



SOUTHWESTERN ENERGY

Location: Ohio County, WV
 Field: Ohio
 Facility: GW Rentals LLC OHI Pad

Slot: Slot #405
 Well: GW Rentals LLC OHI 405H
 Wellbore: GW Rentals LLC OHI 405H PWB



Plot reference wellpath is GW Rentals LLC OHI 405H PWB Rev-A-0
 True vertical depths are referenced to SDC 41 (RKB)
 Measured depths are referenced to SDC 41 (RKB)
 SDC 41 (RKB) to Mean Sea Level: 1273 feet
 Mean Sea Level to Mud line (At Slot: Slot #405): -1247 feet
 Coordinates are in feet referenced to Sbt
 Created by: edisaryar on 07/Dec/2015

Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
GW Rentals LLC OHI Pad	1761911.920	14554063.900	80°33'56.509"W
Slot	Local N (ft)	Local E (ft)	Grid North (US ft)
Slot #405	22.76	35.42	14554106.650
SDC 41 (RKB) to Mud line (At Slot: Slot #405)	1761947.330	14554106.650	80°33'56.052"W
Mean Sea Level to Mud line (At Slot: Slot #405)			26ft
SDC 41 (RKB) to Mean Sea Level			-1247ft
			1273ft

EMS <17-1/2"> (123-586) : 0.60° Inc, 123.00ft TVD, 123.00ft MD, -0.48ft VS

APS EM <12-1/4"> (586)(706-2038) : 0.08° Inc, 706.00ft MD, 705.99ft TVD, -0.38ft VS

APS EM <8-3/4"> (2038)(2144-5888) : 6.75° Inc, 2144.00ft MD, 2139.07ft TVD, -3.60ft VS

API: 47-069-00196-0000

BHI Job #: 7648569

Rig: SDC 41

Duration: 11/26/2015-12/15/2015

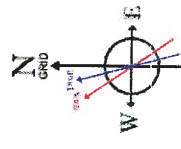
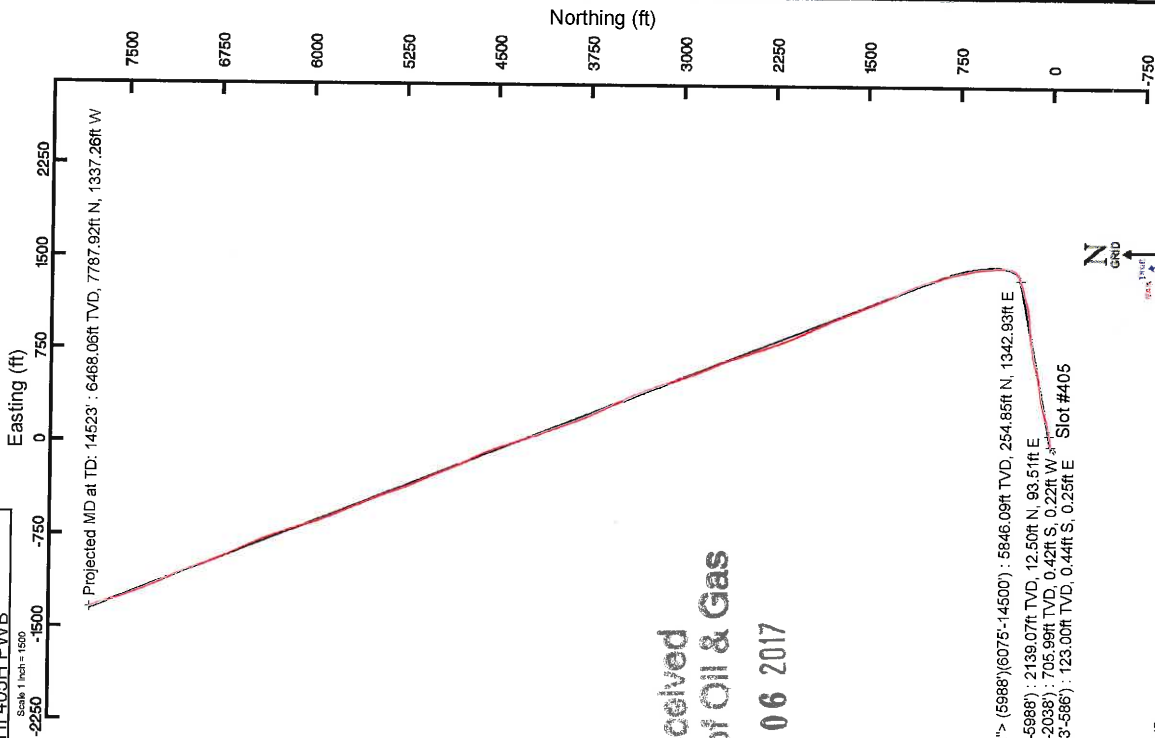
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FEB 06 2017

Well Profile Data (Plan)						
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)
Tie On	26.00	0.00	79.225	26.00	0.00	0.00
End of Tangent	1250.00	0.00	79.225	1250.00	0.00	0.00
End of Build	1650.00	6.000	79.225	1649.27	3.81	20.56
End of Tangent	2203.76	6.000	79.225	2200.00	14.73	77.42
End of 3D Arc	2942.68	20.778	79.226	2915.84	46.83	245.04
Curve KOP	6129.37	20.778	79.226	5896.27	257.96	1355.60
Landing Pl.	7178.13	90.659	338.543	6531.00	943.21	1343.73
BHL	14528.13	90.659	338.543	6445.44	7783.35	-1344.73
						0.00
						7888.66

BHI AT Curve <8-1/2"> (5988)(6075-14500) : 22.10° Inc, 6075.00ft MD, 5846.09ft TVD, 22.55ft VS

Projected MD at TD: 14523 : 90.52° Inc, 14523.00ft MD, 6468.06ft TVD, 7901.90ft VS



User specified (HDGM) Dip: 67.62° Field: 53039 nT
 Magnetic North is 8.31 degrees West of True North (at 20/Nov/2015)
 To correct azimuth from True North
 True Time to Grid subtract 0.28 degrees
 To correct azimuth from Magnetic to Grid subtract 8.39 degrees

