

HG ENERGY



Location: Wetzel County, WV
 Field: Wetzel (UTM 17N NAD 27)
 Facility: WJ Criswell 405 Pad

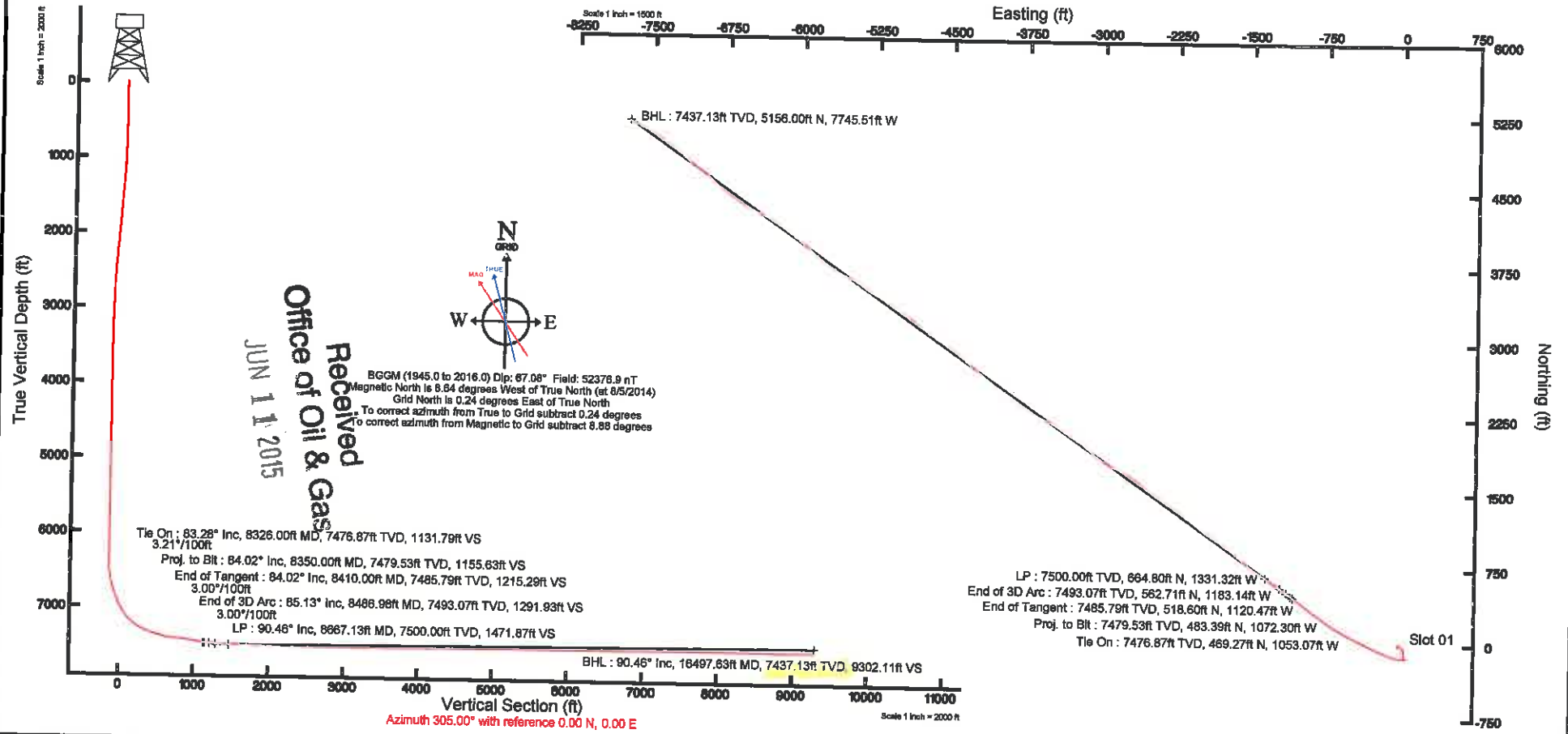
Slot: Slot 01
 Well: WJ Criswell 405 N-1H
 Wellbore: WJ Criswell 405 N-1H PWB

Plot reference wellpath is WJ Criswell 405 N-1H PWB Rev-E.0

True vertical depths are referenced to HAD 105 (RT)	Grid System: NAD27 / UTM Zone 17 North, US feet
Measured depths are referenced to HAD 105 (RT)	North Reference: Grid north
HAD 105 (RT) to Mean Sea Level: 1410 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: Slot 01): -1393 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: gotfbral on 8/22/2014

