10	6.00	-202.08
Hold 1	8691.38	90.400	338.000	6478.75	1274.28	-609.99	0.00	1410.00
End of Build	8721.38	91.000	338.000	8478.38	1302.09	-621.23	2.00	1439.99
Hold 2	10081.59	91.000	338.000	6454.64	2563.06	-1130.69	0.00	2800.00
End of Drop	10106.59	90.500	338.000	6454.31	2586.24	-1140.06	2.00	2824.99
Hold 3	11261.64	90.500	338.000	6444.06	3675.69	-1580.22	0.00	4000.00
End of Drop	11306.64	90.000	338.000	6443.95	3698.87	-1589.59	2.00	4025.00
Hold 4	12681.64	90.000	338.000	6443.95	4973.74	-2104.67	0.00	5400.00
End of Build	12706.64	90.500	338.000	6443.84	4996.92	-2114.04	2.00	5425.00
Hold 5	13181.65	90.500	338.000	6439.70	5437.34	-2291.97	0.00	5900.00
End of Drop	13206.66	90.000	338.000	6439.59	5460.52	-2301.34	2.00	5925.00
BHL	14206.86	90.000	338.000	6439.59	6387.88	-2676.02	0.00	6025.20

BGGM (1900.0 to 2019.0) Dip: 66.99° Field: 52222 nT  
 Magnetic North is 8.81 degrees West of True North (at 31/Mar/2018)  
 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 8.12 degrees

Inertial Gyro <12-1/4'> (25'-2350') : 37.00ft TVD, 0.04ft S, 0.0ft E  
 APS EM <12-1/4'> (2362')(2385'-3012') : 2384.97ft TVD, 3.73ft S, 3.90ft E  
 BH AT Curve <8-1/2'> (3012')(3075'-14245') : 3074.96ft TVD, 4.57ft S, 0.27ft W

Projected MD at TD: 14271' : 89.42° Inc, 14271.00ft MD, 6447.39ft TVD, 6969.95ft VS

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Vertical Section (ft)  
 Azimuth 338.00° with reference 0.00 N, 0.00 E

Scale 1 inch = 1000

# Actual Wellpath Report

SHL27 LHS AWP Proj: 14271'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	HG ENERGY	Slot	Slot #03
Area	Marshall County, WV	Well	SHL27 LHS
Field	Marshall (NAD27 SP Northern Zone 4701)	Wellbore	SHL27 LHS AWB
Facility	SHL27 Pad		

REPORT SETUP INFORMATION			
Projection System	NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Edsaryar
Scale	0.999958	Report Generated	14/Apr/2018 at 15:16
Convergence at slot	0.69° West	Database/Source file	WA_MPL_EASTERNUS_Defn/SHL27_LHS_AWP_Proj__14271_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	23.50	32.30	1695612.50	532969.50	39°57'29.652"N	80°35'09.055"W
Facility Reference Pt			1695580.20	532946.00	39°57'29.416"N	80°35'09.466"W
Field Reference Pt			1695580.20	532946.00	39°57'29.416"N	80°35'09.466"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Patterson 347 (RKB) to Facility Vertical Datum	25.00ft
Horizontal Reference Pt	Slot	Patterson 347 (RKB) to Mean Sea Level	1179.00ft
Vertical Reference Pt	Patterson 347 (RKB)	Patterson 347 (RKB) to Mud Line at Slot (Slot #03)	25.00ft
MD Reference Pt	Patterson 347 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	338.00°

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SHL27 LHS AWP Proj: 14271'

