

47-001-03221

PHL13BHS



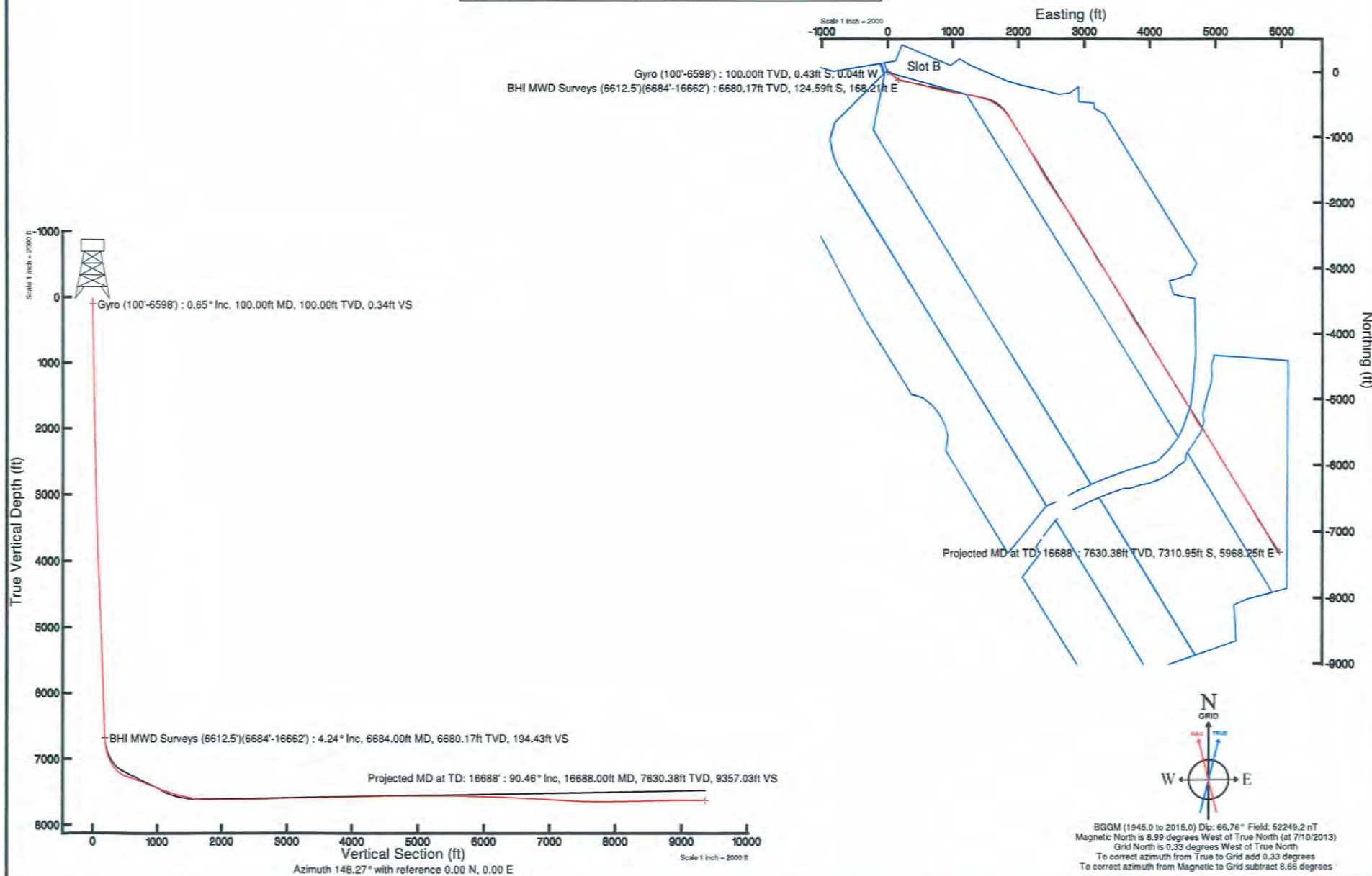
CNX GAS COMPANY, LLC

Location: Barbour County, WV
 Field: Barbour
 Facility: PHL13 Pad

Slot: Slot B
 Well: PHL13BHS
 Wellbore: PHL13BHS PWB



This reference wellbore is PHL13BHS TWP Dev-0.5	
True vertical depths are referenced to Patterson 311 (RT)	Grid System: NAD2011 / Lambert West Virginia SP, Northern Zone 14761, US feet
Measured depths are referenced to Patterson 311 (RT)	North Reference: Grid north
Patterson 311 (RT) to Mean Sea Level: 1507.59 feet	Scale: True distance
Mean Sea Level to Mudline (at Slot: Slot B): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: mlsayler on 7/10/2013



Azimuth 148.27° with reference 0.00 N, 0.00 E

Scale 1 inch = 2000 ft

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REFERENCE WELLPATH IDENTIFICATION

Operator	CNX GAS COMPANY, LLC	Slot	Slot B
Area	Barbour County, WV	Well	PHL13BHS
Field	Barbour	Wellbore	PHL13BHS AWB
Facility	PHL13 Pad		

REPORT SETUP INFORMATION

Projection System	NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet	Software System	WellArchitect@ 4.0.0
North Reference	Grid	User	Edsaryar
Scale	0.999966	Report Generated	7/24/2013 at 3:50:29 PM
Convergence at slot	0.33° West	Database/Source file	Well Architect Eastern US/PHL13BHS_AWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-8.99	-17.21	1854793.81	261722.08	39°13'02.800"N	80°00'44.988"W
Facility Reference Pt			1854811.03	261731.07	39°13'02.890"N	80°00'44.770"W
Field Reference Pt			1853088.00	260038.65	39°12'46.064"N	80°01'06.538"W

WELLPATH DATUM

Calculation method	Minimum curvature	Patterson 331 (RT) to Facility Vertical Datum	1551.59ft
Horizontal Reference Pt	Slot	Patterson 331 (RT) to Mean Sea Level	1551.59ft
Vertical Reference Pt	Patterson 331 (RT)	Patterson 331 (RT) to Mud Line at Slot (Slot B)	1551.59ft
MD Reference Pt	Patterson 331 (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	148.27°

