



# CNX GAS COMPANY, LLC

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

Slot: Slot A  
 Well: PHL13AHS  
 Wellbore: PHL13AHS PWB



### Location Information

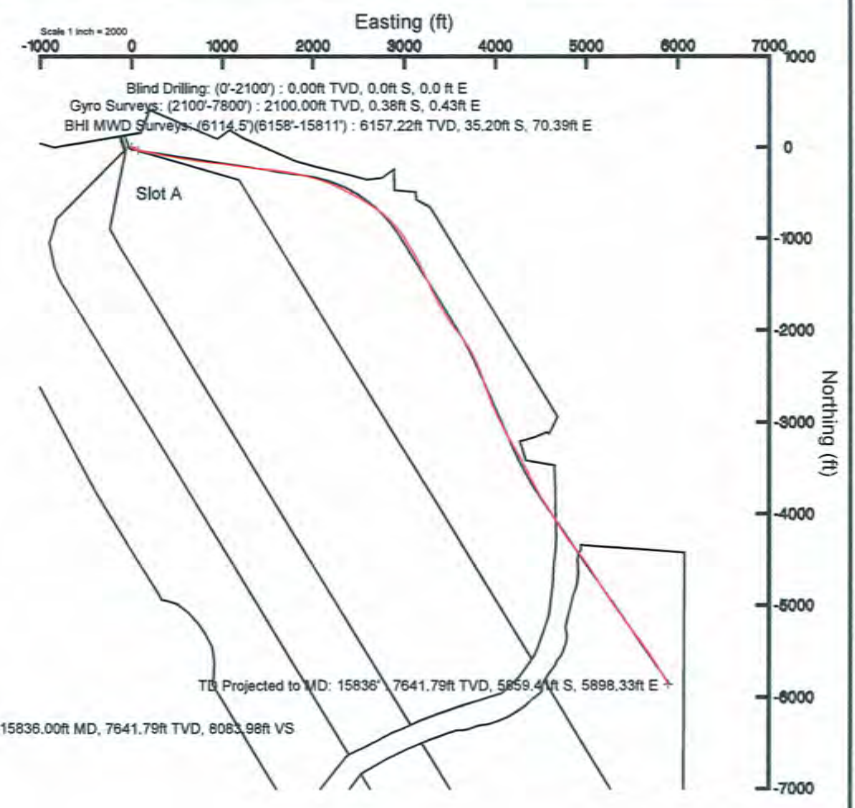
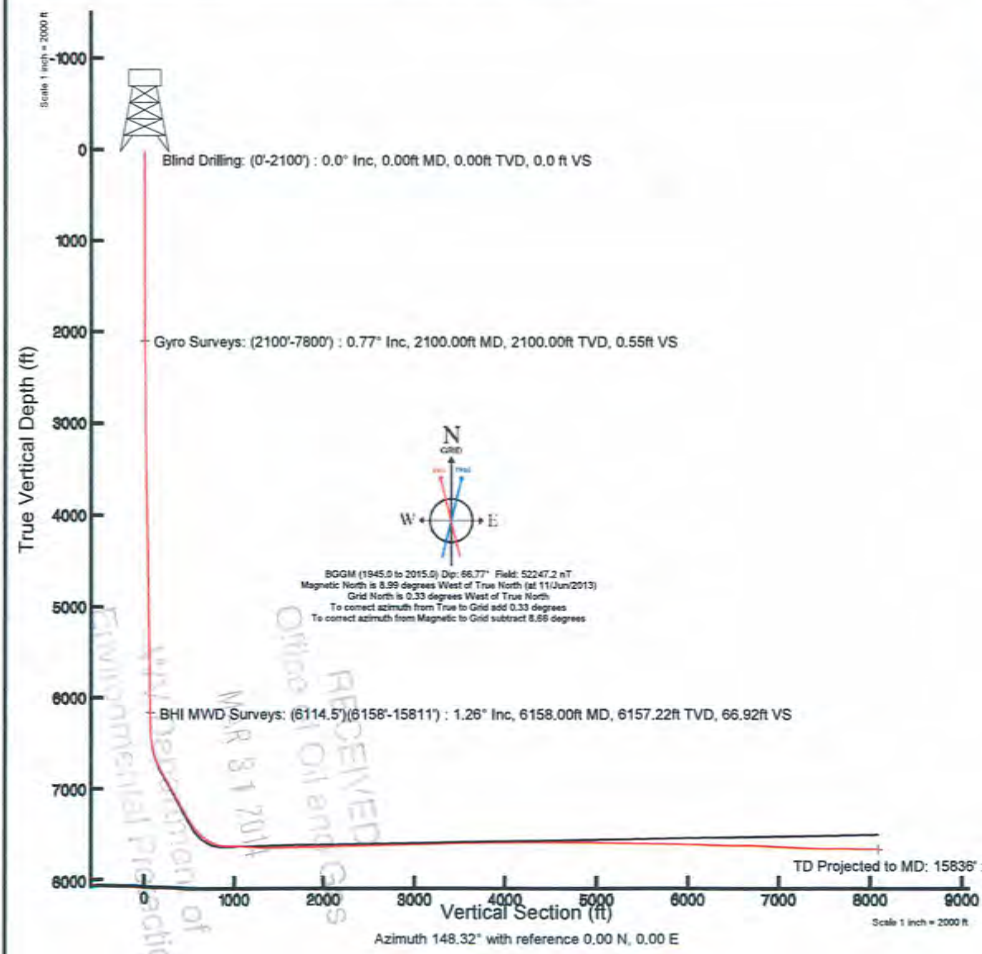
Facility Name		Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	
PHL13 Pad		1854811.025	261731.069	39°13'02.890"N	80°00'44.770"W	
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot A	-0.87	0.97	1854811.995	261730.198	39°13'02.881"N	80°00'44.758"W
Patterson 331 (RT) to Mud line (At Slot: Slot A)			1551.75ft			
Mean Sea Level to Mud line (At Slot: Slot A)			0ft			
Patterson 331 (RT) to Mean Sea Level			1551.75ft			
Plot reference wellpath is PHL13AHS PWB Rev-B.0						
True vertical depths are referenced to Patterson 331 (RT)			Grid System: NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet			
Measured depths are referenced to Patterson 331 (RT)			North Reference: Grid north			
Patterson 331 (RT) to Mean Sea Level: 1551.75 feet			Scale: True distance			
Mean Sea Level to Mud line (At Slot: Slot A): 0 feet			Depths are in feet			
Coordinates are in feet referenced to Slot			Created by: frjsejal on 09/Jul/2013			