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REFERENCE WELLPATH IDENTIFICATION			
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Field	Marshall (NAD27 SP Northern Zone 4701)	Wellbore	SHL27 LHS AWB
Facility	SHL27 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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
0.00†	0.000	161.100	0.00	0.00	0.00	0.00	1695612.50	532969.50	39°57'29.652"N	80°35'09.055"W	0.00	0.000	0.00	0.00	0.00
25.00	0.000	161.100	25.00	0.00	0.00	0.00	1695612.50	532969.50	39°57'29.652"N	80°35'09.055"W	0.00	0.000	0.00	0.00	0.00
37.00	0.390	161.100	37.00	-0.04	-0.04	0.01	1695612.51	532969.46	39°57'29.652"N	80°35'09.055"W	0.04	161.100	3.25	3.25	1342.50
62.00	0.320	157.300	62.00	-0.20	-0.18	0.07	1695612.57	532969.32	39°57'29.650"N	80°35'09.054"W	0.20	159.745	0.30	-0.28	-15.20
87.00	0.320	138.800	87.00	-0.33	-0.30	0.14	1695612.64	532969.20	39°57'29.649"N	80°35'09.053"W	0.33	154.915	0.41	0.00	-74.00
112.00	0.350	126.900	112.00	-0.46	-0.40	0.25	1695612.75	532969.10	39°57'29.648"N	80°35'09.052"W	0.47	148.158	0.30	0.12	-47.60
137.00	0.340	116.200	137.00	-0.58	-0.48	0.38	1695612.88	532969.02	39°57'29.647"N	80°35'09.050"W	0.61	141.829	0.26	-0.04	-42.80
162.00	0.260	105.200	162.00	-0.67	-0.53	0.50	1695613.00	532968.97	39°57'29.647"N	80°35'09.048"W	0.72	136.595	0.39	-0.32	-44.00
187.00	0.250	101.500	187.00	-0.74	-0.55	0.60	1695613.10	532968.95	39°57'29.647"N	80°35'09.047"W	0.82	132.325	0.08	-0.04	-14.80
212.00	0.230	91.900	212.00	-0.79	-0.56	0.71	1695613.21	532968.94	39°57'29.647"N	80°35'09.046"W	0.91	128.493	0.18	-0.08	-38.40
237.00	0.200	87.400	237.00	-0.82	-0.56	0.80	1695613.30	532968.94	39°57'29.647"N	80°35'09.044"W	0.98	125.066	0.14	-0.12	-18.00
262.00	0.210	81.000	262.00	-0.85	-0.55	0.89	1695613.39	532968.95	39°57'29.647"N	80°35'09.043"W	1.05	121.868	0.10	0.04	-25.60
287.00	0.190	68.500	287.00	-0.86	-0.53	0.97	1695613.47	532968.97	39°57'29.647"N	80°35'09.042"W	1.11	118.602	0.19	-0.08	-50.00
312.00	0.240	76.900	312.00	-0.87	-0.50	1.06	1695613.56	532969.00	39°57'29.647"N	80°35'09.041"W	1.18	115.359	0.24	0.20	33.60
337.00	0.190	54.700	337.00	-0.87	-0.47	1.15	1695613.65	532969.03	39°57'29.648"N	80°35'09.040"W	1.24	112.186	0.38	-0.20	-88.80
362.00	0.240	81.600	362.00	-0.87	-0.44	1.23	1695613.73	532969.06	39°57'29.648"N	80°35'09.039"W	1.31	109.491	0.44	0.20	107.60
387.00	0.190	68.900	387.00	-0.88	-0.41	1.33	1695613.83	532969.09	39°57'29.648"N	80°35'09.038"W	1.39	107.367	0.28	-0.20	-50.80
412.00	0.230	69.800	412.00	-0.88	-0.38	1.41	1695613.91	532969.12	39°57'29.648"N	80°35'09.037"W	1.46	105.157	0.16	0.16	3.60
437.00	0.230	90.600	437.00	-0.90	-0.37	1.51	1695614.01	532969.13	39°57'29.649"N	80°35'09.035"W	1.55	103.619	0.33	0.00	83.20
462.00	0.310	102.700	462.00	-0.96	-0.38	1.62	1695614.12	532969.12	39°57'29.648"N	80°35'09.034"W	1.67	103.193	0.39	0.32	48.40
487.00	0.410	135.200	487.00	-1.08	-0.46	1.75	1695614.25	532969.04	39°57'29.648"N	80°35'09.032"W	1.81	104.674	0.89	0.40	130.00
512.00	0.370	145.600	511.99	-1.24	-0.59	1.86	1695614.36	532968.91	39°57'29.646"N	80°35'09.031"W	1.95	107.559	0.32	-0.16	41.60
537.00	0.270	161.800	536.99	-1.38	-0.71	1.93	1695614.43	532968.79	39°57'29.645"N	80°35'09.030"W	2.05	110.282	0.54	-0.40	64.80
562.00	0.350	167.400	561.99	-1.52	-0.84	1.96	1695614.46	532968.66	39°57'29.644"N	80°35'09.030"W	2.13	113.242	0.34	0.32	22.40
587.00	0.330	165.400	586.99	-1.66	-0.99	2.00	1695614.50	532968.51	39°57'29.643"N	80°35'09.029"W	2.23	116.300	0.09	-0.08	-8.00
612.00	0.430	129.600	611.99	-1.82	-1.12	2.09	1695614.59	532968.38	39°57'29.641"N	80°35'09.028"W	2.37	118.140	1.01	0.40	-143.20
662.00	0.370	130.400	661.99	-2.12	-1.34	2.35	1695614.85	532968.16	39°57'29.639"N	80°35'09.024"W	2.71	119.654	0.12	-0.12	1.60
712.00	0.290	129.700	711.99	-2.38	-1.53	2.57	1695615.07	532967.97	39°57'29.637"N	80°35'09.022"W	2.99	120.653	0.16	-0.16	-1.40
762.00	0.420	133.400	761.99	-2.66	-1.73	2.80	1695615.30	532967.77	39°57'29.635"N	80°35'09.019"W	3.30	121.702	0.26	0.26	7.40
812.00	0.270	143.000	811.99	-2.94	-1.95	3.01	1695615.51	532967.55	39°57'29.633"N	80°35'09.016"W	3.59	122.979	0.32	-0.30	19.20