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BAKER HUGHES

PHL13BHS

REFERENCE WELLPATH IDENTIFICATION

Operator	CNX GAS COMPANY, LLC
Area	Barbour County, WV
Field	Barbour
Facility	PHL13 Pad

WELLPATH DATA (183 stations) † = interpolated/extrapolated station

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]
0.00	0.00	185.270	24.50	0.00	0.00	0.00	1854793.81	261722.08	39°13'02.800"N	80°00'44.988"W	0.00	0.00	0.00	0.00	0.00
24.50	0.000	185.270	24.50	0.00	0.00	0.00	1854793.81	261722.08	39°13'02.800"N	80°00'44.988"W	0.00	0.00	0.00	0.00	0.00
114.50	0.780	185.270	114.50	0.49	-0.61	-0.06	1854793.75	261721.47	39°13'02.794"N	80°00'44.989"W	0.61	185.270	0.87	0.87	0.00
214.50	1.060	168.470	214.48	1.90	-2.19	0.07	1854793.88	261719.88	39°13'02.778"N	80°00'44.987"W	2.20	178.274	0.39	0.28	-16.80
314.50	1.430	139.260	314.46	4.00	-4.05	1.07	1854794.88	261718.03	39°13'02.760"N	80°00'44.974"W	4.18	165.248	0.72	0.37	-29.21
414.50	1.260	142.710	414.43	6.33	-5.87	2.55	1854796.36	261716.21	39°13'02.742"N	80°00'44.955"W	6.39	156.540	0.19	-0.17	3.45
514.50	1.170	132.950	514.41	8.41	-7.44	3.96	1854797.77	261714.64	39°13'02.727"N	80°00'44.937"W	8.42	151.969	0.23	-0.09	-9.76
614.50	1.050	126.620	614.39	10.24	-8.68	5.44	1854799.25	261713.40	39°13'02.715"N	80°00'44.918"W	10.24	147.910	0.17	-0.12	-6.33
714.50	0.880	140.230	714.38	11.86	-9.82	6.67	1854800.48	261712.26	39°13'02.704"N	80°00'44.903"W	11.87	145.808	0.28	-0.17	13.61
814.50	1.100	134.920	814.36	13.55	-11.08	7.84	1854801.65	261710.99	39°13'02.691"N	80°00'44.888"W	13.58	144.728	0.24	-0.22	-5.31
914.50	0.530	146.230	914.35	14.95	-12.15	8.78	1854802.59	261709.93	39°13'02.681"N	80°00'44.876"W	14.98	144.149	0.59	-0.57	11.31
1014.50	1.040	137.080	1014.34	16.30	-13.19	9.65	1854803.46	261708.88	39°13'02.670"N	80°00'44.864"W	16.35	143.816	0.52	0.51	-9.15
1114.50	1.100	138.620	1114.33	18.13	-14.58	10.90	1854804.71	261707.50	39°13'02.657"N	80°00'44.848"W	18.21	143.208	0.07	0.06	1.54
1214.50	0.590	125.980	1214.32	19.56	-15.60	11.95	1854805.77	261706.47	39°13'02.647"N	80°00'44.835"W	19.66	142.539	0.54	-0.51	-12.64
1314.50	1.030	113.080	1314.30	20.77	-16.26	13.20	1854807.01	261705.82	39°13'02.640"N	80°00'44.819"W	20.94	140.928	0.47	0.44	-12.90
1414.50	0.620	132.810	1414.29	22.02	-16.98	14.42	1854808.23	261705.10	39°13'02.633"N	80°00'44.804"W	22.28	139.652	0.49	-0.41	19.73
1514.50	0.880	125.230	1514.29	23.25	-17.79	15.45	1854809.26	261704.29	39°13'02.625"N	80°00'44.791"W	23.56	139.030	0.28	0.26	-7.58
1614.50	1.220	144.040	1614.27	25.02	-19.09	16.70	1854810.51	261702.98	39°13'02.612"N	80°00'44.775"W	25.36	138.826	0.48	0.34	18.81
1714.50	1.100	113.680	1714.25	26.87	-20.34	18.20	1854812.01	261701.74	39°13'02.600"N	80°00'44.755"W	27.30	138.173	0.62	-0.12	-30.36
1814.50	1.160	129.750	1814.23	28.62	-21.37	19.86	1854813.67	261700.70	39°13'02.590"N	80°00'44.734"W	29.18	137.100	0.32	0.06	16.07
1914.50	1.660	114.700	1914.20	30.79	-22.62	21.95	1854815.76	261699.45	39°13'02.578"N	80°00'44.707"W	31.53	135.862	0.62	0.50	-15.05
2014.50	1.660	117.870	2014.16	33.25	-23.91	24.55	1854818.36	261698.17	39°13'02.565"N	80°00'44.674"W	34.27	134.239	0.09	0.00	3.17
2114.50	1.310	122.820	2114.12	35.53	-25.20	26.79	1854820.60	261696.87	39°13'02.553"N	80°00'44.646"W	36.78	133.251	0.37	-0.35	4.95
2214.50	1.310	134.080	2214.10	37.67	-26.62	28.57	1854822.38	261695.46	39°13'02.539"N	80°00'44.623"W	39.05	132.971	0.26	0.00	11.26
2314.50	1.860	122.320	2314.06	40.23	-28.28	30.77	1854824.58	261693.79	39°13'02.522"N	80°00'44.595"W	41.79	132.590	0.64	0.55	-11.76
2414.50	1.670	116.150	2414.01	42.93	-29.79	33.45	1854827.26	261692.28	39°13'02.508"N	80°00'44.561"W	44.79	131.693	0.27	-0.19	-6.17
2514.50	1.820	108.520	2513.97	45.38	-30.94	36.26	1854830.07	261691.14	39°13'02.496"N	80°00'44.525"W	47.66	130.472	0.28	0.15	-7.63
2614.50	1.890	114.000	2613.91	47.97	-32.11	39.27	1854833.08	261689.96	39°13'02.485"N	80°00'44.487"W	50.73	129.273	0.19	0.07	5.48
2714.50	1.740	109.300	2713.86	50.51	-33.29	42.21	1854836.02	261688.79	39°13'02.474"N	80°00'44.449"W	53.76	128.258	0.21	-0.15	-4.70
2814.50	1.230	112.510	2813.83	52.56	-34.20	44.64	1854838.44	261687.88	39°13'02.465"N	80°00'44.418"W	56.23	127.458	0.52	-0.51	3.21