### Well Profile Data

Design Comment	MD (ft)	Inc (")	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS ("/100ft)	VS (ft)
Tie On	6114.50	1.200	110.830	6113.73	-34.89	69.51	0.00	66.19
End of Tangent	6349.50	1.200	110.830	6348.68	-36.64	74.11	0.00	70.10
End of 3D Arc	6848.88	41.122	98.508	6805.05	-63.90	248.53	8.00	184.90
End of Tangent	7595.07	41.122	98.508	7367.17	-136.51	733.87	0.00	501.58
End of 3D Arc	8143.55	85.000	98.500	7609.63	-207.05	1205.73	8.00	809.42
End of Build	8293.55	91.000	98.500	7614.86	-229.20	1353.92	4.00	906.09
End of Tangent	8893.55	91.000	98.500	7604.39	-317.87	1947.24	0.00	1293.15
End of 3D Arc	10133.35	91.000	148.100	7581.29	-977.38	2951.24	4.00	2381.66
End of Tangent	11333.35	91.000	148.100	7560.35	-1995.99	3585.27	0.00	3581.47
End of 3D Arc	11859.94	91.000	156.000	7551.14	-2460.71	3831.85	1.50	4106.44
End of Tangent	12709.94	91.000	156.000	7536.31	-3237.11	4177.52	0.00	4948.69
End of 3D Arc	13417.76	91.001	145.381	7523.92	-3853.35	4523.47	1.50	5654.79
End of Tangent	15850.91	91.001	145.381	7481.43	-5855.40	5905.58	0.00	8084.37

### Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
PHL13AHS PBHL Rev-1	15850.91	7481.43	-5855.40	5905.58	1860717.36	255875.01	39°12'05.335"N	79°59'23.319"W
PHL13AHS LP Plat	7581.00	7581.00	-745.48	2748.45	1857580.35	260864.74	39°12'55.667"N	80°00'09.785"W
PHL13AHS LP Rev-1	8293.55	7614.86	-229.20	1353.92	1856185.87	261501.01	39°13'00.892"N	80°00'27.539"W





47-001-03220

PHL13AHS



# Actual Wellpath Report

PHL13AHS AWP Proj: 15836'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	CNX GAS COMPANY, LLC	Slot	Slot A
Area	Barbour County, WV	Well	PHL13AHS
Field	Barbour	Wellbore	PHL13AHS 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	Frisjesl
Scale	0.999966	Report Generated	09/Jul/2013 at 14:01
Convergence at slot	0.33° West	Database/Source file	WA_EasternUS/PHL13AHS_AWB.xml

## WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-0.87	0.97	1854812.00	261730.20	39°13'02.881"N	80°00'44.758"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	1551.75ft
Horizontal Reference Pt	Slot	Patterson 331 (RT) to Mean Sea Level	1551.75ft
Vertical Reference Pt	Patterson 331 (RT)	Patterson 331 (RT) to Mud Line at Slot (Slot A)	1551.75ft
MD Reference Pt	Patterson 331 (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	148.32°



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# Actual Wellpath Report

PHL13AHS AWP Proj: 15836'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	CNX GAS COMPANY, LLC	Slot	Slot A
Area	Barbour County, WV	Well	PHL13AHS
Field	Barbour	Wellbore	PHL13AHS AWB
Facility	PHL13 Pad		