# Actual Wellpath Report

SHL27 LHS AWP Proj: 14271'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	HG ENERGY	Slot	Slot #03
Area	Marshall County, WV	Well	SHL27 LHS
Field	Marshall (NAD27 SP Northern Zone 4701)	Wellbore	SHL27 LHS AWB
Facility	SHL27 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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
862.00	0.380	154.000	861.99	-3.22	-2.20	3.15	1695615.65	532967.30	39°57'29.631"N	80°35'09.014"W	3.84	124.855	0.25	0.22	22.00
912.00	0.280	166.200	911.99	-3.50	-2.46	3.25	1695615.75	532967.04	39°57'29.628"N	80°35'09.013"W	4.08	127.123	0.24	-0.20	24.40
962.00	0.450	169.500	961.99	-3.82	-2.77	3.32	1695615.82	532966.73	39°57'29.625"N	80°35'09.012"W	4.33	129.896	0.34	0.34	6.60
1012.00	0.340	173.400	1011.98	-4.15	-3.12	3.37	1695615.87	532966.38	39°57'29.622"N	80°35'09.011"W	4.59	132.734	0.23	-0.22	7.80
1062.00	0.320	171.200	1061.98	-4.43	-3.40	3.41	1695615.91	532966.10	39°57'29.619"N	80°35'09.010"W	4.82	134.918	0.05	-0.04	-4.40
1112.00	0.240	167.400	1111.98	-4.67	-3.64	3.45	1695615.95	532965.86	39°57'29.616"N	80°35'09.010"W	5.02	136.504	0.16	-0.16	-7.60
1162.00	0.200	154.500	1161.98	-4.86	-3.82	3.51	1695616.01	532965.68	39°57'29.615"N	80°35'09.009"W	5.19	137.395	0.13	-0.08	-25.80
1212.00	0.260	129.400	1211.98	-5.05	-3.97	3.64	1695616.14	532965.53	39°57'29.613"N	80°35'09.007"W	5.39	137.500	0.23	0.12	-50.20
1262.00	0.230	142.200	1261.98	-5.24	-4.12	3.79	1695616.29	532965.38	39°57'29.612"N	80°35'09.006"W	5.60	137.420	0.12	-0.06	25.60
1312.00	0.320	131.500	1311.98	-5.46	-4.30	3.96	1695616.46	532965.20	39°57'29.610"N	80°35'09.003"W	5.84	137.361	0.21	0.18	-21.40
1362.00	0.200	156.600	1361.98	-5.68	-4.47	4.09	1695616.59	532965.03	39°57'29.608"N	80°35'09.002"W	6.06	137.498	0.33	-0.24	50.20
1412.00	0.190	159.200	1411.98	-5.85	-4.63	4.16	1695616.66	532964.87	39°57'29.607"N	80°35'09.001"W	6.22	138.044	0.03	-0.02	5.20
1462.00	0.140	204.400	1461.98	-5.97	-4.76	4.16	1695616.66	532964.74	39°57'29.606"N	80°35'09.001"W	6.32	138.822	0.27	-0.10	90.40
1512.00	0.200	237.600	1511.98	-6.03	-4.86	4.06	1695616.56	532964.64	39°57'29.604"N	80°35'09.002"W	6.34	140.105	0.23	0.12	66.40
1562.00	0.220	298.500	1561.98	-5.97	-4.86	3.91	1695616.41	532964.64	39°57'29.604"N	80°35'09.004"W	6.24	141.224	0.43	0.04	121.80
1612.00	0.200	314.900	1611.98	-5.82	-4.75	3.76	1695616.26	532964.75	39°57'29.606"N	80°35'09.006"W	6.06	141.666	0.13	-0.04	32.80
1662.00	0.270	8.100	1661.98	-5.63	-4.58	3.71	1695616.21	532964.92	39°57'29.607"N	80°35'09.006"W	5.89	140.936	0.44	0.14	106.40
1712.00	0.280	41.400	1711.98	-5.48	-4.37	3.81	1695616.31	532965.13	39°57'29.609"N	80°35'09.005"W	5.80	138.891	0.32	0.02	66.60
1762.00	0.330	61.000	1761.98	-5.41	-4.21	4.02	1695616.52	532965.29	39°57'29.611"N	80°35'09.003"W	5.82	136.311	0.23	0.10	39.20
1812.00	0.260	89.100	1811.98	-5.43	-4.14	4.26	1695616.76	532965.36	39°57'29.612"N	80°35'08.999"W	5.94	134.162	0.32	-0.14	56.20
1862.00	0.200	97.000	1861.98	-5.51	-4.14	4.46	1695616.96	532965.36	39°57'29.612"N	80°35'08.997"W	6.09	132.910	0.14	-0.12	15.80
1912.00	0.280	87.100	1911.98	-5.59	-4.15	4.67	1695617.17	532965.35	39°57'29.612"N	80°35'08.994"W	6.24	131.636	0.18	0.16	-19.80
1962.00	0.220	5.600	1961.98	-5.55	-4.05	4.80	1695617.30	532965.45	39°57'29.613"N	80°35'08.993"W	6.28	130.146	0.66	-0.12	-163.00
2012.00	0.380	20.800	2011.98	-5.34	-3.80	4.87	1695617.37	532965.70	39°57'29.615"N	80°35'08.992"W	6.17	127.959	0.35	0.32	30.40
2062.00	0.210	287.500	2061.98	-5.16	-3.61	4.84	1695617.34	532965.89	39°57'29.617"N	80°35'08.992"W	6.04	126.759	0.89	-0.34	-186.60
2112.00	0.160	256.300	2111.98	-5.09	-3.60	4.68	1695617.18	532965.90	39°57'29.617"N	80°35'08.994"W	5.91	127.575	0.22	-0.10	-62.40
2162.00	0.170	273.600	2161.97	-5.05	-3.61	4.54	1695617.04	532965.89	39°57'29.617"N	80°35'08.996"W	5.80	128.522	0.10	0.02	34.60
2212.00	0.110	239.600	2211.97	-5.03	-3.63	4.43	1695616.93	532965.87	39°57'29.617"N	80°35'08.997"W	5.73	129.395	0.20	-0.12	-68.00
2262.00	0.110	222.300	2261.97	-5.06	-3.69	4.35	1695616.85	532965.81	39°57'29.616"N	80°35'08.998"W	5.71	130.328	0.07	0.00	-34.60
2312.00	0.230	251.200	2311.97	-5.07	-3.76	4.22	1695616.72	532965.74	39°57'29.615"N	80°35'09.000"W	5.66	131.686	0.29	0.24	57.80

# Actual Wellpath Report

SHL27 LHS AWP Proj: 14271'