11/26/2017

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #405
Area	Ohio County, WV	Well	GW Rentals LLC OHI 405H
Field	Ohio	Wellbore	GW Rentals LLC OHI 405H AWB
Facility	GW Rentals LLC OHI Pad		

REPORT SETUP INFORMATION

Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 4.0.1
North Reference	Grid	User	Edsaryar
Scale	0.999617	Report Generated	07/Dec/2015 at 11:03
Convergence at slot	0.28° East	Database/Source file	WA_MPL_EASTERNUS_Defn/GW_Rentals_LLC_OHI_405H_AWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North [ft]	East [ft]	Easting [US ft]	Northing [US ft]	Latitude	Longitude
Slot Location	22.76	35.42	1761947.33	14554106.65	40°04'27.685"N	80°33'56.052"W
Facility Reference Pt			1761911.92	14554083.90	40°04'27.462"N	80°33'56.509"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.478"W

WELLPATH DATUM

Calculation method	Minimum curvature	SDC 41 (RKB) to Facility Vertical Datum	1273.00ft
Horizontal Reference Pt	Slot	SDC 41 (RKB) to Mean Sea Level	1273.00ft
Vertical Reference Pt	SDC 41 (RKB)	SDC 41 (RKB) to Mud Line at Slot (Slot #405)	26.00ft
MD Reference Pt	SDC 41 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	350.20°

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Area	Ohio County, WV	Well	GW Rentals LLC OHI 405H
Field	Ohio	Wellbore	GW Rentals LLC OHI 405H AWB
Facility	GW Rentals LLC OHI Pad		

WELLPATH DATA (173 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	150.670	0.00	0.00	0.00	0.00	1761947.33	14554106.65	40°04'27.685"N	80°33'56.052"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	150.670	26.00	0.00	0.00	0.00	1761947.33	14554106.65	40°04'27.685"N	80°33'56.052"W	0.00	0.000	0.00	0.00	0.00
123.00	0.600	150.670	123.00	-0.48	-0.44	0.25	1761947.58	14554106.21	40°04'27.681"N	80°33'56.049"W	0.51	150.670	0.62	0.62	0.00
220.00	0.300	246.670	220.00	-1.02	-0.99	0.26	1761947.59	14554105.66	40°04'27.675"N	80°33'56.049"W	1.02	164.992	0.72	-0.31	98.97
311.00	0.100	206.970	311.00	-1.14	-1.15	0.01	1761947.34	14554105.50	40°04'27.674"N	80°33'56.052"W	1.15	179.522	0.25	-0.22	-43.63
401.00	0.100	357.170	401.00	-1.12	-1.14	-0.03	1761947.30	14554105.51	40°04'27.674"N	80°33'56.053"W	1.14	181.498	0.21	0.00	166.89
495.00	0.200	21.170	495.00	-0.90	-0.91	0.03	1761947.36	14554105.74	40°04'27.676"N	80°33'56.052"W	0.91	178.403	0.12	0.11	25.53
586.00	0.200	317.070	585.99	-0.63	-0.64	-0.03	1761947.30	14554106.01	40°04'27.679"N	80°33'56.052"W	0.64	182.270	0.23	0.00	-70.44
706.00	0.080	323.590	705.99	-0.38	-0.42	-0.22	1761947.11	14554106.23	40°04'27.681"N	80°33'56.055"W	0.48	207.268	0.10	-0.10	5.43
798.00	0.050	357.630	797.99	-0.28	-0.33	-0.26	1761947.07	14554106.32	40°04'27.682"N	80°33'56.055"W	0.42	217.905	0.05	-0.03	37.00
891.00	0.780	96.430	890.99	-0.42	-0.36	0.37	1761947.70	14554106.29	40°04'27.682"N	80°33'56.047"W	0.52	134.340	0.85	0.78	106.24
984.00	1.750	82.320	983.97	-0.65	-0.24	2.41	1761949.74	14554106.41	40°04'27.683"N	80°33'56.021"W	2.42	95.753	1.09	1.04	-15.17
1076.00	1.600	79.820	1075.93	-0.69	0.17	5.06	1761952.39	14554106.82	40°04'27.687"N	80°33'55.987"W	5.07	88.050	0.18	-0.16	-2.72
1169.00	1.380	68.100	1168.90	-0.45	0.82	7.38	1761954.71	14554107.47	40°04'27.693"N	80°33'55.957"W	7.42	83.663	0.40	-0.24	-12.60
1262.00	1.180	80.400	1261.87	-0.22	1.40	9.36	1761956.69	14554108.05	40°04'27.699"N	80°33'55.932"W	9.47	81.514	0.36	-0.22	13.23
1354.00	1.170	79.030	1353.85	-0.20	1.73	11.22	1761958.54	14554108.38	40°04'27.702"N	80°33'55.908"W	11.35	81.216	0.03	-0.01	-1.49
1447.00	2.690	81.130	1446.80	-0.22	2.25	14.31	1761961.63	14554108.90	40°04'27.707"N	80°33'55.868"W	14.48	81.059	1.64	1.63	2.26
1540.00	5.430	85.960	1539.56	-0.69	2.90	20.85	1761968.18	14554109.55	40°04'27.713"N	80°33'55.784"W	21.05	82.090	2.97	2.95	5.19
1632.00	7.670	87.050	1630.95	-1.86	3.52	31.33	1761978.65	14554110.17	40°04'27.718"N	80°33'55.649"W	31.53	83.589	2.44	2.43	1.18
1725.00	7.170	83.450	1723.17	-2.93	4.50	43.29	1761990.61	14554111.15	40°04'27.728"N	80°33'55.495"W	43.53	84.064	0.73	-0.54	-3.87
1818.00	6.810	79.830	1815.48	-3.23	6.14	54.49	1762001.80	14554112.78	40°04'27.743"N	80°33'55.351"W	54.83	83.573	0.61	-0.39	-3.89
1911.00	6.900	80.610	1907.82	-3.23	8.02	65.43	1762012.73	14554114.67	40°04'27.761"N	80°33'55.210"W	65.92	83.009	0.14	0.10	0.84
2003.00	7.080	82.320	1999.13	-3.48	9.68	76.50	1762023.80	14554116.33	40°04'27.777"N	80°33'55.067"W	77.11	82.787	0.30	0.20	1.86
2038.00	7.230	82.600	2033.86	-3.65	10.25	80.82	1762028.12	14554116.90	40°04'27.783"N	80°33'55.012"W	81.47	82.769	0.44	0.43	0.80
2144.00	6.750	77.120	2139.07	-3.60	12.50	93.51	1762040.80	14554119.15	40°04'27.804"N	80°33'54.848"W	94.34	82.385	0.77	-0.45	-5.17
2187.00	6.070	80.750	2181.80	-3.48	13.43	98.21	1762045.51	14554120.07	40°04'27.813"N	80°33'54.788"W	99.13	82.213	1.84	-1.58	8.44
2380.00	5.600	78.790	2274.32	-3.42	15.10	107.52	1762054.81	14554121.75	40°04'27.829"N	80°33'54.668"W	108.57	82.004	0.55	-0.51	-2.11
3372.00	8.710	79.620	2365.59	-3.24	17.23	118.78	1762066.06	14554123.87	40°04'27.850"N	80°33'54.523"W	120.02	81.746	3.38	3.38	0.90
4465.00	11.830	78.240	2457.09	-2.84	20.44	135.04	1762082.32	14554127.09	40°04'27.881"N	80°33'54.314"W	136.58	81.391	3.37	3.35	-1.48
5580.00	13.200	78.940	2547.88	-2.28	24.42	154.79	1762102.06	14554131.06	40°04'27.919"N	80°33'54.059"W	156.71	81.034	1.48	1.47	0.75