## WELLPATH DATA (194 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
0.00†	0.000	131.830	0.00	0.00	0.00	0.00	1854812.00	261730.20	39°13'02.881"N	80°00'44.758"W	0.00	0.000	0.00
24.50	0.000	131.830	24.50	0.00	0.00	0.00	1854812.00	261730.20	39°13'02.881"N	80°00'44.758"W	0.00	0.000	0.00
2014.50	0.000	0.000	2014.50	0.00	0.00	0.00	1854812.00	261730.20	39°13'02.881"N	80°00'44.758"W	0.00	0.000	0.00
2114.50	0.900	131.830	2114.50	0.75	-0.52	0.59	1854812.58	261729.67	39°13'02.876"N	80°00'44.750"W	0.79	131.830	0.90
2164.50	1.000	130.130	2164.49	1.54	-1.07	1.21	1854813.21	261729.13	39°13'02.871"N	80°00'44.742"W	1.61	131.371	0.21
2214.50	1.000	127.630	2214.48	2.37	-1.61	1.89	1854813.89	261728.58	39°13'02.866"N	80°00'44.733"W	2.49	130.497	0.09
2264.50	1.000	128.230	2264.47	3.18	-2.15	2.58	1854814.57	261728.05	39°13'02.860"N	80°00'44.725"W	3.36	129.830	0.02
2314.50	0.900	123.730	2314.47	3.95	-2.64	3.25	1854815.24	261727.56	39°13'02.856"N	80°00'44.716"W	4.19	129.092	0.25
2364.50	0.900	122.030	2364.46	4.66	-3.07	3.91	1854815.90	261727.13	39°13'02.851"N	80°00'44.708"W	4.97	128.112	0.05
2414.50	0.900	121.930	2414.45	5.36	-3.48	4.57	1854816.57	261726.72	39°13'02.847"N	80°00'44.699"W	5.75	127.275	0.00
2464.50	0.900	122.530	2464.45	6.07	-3.90	5.24	1854817.23	261726.30	39°13'02.843"N	80°00'44.691"W	6.53	126.669	0.02
2514.50	0.900	120.730	2514.44	6.77	-4.31	5.91	1854817.90	261725.89	39°13'02.839"N	80°00'44.682"W	7.31	126.129	0.06
2564.50	0.800	117.130	2564.44	7.42	-4.67	6.55	1854818.55	261725.53	39°13'02.836"N	80°00'44.674"W	8.05	125.477	0.23
2614.50	0.800	115.730	2614.43	8.01	-4.98	7.18	1854819.17	261725.22	39°13'02.833"N	80°00'44.666"W	8.74	124.758	0.04
2664.50	0.800	116.430	2664.43	8.60	-5.29	7.81	1854819.80	261724.91	39°13'02.830"N	80°00'44.658"W	9.43	124.118	0.02
2714.50	0.800	114.530	2714.42	9.19	-5.59	8.44	1854820.43	261724.61	39°13'02.827"N	80°00'44.650"W	10.12	123.524	0.05
2764.50	0.800	119.930	2764.42	9.78	-5.91	9.06	1854821.05	261724.29	39°13'02.824"N	80°00'44.642"W	10.81	123.119	0.15
2814.50	0.800	115.330	2814.41	10.38	-6.23	9.68	1854821.67	261723.97	39°13'02.820"N	80°00'44.634"W	11.51	122.787	0.13
2864.50	0.800	118.230	2864.41	10.98	-6.55	10.30	1854822.29	261723.65	39°13'02.817"N	80°00'44.626"W	12.20	122.444	0.08
2914.50	0.800	116.930	2914.40	11.58	-6.87	10.92	1854822.91	261723.33	39°13'02.814"N	80°00'44.618"W	12.90	122.181	0.04
2964.50	0.900	120.430	2964.40	12.22	-7.23	11.57	1854823.56	261722.97	39°13'02.811"N	80°00'44.610"W	13.64	121.997	0.23
3014.50	0.900	119.930	3014.39	12.92	-7.62	12.25	1854824.24	261722.58	39°13'02.807"N	80°00'44.601"W	14.42	121.898	0.02
3064.50	0.900	118.130	3064.38	13.60	-8.00	12.93	1854824.93	261722.20	39°13'02.803"N	80°00'44.593"W	15.21	121.750	0.06
3114.50	0.900	117.430	3114.38	14.28	-8.37	13.63	1854825.62	261721.83	39°13'02.800"N	80°00'44.584"W	15.99	121.555	0.02
3164.50	0.900	118.130	3164.37	14.95	-8.73	14.32	1854826.32	261721.46	39°13'02.796"N	80°00'44.575"W	16.78	121.378	0.02
3214.50	1.000	116.930	3214.37	15.67	-9.12	15.06	1854827.05	261721.08	39°13'02.792"N	80°00'44.566"W	17.60	121.196	0.20
3264.50	1.000	119.430	3264.36	16.42	-9.53	15.83	1854827.82	261720.67	39°13'02.788"N	80°00'44.556"W	18.47	121.053	0.09
3314.50	1.100	119.730	3314.35	17.22	-9.98	16.62	1854828.62	261720.22	39°13'02.784"N	80°00'44.546"W	19.39	120.984	0.20
3364.50	1.100	120.130	3364.34	18.07	-10.46	17.45	1854829.45	261719.74	39°13'02.779"N	80°00'44.535"W	20.35	120.934	0.02
3414.50	1.100	119.130	3414.33	18.91	-10.94	18.29	1854830.28	261719.26	39°13'02.774"N	80°00'44.524"W	21.31	120.876	0.04
3464.50	1.200	117.530	3464.32	19.78	-11.41	19.17	1854831.17	261718.79	39°13'02.770"N	80°00'44.513"W	22.31	120.760	0.21
3514.50	1.200	118.030	3514.31	20.68	-11.90	20.10	1854832.09	261718.30	39°13'02.765"N	80°00'44.501"W	23.36	120.626	0.02
3564.50	1.200	118.230	3564.30	21.59	-12.39	21.02	1854833.02	261717.81	39°13'02.760"N	80°00'44.490"W	24.40	120.519	0.01
3614.50	1.100	117.430	3614.29	22.45	-12.86	21.91	1854833.90	261717.34	39°13'02.756"N	80°00'44.478"W	25.41	120.414	0.20
3664.50	1.100	117.230	3664.28	23.27	-13.30	22.76	1854834.76	261716.90	39°13'02.751"N	80°00'44.467"W	26.36	120.301	0.01

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3714.50	1.100	116.630	3714.27	24.09	-13.74	23.62	1854835.61	261716.46	39°13'02.747"N	80°00'44.457"W	27.32	120.183	0.02
3764.50	1.200	116.830	3764.26	24.95	-14.19	24.51	1854836.51	261716.01	39°13'02.743"N	80°00'44.445"W	28.32	120.061	0.20
3814.50	1.200	117.030	3814.25	25.84	-14.66	25.45	1854837.44	261715.54	39°13'02.738"N	80°00'44.433"W	29.37	119.949	0.01
3864.50	1.200	117.830	3864.24	26.74	-15.14	26.38	1854838.37	261715.05	39°13'02.733"N	80°00'44.421"W	30.42	119.863	0.03
3914.50	1.300	119.230	3914.23	27.69	-15.67	27.34	1854839.33	261714.53	39°13'02.728"N	80°00'44.409"W	31.51	119.817	0.21
3964.50	1.400	118.430	3964.21	28.71	-16.23	28.37	1854840.36	261713.96	39°13'02.723"N	80°00'44.396"W	32.68	119.781	0.20
4014.50	1.300	117.330	4014.20	29.73	-16.79	29.41	1854841.40	261713.41	39°13'02.717"N	80°00'44.383"W	33.86	119.716	0.21
4064.50	1.200	116.830	4064.19	30.66	-17.28	30.38	1854842.37	261712.92	39°13'02.712"N	80°00'44.370"W	34.95	119.634	0.20
4114.50	1.200	115.530	4114.18	31.55	-17.74	31.32	1854843.31	261712.45	39°13'02.708"N	80°00'44.358"W	36.00	119.534	0.05
4164.50	1.200	114.930	4164.17	32.43	-18.19	32.27	1854844.26	261712.01	39°13'02.703"N	80°00'44.346"W	37.04	119.412	0.03

PHILBERTS



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# Actual Wellpath Report

PHL13AHS AWP Proj: 15836'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	CNX GAS COMPANY, LLC	Slot	Slot A
Area	Barbour County, WV	Well	PHL13AHS
Field	Barbour	Wellbore	PHL13AHS AWB
Facility	PHL13 Pad		