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PHL13BHS

REFERENCE WELLPATH IDENTIFICATION

Operator	CNX GAS COMPANY, LLC
Area	Barbours County, WV
Field	Barbours
Facility	PHL13 Pad

WELLPATH DATA (183 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude [ft]	Longitude [ft]	Closure Dist [ft]	Closure Dir [°]	DLS ["/100ft]	Build Rate ["/100ft]	Turn Rate ["/100ft]
2914.50	1.750	104.060	2913.80	54.53	-34.98	47.11	1854840.92	261687.10	39°13'02.457"N	80°00'44.387"W	58.68	126.596	0.56	0.52	-8.45
3014.50	1.850	117.730	3013.75	57.01	-36.10	50.02	1854843.83	261685.97	39°13'02.446"N	80°00'44.350"W	61.69	125.821	0.44	0.40	-9.92
3114.50	1.580	107.810	3113.70	59.45	-37.27	52.76	1854846.57	261684.80	39°13'02.435"N	80°00'44.315"W	64.60	125.241	0.40	-0.27	-9.92
3214.50	2.370	116.890	3213.64	62.26	-38.63	55.92	1854849.73	261683.44	39°13'02.421"N	80°00'44.275"W	67.96	124.640	0.85	0.79	9.08
3314.50	1.880	130.930	3313.57	65.60	-40.64	59.00	1854852.81	261681.43	39°13'02.402"N	80°00'44.236"W	71.64	124.561	0.71	-0.49	14.04
3414.50	1.800	139.140	3413.52	68.71	-42.90	61.27	1854855.08	261679.17	39°13'02.380"N	80°00'44.207"W	74.80	125.003	0.28	-0.08	8.21
3514.50	2.330	124.000	3513.46	72.12	-45.23	63.98	1854857.79	261676.85	39°13'02.357"N	80°00'44.172"W	78.35	125.258	0.76	0.53	-15.14
3614.50	2.410	125.720	3613.37	75.91	-47.59	67.37	1854861.18	261674.48	39°13'02.334"N	80°00'44.129"W	82.49	125.238	0.11	0.08	1.72
3714.50	2.240	134.880	3713.29	79.75	-50.20	70.46	1854864.27	261671.88	39°13'02.308"N	80°00'44.089"W	86.52	125.467	0.41	-0.17	9.16
3814.50	2.360	118.770	3813.21	83.45	-52.57	73.65	1854867.46	261669.51	39°13'02.285"N	80°00'44.048"W	90.49	125.517	0.66	0.12	-16.11
3914.50	2.380	112.900	3913.13	86.93	-54.37	77.37	1854871.18	261667.71	39°13'02.267"N	80°00'44.001"W	94.56	125.096	0.24	0.02	-5.87
4014.50	2.410	125.310	4013.04	90.56	-56.39	81.00	1854874.81	261665.69	39°13'02.247"N	80°00'43.955"W	98.70	124.846	0.52	0.03	12.41
4114.50	2.140	132.520	4112.96	94.29	-58.87	84.09	1854877.90	261663.21	39°13'02.223"N	80°00'43.915"W	102.65	124.994	0.39	-0.27	7.21
4214.50	2.620	134.650	4212.87	98.31	-61.74	87.09	1854880.90	261660.34	39°13'02.195"N	80°00'43.877"W	106.75	125.331	0.49	0.48	2.13
4314.50	2.580	136.920	4312.77	102.74	-64.99	90.26	1854884.06	261657.09	39°13'02.163"N	80°00'43.837"W	111.22	125.755	0.11	-0.04	2.27
4414.50	2.300	121.140	4412.68	106.73	-67.67	93.51	1854887.32	261654.41	39°13'02.137"N	80°00'43.795"W	115.43	125.891	0.72	-0.28	-15.78
4514.50	2.360	125.130	4512.60	110.41	-69.89	96.91	1854890.72	261652.19	39°13'02.115"N	80°00'43.752"W	119.48	125.798	0.17	0.06	3.99
4614.50	2.450	119.280	4612.51	114.18	-72.12	100.46	1854894.27	261649.96	39°13'02.093"N	80°00'43.706"W	123.67	125.675	0.26	0.09	-5.85
4714.50	2.780	137.730	4712.41	118.43	-74.96	103.96	1854897.76	261647.12	39°13'02.065"N	80°00'43.662"W	128.16	125.795	0.90	0.33	18.45
4814.50	2.850	139.160	4812.29	123.27	-78.64	107.21	1854901.02	261643.44	39°13'02.029"N	80°00'43.620"W	132.96	126.259	0.10	0.07	1.43
4914.50	2.690	135.470	4912.17	128.01	-82.19	110.48	1854904.29	261639.89	39°13'01.994"N	80°00'43.578"W	137.70	126.646	0.24	-0.16	-3.69
5014.50	2.790	128.230	5012.06	132.59	-85.37	114.04	1854907.85	261636.71	39°13'01.963"N	80°00'43.533"W	142.45	126.818	0.36	0.10	-7.24
5114.50	2.760	122.320	5111.94	137.04	-88.16	117.99	1854911.79	261633.92	39°13'01.935"N	80°00'43.483"W	147.29	126.768	0.29	-0.03	-5.91
5214.50	1.960	133.930	5211.85	140.86	-90.64	121.25	1854915.06	261631.44	39°13'01.911"N	80°00'43.441"W	151.38	126.778	0.93	-0.80	11.61
5314.50	2.190	132.510	5311.79	144.35	-93.11	123.89	1854917.70	261628.97	39°13'01.887"N	80°00'43.407"W	154.98	126.927	0.24	0.23	-1.42
5414.50	2.490	123.590	5411.71	148.17	-95.61	127.11	1854920.92	261626.47	39°13'01.862"N	80°00'43.366"W	159.05	126.948	0.47	0.30	-8.92
5514.50	2.440	133.290	5511.61	152.20	-98.27	130.47	1854924.28	261623.81	39°13'01.836"N	80°00'43.323"W	163.34	126.986	0.42	-0.05	9.70
5614.50	2.340	121.890	5611.53	156.08	-100.81	133.75	1854927.56	261621.27	39°13'01.811"N	80°00'43.281"W	167.49	127.004	0.48	-0.10	-11.40
5714.50	2.440	118.800	5711.44	159.76	-102.91	137.35	1854931.16	261619.17	39°13'01.791"N	80°00'43.236"W	171.63	126.842	0.16	0.10	-3.09
5814.50	2.550	131.130	5811.35	163.74	-105.40	140.89	1854934.70	261616.68	39°13'01.766"N	80°00'43.190"W	175.95	126.799	0.55	0.11	12.33