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Area	Ohio County, WV	Well	GW Rentals LLC OHI 405H
Field	Ohio	Wellbore	GW Rentals LLC OHI 405H AWB
Facility	GW Rentals LLC OHI Pad		

WELLPATH DATA (173 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]
2651.00	12.090	77.190	2638.63	-1.54	28.62	174.71	1762121.97	14554135.26	40°04'27.960"N	80°33'53.803"W	177.04	80.697	1.26	-1.19	-1.88
2743.00	14.400	74.860	2728.17	0.04	33.74	195.15	1762142.41	14554140.38	40°04'28.009"N	80°33'53.540"W	198.05	80.190	2.58	2.51	-2.53
2836.00	15.950	74.410	2817.93	2.40	40.20	218.62	1762165.87	14554146.83	40°04'28.072"N	80°33'53.237"W	222.29	79.581	1.67	1.67	-0.48
2929.00	18.020	76.270	2906.87	4.68	47.05	244.91	1762192.14	14554153.68	40°04'28.138"N	80°33'52.899"W	249.39	79.126	2.30	2.23	2.00
3022.00	19.740	76.430	2994.86	6.69	54.15	274.15	1762221.38	14554160.78	40°04'28.207"N	80°33'52.522"W	279.45	78.827	1.85	1.85	0.17
3114.00	19.070	75.910	3081.63	8.84	61.45	303.83	1762251.05	14554168.08	40°04'28.278"N	80°33'52.140"W	309.98	78.566	0.75	-0.73	-0.57
3207.00	19.100	76.900	3169.52	10.85	68.60	333.39	1762280.59	14554175.22	40°04'28.347"N	80°33'51.759"W	340.37	78.373	0.35	0.03	1.06
3300.00	19.740	80.660	3257.23	11.60	74.60	363.71	1762310.90	14554181.22	40°04'28.405"N	80°33'51.369"W	371.28	78.409	1.51	0.69	4.04
3392.00	21.210	81.570	3343.42	11.08	79.56	395.50	1762342.68	14554186.18	40°04'28.452"N	80°33'50.960"W	403.42	78.626	1.63	1.60	0.99
3485.00	21.870	81.510	3429.92	10.28	84.58	429.27	1762376.44	14554191.20	40°04'28.500"N	80°33'50.525"W	437.53	78.853	0.71	0.71	-0.06
3578.00	21.840	79.820	3516.24	10.00	90.20	463.43	1762410.58	14554196.81	40°04'28.554"N	80°33'50.085"W	472.13	78.986	0.68	-0.03	-1.82
3671.00	21.820	81.090	3602.57	9.85	95.93	497.53	1762444.67	14554202.55	40°04'28.609"N	80°33'49.646"W	506.70	79.086	0.51	-0.02	1.37
3763.00	22.020	80.550	3687.92	9.48	101.41	531.44	1762478.56	14554208.02	40°04'28.662"N	80°33'49.210"W	541.03	79.196	0.31	0.22	-0.59
3856.00	21.420	79.740	3774.32	9.51	107.30	565.35	1762512.46	14554213.91	40°04'28.718"N	80°33'48.773"W	575.44	79.253	0.72	-0.65	-0.87
3949.00	20.420	77.870	3861.19	10.30	113.73	597.92	1762545.02	14554220.34	40°04'28.780"N	80°33'48.354"W	608.64	79.230	1.29	-1.08	-2.01
4041.00	18.900	75.420	3947.82	12.20	120.86	628.03	1762575.12	14554227.46	40°04'28.849"N	80°33'47.966"W	639.56	79.107	1.88	-1.65	-2.66
4134.00	18.770	75.820	4035.84	14.59	128.31	657.12	1762604.19	14554234.91	40°04'28.921"N	80°33'47.591"W	669.53	78.951	0.20	-0.14	0.43
4227.00	19.700	77.160	4123.65	16.57	135.46	686.91	1762633.97	14554242.06	40°04'28.991"N	80°33'47.208"W	700.14	78.844	1.11	1.00	1.44
4319.00	19.740	79.970	4210.26	17.45	141.61	717.33	1762664.38	14554248.21	40°04'29.050"N	80°33'46.816"W	731.17	78.832	1.03	0.04	3.05
4412.00	20.070	81.390	4297.70	17.18	146.74	748.57	1762695.61	14554253.33	40°04'29.099"N	80°33'46.414"W	762.82	78.909	0.63	0.35	1.53
4505.00	19.980	80.280	4385.08	16.83	151.81	780.01	1762727.04	14554258.40	40°04'29.148"N	80°33'46.009"W	794.64	78.986	0.42	-0.10	-1.19
4597.00	19.990	79.110	4471.54	17.11	157.44	810.94	1762757.96	14554264.02	40°04'29.202"N	80°33'45.611"W	826.08	79.013	0.43	0.01	-1.27
4690.00	20.410	80.620	4558.82	17.29	163.08	842.55	1762789.56	14554269.67	40°04'29.256"N	80°33'45.204"W	858.19	79.045	0.72	0.45	1.62
4783.00	20.660	83.570	4645.91	16.21	167.56	874.86	1762821.85	14554274.15	40°04'29.299"N	80°33'44.788"W	890.76	79.157	1.14	0.27	3.17
4875.00	19.870	83.130	4732.22	14.45	171.25	906.51	1762853.49	14554277.83	40°04'29.334"N	80°33'44.380"W	922.54	79.302	0.87	-0.86	-0.48
4968.00	20.340	83.340	4819.55	12.76	175.01	938.25	1762885.22	14554281.60	40°04'29.369"N	80°33'43.972"W	954.43	79.434	0.51	0.51	0.23
5061.00	21.650	85.280	4906.38	10.36	178.30	971.40	1762918.36	14554284.88	40°04'29.400"N	80°33'43.545"W	987.63	79.599	1.59	1.41	2.09
5154.00	22.090	86.940	4992.68	6.79	180.65	1005.96	1762952.91	14554287.23	40°04'29.422"N	80°33'43.100"W	1022.06	79.820	0.82	0.47	1.78
5247.00	23.050	84.990	5078.56	3.21	183.17	1041.56	1762988.49	14554289.75	40°04'29.445"N	80°33'42.642"W	1057.55	80.026	1.31	1.03	-2.10
5339.00	23.410	83.140	5163.10	0.77	186.93	1077.65	1763024.57	14554293.50	40°04'29.480"N	80°33'42.178"W	1093.74	80.160	0.88	0.39	-2.01