## WELLPATH DATA (194 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]
4214.50	1.300	116.430	4214.15	33.34	-18.66	33.25	1854845.24	261711.54	39°13'02.699"N	80°00'44.334"W	38.13	119.306	0.21
4264.50	1.300	117.030	4264.14	34.31	-19.17	34.26	1854846.26	261711.03	39°13'02.694"N	80°00'44.321"W	39.26	119.232	0.03
4314.50	1.300	117.830	4314.13	35.28	-19.70	35.27	1854847.26	261710.50	39°13'02.689"N	80°00'44.308"W	40.40	119.181	0.04
4364.50	1.200	120.530	4364.12	36.24	-20.23	36.22	1854848.22	261709.97	39°13'02.684"N	80°00'44.296"W	41.49	119.180	0.23
4414.50	1.100	116.930	4414.11	37.11	-20.71	37.10	1854849.09	261709.49	39°13'02.679"N	80°00'44.285"W	42.49	119.171	0.25
4464.50	1.100	115.730	4464.10	37.92	-21.14	37.96	1854849.95	261709.06	39°13'02.675"N	80°00'44.274"W	43.45	119.108	0.05
4514.50	1.100	115.330	4514.09	38.73	-21.55	38.83	1854850.82	261708.65	39°13'02.671"N	80°00'44.263"W	44.41	119.031	0.02
4564.50	1.100	115.330	4564.08	39.53	-21.96	39.69	1854851.69	261708.24	39°13'02.667"N	80°00'44.252"W	45.36	118.953	0.00
4614.50	1.000	114.430	4614.07	40.30	-22.35	40.53	1854852.52	261707.85	39°13'02.663"N	80°00'44.241"W	46.28	118.873	0.20
4664.50	1.000	113.330	4664.06	41.02	-22.70	41.32	1854853.32	261707.50	39°13'02.659"N	80°00'44.231"W	47.15	118.780	0.04
4714.50	1.000	115.930	4714.05	41.74	-23.06	42.12	1854854.11	261707.14	39°13'02.656"N	80°00'44.221"W	48.02	118.705	0.09
4764.50	1.100	115.930	4764.05	42.52	-23.46	42.94	1854854.93	261706.74	39°13'02.652"N	80°00'44.210"W	48.93	118.653	0.20
4814.50	1.100	115.830	4814.04	43.33	-23.88	43.80	1854855.80	261706.32	39°13'02.648"N	80°00'44.199"W	49.89	118.600	0.00
4864.50	1.200	115.930	4864.03	44.18	-24.32	44.71	1854856.70	261705.88	39°13'02.644"N	80°00'44.188"W	50.89	118.546	0.20
4914.50	1.300	114.830	4914.01	45.09	-24.79	45.69	1854857.69	261705.41	39°13'02.639"N	80°00'44.175"W	51.98	118.479	0.21
4964.50	1.300	114.530	4964.00	46.04	-25.26	46.72	1854858.72	261704.94	39°13'02.634"N	80°00'44.162"W	53.11	118.398	0.01
5014.50	1.300	113.430	5013.99	46.97	-25.72	47.76	1854859.75	261704.48	39°13'02.630"N	80°00'44.149"W	54.25	118.306	0.05
5064.50	1.300	113.430	5063.98	47.90	-26.17	48.80	1854860.79	261704.03	39°13'02.626"N	80°00'44.136"W	55.38	118.206	0.00
5114.50	1.300	112.930	5113.96	48.83	-26.62	49.84	1854861.84	261703.58	39°13'02.621"N	80°00'44.122"W	56.51	118.105	0.02
5164.50	1.300	112.830	5163.95	49.75	-27.06	50.89	1854862.88	261703.14	39°13'02.617"N	80°00'44.109"W	57.64	118.003	0.00
5214.50	1.300	113.430	5213.94	50.68	-27.51	51.93	1854863.92	261702.69	39°13'02.613"N	80°00'44.096"W	58.77	117.909	0.03
5264.50	1.300	112.930	5263.92	51.61	-27.95	52.97	1854864.97	261702.25	39°13'02.608"N	80°00'44.083"W	59.90	117.819	0.02
5314.50	1.300	113.130	5313.91	52.53	-28.40	54.02	1854866.01	261701.80	39°13'02.604"N	80°00'44.069"W	61.03	117.730	0.01
5364.50	1.300	112.630	5363.90	53.46	-28.84	55.06	1854867.06	261701.36	39°13'02.600"N	80°00'44.056"W	62.16	117.642	0.02
5414.50	1.300	113.630	5413.89	54.39	-29.28	56.11	1854868.10	261700.92	39°13'02.595"N	80°00'44.043"W	63.29	117.561	0.05
5464.50	1.300	113.330	5463.87	55.32	-29.74	57.15	1854869.14	261700.46	39°13'02.591"N	80°00'44.029"W	64.42	117.489	0.01
5514.50	1.300	113.230	5513.86	56.25	-30.18	58.19	1854870.18	261700.02	39°13'02.586"N	80°00'44.016"W	65.55	117.417	0.00
5564.50	1.200	112.730	5563.85	57.14	-30.61	59.19	1854871.19	261699.59	39°13'02.582"N	80°00'44.003"W	66.64	117.344	0.20
5614.50	1.200	113.230	5613.84	57.99	-31.02	60.16	1854872.15	261699.18	39°13'02.578"N	80°00'43.991"W	67.68	117.277	0.02
5664.50	1.200	113.830	5663.83	58.85	-31.44	61.12	1854873.11	261698.76	39°13'02.574"N	80°00'43.979"W	68.73	117.220	0.03
5714.50	1.100	113.430	5713.82	59.67	-31.84	62.04	1854874.03	261698.36	39°13'02.570"N	80°00'43.967"W	69.73	117.168	0.20
5764.50	1.200	113.030	5763.81	60.50	-32.23	62.96	1854874.95	261697.96	39°13'02.566"N	80°00'43.955"W	70.73	117.112	0.20
5814.50	1.200	113.430	5813.80	61.35	-32.65	63.92	1854875.91	261697.55	39°13'02.562"N	80°00'43.943"W	71.78	117.056	0.02
5864.50	1.100	112.030	5863.79	62.17	-33.04	64.85	1854876.84	261697.16	39°13'02.559"N	80°00'43.931"W	72.78	116.996	0.21
5914.50	1.100	112.230	5913.78	62.94	-33.40	65.74	1854877.73	261696.80	39°13'02.555"N	80°00'43.920"W	73.73	116.933	0.01