Well Profile Data							
Design Comment	MD (ft)	Inc (")	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	VS (ft)
Tie On	8326.00	83.280	306.390	7476.87	469.27	-1053.07	1131.79
Proj. to Bit	8350.00	84.016	306.161	7479.53	483.39	-1072.30	1155.63
End of Tangent	8410.00	84.016	306.161	7485.79	518.60	-1120.47	1215.29
End of 3D Arc	8486.98	85.128	304.129	7493.07	562.71	-1183.14	1291.93
LP	8667.13	90.460	305.000	7500.00	664.80	-1331.32	1471.87
BHL	16497.63	90.460	305.000	7437.13	5158.00	-7745.51	9302.11

Location Information				
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
WJ Criswell 405 Pad	1747878.700	14383279.100	39°36'26.251"N	80°37'06.470"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
Slot 01	0.00	0.00	1747878.700	14383279.100
				Latitude
				Longitude
				39°36'26.251"N
				80°37'06.470"W
HAD 105 (RT) to Mud line (At Slot: Slot 01)	17ft			
Mean Sea Level to Mud line (At Slot: Slot 01)	-1393ft			
HAD 105 (RT) to Mean Sea Level	1410ft			



Actual Wellpath Report

WJ Criswell 405 N-1H AWP Proj:16512'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	HG ENERGY	Slot	Slot 01
Area	Wetzel County, WV	Well	WJ Criswell 405 N-1H
Field	Wetzel (UTM 17N NAD 27)	Wellbore	WJ Criswell 405 N-1H AWB
Facility	WJ Criswell 405 Pad		

REPORT SETUP INFORMATION			
Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 4.0.1
North Reference	Grid	User	Stewdenk
Scale	0.999613	Report Generated	8/22/2014 at 11:12:15 AM
Convergence at slot	0.24° East	Database/Source file	WA_Eastern/WJ_Criswell_405_N-1H_AWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	1747878.70	14383279.10	39°36'26.251"N	80°37'06.470"W
Facility Reference Pt			1747878.70	14383279.10	39°36'26.251"N	80°37'06.470"W
Field Reference Pt			1731860.70	14374712.90	39°35'02.180"N	80°40'31.597"W

WELLPATH DATUM			
Calculation method	Minimum curvature	HAD 105 (RT) to Facility Vertical Datum	17.00ft
Horizontal Reference Pt	Slot	HAD 105 (RT) to Mean Sea Level	1410.00ft
Vertical Reference Pt	HAD 105 (RT)	HAD 105 (RT) to Mud Line at Slot (Slot 01)	17.00ft
MD Reference Pt	HAD 105 (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	305.00°

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REFERENCE WELLPATH IDENTIFICATION			
Operator	HG ENERGY	Slot	Slot 01
Area	Wetzel County, WV	Well	WJ Criswell 405 N-1H
Field	Wetzel (UTM 17N NAD 27)	Wellbore	WJ Criswell 405 N-1H AWB
Facility	WJ Criswell 405 Pad		