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Facility	SHL27 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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
2362.00	0.310	281.700	2361.97	-4.99	-3.77	4.00	1695616.50	532965.73	39°57'29.615"N	80°35'09.003"W	5.49	133.303	0.32	0.16	61.00
2385.00	0.210	305.260	2384.97	-4.92	-3.73	3.90	1695616.40	532965.77	39°57'29.616"N	80°35'09.004"W	5.40	133.711	0.63	-0.43	102.43
2481.00	0.190	246.140	2480.97	-4.78	-3.69	3.61	1695616.11	532965.81	39°57'29.616"N	80°35'09.008"W	5.17	135.631	0.21	-0.02	-61.58
2576.00	0.370	245.140	2575.97	-4.80	-3.89	3.19	1695615.69	532965.61	39°57'29.614"N	80°35'09.013"W	5.03	140.613	0.19	0.19	-1.05
2671.00	0.450	250.670	2670.97	-4.80	-4.14	2.56	1695615.06	532965.36	39°57'29.611"N	80°35'09.021"W	4.87	148.259	0.09	0.08	5.82
2766.00	0.470	246.240	2765.97	-4.79	-4.42	1.85	1695614.35	532965.08	39°57'29.609"N	80°35'09.030"W	4.79	157.269	0.04	0.02	-4.66
2861.00	0.540	269.180	2860.96	-4.64	-4.58	1.05	1695613.55	532964.92	39°57'29.607"N	80°35'09.041"W	4.70	167.131	0.22	0.07	24.15
2956.00	0.380	269.920	2955.96	-4.36	-4.59	0.28	1695612.78	532964.91	39°57'29.607"N	80°35'09.050"W	4.60	176.457	0.17	-0.17	0.78
3012.00	0.240	276.840	3011.96	-4.24	-4.57	-0.02	1695612.48	532964.93	39°57'29.607"N	80°35'09.054"W	4.57	180.226	0.26	-0.25	12.36
3075.00	0.220	266.200	3074.96	-4.13	-4.57	-0.27	1695612.23	532964.93	39°57'29.607"N	80°35'09.058"W	4.58	183.380	0.07	-0.03	-16.89
3171.00	4.490	168.530	3170.86	-7.77	-8.26	0.29	1695612.79	532961.24	39°57'29.570"N	80°35'09.050"W	8.27	177.963	4.71	4.45	-101.74
3266.00	9.580	159.750	3265.12	-19.34	-19.33	3.77	1695616.27	532950.17	39°57'29.461"N	80°35'09.003"W	19.70	168.960	5.46	5.36	-9.24
3361.00	12.220	156.080	3358.40	-37.29	-35.94	10.59	1695623.09	532933.56	39°57'29.298"N	80°35'08.913"W	37.47	163.589	2.87	2.78	-3.86
3457.00	15.300	155.030	3451.63	-60.10	-56.72	20.05	1695632.55	532912.79	39°57'29.094"N	80°35'08.789"W	60.16	160.527	3.22	3.21	-1.09
3552.00	17.860	160.860	3542.68	-87.17	-81.85	30.12	1695642.62	532887.66	39°57'28.847"N	80°35'08.655"W	87.22	159.794	3.21	2.69	6.14
3648.00	21.410	163.520	3633.08	-119.33	-112.57	39.93	1695652.42	532856.94	39°57'28.544"N	80°35'08.525"W	119.44	160.472	3.81	3.70	2.77
3743.00	21.380	163.320	3721.54	-153.83	-145.78	49.81	1695662.31	532823.72	39°57'28.217"N	80°35'08.393"W	154.06	161.135	0.08	-0.03	-0.21
3838.00	20.460	165.360	3810.27	-187.54	-178.44	58.98	1695671.48	532791.07	39°57'27.896"N	80°35'08.270"W	187.93	161.709	1.24	-0.97	2.15
3934.00	21.240	165.070	3899.99	-221.44	-211.47	67.70	1695680.20	532758.04	39°57'27.570"N	80°35'08.153"W	222.05	162.248	0.82	0.81	-0.30
4029.00	21.130	162.180	3988.57	-255.59	-244.40	77.38	1695689.87	532725.11	39°57'27.246"N	80°35'08.023"W	256.36	162.433	1.11	-0.12	-3.04
4124.00	21.370	153.810	4077.13	-289.94	-276.24	90.26	1695702.75	532693.27	39°57'26.933"N	80°35'07.853"W	290.61	161.906	3.20	0.25	-8.81
4219.00	21.260	155.740	4165.63	-324.41	-307.48	104.97	1695717.47	532662.04	39°57'26.626"N	80°35'07.659"W	324.90	161.150	0.75	-0.12	2.03
4315.00	20.590	162.620	4255.32	-358.63	-339.46	117.17	1695729.66	532630.06	39°57'26.312"N	80°35'07.498"W	359.11	160.957	2.65	-0.70	7.17
4410.00	21.280	157.000	4344.05	-392.53	-371.27	128.90	1695741.39	532598.24	39°57'25.999"N	80°35'07.342"W	393.01	160.854	2.23	0.73	-5.92
4505.00	21.390	157.070	4432.54	-427.08	-403.10	142.38	1695754.88	532566.42	39°57'25.686"N	80°35'07.164"W	427.51	160.546	0.12	0.12	0.07
4600.00	21.420	162.950	4521.00	-461.69	-435.64	154.22	1695766.71	532533.88	39°57'25.366"N	80°35'07.007"W	462.13	160.506	2.26	0.03	6.19
4696.00	21.350	164.090	4610.39	-496.53	-469.21	164.15	1695776.64	532500.31	39°57'25.035"N	80°35'06.874"W	497.09	160.718	0.44	-0.07	1.19
4791.00	22.260	161.610	4698.60	-531.69	-502.91	174.57	1695787.06	532466.61	39°57'24.703"N	80°35'06.735"W	532.35	160.857	1.36	0.96	-2.61
4886.00	23.050	159.840	4786.27	-568.23	-537.45	186.65	1695799.15	532432.08	39°57'24.363"N	80°35'06.575"W	568.94	160.848	1.10	0.83	-1.86
4981.00	23.140	161.390	4873.65	-605.46	-572.60	199.02	1695811.51	532396.93	39°57'24.018"N	80°35'06.410"W	606.20	160.834	0.65	0.09	1.63

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## REFERENCE WELLPATH IDENTIFICATION