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5964.50	1.100	112.130	5963.77	63.72	-33.76	66.62	1854878.62	261696.44	39°13'02.552"N	80°00'43.909"W	74.69	116.872	0.00
6014.50	1.200	111.330	6013.76	64.52	-34.13	67.56	1854879.55	261696.07	39°13'02.548"N	80°00'43.897"W	75.69	116.804	0.20
6064.50	1.200	111.130	6063.75	65.36	-34.51	68.53	1854880.53	261695.69	39°13'02.544"N	80°00'43.884"W	76.73	116.728	0.01
6114.50	1.200	110.830	6113.73	66.19	-34.89	69.51	1854881.50	261695.31	39°13'02.541"N	80°00'43.872"W	77.77	116.651	0.01
6158.00	1.260	108.970	6157.22	66.92	-35.20	70.39	1854882.38	261695.00	39°13'02.537"N	80°00'43.861"W	78.70	116.570	0.17
6251.00	1.320	105.810	6250.20	68.50	-35.83	72.39	1854884.38	261694.37	39°13'02.531"N	80°00'43.835"W	80.77	116.333	0.10
6344.00	1.620	92.400	6343.17	70.03	-36.17	74.73	1854886.72	261694.03	39°13'02.528"N	80°00'43.806"W	83.02	115.830	0.49
6391.00	5.670	91.050	6390.07	71.66	-36.24	77.72	1854889.71	261693.96	39°13'02.528"N	80°00'43.768"W	85.75	115.003	8.62
6438.00	9.970	94.940	6436.62	75.34	-36.64	84.09	1854896.09	261693.56	39°13'02.524"N	80°00'43.687"W	91.73	113.541	9.21
6485.00	13.310	99.690	6482.65	81.35	-37.90	93.48	1854905.48	261692.30	39°13'02.512"N	80°00'43.567"W	100.87	112.068	7.39



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# Actual Wellpath Report

PHL13AHS AWP Proj: 15836'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	CNX GAS COMPANY, LLC	Slot	Slot A
Area	Barbour County, WV	Well	PHL13AHS
Field	Barbour	Wellbore	PHL13AHS AWB
Facility	PHL13 Pad		

## WELLPATH DATA (194 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]
6533.00	16.660	103.450	6529.01	89.88	-40.43	105.63	1854917.62	261689.77	39°13'02.488"N	80°00'43.413"W	113.10	110.945	7.26
6584.00	19.940	103.400	6577.42	101.22	-44.15	121.20	1854933.19	261686.05	39°13'02.452"N	80°00'43.215"W	128.99	110.014	6.43
6628.00	23.050	102.460	6618.36	112.53	-47.74	136.91	1854948.90	261682.46	39°13'02.417"N	80°00'43.015"W	145.00	109.225	7.11
6720.00	31.010	100.820	6700.24	141.13	-56.09	177.84	1854989.83	261674.11	39°13'02.337"N	80°00'42.494"W	186.48	107.506	8.69
6764.00	36.160	99.840	6736.89	157.41	-60.44	201.78	1855013.77	261669.76	39°13'02.295"N	80°00'42.190"W	210.64	106.675	11.77
6814.00	39.480	99.600	6776.38	177.68	-65.62	232.00	1855043.98	261664.59	39°13'02.246"N	80°00'41.805"W	241.10	105.792	6.65
6909.00	40.980	100.550	6848.90	218.54	-76.36	292.40	1855104.39	261653.84	39°13'02.143"N	80°00'41.037"W	302.21	104.635	1.71
7001.00	40.750	100.810	6918.48	259.10	-87.51	351.55	1855163.54	261642.69	39°13'02.036"N	80°00'40.285"W	362.28	103.978	0.31
7096.00	40.860	100.970	6990.39	301.10	-99.24	412.52	1855224.50	261630.96	39°13'01.924"N	80°00'39.509"W	424.29	103.527	0.16
7191.00	41.380	100.670	7061.96	343.30	-110.97	473.88	1855285.86	261619.24	39°13'01.811"N	80°00'38.729"W	486.70	103.179	0.59
7284.00	41.490	99.630	7131.68	384.35	-121.81	534.46	1855346.44	261608.39	39°13'01.708"N	80°00'37.958"W	548.17	102.839	0.75
7376.00	41.470	97.800	7200.61	423.83	-131.04	594.69	1855406.66	261599.16	39°13'01.620"N	80°00'37.192"W	608.96	102.427	1.32
7470.00	41.390	98.180	7271.09	463.54	-139.69	656.29	1855468.26	261590.51	39°13'01.538"N	80°00'36.409"W	670.99	102.016	0.28
7564.00	45.520	98.740	7339.31	505.22	-149.21	720.22	1855532.19	261580.99	39°13'01.447"N	80°00'35.596"W	735.51	101.705	4.41
7656.00	49.940	98.300	7401.17	549.14	-159.29	787.53	1855599.50	261570.92	39°13'01.351"N	80°00'34.740"W	803.48	101.434	4.82
7750.00	57.920	95.920	7456.48	596.63	-168.60	862.86	1855674.83	261561.60	39°13'01.264"N	80°00'33.783"W	879.18	101.056	8.73
7844.00	62.810	96.120	7502.94	646.59	-177.17	944.09	1855756.05	261553.03	39°13'01.183"N	80°00'32.750"W	960.57	100.629	5.21
7940.00	67.850	96.780	7543.00	700.44	-186.98	1030.75	1855842.71	261543.23	39°13'01.091"N	80°00'31.648"W	1047.57	100.282	5.29
8031.00	73.910	98.050	7572.80	754.65	-198.09	1115.97	1855927.92	261532.12	39°13'00.986"N	80°00'30.565"W	1133.41	100.065	6.79
8127.00	78.640	98.230	7595.57	814.35	-211.29	1208.26	1856020.21	261518.92	39°13'00.861"N	80°00'29.391"W	1226.59	99.919	4.93
8221.00	87.230	98.010	7607.12	874.01	-224.45	1300.52	1856112.47	261505.76	39°13'00.736"N	80°00'28.218"W	1319.75	99.792	9.14
8282.00	90.550	97.070	7608.30	912.57	-232.45	1360.98	1856172.92	261497.75	39°13'00.660"N	80°00'27.449"W	1380.68	99.692	5.66
8314.00	90.180	96.360	7608.09	932.44	-236.19	1392.76	1856204.70	261494.01	39°13'00.625"N	80°00'27.045"W	1412.64	99.625	2.50
8408.00	89.450	96.020	7608.40	990.14	-246.33	1486.21	1856298.15	261483.88	39°13'00.530"N	80°00'25.857"W	1506.48	99.411	0.86
8501.00	88.950	96.550	7609.70	1047.35	-256.51	1578.64	1856390.58	261473.70	39°13'00.435"N	80°00'24.682"W	1599.34	99.229	0.78
8595.00	88.030	97.980	7612.17	1106.41	-268.39	1671.85	1856483.78	261461.82	39°13'00.322"N	80°00'23.497"W	1693.25	99.120	1.81
8690.00	87.970	99.900	7615.49	1168.22	-283.15	1765.63	1856577.56	261447.06	39°13'00.182"N	80°00'22.305"W	1788.19	99.111	2.02
8782.00	88.060	102.690	7618.68	1230.89	-301.15	1855.79	1856667.71	261429.06	39°13'00.009"N	80°00'21.158"W	1880.06	99.217	3.03
8875.00	88.150	104.900	7621.75	1297.15	-323.31	1946.05	1856757.97	261406.90	39°12'59.795"N	80°00'20.009"W	1972.72	99.433	2.38
8970.00	87.880	106.550	7625.04	1367.04	-349.04	2037.44	1856849.36	261381.17	39°12'59.546"N	80°00'18.847"W	2067.12	99.721	1.76
9065.00	90.030	108.430	7626.78	1438.91	-377.59	2128.02	1856939.94	261352.62	39°12'59.269"N	80°00'17.694"W	2161.26	100.062	3.01
9159.00	90.950	113.790	7625.97	1513.74	-411.43	2215.67	1857027.59	261318.78	39°12'58.939"N	80°00'16.578"W	2253.55	100.519	5.79
9253.00	90.950	116.140	7624.41	1592.24	-451.10	2300.87	1857112.79	261279.12	39°12'58.552"N	80°00'15.492"W	2344.68	101.092	2.50
9348.00	90.920	117.110	7622.86	1673.06	-493.66	2385.79	1857197.70	261236.55	39°12'58.136"N	80°00'14.410"W	2436.33	101.691	1.02
9443.00	90.920	119.300	7621.34	1755.22	-538.55	2469.49	1857281.40	261191.66	39°12'57.697"N	80°00'13.344"W	2527.53	102.303	2.30