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Actual Wellpath Report

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PHL13BHS

REFERENCE WELLPATH IDENTIFICATION

Operator	CNX GAS COMPANY, LLC
Area	Barbour County, WV
Field	Barbour
Facility	PHL13 Pad
Slot	Slot B
	PHL13BHS
	Well
	Wellbore
	PHL13BHS AWB

WELLPATH DATA (183 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]
5914.50	1.450	135.110	5911.28	167.10	-107.76	143.46	1854937.27	261614.32	39°13'01.743"N	80°00'43.158"W	179.42	126.911	1.11	-1.10	3.98
6014.50	2.300	123.960	6011.23	170.16	-109.78	146.02	1854939.83	261612.30	39°13'01.723"N	80°00'43.125"W	182.68	126.935	0.92	0.85	-11.15
6114.50	2.120	122.440	6111.16	173.66	-111.89	149.24	1854943.05	261610.19	39°13'01.703"N	80°00'43.048"W	186.53	126.859	0.19	-0.18	-1.52
6214.50	1.910	130.770	6211.09	176.91	-113.97	152.07	1854945.87	261608.11	39°13'01.682"N	80°00'43.048"W	190.04	126.850	0.36	-0.21	8.33
6314.50	2.300	136.840	6311.03	180.47	-116.52	154.70	1854948.51	261605.56	39°13'01.657"N	80°00'43.014"W	193.67	126.987	0.45	0.39	6.07
6414.50	2.270	126.630	6410.95	184.27	-119.17	157.66	1854951.47	261602.91	39°13'01.631"N	80°00'42.976"W	197.63	127.083	0.41	-0.03	-10.21
6514.50	2.270	123.090	6510.87	187.91	-121.43	160.91	1854954.72	261600.65	39°13'01.609"N	80°00'42.935"W	201.59	127.039	0.14	0.00	-3.54
6612.50	2.310	114.020	6608.79	191.30	-123.29	164.34	1854958.15	261598.79	39°13'01.591"N	80°00'42.891"W	205.45	126.878	0.37	0.04	-9.26
6684.00	4.240	95.330	6680.17	194.43	-124.59	168.21	1854962.01	261597.49	39°13'01.578"N	80°00'42.842"W	209.32	126.527	2.78	2.70	-11.87
6730.00	8.840	97.000	6725.86	197.71	-125.25	173.38	1854967.18	261596.83	39°13'01.572"N	80°00'42.776"W	213.89	125.846	10.39	10.00	-26.37
6824.00	13.820	97.000	6818.00	208.90	-127.05	191.74	1854985.55	261595.03	39°13'01.555"N	80°00'42.543"W	230.01	123.529	5.35	5.30	3.83
6916.00	21.550	102.640	6905.59	227.62	-132.09	219.18	1855012.98	261589.99	39°13'01.507"N	80°00'42.194"W	255.91	121.077	8.60	8.40	6.13
7010.00	29.020	103.580	6990.53	255.94	-141.24	258.24	1855052.04	261580.84	39°13'01.419"N	80°00'41.697"W	294.34	118.675	7.96	7.95	1.00
7104.00	38.710	104.470	7068.49	293.46	-153.97	308.99	1855102.79	261568.11	39°13'01.296"N	80°00'41.051"W	345.22	116.487	10.32	10.31	0.95
7198.00	47.480	104.340	7137.06	339.71	-169.92	371.13	1855164.93	261552.16	39°13'01.142"N	80°00'40.260"W	408.18	114.601	9.33	9.33	-0.14
7294.00	57.920	104.090	7195.16	394.51	-188.64	445.06	1855238.85	261533.44	39°13'00.961"N	80°00'39.320"W	483.38	112.970	10.88	10.88	-0.26
7387.00	69.110	103.150	7236.57	453.61	-208.18	525.83	1855319.63	261513.91	39°13'00.772"N	80°00'38.292"W	565.54	111.598	12.07	12.03	-1.01
7482.00	75.730	104.450	7265.25	518.21	-229.78	613.73	1855407.52	261492.30	39°13'00.564"N	80°00'37.174"W	655.33	110.526	7.09	6.97	1.37
7575.00	75.860	106.070	7288.07	584.13	-253.51	700.70	1855494.49	261468.57	39°13'00.334"N	80°00'36.067"W	745.15	109.890	1.69	0.14	1.74
7670.00	75.920	102.060	7311.24	650.16	-275.90	790.05	1855583.84	261446.19	39°13'00.118"N	80°00'34.930"W	836.84	109.250	4.09	0.06	-4.22
7763.00	75.820	102.050	7333.94	712.57	-294.73	878.25	1855672.03	261427.35	39°12'59.936"N	80°00'33.808"W	926.39	108.551	0.11	-0.11	-0.01
7857.00	75.960	99.380	7356.86	774.09	-311.68	967.82	1855761.59	261410.41	39°12'59.774"N	80°00'32.669"W	1016.77	107.851	2.76	0.15	-2.84
7951.00	75.800	99.600	7379.79	834.16	-326.71	1057.73	1855851.50	261395.38	39°12'59.630"N	80°00'31.526"W	1107.04	107.165	0.28	-0.17	0.23
8046.00	75.790	99.740	7403.10	895.06	-342.18	1148.52	1855942.28	261379.91	39°12'59.483"N	80°00'30.371"W	1198.40	106.590	0.14	-0.01	0.15
8139.00	75.820	97.660	7425.91	953.53	-355.82	1237.63	1856031.40	261366.27	39°12'59.353"N	80°00'29.238"W	1287.77	106.040	2.17	0.03	-2.24
8233.00	75.820	101.600	7448.95	1013.73	-371.06	1327.46	1856121.23	261351.03	39°12'59.207"N	80°00'28.096"W	1378.35	105.617	4.06	0.00	4.19
8326.00	75.920	104.640	7471.66	1077.33	-391.53	1415.29	1856209.05	261330.56	39°12'59.010"N	80°00'26.978"W	1468.44	105.464	3.17	0.11	3.27
8373.00	75.920	106.800	7483.09	1110.91	-403.88	1459.17	1856252.92	261318.21	39°12'58.890"N	80°00'26.420"W	1514.03	105.471	4.46	0.00	4.60
8419.00	74.840	111.740	7494.71	1145.49	-418.56	1501.17	1856294.93	261303.53	39°12'58.747"N	80°00'25.885"W	1558.43	105.580	10.65	-2.35	10.74
8464.00	74.930	113.440	7506.44	1180.78	-435.25	1541.28	1856335.03	261286.85	39°12'58.585"N	80°00'25.375"W	1601.55	105.769	3.65	0.20	3.78