Operator	HG ENERGY	Slot	Slot #03
Area	Marshall County, WV	Well	SHL27 LHS
Field	Marshall (NAD27 SP Northern Zone 4701)	Wellbore	SHL27 LHS AWB
Facility	SHL27 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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
5077.00	23.150	164.500	4961.93	-643.04	-608.66	210.08	1695822.57	532360.87	39°57'23.662"N	80°35'06.263"W	643.89	160.957	1.27	0.01	3.24
5172.00	23.160	164.840	5049.28	-680.14	-644.69	219.96	1695832.45	532324.84	39°57'23.308"N	80°35'06.130"W	681.18	161.161	0.14	0.01	0.36
5267.00	22.940	163.980	5136.69	-717.10	-680.51	229.95	1695842.44	532289.02	39°57'22.955"N	80°35'05.997"W	718.31	161.329	0.42	-0.23	-0.91
5363.00	23.050	163.010	5225.06	-754.43	-716.47	240.61	1695853.10	532253.06	39°57'22.601"N	80°35'05.854"W	755.79	161.437	0.41	0.11	-1.01
5458.00	23.040	160.840	5312.48	-791.53	-751.82	252.15	1695864.63	532217.72	39°57'22.253"N	80°35'05.701"W	792.97	161.459	0.89	-0.01	-2.28
5553.00	22.910	160.250	5399.95	-828.57	-786.78	264.50	1695876.98	532182.76	39°57'21.909"N	80°35'05.537"W	830.05	161.419	0.28	-0.14	-0.62
5649.00	22.900	163.210	5488.38	-865.84	-822.25	276.21	1695888.69	532147.29	39°57'21.560"N	80°35'05.381"W	867.40	161.432	1.20	-0.01	3.08
5744.00	15.560	174.500	5578.05	-896.52	-852.68	282.78	1695895.26	532116.86	39°57'21.260"N	80°35'05.292"W	898.35	161.653	8.63	-7.73	11.88
5839.00	9.170	185.030	5670.81	-915.50	-872.93	283.34	1695895.82	532096.61	39°57'21.060"N	80°35'05.281"W	917.76	162.018	7.11	-6.73	11.08
5935.00	2.800	272.880	5766.36	-921.34	-880.45	280.32	1695892.80	532089.09	39°57'20.985"N	80°35'05.319"W	923.99	162.340	9.88	-6.64	91.51
6030.00	8.560	325.750	5860.90	-913.45	-874.48	274.01	1695886.50	532095.06	39°57'21.043"N	80°35'05.401"W	916.40	162.602	7.60	6.06	55.65
6126.00	14.240	331.970	5954.97	-894.71	-858.14	264.43	1695876.92	532111.40	39°57'21.204"N	80°35'05.526"W	897.95	162.873	6.05	5.92	6.48
6221.00	18.310	337.730	6046.15	-868.15	-834.00	253.28	1695865.77	532135.54	39°57'21.441"N	80°35'05.673"W	871.61	163.107	4.60	4.28	6.06
6316.00	23.050	337.450	6135.00	-834.61	-803.00	240.49	1695852.98	532166.54	39°57'21.746"N	80°35'05.842"W	838.24	163.328	4.99	4.99	-0.29
6411.00	33.120	335.510	6218.71	-789.97	-762.10	222.55	1695835.04	532207.44	39°57'22.148"N	80°35'06.079"W	793.93	163.721	10.64	10.60	-2.04
6507.00	43.670	335.750	6293.84	-730.48	-707.86	198.00	1695810.49	532261.68	39°57'22.681"N	80°35'06.403"W	735.03	164.373	10.99	10.99	0.25
6602.00	53.900	337.760	6356.36	-659.14	-642.25	169.92	1695782.41	532327.28	39°57'23.326"N	80°35'06.773"W	664.35	165.181	10.88	10.77	2.12
6697.00	64.020	338.600	6405.28	-577.85	-566.77	139.74	1695752.23	532402.75	39°57'24.068"N	80°35'07.173"W	583.74	166.150	10.68	10.65	0.88
6792.00	71.460	340.380	6441.24	-490.02	-484.47	108.99	1695721.48	532485.05	39°57'24.878"N	80°35'07.580"W	496.58	167.322	8.02	7.83	1.87
6888.00	79.230	342.700	6465.52	-397.40	-396.44	79.64	1695692.13	532573.08	39°57'25.744"N	80°35'07.971"W	404.36	168.642	8.42	8.09	2.42
6983.00	84.180	345.520	6479.22	-303.97	-306.06	53.92	1695666.42	532663.45	39°57'26.634"N	80°35'08.315"W	310.77	170.008	5.98	5.21	2.97
7078.00	91.020	346.130	6483.20	-210.00	-214.09	30.69	1695643.19	532755.42	39°57'27.540"N	80°35'08.627"W	216.28	171.841	7.23	7.20	0.64
7173.00	90.120	336.480	6482.25	-115.27	-124.21	0.28	1695612.78	532845.29	39°57'28.425"N	80°35'09.032"W	124.21	179.870	10.20	-0.95	-10.16
7268.00	89.110	333.210	6482.89	-20.43	-38.24	-40.09	1695572.41	532931.27	39°57'29.269"N	80°35'09.564"W	55.40	226.358	3.60	-1.06	-3.44
7364.00	89.230	334.200	6484.28	75.29	47.82	-82.62	1695529.89	533017.32	39°57'30.115"N	80°35'10.123"W	95.46	300.064	1.04	0.12	1.03
7459.00	90.120	334.330	6484.82	170.08	133.40	-123.86	1695488.64	533102.89	39°57'30.955"N	80°35'10.666"W	182.03	317.122	0.95	0.94	0.14
7554.00	89.910	332.750	6484.79	264.79	218.44	-166.19	1695446.32	533187.93	39°57'31.791"N	80°35'11.223"W	274.47	322.736	1.68	-0.22	-1.66
7649.00	91.140	332.860	6483.92	359.40	302.93	-209.61	1695402.90	533272.42	39°57'32.621"N	80°35'11.793"W	368.38	325.320	1.30	1.29	0.12
7744.00	90.980	332.170	6482.16	453.94	387.20	-253.44	1695359.07	533356.68	39°57'33.448"N	80°35'12.369"W	462.77	326.793	0.75	-0.17	-0.73
7840.00	91.110	331.720	6480.41	549.39	471.90	-298.59	1695313.93	533441.38	39°57'34.280"N	80°35'12.962"W	558.43	327.677	0.49	0.14	-0.47