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9538.00	90.950	119.780	7619.79	1838.47	-585.39	2552.13	1857364.03	261144.83	39°12'57.238"N	80°00'12.290"W	2618.41	102.919	0.51
9633.00	90.890	122.870	7618.26	1923.10	-634.76	2633.26	1857445.16	261095.46	39°12'56.755"N	80°00'11.256"W	2708.69	103.553	3.25
9727.00	91.790	125.570	7616.06	2008.88	-687.61	2710.96	1857522.86	261042.62	39°12'56.237"N	80°00'10.265"W	2796.80	104.232	3.03
9823.00	92.310	130.360	7612.63	2098.80	-746.61	2786.58	1857598.47	260983.62	39°12'55.658"N	80°00'09.300"W	2884.86	104.999	5.02
9916.00	91.540	136.870	7609.50	2188.65	-810.69	2853.83	1857665.72	260919.54	39°12'55.028"N	80°00'08.441"W	2966.74	105.858	7.04
10011.00	91.660	138.900	7606.85	2282.04	-881.13	2917.51	1857729.40	260849.10	39°12'54.335"N	80°00'07.627"W	3047.67	106.805	2.14
10105.00	91.350	145.830	7604.37	2375.44	-955.50	2974.86	1857786.74	260774.73	39°12'53.604"N	80°00'06.893"W	3124.54	107.807	7.38
10200.00	91.350	149.070	7602.14	2470.39	-1035.54	3025.95	1857837.83	260694.69	39°12'52.815"N	80°00'06.239"W	3198.24	108.892	3.41
10293.00	91.380	147.980	7599.92	2563.36	-1114.84	3074.49	1857886.38	260615.40	39°12'52.034"N	80°00'05.616"W	3270.38	109.931	1.17
10387.00	91.320	149.990	7597.71	2657.33	-1195.37	3122.91	1857934.79	260534.87	39°12'51.241"N	80°00'04.995"W	3343.87	110.946	2.14



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PHL13AHS

# Actual Wellpath Report

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## REFERENCE WELLPATH IDENTIFICATION

Operator	CNX GAS COMPANY, LLC	Slot	Slot A
Area	Barbour County, WV	Well	PHL13AHS
Field	Barbour	Wellbore	PHL13AHS AWB
Facility	PHL13 Pad		