Actual Wellpath Report

GW Rentals LLC OHI 405H AWP Proj: 14523
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05/26/2017

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #405
Area	Ohio County, WV	Well	GW Rentals LLC OHI 405H
Field	Ohio	Wellbore	GW Rentals LLC OHI 405H AWB
Facility	GW Rentals LLC OHI Pad		

WELLPATH DATA (173 stations)

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]			[ft]	[°]	[%/100ft]	[%/100ft]	[%/100ft]
5432.00	22.270	79.300	5248.81	0.10	192.40	1113.31	1763060.21	14554298.98	40°04'29.533"N	80°33'41.719"W	1129.82	80.195	2.02	-1.23	-4.13
5524.00	21.990	73.850	5334.05	2.28	200.43	1146.99	1763093.88	14554307.01	40°04'29.610"N	80°33'41.285"W	1164.37	80.088	2.25	-0.30	-5.92
5617.00	22.450	73.670	5420.14	6.23	210.27	1180.76	1763127.63	14554316.84	40°04'29.706"N	80°33'40.850"W	1199.33	79.903	0.50	0.49	-0.19
5710.00	22.380	74.820	5506.11	9.90	219.90	1214.89	1763161.75	14554326.46	40°04'29.799"N	80°33'40.411"W	1234.63	79.740	0.48	-0.08	1.24
5803.00	21.660	75.270	5592.33	13.04	228.90	1248.57	1763195.42	14554335.46	40°04'29.887"N	80°33'39.977"W	1269.38	79.611	0.80	-0.77	0.48
5895.00	20.290	73.160	5678.23	16.45	237.84	1280.26	1763227.10	14554344.40	40°04'29.973"N	80°33'39.568"W	1302.17	79.476	1.70	-1.49	-2.29
5988.00	21.150	74.270	5765.22	20.16	247.06	1311.85	1763258.67	14554353.61	40°04'30.063"N	80°33'39.162"W	1334.91	79.335	1.02	0.92	1.19
6075.00	22.100	77.510	5846.09	22.55	254.85	1342.93	1763289.75	14554361.40	40°04'30.138"N	80°33'38.761"W	1366.90	79.255	1.75	1.09	3.72
6143.00	20.560	74.040	5909.44	24.44	260.90	1366.90	1763313.71	14554367.45	40°04'30.197"N	80°33'38.452"W	1391.58	79.194	2.93	-2.26	-5.10
6189.00	20.900	63.980	5952.47	27.59	266.72	1382.05	1763328.85	14554373.27	40°04'30.254"N	80°33'38.257"W	1407.55	79.077	7.77	0.74	-21.87
6236.00	21.180	50.760	5996.36	34.11	275.78	1396.17	1763342.96	14554382.32	40°04'30.343"N	80°33'38.075"W	1423.14	78.826	10.10	0.60	-28.13
6271.00	21.980	38.980	6028.93	41.54	284.87	1405.19	1763351.98	14554391.41	40°04'30.432"N	80°33'37.958"W	1433.77	78.540	12.57	2.29	-33.66
6328.00	24.060	31.270	6081.40	57.34	303.10	1417.93	1763364.72	14554409.64	40°04'30.612"N	80°33'37.793"W	1449.97	77.934	6.42	3.65	-13.53
6376.00	27.760	26.610	6124.57	73.72	321.47	1428.02	1763374.80	14554428.00	40°04'30.793"N	80°33'37.662"W	1463.76	77.313	8.79	7.71	-9.71
6421.00	32.060	19.960	6163.58	92.53	342.08	1436.80	1763383.58	14554448.60	40°04'30.996"N	80°33'37.548"W	1476.96	76.608	12.05	9.56	-14.78
6470.00	35.400	8.310	6204.37	117.34	368.38	1443.30	1763390.08	14554474.89	40°04'31.256"N	80°33'37.463"W	1489.57	75.682	14.83	6.82	-23.78
6514.00	38.540	1.430	6239.53	142.92	394.71	1445.49	1763392.26	14554501.21	40°04'31.516"N	80°33'37.433"W	1498.41	74.727	11.80	7.14	-15.64
6562.00	42.540	358.150	6276.01	173.67	425.90	1445.34	1763392.11	14554532.38	40°04'31.824"N	80°33'37.433"W	1506.78	73.581	9.44	8.33	-6.83
6606.00	45.280	356.020	6307.70	203.96	456.57	1443.77	1763390.54	14554562.84	40°04'32.125"N	80°33'37.451"W	1514.18	72.459	7.07	6.23	-4.84
6655.00	47.830	354.880	6341.40	239.39	491.82	1440.94	1763387.72	14554598.29	40°04'32.475"N	80°33'37.485"W	1522.56	71.154	5.47	5.20	-2.33
6699.00	49.770	355.040	6370.38	272.38	524.80	1438.03	1763384.81	14554631.25	40°04'32.802"N	80°33'37.521"W	1530.80	69.951	4.42	4.41	0.36
6748.00	54.950	353.720	6400.29	311.06	563.40	1434.22	1763381.00	14554669.83	40°04'33.183"N	80°33'37.567"W	1540.91	68.554	10.78	10.57	-2.69
6792.00	59.680	351.890	6424.05	348.04	600.13	1429.57	1763376.35	14554706.55	40°04'33.546"N	80°33'37.625"W	1550.42	67.228	11.30	10.75	-4.16
6840.00	63.480	349.180	6446.89	390.02	641.75	1422.61	1763369.39	14554748.15	40°04'33.958"N	80°33'37.712"W	1560.66	65.719	9.34	7.92	-5.65
6884.00	66.040	347.800	6465.65	430.02	680.74	1414.66	1763361.45	14554787.13	40°04'34.344"N	80°33'37.811"W	1569.93	64.303	6.47	5.82	-3.14
6933.00	68.980	346.980	6484.39	475.23	724.92	1404.78	1763351.57	14554831.54	40°04'34.781"N	80°33'37.936"W	1580.79	62.705	6.20	6.00	-1.67
6977.00	71.620	345.870	6499.23	516.56	765.18	1395.05	1763341.85	14554871.29	40°04'35.179"N	80°33'38.058"W	1591.12	61.255	6.45	6.00	-2.52
7028.00	76.080	345.030	6513.41	565.37	812.58	1382.75	17633329.54	14554918.92	40°04'35.648"N	80°33'38.214"W	1603.83	59.559	8.89	8.75	-1.65
7070.00	80.480	344.010	6521.94	606.28	852.21	1371.77	1763318.57	14554958.53	40°04'36.040"N	80°33'38.352"W	1614.93	58.150	10.74	10.48	-2.43
7122.00	84.850	343.680	6528.57	657.53	901.73	1357.42	1763304.23	14555008.03	40°04'36.530"N	80°33'38.534"W	1629.64	56.404	8.43	8.40	-0.63