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Actual Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION

Operator	CNX GAS COMPANY, LLC
Area	Barbours County, WV
Field	Barbours
Facility	PHL13 Pad
Slot	Slot B
Well	PHL13BHS
Wellbore	PHL13BHS AWB

WELLPATH DATA (183 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
8512.00	74.840	118.050	7518.97	1219.83	-455.37	1583.00	1856376.76	261266.72	39°12'58.388"N	80°00'24.843"W	1647.20	106.048	9.27	-0.19	9.60	
8558.00	75.260	121.420	7530.84	1258.87	-477.41	1621.59	1856415.34	261244.68	39°12'58.173"N	80°00'24.351"W	1690.40	106.405	7.14	0.91	7.33	
8606.00	75.440	122.620	7542.98	1300.52	-502.03	1660.96	1856454.71	261220.06	39°12'57.931"N	80°00'23.849"W	1735.17	106.818	2.45	0.38	2.50	
8653.00	76.300	126.910	7554.45	1342.31	-528.02	1698.39	1856492.14	261194.08	39°12'57.677"N	80°00'23.372"W	1778.58	107.270	9.04	1.83	9.13	
8700.00	76.970	130.430	7565.32	1385.38	-556.58	1734.09	1856527.83	261165.51	39°12'57.396"N	80°00'22.916"W	1821.22	107.795	7.42	1.43	7.49	
8748.00	78.250	133.980	7575.62	1430.42	-588.07	1768.80	1856562.55	261134.02	39°12'57.087"N	80°00'22.473"W	1864.00	108.390	7.70	2.67	7.40	
8794.00	79.420	138.920	7584.54	1474.58	-620.77	1799.88	1856593.63	261101.32	39°12'56.765"N	80°00'22.076"W	1903.93	109.029	10.84	2.54	10.74	
8840.00	79.480	143.150	7592.96	1519.43	-655.93	1828.31	1856622.06	261066.17	39°12'56.420"N	80°00'21.712"W	1942.41	109.736	9.04	0.13	9.20	
8887.00	80.890	146.320	7600.98	1565.65	-693.74	1855.05	1856648.79	261028.36	39°12'56.047"N	80°00'21.370"W	1980.52	110.504	7.29	3.00	6.74	
8981.00	81.970	148.160	7614.98	1658.58	-771.90	1905.34	1856699.08	260950.20	39°12'55.278"N	80°00'20.725"W	2055.76	112.054	2.25	1.15	1.96	
9075.00	89.380	147.740	7622.07	1752.24	-851.29	1955.05	1856748.79	260870.82	39°12'54.496"N	80°00'20.088"W	2132.35	113.530	7.90	7.88	-0.45	
9170.00	90.860	147.760	7621.87	1847.24	-931.63	2005.74	1856799.48	260790.48	39°12'53.704"N	80°00'19.438"W	2211.54	114.914	1.56	1.56	0.02	
9263.00	90.890	148.980	7620.45	1940.22	-1010.80	2054.50	1856848.24	260711.31	39°12'52.925"N	80°00'18.813"W	2289.70	116.197	1.31	0.03	1.31	
9356.00	89.850	148.980	7619.85	2033.21	-1090.50	2102.43	1856896.16	260631.61	39°12'52.140"N	80°00'18.198"W	2368.42	117.415	1.12	-1.12	0.00	
9450.00	89.940	148.560	7620.02	2127.21	-1170.88	2151.16	1856944.90	260551.24	39°12'51.348"N	80°00'17.573"W	2449.18	118.559	0.46	0.10	-0.45	
9545.00	90.650	150.030	7619.53	2222.19	-1252.56	2199.67	1856993.40	260469.56	39°12'50.543"N	80°00'16.951"W	2531.30	119.658	1.72	0.75	1.55	
9638.00	90.740	150.970	7618.40	2315.11	-1333.49	2245.46	1857039.19	260388.63	39°12'49.746"N	80°00'16.364"W	2611.57	120.704	1.02	0.10	1.01	
9730.00	90.680	151.250	7617.26	2406.99	-1414.04	2289.91	1857083.64	260308.09	39°12'48.952"N	80°00'15.793"W	2691.32	121.696	0.31	-0.07	0.30	
9824.00	90.860	152.260	7616.00	2500.81	-1496.84	2334.39	1857128.11	260225.29	39°12'48.136"N	80°00'15.222"W	2773.06	122.668	1.09	0.19	1.07	
9919.00	91.200	149.400	7614.29	2595.69	-1579.77	2380.68	1857174.40	260142.36	39°12'47.319"N	80°00'14.628"W	2857.15	123.567	3.03	0.36	-3.01	
10012.00	92.250	145.530	7611.49	2688.62	-1658.12	2430.66	1857224.38	260064.01	39°12'46.548"N	80°00'13.988"W	2942.36	124.301	4.31	1.13	-4.16	
10109.00	92.650	147.150	7607.35	2785.47	-1738.78	2484.37	1857278.10	259983.36	39°12'45.753"N	80°00'13.300"W	3032.40	124.988	1.72	0.41	1.67	
10201.00	91.910	147.540	7603.69	2877.39	-1816.18	2533.98	1857327.70	259905.96	39°12'44.991"N	80°00'12.664"W	3117.62	125.630	0.91	-0.80	0.42	
10297.00	91.720	145.470	7600.64	2973.29	-1896.19	2586.92	1857380.64	259825.95	39°12'44.203"N	80°00'11.986"W	3207.45	126.241	2.16	-0.20	-2.16	
10391.00	91.140	144.690	7598.30	3067.11	-1973.24	2640.72	1857434.43	259748.90	39°12'43.445"N	80°00'11.297"W	3296.52	126.768	1.03	-0.62	-0.83	
10485.00	90.520	145.100	7596.94	3160.94	-2050.13	2694.77	1857488.48	259672.01	39°12'42.688"N	80°00'10.605"W	3385.97	127.263	0.79	-0.66	0.44	
10579.00	90.890	145.610	7595.78	3254.81	-2127.46	2748.20	1857541.91	259594.69	39°12'41.926"N	80°00'09.920"W	3475.44	127.744	0.67	0.39	0.54	
10673.00	91.350	147.790	7593.94	3348.75	-2206.01	2799.80	1857593.51	259516.15	39°12'41.153"N	80°00'09.259"W	3564.45	128.235	2.37	0.49	2.32	
10769.00	91.320	148.240	7591.71	3444.72	-2287.41	2850.63	1857644.34	259434.75	39°12'40.351"N	80°00'08.608"W	3654.91	128.744	0.47	-0.03	0.47	
10864.00	91.170	147.550	7589.64	3539.70	-2367.86	2901.11	1857694.82	259354.30	39°12'39.559"N	80°00'07.961"W	3744.76	129.221	0.74	-0.16	-0.73	