## WELLPATH DATA (194 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]
10481.00	91.260	153.660	7595.59	2751.11	-1278.20	3167.28	1857979.16	260452.05	39°12'50.425"N	80°00'04.426"W	3415.47	111.977	3.90
10575.00	91.350	154.810	7593.45	2844.59	-1362.83	3208.12	1858020.00	260367.42	39°12'49.591"N	80°00'03.901"W	3485.59	113.016	1.23
10670.00	91.320	154.910	7591.23	2938.94	-1448.81	3248.47	1858060.35	260281.44	39°12'48.743"N	80°00'03.382"W	3556.91	114.037	0.11
10764.00	91.320	154.990	7589.07	3032.29	-1533.94	3288.26	1858100.14	260196.31	39°12'47.904"N	80°00'02.871"W	3628.45	115.009	0.09
10858.00	91.350	154.120	7586.88	3125.71	-1618.80	3328.64	1858140.51	260111.46	39°12'47.067"N	80°00'02.352"W	3701.40	115.935	0.93
10953.00	91.320	151.540	7584.66	3220.38	-1703.29	3372.00	1858183.88	260026.97	39°12'46.235"N	80°00'01.795"W	3777.78	116.800	2.72
11049.00	91.260	148.070	7582.50	3316.31	-1786.23	3420.27	1858232.14	259944.03	39°12'45.417"N	80°00'01.176"W	3858.60	117.576	3.61
11145.00	91.020	145.130	7580.59	3412.23	-1866.35	3473.09	1858284.96	259863.92	39°12'44.628"N	80°00'00.499"W	3942.80	118.252	3.07
11237.00	90.740	143.550	7579.18	3504.00	-1941.09	3526.72	1858338.59	259789.18	39°12'43.893"N	79°59'59.812"W	4025.61	118.828	1.74
11330.00	90.990	140.680	7577.78	3596.43	-2014.47	3583.82	1858395.68	259715.80	39°12'43.171"N	79°59'59.082"W	4111.18	119.340	3.10
11427.00	90.950	143.410	7576.13	3692.83	-2090.94	3643.46	1858455.33	259639.34	39°12'42.418"N	79°59'58.319"W	4200.81	119.851	2.81
11523.00	90.860	147.040	7574.62	3788.66	-2169.77	3698.20	1858510.06	259560.51	39°12'41.642"N	79°59'57.618"W	4287.72	120.401	3.78
11614.00	90.920	150.840	7573.20	3879.63	-2247.70	3745.14	1858557.00	259482.58	39°12'40.874"N	79°59'57.016"W	4367.86	120.971	4.18
11712.00	91.020	155.970	7571.54	3977.20	-2335.29	3788.99	1858600.85	259395.00	39°12'40.011"N	79°59'56.453"W	4450.84	121.647	5.23
11806.00	91.200	158.440	7569.72	4070.04	-2421.92	3825.40	1858637.25	259308.36	39°12'39.157"N	79°59'55.984"W	4527.62	122.339	2.63
11900.00	91.050	159.670	7567.88	4162.38	-2509.69	3858.99	1858670.85	259220.60	39°12'38.291"N	79°59'55.551"W	4603.30	123.038	1.32
11995.00	90.490	160.420	7566.60	4255.39	-2598.98	3891.41	1858703.27	259131.31	39°12'37.410"N	79°59'55.133"W	4679.51	123.738	0.99
12089.00	90.280	159.660	7565.97	4347.42	-2687.33	3923.50	1858735.35	259042.97	39°12'36.539"N	79°59'54.719"W	4755.58	124.408	0.84
12183.00	90.120	159.380	7565.64	4439.63	-2775.39	3956.39	1858768.24	258954.91	39°12'35.670"N	79°59'54.295"W	4832.78	125.049	0.34
12278.00	89.450	155.030	7566.00	4533.47	-2862.95	3993.18	1858805.03	258867.36	39°12'34.807"N	79°59'53.821"W	4913.45	125.639	4.63
12372.00	90.250	153.510	7566.24	4626.96	-2947.62	4033.99	1858845.84	258782.68	39°12'33.972"N	79°59'53.297"W	4996.15	126.155	1.83
12466.00	90.490	153.110	7565.63	4720.60	-3031.60	4076.21	1858888.06	258698.70	39°12'33.145"N	79°59'52.755"W	5079.97	126.639	0.50
12560.00	89.420	151.460	7565.71	4814.37	-3114.82	4119.93	1858931.77	258615.49	39°12'32.325"N	79°59'52.194"W	5164.87	127.091	2.09
12654.00	89.020	149.450	7566.99	4908.29	-3196.58	4166.27	1858978.12	258533.73	39°12'31.519"N	79°59'51.599"W	5251.28	127.497	2.18
12748.00	88.250	148.170	7569.23	5002.26	-3276.97	4214.94	1859026.78	258453.35	39°12'30.727"N	79°59'50.975"W	5338.93	127.864	1.59
12843.00	87.960	150.780	7572.37	5097.18	-3358.75	4263.16	1859075.00	258371.57	39°12'29.921"N	79°59'50.357"W	5427.31	128.233	2.76
12938.00	88.980	152.010	7574.91	5192.01	-3442.12	4308.62	1859120.46	258288.20	39°12'29.100"N	79°59'49.773"W	5514.75	128.621	1.68
13032.00	88.890	151.800	7576.65	5285.81	-3525.03	4352.88	1859164.72	258205.29	39°12'28.283"N	79°59'49.205"W	5601.20	129.001	0.24
13130.00	88.920	154.350	7578.53	5383.44	-3612.39	4397.25	1859209.08	258117.94	39°12'27.422"N	79°59'48.636"W	5690.79	129.403	2.60
13221.00	88.950	151.910	7580.22	5474.10	-3693.54	4438.37	1859250.20	258036.79	39°12'26.622"N	79°59'48.108"W	5774.20	129.767	2.68
13318.00	88.950	149.090	7582.00	5571.00	-3777.94	4486.12	1859297.95	257952.39	39°12'25.790"N	79°59'47.495"W	5864.99	130.102	2.91
13412.00	88.920	146.840	7583.74	5664.98	-3857.61	4535.97	1859347.80	257872.73	39°12'25.006"N	79°59'46.856"W	5954.51	130.379	2.39
13506.00	88.920	147.020	7585.51	5758.94	-3936.37	4587.25	1859399.08	257793.97	39°12'24.230"N	79°59'46.199"W	6044.66	130.633	0.19
13600.00	88.980	148.440	7587.24	5852.91	-4015.83	4637.43	1859449.26	257714.51	39°12'23.447"N	79°59'45.556"W	6134.55	130.891	1.51
13692.00	88.920	148.440	7588.92	5944.90	-4094.21	4685.57	1859497.40	257636.13	39°12'22.675"N	79°59'44.939"W	6222.31	131.147	0.07