Actual Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #405
Area	Ohio County, WV	Well	GW Rentals LLC OHI 405H
Field	Ohio	Wellbore	GW Rentals LLC OHI 405H AWB
Facility	GW Rentals LLC OHI Pad		

WELLPATH DATA (173 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]
7162.00	87.480	343.320	6531.25	697.16	940.00	1346.09	1763292.90	14555046.28	40°04'36.909"N	80°33'38.677"W	1641.81	55.073	6.64	6.58	-0.90
7214.00	85.780	341.530	6534.31	748.59	989.48	1330.42	1763277.23	14555095.75	40°04'37.399"N	80°33'38.876"W	1658.03	53.360	4.74	-3.27	-3.44
7255.00	86.240	340.940	6537.16	788.99	1028.20	1317.26	1763264.08	14555134.46	40°04'37.782"N	80°33'39.042"W	1671.04	52.026	1.82	1.12	-1.44
7348.00	90.280	338.400	6539.98	880.36	1115.35	1284.97	1763231.80	14555221.57	40°04'38.645"N	80°33'39.452"W	1701.51	49.042	5.13	4.34	-2.73
7440.00	90.310	335.550	6539.51	969.91	1200.01	1248.99	1763195.84	14555306.19	40°04'39.483"N	80°33'39.910"W	1732.05	46.146	3.10	0.03	-3.10
7533.00	90.400	335.830	6538.93	1059.94	1284.76	1210.70	1763157.57	14555390.91	40°04'40.323"N	80°33'40.397"W	1765.34	43.300	0.32	0.10	0.50
7626.00	90.310	338.190	6538.36	1150.48	1370.36	1174.38	1763121.26	14555476.49	40°04'41.170"N	80°33'40.859"W	1804.74	40.596	2.54	-0.10	2.54
7718.00	90.430	337.330	6537.76	1240.31	1455.52	1139.56	1763086.46	14555561.61	40°04'42.013"N	80°33'41.301"W	1848.55	38.058	0.94	0.13	-0.93
7811.00	90.460	336.960	6537.04	1330.91	1541.21	1103.44	1763050.35	14555647.27	40°04'42.862"N	80°33'41.760"W	1895.50	35.601	0.40	0.03	-0.40
7904.00	90.430	338.680	6536.32	1421.74	1627.33	1068.34	1763015.26	14555733.35	40°04'43.715"N	80°33'42.206"W	1946.67	33.285	1.85	-0.03	1.85
7997.00	91.570	338.180	6534.70	1512.77	1713.80	1034.15	1762981.09	14555819.79	40°04'44.571"N	80°33'42.641"W	2001.64	31.108	1.34	1.23	-0.54
8089.00	90.830	336.680	6532.77	1602.47	1798.73	998.85	1762945.80	14555904.69	40°04'45.412"N	80°33'43.089"W	2057.46	29.044	1.82	-0.80	-1.63
8182.00	90.710	335.510	6531.52	1692.65	1883.74	961.17	1762908.13	14555989.67	40°04'46.254"N	80°33'43.569"W	2114.79	27.033	1.26	-0.13	-1.26
8275.00	90.740	334.920	6530.34	1782.48	1968.17	922.19	1762869.16	14556074.06	40°04'47.090"N	80°33'44.065"W	2173.50	25.105	0.64	0.03	-0.63
8367.00	90.770	336.010	6529.13	1871.45	2051.85	883.99	1762830.98	14556157.71	40°04'47.919"N	80°33'44.551"W	2234.18	23.308	1.19	0.03	1.18
8460.00	90.680	338.490	6527.95	1962.07	2137.61	848.03	1762795.03	14556243.43	40°04'48.768"N	80°33'45.008"W	2299.68	21.639	2.67	-0.10	2.67
8553.00	90.710	339.540	6526.82	2053.30	2224.43	814.73	1762761.74	14556330.22	40°04'49.628"N	80°33'45.431"W	2368.94	20.116	1.13	0.03	1.13
8646.00	90.680	341.530	6525.70	2144.96	2312.10	783.74	1762730.77	14556417.86	40°04'50.496"N	80°33'45.824"W	2441.33	18.725	2.14	-0.03	2.14
8738.00	90.620	340.660	6524.65	2235.80	2399.13	753.93	1762700.97	14556504.86	40°04'51.357"N	80°33'46.202"W	2514.81	17.445	0.95	-0.07	-0.95
8831.00	90.770	341.160	6523.52	2327.57	2487.01	723.52	1762670.57	14556592.70	40°04'52.227"N	80°33'46.588"W	2590.12	16.221	0.56	0.16	0.54
8924.00	90.710	343.410	6522.32	2419.67	2575.59	695.23	1762642.29	14556681.25	40°04'53.104"N	80°33'46.946"W	2667.77	15.106	2.42	-0.06	2.42
9016.00	90.650	338.880	6521.23	2510.50	2662.62	665.50	1762612.58	14556768.25	40°04'53.965"N	80°33'47.323"W	2744.53	14.033	4.92	-0.07	-4.92
9109.00	90.740	335.940	6520.10	2601.17	2748.47	629.79	1762576.87	14556854.06	40°04'54.815"N	80°33'47.777"W	2819.70	12.906	3.16	0.10	-3.16
9202.00	90.740	337.610	6518.90	2691.62	2833.93	593.13	1762540.22	14556939.49	40°04'55.662"N	80°33'48.244"W	2895.33	11.821	1.80	0.00	1.80
9295.00	91.750	339.900	6516.88	2782.74	2920.24	559.42	1762505.54	14557026.10	40°04'56.519"N	80°33'48.672"W	2973.67	10.843	2.69	1.09	2.46
9387.00	90.740	340.960	6514.88	2873.38	3007.24	528.62	1762475.75	14557112.73	40°04'57.377"N	80°33'49.062"W	3053.35	9.970	1.59	-1.10	1.15
9480.00	90.770	343.040	6513.66	2965.42	3095.68	499.89	1762447.02	14557201.13	40°04'58.253"N	80°33'49.427"W	3135.78	9.173	2.24	0.03	2.24
9573.00	90.370	339.570	6512.73	3057.28	3183.75	470.08	1762417.23	14557289.18	40°04'59.124"N	80°33'49.804"W	3218.27	8.399	3.76	-0.43	-3.73
9665.00	90.310	339.990	6512.18	3147.76	3270.08	438.29	1762385.45	14557375.47	40°04'59.979"N	80°33'50.208"W	3299.32	7.634	0.46	-0.07	0.46
9758.00	90.340	337.590	6511.66	3238.92	3356.77	404.64	1762351.82	14557462.13	40°05'00.837"N	80°33'50.635"W	3381.07	6.874	2.58	0.03	-2.58



Actual Wellpath Report

GW Rentals LLC OHI 405H AWP Proj: 14523'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #405
Area	Ohio County, WV	Well	GW Rentals LLC OHI 405H
Field	Ohio	Wellbore	GW Rentals LLC OHI 405H AWB
Facility	GW Rentals LLC OHI Pad		