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PHL13BHS

REFERENCE WELLPATH IDENTIFICATION

Operator	CNX GAS COMPANY, LLC	Slot	Slot B
Area	Barbour County, WV	Well	PHL13BHS
Field	Barbour	Wellbore	PHL13BHS AWB
Facility	PHL13 Pad		

WELLPATH DATA (183 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]
10957.00	91.200	146.590	7587.72	3632.65	-2445.90	2951.66	1857745.36	259276.26	39°12'38.790"N	80°00'07.313"W	3833.37	129.647	1.03	0.03	-1.03
11053.00	91.420	147.170	7585.52	3728.60	-2526.28	3004.10	1857797.80	259195.88	39°12'37.999"N	80°00'06.641"W	3925.14	130.062	0.65	0.23	0.60
11148.00	91.320	150.260	7583.25	3823.56	-2607.44	3053.41	1857847.11	259114.73	39°12'37.199"N	80°00'06.009"W	4015.23	130.495	3.25	-0.11	3.25
11241.00	91.510	153.540	7580.95	3916.33	-2689.44	3097.19	1857890.89	259032.73	39°12'36.391"N	80°00'05.447"W	4101.91	130.969	3.53	0.20	3.53
11337.00	91.260	153.830	7578.63	4011.87	-2775.47	3139.74	1857933.44	258946.71	39°12'35.543"N	80°00'04.900"W	4190.60	131.476	0.40	-0.26	0.30
11431.00	91.290	149.340	7576.54	4105.67	-2858.10	3184.45	1857978.14	258864.08	39°12'34.729"N	80°00'04.326"W	4278.95	131.909	4.78	0.03	-4.78
11524.00	91.350	145.200	7574.40	4198.61	-2936.30	3234.70	1858028.40	258785.88	39°12'33.959"N	80°00'03.682"W	4368.66	132.232	4.45	0.06	-4.45
11618.00	91.420	145.440	7572.13	4292.46	-3013.57	3288.17	1858081.87	258708.61	39°12'33.198"N	80°00'02.997"W	4460.24	132.505	0.27	0.07	0.26
11715.00	91.230	146.440	7569.88	4389.35	-3093.91	3342.48	1858136.18	258628.28	39°12'32.407"N	80°00'02.302"W	4554.61	132.788	1.05	-0.20	1.03
11810.00	91.390	146.230	7567.71	4484.27	-3172.96	3395.13	1858188.82	258549.23	39°12'31.629"N	80°00'01.627"W	4647.00	133.063	0.28	0.17	-0.22
11902.00	90.340	147.220	7566.32	4576.23	-3249.86	3445.60	1858239.29	258472.33	39°12'30.871"N	80°00'00.981"W	4736.43	133.325	1.57	-1.14	1.08
11996.00	89.850	148.930	7566.17	4670.22	-3329.64	3495.31	1858288.99	258392.55	39°12'30.086"N	80°00'00.344"W	4827.39	133.609	1.89	-0.52	1.82
12091.00	89.910	150.640	7566.37	4765.19	-3411.73	3543.11	1858336.80	258310.47	39°12'29.277"N	79°59'59.731"W	4918.70	133.918	1.80	0.06	1.80
12186.00	90.280	151.170	7566.21	4860.08	-3494.74	3589.31	1858382.99	258227.46	39°12'28.459"N	79°59'59.138"W	5009.63	134.235	0.68	0.39	0.56
12280.00	90.550	151.320	7565.53	4953.95	-3577.15	3634.53	1858428.21	258145.05	39°12'27.647"N	79°59'58.558"W	5099.59	134.544	0.33	0.29	0.16
12374.00	90.340	151.460	7564.80	5047.81	-3659.67	3679.54	1858473.22	258062.54	39°12'26.834"N	79°59'57.980"W	5189.62	134.845	0.27	-0.22	0.15
12469.00	89.940	149.380	7564.57	5142.74	-3742.28	3726.43	1858520.11	257979.93	39°12'26.020"N	79°59'57.379"W	5281.19	135.122	2.23	-0.42	-2.19
12564.00	89.940	148.250	7564.66	5237.73	-3823.55	3775.62	1858569.30	257898.66	39°12'25.219"N	79°59'56.748"W	5373.54	135.361	1.19	0.00	-1.19
12659.00	89.480	146.520	7565.15	5332.72	-3903.57	3826.82	1858620.50	257818.65	39°12'24.431"N	79°59'56.092"W	5466.48	135.569	1.88	-0.48	-1.82
12754.00	89.910	145.100	7565.65	5427.63	-3982.15	3880.20	1858673.88	257740.07	39°12'23.658"N	79°59'55.408"W	5559.99	135.743	1.56	0.45	-1.49
12849.00	89.380	144.110	7566.24	5522.43	-4059.59	3935.23	1858728.90	257662.90	39°12'22.895"N	79°59'54.704"W	5653.87	135.891	1.18	-0.56	-1.04
12943.00	88.950	144.770	7567.61	5616.21	-4136.05	3989.89	1858783.56	257585.61	39°12'22.143"N	79°59'54.004"W	5746.83	136.030	0.84	-0.46	0.70
13038.00	89.010	147.330	7569.30	5711.11	-4214.83	4042.93	1858836.60	257507.39	39°12'21.367"N	79°59'53.325"W	5840.39	136.193	2.70	0.06	2.69
13132.00	88.460	149.870	7571.38	5805.08	-4295.04	4091.89	1858885.55	257427.19	39°12'20.577"N	79°59'52.697"W	5932.19	136.388	2.76	-0.59	2.70
13226.00	88.340	150.520	7574.00	5898.99	-4376.58	4138.59	1858932.25	257345.66	39°12'19.773"N	79°59'52.098"W	6023.48	136.601	0.70	-0.13	0.69
13320.00	88.430	150.450	7576.65	5992.88	-4458.34	4184.88	1858978.54	257263.89	39°12'18.968"N	79°59'51.504"W	6114.74	136.812	0.12	0.10	-0.07
13415.00	88.860	149.840	7578.90	6087.81	-4540.71	4232.16	1859025.82	257181.53	39°12'18.156"N	79°59'50.898"W	6207.19	137.014	0.79	0.45	-0.64
13509.00	88.860	147.270	7580.77	6181.78	-4620.89	4281.19	1859074.84	257101.36	39°12'17.367"N	79°59'50.269"W	6299.30	137.185	2.73	0.00	-2.73
13604.00	88.310	145.940	7583.11	6276.71	-4700.17	4333.46	1859127.11	257022.07	39°12'16.586"N	79°59'49.600"W	6393.00	137.325	1.51	-0.58	-1.40
13699.00	86.920	145.780	7587.07	6371.54	-4778.73	4386.73	1859180.38	256943.51	39°12'15.812"N	79°59'48.918"W	6486.88	137.449	1.47	-1.46	-0.17