47-001-03220

13789.00	87.940	146.400	7591.58	6041.84	-4175.91	4737.78	1859549.61	257554.44	39°12'21.871"N	79°59'44.270"W	6315.44	131.393	2.33
13884.00	87.880	144.540	7595.05	6136.66	-4254.12	4791.59	1859603.42	257476.23	39°12'21.101"N	79°59'43.581"W	6407.57	131.600	1.96
13978.00	87.880	141.880	7598.52	6230.21	-4329.34	4847.84	1859659.66	257401.01	39°12'20.360"N	79°59'42.861"W	6499.60	131.766	2.83
14072.00	88.770	141.210	7601.27	6323.51	-4402.92	4906.28	1859718.10	257327.44	39°12'19.636"N	79°59'42.114"W	6592.21	131.905	1.18
14168.00	89.940	143.620	7602.35	6418.99	-4478.98	4964.82	1859776.64	257251.38	39°12'18.888"N	79°59'41.365"W	6686.61	132.055	2.79
14260.00	90.000	145.770	7602.40	6510.80	-4554.06	5017.99	1859829.80	257176.30	39°12'18.149"N	79°59'40.684"W	6776.40	132.225	2.34
14356.00	89.970	147.050	7602.43	6606.74	-4634.03	5071.10	1859882.91	257096.34	39°12'17.361"N	79°59'40.004"W	6869.52	132.421	1.33
14449.00	87.510	148.260	7604.47	6699.71	-4712.57	5120.84	1859932.65	257017.80	39°12'16.587"N	79°59'39.367"W	6959.26	132.623	2.95
14545.00	87.510	147.030	7608.64	6795.61	-4793.59	5172.17	1859983.97	256936.78	39°12'15.789"N	79°59'38.709"W	7051.93	132.825	1.28
14639.00	87.510	146.740	7612.73	6889.49	-4872.25	5223.47	1860035.28	256858.13	39°12'15.015"N	79°59'38.052"W	7143.07	133.008	0.31

PHL13AHS





# Actual Wellpath Report

PHL13AHS AWP Proj: 15836'  
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### REFERENCE WELLPATH IDENTIFICATION

Operator	CNX GAS COMPANY, LLC	Slot	Slot A
Area	Barbour County, WV	Well	PHL13AHS
Field	Barbour	Wellbore	PHL13AHS AWB
Facility	PHL13 Pad		

### WELLPATH DATA (194 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]
14735.00	87.480	146.280	7616.92	6985.35	-4952.23	5276.39	1860088.20	256778.14	39°12'14.227"N	79°59'37.374"W	7236.36	133.185	0.48
14830.00	87.450	144.700	7621.12	7080.14	-5030.44	5330.16	1860141.96	256699.94	39°12'13.457"N	79°59'36.685"W	7329.11	133.343	1.66
14925.00	87.350	144.540	7625.43	7174.84	-5107.81	5385.11	1860196.91	256622.57	39°12'12.695"N	79°59'35.982"W	7422.21	133.486	0.20
15018.00	87.410	144.160	7629.68	7267.52	-5183.30	5439.25	1860251.05	256547.08	39°12'11.952"N	79°59'35.289"W	7513.46	133.620	0.41
15113.00	87.480	142.460	7633.92	7362.06	-5259.40	5495.96	1860307.75	256470.98	39°12'11.203"N	79°59'34.563"W	7607.03	133.740	1.79
15207.00	88.890	143.270	7636.90	7455.59	-5334.30	5552.67	1860364.47	256396.09	39°12'10.466"N	79°59'33.838"W	7699.80	133.851	1.73
15301.00	90.220	144.620	7637.63	7549.30	-5410.29	5607.99	1860419.79	256320.10	39°12'09.718"N	79°59'33.130"W	7792.36	133.972	2.02
15395.00	90.180	145.730	7637.30	7643.16	-5487.45	5661.67	1860473.47	256242.94	39°12'08.958"N	79°59'32.442"W	7884.59	134.105	1.18
15490.00	89.290	146.460	7637.74	7738.09	-5566.30	5714.67	1860526.45	256164.10	39°12'08.182"N	79°59'31.764"W	7977.54	134.246	1.21
15583.00	89.420	147.010	7638.78	7831.04	-5644.05	5765.67	1860577.46	256086.35	39°12'07.416"N	79°59'31.110"W	8068.35	134.389	0.61
15678.00	89.510	147.570	7639.67	7926.02	-5723.98	5817.01	1860628.79	256006.42	39°12'06.629"N	79°59'30.453"W	8160.98	134.538	0.60
15771.00	89.450	149.440	7640.52	8019.02	-5803.28	5865.59	1860677.37	255927.13	39°12'05.848"N	79°59'29.830"W	8251.25	134.694	2.01
15811.00	88.620	149.880	7641.19	8059.00	-5837.79	5885.79	1860697.57	255892.61	39°12'05.508"N	79°59'29.571"W	8289.90	134.765	2.35
15836.00	88.620	149.880	7641.79	8083.98	-5859.41	5898.33	1860710.12	255871.00	39°12'05.295"N	79°59'29.410"W	8314.03	134.810	0.00

### HOLE & CASING SECTIONS - Ref Wellbore: PHL13AHS AWB Ref Wellpath: PHL13AHS AWP Proj: 15836'

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	2045.50	2021.00	24.50	2045.50	0.00	0.00	-0.05	0.06

### TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
PHL13AHS PBHL Rev-1		7481.43	-5855.40	5905.58	1860717.36	255875.01	39°12'05.335"N	79°59'29.319"W	point
PHL13AHS LP Plat		7581.00	-745.48	2748.45	1857560.35	260984.74	39°12'55.667"N	80°00'09.785"W	point
PHL13AHS LP Rev-1		7614.86	-229.20	1353.92	1856165.87	261501.01	39°13'00.692"N	80°00'27.539"W	point

### WELLPATH COMPOSITION - Ref Wellbore: PHL13AHS AWB Ref Wellpath: PHL13AHS AWP Proj: 15836'

Start MD	End MD	Positional Uncertainty Model	Log Name/Comment	Wellbore
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47-001-03220

PHL13AHS AWB	Blind Drilling (0'-2100')	2014.50	15811.00	15811.00
PHL13AHS AWB	Blind Drilling (0'-2100')	2014.50	6114.50	6114.50
PHL13AHS AWB	Gyro (2100'-7800') Corrected to Grid By ST per MR	6114.50	6114.50	2014.50
PHL13AHS AWB	BHI AT Curve (6114.5')(6158'-15811')	15811.00	15811.00	6114.50
PHL13AHS AWB	Projection to bit	15836.00	15811.00	15811.00

PHL13AHS

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# Actual Wellpath Report

PHL13AHS AWP Proj: 15836'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	CNX GAS COMPANY, LLC	Slot	Slot A
Area	Barbour County, WV	Well	PHL13AHS
Field	Barbour	Wellbore	PHL13AHS AWB
Facility	PHL13 Pad		

## COMMENTS

**Wellpath general comments**  
Blind Drilling:(0'-2100')  
Gyro Surveys: (2100'-7800')  
BHI MWD Surveys: (6114.5')(6158'-15811')  
TD Projected to MD: 15836'