WELLPATH DATA (173 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TYD [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]
9851.00	90.280	335.240	6511.15	3329.23	3442.00	367.44	1762314.62	14557547.32	40°05'01.681"N	80°33'51.109"W	3461.55	6.093	2.53	-0.06	-2.53
9944.00	90.340	335.150	6510.65	3419.06	3526.42	328.42	1762275.62	14557631.71	40°05'02.518"N	80°33'51.605"W	3541.68	5.321	0.12	0.06	-0.10
10036.00	90.340	335.890	6510.10	3508.05	3610.14	290.30	1762237.52	14557715.40	40°05'03.347"N	80°33'52.091"W	3621.80	4.597	0.80	0.00	0.80
10129.00	90.370	335.230	6509.53	3598.03	3694.81	251.82	1762199.05	14557800.04	40°05'04.185"N	80°33'52.580"W	3703.38	3.899	0.71	0.03	-0.71
10222.00	90.860	336.090	6508.53	3688.05	3779.54	213.49	1762160.74	14557884.73	40°05'05.024"N	80°33'53.068"W	3785.56	3.233	1.06	0.53	0.92
10315.00	90.770	340.010	6507.21	3778.94	3865.77	178.74	1762126.00	14557970.93	40°05'05.878"N	80°33'53.510"W	3869.90	2.647	4.22	-0.10	4.22
10407.00	90.770	340.380	6505.97	3869.53	3952.32	147.57	1762094.85	14558057.45	40°05'06.735"N	80°33'53.905"W	3955.07	2.138	0.40	0.00	0.40
10500.00	90.740	340.280	6504.74	3961.14	4039.89	116.27	1762063.56	14558144.98	40°05'07.602"N	80°33'54.302"W	4041.56	1.649	0.11	-0.03	-0.11
10593.00	90.860	340.040	6503.45	4052.71	4127.36	84.71	1762032.01	14558232.42	40°05'08.468"N	80°33'54.703"W	4128.23	1.176	0.29	0.13	-0.26
10686.00	90.830	341.460	6502.07	4144.44	4215.14	54.05	1762001.36	14558320.17	40°05'09.337"N	80°33'55.092"W	4215.49	0.735	1.53	-0.03	1.53
10778.00	90.860	340.270	6500.72	4235.21	4302.05	23.90	1761971.22	14558407.04	40°05'10.197"N	80°33'55.474"W	4302.12	0.318	1.29	0.03	-1.29
10871.00	90.740	340.850	6499.42	4326.88	4389.74	-7.05	1761940.28	14558494.70	40°05'11.065"N	80°33'55.867"W	4389.75	359.908	0.64	-0.13	0.62
10964.00	90.710	342.340	6498.24	4418.83	4477.97	-36.41	1761910.93	14558582.90	40°05'11.939"N	80°33'56.239"W	4478.12	4478.12	359.534	-0.03	1.60
11056.00	90.680	339.310	6497.13	4509.58	4564.85	-66.62	1761880.73	14558669.74	40°05'12.799"N	80°33'56.622"W	4565.34	359.164	3.29	-0.03	-3.29
11149.00	90.680	333.920	6496.02	4599.94	4650.18	-103.52	1761843.85	14558755.04	40°05'13.643"N	80°33'57.092"W	4651.33	358.725	5.80	0.00	-5.80
11242.00	90.650	334.040	6494.94	4689.23	4733.74	-144.31	1761803.07	14558838.57	40°05'14.471"N	80°33'57.611"W	4735.94	358.254	0.13	-0.03	0.13
11335.00	90.710	336.770	6493.84	4779.13	4818.29	-183.01	1761764.39	14558923.09	40°05'15.309"N	80°33'58.104"W	4821.77	357.825	2.94	0.06	2.94
11427.00	90.680	339.290	6492.72	4869.05	4903.60	-217.43	1761729.99	14559008.36	40°05'16.153"N	80°33'58.541"W	4908.42	4908.42	2.74	-0.03	2.74
11520.00	90.740	337.360	6491.57	4960.05	4990.01	-251.77	1761695.66	14559094.74	40°05'17.009"N	80°33'58.978"W	4996.36	357.114	2.08	0.06	-2.08
11613.00	90.310	335.770	6490.72	5050.42	5075.33	-288.76	1761658.69	14559180.03	40°05'17.854"N	80°33'59.448"W	5083.54	356.742	1.77	-0.46	-1.71
11706.00	90.340	336.580	6490.19	5140.65	5160.41	-326.32	1761621.13	14559265.07	40°05'18.696"N	80°33'59.926"W	5170.71	356.382	0.87	0.03	0.87
11798.00	90.370	340.320	6489.62	5230.70	5245.96	-360.11	1761587.36	14559350.59	40°05'19.543"N	80°34'00.356"W	5258.30	356.073	4.07	0.03	4.07
11891.00	90.340	340.310	6488.94	5322.32	5333.52	-391.43	1761556.05	14559438.12	40°05'20.410"N	80°34'00.753"W	5347.87	355.803	0.03	-0.03	-0.01
11984.00	90.280	340.270	6488.54	5413.93	5421.07	-422.80	1761524.69	14559525.63	40°05'21.277"N	80°34'01.151"W	5437.53	355.540	0.08	-0.06	-0.04
12076.00	90.280	338.270	6488.09	5504.26	5507.11	-455.36	1761492.14	14559611.64	40°05'22.129"N	80°34'01.565"W	5525.90	355.273	2.17	0.00	-2.17
12169.00	90.340	337.430	6487.59	5595.10	5593.24	-490.42	1761457.09	14559697.74	40°05'22.982"N	80°34'02.011"W	5614.70	354.989	0.91	0.06	-0.90
12262.00	90.280	338.350	6487.08	5685.96	5679.40	-525.43	1761422.11	14559783.87	40°05'23.835"N	80°34'02.456"W	5703.66	354.714	0.99	-0.06	0.99
12354.00	90.430	337.190	6486.51	5775.80	5764.56	-560.23	1761387.31	14559868.99	40°05'24.678"N	80°34'02.898"W	5791.72	354.449	1.27	0.16	-1.26
12447.00	90.460	338.130	6485.79	5866.58	5850.58	-595.58	1761351.98	14559954.98	40°05'25.530"N	80°34'03.348"W	5880.82	354.187	1.01	0.03	1.01
12540.00	90.460	340.130	6485.05	5957.84	5937.47	-628.71	1761318.86	14560041.83	40°05'26.390"N	80°34'03.768"W	5970.66	353.956	2.15	0.00	2.15