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BAKER HUGHES

PHL13BHS

REFERENCE WELLPATH IDENTIFICATION

Operator	CNX GAS COMPANY, LLC	Slot	Slot B
Area	Barbour County, WV	Well	PHL13BHS
Field	Barbour	Wellbore	PHL13BHS AWB
Facility	PHL13 Pad		

WELLPATH DATA (183 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]	[ft]	[ft]	[°]	[%/100ft]	[%/100ft]	[°/100ft]
13793.00	86.550	147.540	7592.42	6465.34	-4857.13	4438.30	1859231.95	256865.12	39°12'15.04"N	79°59'48.25"W	6579.53	137.580	1.91	-0.39	1.87
13887.00	86.950	147.510	7597.75	6559.18	-4936.31	4488.69	1859282.34	256785.95	39°12'14.260"N	79°59'47.61"W	6671.99	137.719	0.43	0.43	-0.03
13982.00	86.950	149.220	7607.76	6747.82	-5098.93	4584.37	1859378.01	256623.33	39°12'12.658"N	79°59'46.385"W	6856.79	138.042	3.17	0.06	3.17
14169.00	86.920	153.060	7612.68	6840.42	-5181.40	4627.06	1859420.71	256540.86	39°12'11.845"N	79°59'45.836"W	6946.70	138.235	0.93	-0.10	0.92
14264.00	86.950	150.640	7617.76	6935.09	-5265.04	4671.81	1859465.46	256457.22	39°12'11.021"N	79°59'45.262"W	7038.93	138.416	2.54	0.03	-2.55
14359.00	86.740	147.660	7622.99	7029.93	-5346.47	4720.45	1859514.09	256375.80	39°12'10.219"N	79°59'44.639"W	7132.13	138.558	3.14	-0.22	-3.14
14453.00	86.890	144.350	7628.22	7123.69	-5424.27	4772.92	1859566.56	256298.00	39°12'09.453"N	79°59'43.967"W	7225.19	138.655	3.52	0.16	-3.52
14548.00	87.070	142.830	7633.22	7218.24	-5500.62	4829.23	1859622.86	256221.66	39°12'08.701"N	79°59'43.246"W	7319.71	138.719	1.61	0.19	-1.60
14641.00	87.110	147.980	7637.95	7310.98	-5577.05	4881.94	1859675.58	256145.23	39°12'07.949"N	79°59'42.571"W	7411.94	138.802	5.53	0.04	5.54
14735.00	87.780	148.980	7642.14	7404.88	-5657.10	4931.04	1859724.67	256065.18	39°12'07.160"N	79°59'41.942"W	7504.52	138.923	1.28	0.71	1.06
14830.00	89.230	149.980	7644.62	7499.82	-5738.90	4979.26	1859772.89	255983.38	39°12'06.354"N	79°59'41.324"W	7597.90	139.054	1.85	1.53	1.05
14925.00	88.430	149.030	7646.56	7594.78	-5820.74	5027.46	1859821.09	255901.54	39°12'05.548"N	79°59'40.706"W	7691.32	139.182	1.31	-0.84	-1.00
15019.00	89.940	148.470	7647.89	7688.76	-5901.10	5076.22	1859869.85	255821.19	39°12'04.757"N	79°59'40.081"W	7784.02	139.297	1.71	1.61	-0.60
15114.00	89.940	147.720	7647.99	7783.76	-5981.74	5126.43	1859920.05	255740.55	39°12'03.962"N	79°59'39.437"W	7877.91	139.403	0.79	0.00	-0.79
15209.00	90.060	146.630	7647.99	7878.74	-6061.57	5177.92	1859971.55	255660.72	39°12'03.176"N	79°59'38.778"W	7972.05	139.495	1.15	0.13	-1.15
15304.00	90.890	148.680	7647.20	7973.73	-6141.82	5228.74	1860022.37	255580.47	39°12'02.386"N	79°59'38.126"W	8066.09	139.591	2.33	0.87	2.16
15398.00	90.830	148.500	7645.79	8067.72	-6222.04	5277.73	1860071.35	255500.26	39°12'01.596"N	79°59'37.499"W	8158.93	139.694	0.20	-0.06	-0.19
15493.00	90.860	147.740	7644.39	8162.70	-6302.70	5327.90	1860121.52	255419.60	39°12'00.801"N	79°59'36.856"W	8252.91	139.791	0.80	0.03	-0.80
15587.00	90.890	148.270	7642.96	8256.69	-6382.41	5377.70	1860171.31	255339.89	39°12'00.016"N	79°59'36.218"W	8345.95	139.883	0.56	0.03	0.56
15681.00	90.920	148.830	7641.47	8350.68	-6462.59	5426.73	1860220.35	255259.71	39°11'59.226"N	79°59'35.589"W	8438.87	139.979	0.60	0.03	0.60
15774.00	90.890	149.100	7640.00	8443.66	-6542.27	5474.68	1860268.29	255180.04	39°11'58.441"N	79°59'34.975"W	8530.73	140.077	0.29	-0.03	0.29
15870.00	91.020	148.920	7638.40	8539.64	-6624.56	5524.10	1860317.71	255097.76	39°11'57.631"N	79°59'34.341"W	8625.57	140.176	0.23	0.14	-0.19
15965.00	90.950	149.390	7636.77	8634.61	-6706.11	5572.80	1860366.41	255016.21	39°11'56.827"N	79°59'33.717"W	8719.40	140.273	0.50	-0.07	0.49
16059.00	90.800	150.140	7635.33	8728.57	-6787.31	5620.13	1860413.73	254935.01	39°11'56.027"N	79°59'33.110"W	8812.12	140.374	0.81	-0.16	0.80
16154.00	90.520	146.490	7634.24	8823.55	-6868.13	5670.01	1860463.62	254854.19	39°11'55.231"N	79°59'32.471"W	8906.19	140.458	3.85	-0.29	-3.84
16246.00	90.370	145.720	7633.53	8915.48	-6944.49	5721.32	1860514.92	254777.83	39°11'54.479"N	79°59'31.814"W	8997.75	140.516	0.85	-0.16	-0.84
16340.00	90.430	144.310	7632.87	9009.32	-7021.50	5775.21	1860568.81	254700.82	39°11'53.721"N	79°59'31.124"W	9091.46	140.563	1.50	0.06	-1.50
16435.00	90.370	145.110	7632.21	9104.14	-7099.04	5830.09	1860623.69	254623.29	39°11'52.957"N	79°59'30.421"W	9186.21	140.605	0.84	-0.06	0.84
16530.00	90.400	146.950	7631.57	9199.06	-7177.83	5883.17	1860676.77	254544.51	39°11'52.182"N	79°59'29.742"W	9280.78	140.661	1.94	0.03	1.94