# Actual Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION				
Operator	HG ENERGY		Slot	Slot #03
Area	Marshall County, WV		Well	SHL27 LHS
Field	Marshall (NAD27 SP Northern Zone 4701)		Wellbore	SHL27 LHS AWB
Facility	SHL27 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]	Build Rate [°/100ft]	Turn Rate [°/100ft]	
7935.00	91.050	332.150	6478.62	643.84	555.72	-343.27	1695269.24	533525.19	39°57'35.103"N	80°35'13.549"W	653.19	328.296	0.46	-0.06	0.45	
8030.00	91.200	336.340	6478.76	738.60	641.24	-384.53	1695227.98	533610.72	39°57'35.943"N	80°35'14.092"W	747.70	329.050	4.41	0.16	4.41	
8125.00	91.880	340.700	6474.20	833.54	729.59	-419.30	1695193.22	533699.06	39°57'36.812"N	80°35'14.552"W	841.50	330.114	4.64	0.72	4.58	
8220.00	91.140	339.850	6471.70	928.43	818.98	-451.35	1695161.17	533788.45	39°57'37.691"N	80°35'14.978"W	935.12	331.140	1.19	-0.78	-0.89	
8316.00	91.660	341.080	6469.35	1024.31	909.43	-483.44	1695129.08	533878.89	39°57'38.581"N	80°35'15.404"W	1029.94	332.005	1.39	0.54	1.28	
8411.00	91.690	342.220	6466.58	1119.07	999.56	-513.34	1695099.18	533969.01	39°57'39.468"N	80°35'15.802"W	1123.67	332.817	1.20	0.03	1.20	
8506.00	91.720	342.230	6463.75	1213.77	1089.98	-542.33	1695070.20	534059.44	39°57'40.358"N	80°35'16.188"W	1217.45	333.547	0.03	0.03	0.01	
8601.00	91.690	342.990	6460.92	1308.42	1180.60	-570.71	1695041.82	534150.05	39°57'41.250"N	80°35'16.567"W	1311.31	334.201	0.80	-0.03	0.80	
8697.00	91.380	340.890	6458.35	1404.16	1271.83	-600.46	1695012.07	534241.28	39°57'42.148"N	80°35'16.963"W	1406.45	334.727	2.21	-0.32	-2.19	
8792.00	90.580	339.700	6456.73	1499.07	1361.25	-632.48	1694980.05	534330.69	39°57'43.028"N	80°35'17.388"W	1501.02	335.079	1.51	-0.84	-1.25	
8887.00	89.510	339.900	6456.65	1594.02	1450.41	-665.29	1694947.24	534419.85	39°57'43.905"N	80°35'17.823"W	1595.71	335.360	1.15	-1.13	0.21	
8982.00	88.620	340.770	6458.20	1688.92	1539.86	-697.25	1694915.28	534509.29	39°57'44.785"N	80°35'18.247"W	1690.36	335.639	1.31	-0.94	0.92	
9077.00	88.610	340.980	6460.50	1783.78	1629.59	-728.37	1694884.17	534599.01	39°57'45.668"N	80°35'18.661"W	1784.96	335.917	0.22	-0.01	0.22	
9172.00	88.550	340.410	6462.85	1878.64	1719.22	-759.76	1694852.77	534688.64	39°57'46.550"N	80°35'19.078"W	1879.61	336.158	0.60	-0.06	-0.60	
9268.00	88.980	339.040	6464.92	1974.57	1809.24	-793.02	1694819.51	534778.66	39°57'47.436"N	80°35'19.519"W	1975.41	336.331	1.50	0.45	-1.43	
9363.00	89.750	338.420	6465.97	2069.56	1897.77	-827.48	1694785.06	534867.18	39°57'48.307"N	80°35'19.975"W	2070.32	336.441	1.04	0.81	-0.65	
9458.00	89.690	335.480	6466.44	2164.53	1985.17	-864.67	1694747.87	534954.58	39°57'49.166"N	80°35'20.467"W	2165.31	336.464	3.10	-0.06	-3.09	
9553.00	90.180	334.180	6466.55	2259.38	2071.15	-905.07	1694707.47	535040.56	39°57'50.011"N	80°35'20.999"W	2260.27	336.395	1.46	0.52	-1.37	
9648.00	90.150	333.420	6466.27	2354.13	2156.39	-947.02	1694665.52	535125.79	39°57'50.848"N	80°35'21.551"W	2355.18	336.290	0.80	-0.03	-0.80	
9743.00	90.620	333.850	6465.63	2448.85	2241.50	-989.20	1694623.34	535210.90	39°57'51.684"N	80°35'22.106"W	2450.07	336.188	0.67	0.49	0.45	
9839.00	90.980	337.180	6464.29	2544.74	2328.85	-1028.98	1694583.56	535298.25	39°57'52.542"N	80°35'22.630"W	2546.05	336.162	3.49	0.37	3.47	
9934.00	91.320	339.280	6462.39	2639.71	2417.05	-1064.21	1694548.34	535386.44	39°57'53.410"N	80°35'23.096"W	2640.96	336.237	2.24	0.36	2.21	
10028.00	91.450	338.280	6460.09	2734.67	2505.58	-1098.60	1694513.95	535474.97	39°57'54.280"N	80°35'23.552"W	2735.84	336.324	1.08	0.14	-1.07	
10125.00	91.510	334.230	6457.61	2830.58	2593.40	-1137.25	1694475.30	535562.78	39°57'55.143"N	80°35'24.062"W	2831.79	336.322	4.20	0.06	-4.20	
10220.00	91.540	333.000	6455.08	2925.26	2678.47	-1179.45	1694433.10	535647.85	39°57'55.979"N	80°35'24.617"W	2926.65	336.234	1.29	0.03	-1.29	
10315.00	91.450	333.470	6452.60	3019.90	2763.26	-1222.22	1694390.34	535732.64	39°57'56.812"N	80°35'25.179"W	3021.49	336.140	0.50	-0.09	0.49	
10410.00	90.980	335.230	6450.59	3114.68	2848.88	-1263.33	1694349.23	535818.25	39°57'57.653"N	80°35'25.721"W	3116.42	336.085	1.92	-0.49	1.85	
10506.00	90.090	336.640	6449.69	3210.61	2936.53	-1302.47	1694310.09	535905.90	39°57'58.514"N	80°35'26.237"W	3212.42	336.081	1.74	-0.93	1.47	
10600.00	89.940	338.250	6449.67	3304.61	3023.33	-1338.53	1694274.03	535992.70	39°57'59.368"N	80°35'26.714"W	3306.39	336.119	1.72	-0.16	1.71	
10695.00	90.180	339.450	6449.57	3399.59	3111.93	-1372.80	1694239.76	536081.29	39°58'00.239"N	80°35'27.168"W	3401.28	336.196	1.29	0.25	1.26	