Actual Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #405
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WELLPATH DATA (173 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]
12633.00	90.430	342.840	6484.32	6049.76	6025.65	-658.24	1761289.35	14560129.97	40°05'27.263"N	80°34'04.143"W	6061.49	353.766	2.91	-0.03	2.91
12725.00	90.490	343.390	6483.58	6141.05	6113.68	-684.96	1761262.64	14560217.97	40°05'28.134"N	80°34'04.481"W	6151.93	353.607	0.60	0.07	0.60
12818.00	90.430	341.500	6482.84	6233.19	6202.34	-713.01	1761234.60	14560306.60	40°05'29.011"N	80°34'04.836"W	6243.19	353.442	2.03	-0.06	-2.03
12910.00	90.490	340.320	6482.10	6323.98	6289.27	-743.09	1761204.52	14560393.50	40°05'29.872"N	80°34'05.218"W	6333.02	353.262	1.28	0.07	-1.28
13003.00	90.490	338.720	6481.30	6415.36	6376.39	-775.63	1761172.00	14560480.58	40°05'30.734"N	80°34'05.631"W	6423.39	353.065	1.72	0.00	-1.72
13096.00	90.460	335.870	6480.53	6506.00	6462.17	-811.52	1761136.12	14560566.33	40°05'31.584"N	80°34'06.088"W	6512.93	352.842	3.06	-0.03	-3.06
13189.00	90.550	335.790	6479.71	6596.09	6547.02	-849.60	1761098.06	14560651.14	40°05'32.424"N	80°34'06.572"W	6601.91	352.606	0.13	0.10	-0.09
13281.00	90.460	336.250	6478.90	6685.28	6631.07	-886.99	1761060.68	14560735.17	40°05'33.256"N	80°34'07.048"W	6690.13	352.381	0.51	-0.10	0.50
13374.00	90.430	337.370	6478.18	6775.75	6716.55	-923.61	1761024.08	14560820.62	40°05'34.103"N	80°34'07.514"W	6779.76	352.170	1.20	-0.03	1.20
13467.00	90.650	338.770	6477.30	6866.67	6802.82	-958.34	1760989.36	14560906.85	40°05'34.957"N	80°34'07.956"W	6869.99	351.981	1.52	0.24	1.51
13559.00	90.460	339.130	6476.41	6956.90	6888.67	-991.38	1760956.33	14560992.67	40°05'35.807"N	80°34'08.375"W	6959.65	351.811	0.44	-0.21	0.39
13652.00	90.520	339.430	6475.62	7048.21	6975.66	-1024.28	1760923.44	14561079.62	40°05'36.668"N	80°34'08.793"W	7050.46	351.647	0.33	0.06	0.32
13747.00	90.460	337.600	6474.80	7141.23	7064.05	-1059.08	1760888.66	14561167.98	40°05'37.543"N	80°34'09.236"W	7143.00	351.473	1.93	-0.06	-1.93
13838.00	90.460	336.550	6474.07	7229.85	7147.86	-1094.52	1760853.23	14561251.75	40°05'38.373"N	80°34'09.686"W	7231.17	351.294	1.15	0.00	-1.15
13930.00	90.460	336.180	6473.33	7319.18	7232.14	-1131.40	1760816.36	14561336.00	40°05'39.208"N	80°34'10.156"W	7320.10	351.109	0.40	0.00	-0.40
14023.00	90.460	337.430	6472.59	7409.64	7317.61	-1168.03	1760779.75	14561421.45	40°05'40.054"N	80°34'10.622"W	7410.25	350.931	1.34	0.00	1.34
14116.00	90.550	338.620	6471.77	7500.55	7403.85	-1202.83	1760744.96	14561507.65	40°05'40.908"N	80°34'11.064"W	7500.92	350.772	1.28	0.10	1.28
14209.00	90.460	339.720	6470.95	7591.82	7490.77	-1235.90	1760711.91	14561594.53	40°05'41.769"N	80°34'11.484"W	7592.04	350.631	1.19	-0.10	1.18