Actual Wellpath Report

PHL13BHS AWP Proj: 16688'
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REFERENCE WELLPATH IDENTIFICATION

Operator	CNX GAS COMPANY, LLC	Slot	Slot B
Area	Barbour County, WV	Well	PHL13BHS
Field	Barbour	Wellbore	PHL13BHS AWB
Facility	PHL13 Pad		

WELLPATH DATA (183 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]
16623.00	90.430	147.660	7630.89	9292.04	-7256.09	5933.40	1860727.00	254466.25	39°11'51.411"N	79°59'29.098"W	9373.16	140.727	0.76	0.03	0.76
16662.00	90.460	147.540	7630.59	9331.04	-7289.02	5954.30	1860747.90	254433.32	39°11'51.087"N	79°59'28.831"W	9411.88	140.755	0.32	0.08	-0.31
16688.00	90.460	147.540	7630.38	9357.03	-7310.95	5968.25	1860761.85	254411.39	39°11'50.870"N	79°59'28.652"W	9437.69	140.774	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: PHL13BHS AWB Ref Wellpath: PHL13BHS AWP Proj: 16688'

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]
9.625in Casing	24.50	2033.50	2009.00	24.50	2033.15	0.00	0.00	-24.16	25.03

47-001-03221

Actual Wellpath Report
 PHL13BHS AWP Proj: 16688'
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PHL13BHS

REFERENCE WELLPATH IDENTIFICATION

Operator	CNX GAS COMPANY, LLC	Slot	Slot B
Area	Barbour County, WV	Well	PHL13BHS
Field	Barbour	Wellbore	PHL13BHS AWB
Facility	PHL13 Pad		

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
PHL13BHS PBHL Plat	7471.12	-7318.68	5955.83	1860749.43	254403.66	39°11'50.793"N	79°59'28.809"W	point	
PHL13BHS PBHL Rev-1	7478.10	-7318.68	5955.83	1860749.43	254403.66	39°11'50.793"N	79°59'28.809"W	point	
PHL13BHS LP:Rev-1	7605.05	-792.66	1920.56	1856714.30	260929.44	39°12'55.073"N	80°00'20.530"W	point	
PHL13BHS LP:Rev-2	7612.00	-792.66	1920.56	1856714.30	260929.44	39°12'55.073"N	80°00'20.530"W	point	
PHL13BHS LP2 Plat	7652.09	-621.29	1814.65	1856608.40	261100.81	39°12'56.761"N	80°00'21.888"W	point	

WELLPATH COMPOSITION - Ref Wellbore: PHL13BHS AWB Ref Wellpath: PHL13BHS AWP Proj: 16688'										
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore						
24.50	6612.50	Generic gyro - northseeking (Standard)	Excel Gyro (100'-6598')	PHL13BHS AWB						
6612.50	16662.00	NavTrak (MagCorr)	BHI MWD Surveys (6612.5')(6684'-16662')	PHL13BHS AWB						
16662.00	16688.00	Blind Drilling (std)	Projection to bit	PHL13BHS AWB						