# Actual Wellpath Report

SHL27 LHS AWP Proj: 14271'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	HG ENERGY	Slot	Slot #03
Area	Marshall County, WV	Well	SHL27 LHS
Field	Marshall (NAD27 SP Northern Zone 4701)	Wellbore	SHL27 LHS AWB
Facility	SHL27 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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
10791.00	89.880	338.400	6449.52	3495.58	3201.51	-1407.32	1694205.24	536170.87	39°58'01.120"N	80°35'27.625"W	3497.17	336.271	1.14	-0.31	-1.09
10886.00	89.540	337.870	6450.00	3590.58	3289.67	-1442.70	1694169.86	536259.03	39°58'01.987"N	80°35'28.093"W	3592.12	336.320	0.66	-0.36	-0.58
10981.00	89.600	337.830	6450.71	3685.57	3377.66	-1478.52	1694134.05	536347.01	39°58'02.852"N	80°35'28.567"W	3687.09	336.359	0.08	0.06	-0.04
11076.00	88.980	337.940	6451.89	3780.57	3465.66	-1514.28	1694098.29	536435.01	39°58'03.718"N	80°35'29.040"W	3782.05	336.398	0.66	-0.65	0.12
11172.00	89.050	338.830	6453.54	3876.55	3554.84	-1549.79	1694062.77	536524.18	39°58'04.595"N	80°35'29.510"W	3877.98	336.444	0.72	0.07	0.72
11267.00	88.620	339.350	6455.47	3971.52	3643.50	-1583.85	1694028.72	536612.84	39°58'05.467"N	80°35'29.961"W	3972.87	336.505	0.88	-0.45	0.76
11362.00	89.600	340.600	6456.95	4066.45	3732.75	-1616.37	1693996.20	536702.08	39°58'06.345"N	80°35'30.392"W	4067.68	336.586	1.67	1.03	1.32
11457.00	89.540	341.290	6457.66	4161.32	3822.54	-1647.39	1693965.19	536791.87	39°58'07.228"N	80°35'30.805"W	4162.41	336.686	0.73	-0.08	0.73
11553.00	89.940	340.520	6458.10	4257.19	3913.25	-1678.79	1693933.78	536882.58	39°58'08.121"N	80°35'31.222"W	4258.16	336.781	0.90	0.42	-0.80
11648.00	89.780	340.700	6458.33	4352.09	4002.86	-1710.33	1693902.24	536972.19	39°58'09.003"N	80°35'31.641"W	4352.95	336.864	0.25	-0.17	0.19
11743.00	89.940	338.100	6458.56	4447.06	4091.78	-1743.75	1693868.82	537061.10	39°58'09.877"N	80°35'32.084"W	4447.85	336.918	2.74	0.17	-2.74
11838.00	89.820	335.560	6458.76	4542.03	4179.11	-1781.13	1693831.45	537148.43	39°58'10.736"N	80°35'32.578"W	4542.84	336.916	2.68	-0.13	-2.67
11934.00	89.850	337.120	6459.03	4637.98	4267.04	-1819.65	1693792.93	537236.35	39°58'11.600"N	80°35'33.086"W	4638.83	336.904	1.63	0.03	1.63
12029.00	89.970	338.410	6459.18	4732.98	4354.97	-1855.60	1693756.98	537324.28	39°58'12.465"N	80°35'33.562"W	4733.82	336.922	1.36	0.13	1.36
12124.00	90.030	337.950	6459.18	4827.98	4443.17	-1890.91	1693721.67	537412.47	39°58'13.332"N	80°35'34.029"W	4828.80	336.946	0.49	0.06	-0.48
12219.00	90.060	344.790	6459.11	4922.76	4533.14	-1921.24	1693691.34	537502.43	39°58'14.217"N	80°35'34.433"W	4923.46	337.032	7.20	0.03	7.20
12313.00	90.120	348.000	6458.96	5015.74	4624.49	-1943.35	1693659.24	537593.78	39°58'15.118"N	80°35'34.731"W	5016.22	337.208	3.42	0.06	3.41
12408.00	90.550	343.190	6458.41	5109.88	4716.47	-1966.98	1693645.61	537685.76	39°58'16.024"N	80°35'35.049"W	5110.19	337.362	5.08	0.45	-5.06
12503.00	90.370	339.890	6457.64	5204.68	4806.57	-1997.05	1693615.54	537775.85	39°58'16.910"N	80°35'35.449"W	5204.93	337.438	3.48	-0.19	-3.47
12598.00	89.910	336.100	6457.41	5299.86	4894.63	-2032.64	1693579.95	537863.91	39°58'17.776"N	80°35'35.920"W	5299.91	337.448	4.02	-0.48	-3.99
12694.00	90.000	335.050	6457.49	5395.57	4982.04	-2072.34	1693540.26	537951.32	39°58'18.635"N	80°35'36.443"W	5395.86	337.415	1.10	0.09	-1.09
12789.00	89.850	338.880	6457.61	5490.54	5069.45	-2109.50	1693503.09	538038.72	39°58'19.495"N	80°35'36.934"W	5490.84	337.407	4.03	-0.16	4.03
12884.00	92.000	336.620	6456.08	5585.52	5157.35	-2145.46	1693467.13	538126.62	39°58'20.359"N	80°35'37.410"W	5585.81	337.413	3.28	2.26	-2.38
12979.00	91.630	334.940	6453.07	5680.39	5243.94	-2184.42	1693428.18	538213.21	39°58'21.210"N	80°35'37.924"W	5680.72	337.385	1.81	-0.39	-1.77
13074.00	91.630	334.220	6450.37	5775.19	5329.71	-2225.18	1693387.42	538298.97	39°58'22.052"N	80°35'38.461"W	5775.57	337.339	0.76	0.00	-0.76
13169.00	91.200	332.200	6448.02	5869.82	5414.48	-2267.98	1693344.62	538383.74	39°58'22.885"N	80°35'39.024"W	5870.29	337.272	2.17	-0.45	-2.13
13264.00	91.450	333.800	6445.82	5964.43	5499.10	-2311.10	1693301.50	538468.36	39°58'23.716"N	80°35'39.591"W	5965.01	337.205	1.70	0.26	1.68
13359.00	90.490	338.350	6444.21	6059.34	5585.90	-2349.61	1693263.00	538555.15	39°58'24.569"N	80°35'40.099"W	6059.95	337.187	4.89	-1.01	4.79
13454.00	89.850	337.450	6443.93	6154.33	5673.92	-2385.35	1693227.26	538643.17	39°58'25.435"N	80°35'40.672"W	6154.94	337.198	1.16	-0.67	-0.95
13549.00	90.180	337.410	6443.91	6249.33	5761.64	-2421.81	1693190.80	538730.89	39°58'26.297"N	80°35'41.054"W	6249.94	337.201	0.35	0.35	-0.04