14301.00	90.650	341.790	6470.06	7682.57	7577.62	-1266.22	1760681.60	14561681.35	40°05'42.628"N	80°34'11.869"W	7682.68	350.514	2.26	0.21	2.25
14394.00	90.550	341.790	6469.08	7774.56	7665.96	-1295.28	1760652.55	14561769.65	40°05'43.503"N	80°34'12.237"W	7774.62	350.410	0.11	-0.11	0.00
14487.00	90.340	340.710	6468.36	7866.43	7754.02	-1325.17	1760622.67	14561857.68	40°05'44.374"N	80°34'12.617"W	7866.44	350.302	1.18	-0.23	-1.16
14500.00	90.520	340.300	6468.26	7879.24	7766.27	-1329.51	1760618.33	14561869.93	40°05'44.496"N	80°34'12.672"W	7879.25	350.286	3.44	1.38	-3.15
14523.00	90.520	340.300	6468.06	7901.90	7787.92	-1337.26	1760610.58	14561891.58	40°05'44.710"N	80°34'12.770"W	7901.90	350.257	0.00	0.00	0.00



Actual Wellpath Report
 GW Rentals LLC OHI 405H AWP Proj: 14523'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #405
Area	Ohio County, WV	Well	GW Rentals LLC OHI 405H
Field	Ohio	Wellbore	GW Rentals LLC OHI 405H AWB
Facility	GW Rentals LLC OHI Pad		

TARGETS

Name	MD [ft]	TVDD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
GW Rentals LLC OHI 405H BHL Rev-1		6443.00	8061.77	-1454.16	1760493.73	14562165.32	40°05'47.422"N	80°34'14.257"W	point
GW Rentals LLC OHI 405H BHL Rev-2		6446.44	7783.35	-1344.73	1760603.12	14561887.00	40°05'44.665"N	80°34'12.866"W	point
GW Rentals LLC OHI 405H LP Rev-1		6531.00	943.21	1343.73	1763290.54	14555049.49	40°04'36.941"N	80°33'38.707"W	point

WELLPATH COMPOSITION - Ref Wellbore: GW Rentals LLC OHI 405H AWB Ref Wellpath: GW Rentals LLC OHI 405H AWP Proj: 14523'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	586.00	EMS (Standard)	01_EMS <17-1/2"> (123'-586')	GW Rentals LLC OHI 405H AWB
586.00	2038.00	NavitTrak (MagCorr)	02_APS EM <12-1/4"> (586')(706'-2038')	GW Rentals LLC OHI 405H AWB
2038.00	5988.00	NavitTrak (MagCorr)	03_APS EM <8-3/4"> (2038')(2144'-5988')	GW Rentals LLC OHI 405H AWB
5988.00	14500.00	NavitTrak (MagCorr)	04_BHL AT Curve <8-1/2"> (5988')(6075'-14500')	GW Rentals LLC OHI 405H AWB
14500.00	14523.00	Blind Drilling (std)	Projection to bit	GW Rentals LLC OHI 405H AWB



Actual Wellpath Report
 GW Rentals LLC OHI 405H AWP Proj: 14523'
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05/26/2017

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #405
Area	Ohio County, WV	Well	GW Rentals LLC OHI 405H
Field	Ohio	Wellbore	GW Rentals LLC OHI 405H AWP
Facility	GW Rentals LLC OHI Pad		

COMMENTS

Wellpath general comments
 API: 47-069-00196-0000
 BHI Job #: 7648569
 Rig: SDC 41
 Duration: 11/26/2015-12/5/2015
 EMS <17-1/2"> (123'-586')
 APS EM <12-1/4"> (586')(706'-2038')
 APS EM <8-3/4"> (2038')(2144'-5988')
 BHI AT Curve <8-1/2"> (5988')(6075'-14500')
 Projected MD at TD: 14523'