# Actual Wellpath Report

SHL27 LHS AWP Proj: 14271'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	HG ENERGY	Slot	Slot #03
Area	Marshall County, WV	Well	SHL27 LHS
Field	Marshall (NAD27 SP Northern Zone 4701)	Wellbore	SHL27 LHS AWB
Facility	SHL27 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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
13644.00	89.780	341.380	6443.94	6344.28	5850.55	-2455.24	1693157.37	538819.79	39°58'27.172"N	80°35'41.497"W	6344.85	337.234	4.20	-0.42	4.18
13740.00	90.060	333.910	6444.07	6440.21	5939.27	-2491.72	1693120.89	538908.51	39°58'28.044"N	80°35'41.979"W	6440.78	337.240	7.79	0.29	-7.78
13835.00	89.540	332.590	6444.41	6534.88	6024.10	-2534.48	1693078.13	538993.33	39°58'28.877"N	80°35'42.542"W	6535.55	337.182	1.49	-0.55	-1.39
13930.00	89.600	333.600	6445.12	6629.53	6108.82	-2577.47	1693035.15	539078.04	39°58'29.709"N	80°35'43.107"W	6630.31	337.124	1.07	0.06	1.06
14025.00	89.570	334.960	6445.81	6724.33	6194.40	-2618.69	1692993.92	539163.62	39°58'30.550"N	80°35'43.650"W	6725.19	337.084	1.43	-0.03	1.43
14120.00	89.450	337.170	6446.62	6819.26	6281.22	-2657.23	1692955.39	539250.44	39°58'31.403"N	80°35'44.159"W	6820.16	337.070	2.33	-0.13	2.33
14215.00	90.090	341.420	6447.00	6914.22	6370.06	-2690.81	1692921.81	539339.28	39°58'32.277"N	80°35'44.604"W	6915.07	337.100	4.52	0.67	4.47
14245.00	89.420	344.230	6447.13	6944.11	6398.72	-2699.67	1692912.95	539367.94	39°58'32.559"N	80°35'44.722"W	6944.92	337.125	9.63	-2.23	9.37
14271.00	89.420	344.230	6447.39	6969.95	6423.74	-2706.73	1692905.89	539392.96	39°58'32.806"N	80°35'44.817"W	6970.72	337.151	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: SHL27 LHS AWB Ref Wellpath: SHL27 LHS AWP Proj: 14271'									
String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
30in Open Hole	25.00	60.00	35.00	25.00	60.00	0.00	0.00	-0.17	0.06
30in Conductor	25.00	60.00	35.00	25.00	60.00	0.00	0.00	-0.17	0.06
24in Open Hole	60.00	456.00	396.00	60.00	456.00	-0.17	0.06	-0.37	1.59
20in Casing Surface	25.00	456.00	431.00	25.00	456.00	0.00	0.00	-0.37	1.59
17.5in Open Hole	456.00	1067.00	611.00	456.00	1066.98	-0.37	1.59	-3.43	3.41
13.375in Casing Intermediate	25.00	1067.00	1042.00	25.00	1066.98	0.00	0.00	-3.43	3.41
12.25in Open Hole	1067.00	3080.00	2013.00	1066.98	3079.96	-3.43	3.41	-4.58	-0.29
9.625in Casing Intermediate	25.00	3050.00	3025.00	25.00	3049.96	0.00	0.00	-4.56	-0.17
8.5in Open Hole	3080.00	14271.00	11191.00	3079.96	6447.39	-4.58	-0.29	6423.74	-2706.73
5.5in Casing Production	25.00	14271.00	14246.00	25.00	6447.39	0.00	0.00	6423.74	-2706.73

# Actual Wellpath Report

SHL27 LHS AWP Proj: 14271'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	HG ENERGY	Slot	Slot #03
Area	Marshall County, WV	Well	SHL27 LHS
Field	Marshall (NAD27 SP Northern Zone 4701)	Wellbore	SHL27 LHS AWB
Facility	SHL27 Pad		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SHL27 LHS BHL Rev-1	6439.59	6387.88	-2676.02	1692936.60	539357.10	39°58'32.455"N	80°35'44.417"W	point
SHL27 LHS LP Rev-1	6490.00	-220.41	-6.10	1695606.40	532749.10	39°57'27.473"N	80°35'09.099"W	point
SHL27 Parcel #3	6500.00	721.41	-2084.73	1693527.87	533690.88	39°57'36.531"N	80°35'35.937"W	polygon
SHL27 Parcel #4	6500.00	721.41	-2084.73	1693527.87	533690.88	39°57'36.531"N	80°35'35.937"W	polygon

WELLPATH COMPOSITION - Ref Wellbore: SHL27 LHS AWB Ref Wellpath: SHL27 LHS AWP Proj: 14271'					
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	
25.00	2362.00	BHI Generic gyro - northseeking (Standard)	01_Inertial Gyro <12-1/4"> (25'-2350')	SHL27 LHS AWB	
2362.00	3012.00	BHI NaviTrak (Axial)	02_APS EM <12-1/4"> (2362')(2385'-3012')	SHL27 LHS AWB	
3012.00	14245.00	BHI AutoTrak Curve (Short)	03_BH AT Curve <8-1/2"> (3012')(3075'-14245')	SHL27 LHS AWB	
14245.00	14271.00	Blind Drilling (std)	Projection to bit	SHL27 LHS AWB	

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SHL27 LHS AWP Proj: 14271'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	HG ENERGY	Slot	Slot #03
Area	Marshall County, WV	Well	SHL27 LHS
Field	Marshall (NAD27 SP Northern Zone 4701)	Wellbore	SHL27 LHS AWB
Facility	SHL27 Pad		

## COMMENTS

### Wellpath general comments

API: 47-051-01959-0000

BH Job #: 9080491

Rig: Patterson 347

Duration: 4/2/2018-4/14/2018

Inertial Gyro <12-1/4"> (25'-2350')

APS EM <12-1/4"> (2362')(2385'-3012')

BH AT Curve <8-1/2"> (3012')(3075'-14245')

Projected MD at TD: 14271'