WELLPATH DATA (238 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	109.900	0.00	0.00	0.00	0.00	1747878.70	14383279.10	39°36'26.251"N	80°37'06.470"W	0.00	0.000	0.00	0.00	0.00
17.00	0.000	109.900	17.00	0.00	0.00	0.00	1747878.70	14383279.10	39°36'26.251"N	80°37'06.470"W	0.00	0.000	0.00	0.00	0.00
99.00	0.050	109.900	99.00	-0.03	-0.01	0.03	1747878.73	14383279.09	39°36'26.251"N	80°37'06.470"W	0.04	109.900	0.06	0.06	0.00
199.00	0.170	121.540	199.00	-0.22	-0.10	0.20	1747878.90	14383279.00	39°36'26.250"N	80°37'06.468"W	0.23	117.487	0.12	0.12	11.64
299.00	0.140	115.470	299.00	-0.49	-0.23	0.44	1747879.14	14383278.87	39°36'26.249"N	80°37'06.466"W	0.50	118.290	0.03	-0.03	-6.07
399.00	0.310	137.470	399.00	-0.88	-0.49	0.73	1747879.43	14383278.61	39°36'26.247"N	80°37'06.461"W	0.88	123.654	0.19	0.17	22.00
499.00	0.440	138.740	499.00	-1.52	-0.97	1.17	1747879.87	14383278.13	39°36'26.242"N	80°37'06.456"W	1.52	129.866	0.13	0.13	1.27
599.00	0.630	135.370	598.99	-2.43	-1.65	1.81	1747880.51	14383277.45	39°36'26.235"N	80°37'06.447"W	2.45	132.485	0.19	0.19	-3.37
699.00	0.540	133.210	698.99	-3.44	-2.37	2.54	1747881.24	14383276.73	39°36'26.228"N	80°37'06.438"W	3.47	133.041	0.09	-0.09	-2.16
799.00	0.830	133.600	798.98	-4.60	-3.18	3.39	1747882.09	14383275.92	39°36'26.226"N	80°37'06.437"W	4.65	133.143	0.27	0.27	0.39
899.00	1.280	116.530	898.96	-6.40	-4.16	4.90	1747883.60	14383274.94	39°36'26.210"N	80°37'06.408"W	6.43	130.348	0.56	0.47	-17.07
999.00	1.240	113.930	998.94	-8.57	-5.10	6.89	1747885.59	14383274.00	39°36'26.201"N	80°37'06.383"W	8.57	126.519	0.07	-0.04	-2.60
1099.00	2.270	108.750	1098.89	-11.53	-6.18	9.76	1747888.45	14383272.92	39°36'26.190"N	80°37'06.346"W	11.55	122.346	1.04	1.03	-5.18
1199.00	3.440	109.750	1198.76	-16.33	-7.83	14.45	1747893.15	14383271.27	39°36'26.173"N	80°37'06.286"W	16.44	118.440	1.17	1.17	1.00
1299.00	4.090	103.800	1263.62	-20.49	-9.12	18.52	1747897.21	14383269.88	39°36'26.161"N	80°37'06.284"W	20.64	116.214	1.08	1.00	-6.08
1378.00	4.910	103.990	1377.27	-28.80	-11.41	27.17	1747905.86	14383267.70	39°36'26.138"N	80°37'06.124"W	29.46	112.774	0.73	0.72	-1.59
1423.00	4.990	103.510	1422.10	-32.41	-12.33	30.94	1747909.63	14383266.78	39°36'26.128"N	80°37'06.076"W	33.30	111.726	0.20	0.18	-1.07
1468.00	4.820	102.010	1466.94	-35.98	-13.18	34.69	1747913.38	14383265.93	39°36'26.120"N	80°37'06.028"W	37.11	110.801	0.47	-0.38	-3.33
1513.00	4.510	104.390	1511.79	-39.37	-14.01	38.25	1747916.94	14383265.09	39°36'26.111"N	80°37'05.982"W	40.74	110.117	0.81	-0.69	5.29
1556.00	4.200	108.400	1554.67	-42.46	-14.93	41.38	1747920.07	14383264.18	39°36'26.102"N	80°37'05.942"W	44.00	109.836	1.01	-0.72	9.33
1599.00	4.290	114.610	1597.55	-45.55	-16.10	44.34	1747923.02	14383263.01	39°36'26.091"N	80°37'05.905"W	47.17	109.951	1.09	0.21	14.44
1643.00	4.420	122.900	1641.42	-48.87	-17.70	47.26	1747925.94	14383261.40	39°36'26.075"N	80°37'05.868"W	50.47	110.534	1.46	0.30	18.84
1685.00	4.200	130.210	1683.30	-52.02	-19.57	49.79	1747928.48	14383259.53	39°36'26.056"N	80°37'05.835"W	53.50	111.460	1.41	-0.52	17.40
1729.00	4.200	136.470	1727.19	-55.20	-21.78	52.13	1747930.81	14383257.33	39°36'26.034"N	80°37'05.806"W	56.50	112.676	1.04	0.00	14.23
1773.00	4.110	143.390	1771.07	-58.28	-24.22	54.18	1747932.86	14383254.89	39°36'26.010"N	80°37'05.779"W	59.35	114.081	1.16	-0.20	15.73
1817.00	4.020	151.410	1814.96	-61.15	-26.84	55.86	1747934.54	14383252.27	39°36'25.984"N	80°37'05.758"W	61.97	115.659	1.31	-0.20	18.23
1862.00	4.420	157.400	1859.84	-64.03	-29.82	57.28	1747935.96	14383249.29	39°36'25.954"N	80°37'05.740"W	64.58	117.501	1.32	0.89	13.31
1907.00	4.910	161.280	1904.69	-67.05	-33.25	58.57	1747937.25	14383245.87	39°36'25.920"N	80°37'05.724"W	67.35	119.582	1.29	1.09	8.62
1950.00	5.300	164.890	1947.52	-70.05	-36.91	59.68	1747938.35	14383242.21	39°36'25.884"N	80°37'05.710"W	70.17	121.735	1.17	0.91	8.40
1993.00	5.920	168.890	1992.30	-73.33	-41.19	60.68	1747939.35	14383237.93	39°36'25.842"N	80°37'05.697"W	73.34	124.169	1.59	1.38	8.22

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REFERENCE WELL PATH IDENTIFICATION			
Operator	HGT ENERGY	Slot	Slot 01
Area	Wetzel County, WV	Well	WJ Criswell 405 N-1H
Field	Wetzel (UTM 17N NAD 27)	Wellbore	WJ Criswell 405 N-1H AWB
Facility	WJ Criswell 405 Pad		

WELLPATH DATA (238 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]
2039.00	6.410	171.990	2036.05	-76.65	-45.84	61.47	1747940.15	14383233.27	39°36'25.796"N	80°37'05.688"W	76.68	126.716	1.39	1.11	7.73
2081.00	6.980	174.190	2077.76	-79.92	-50.71	62.05	1747940.73	14383228.41	39°36'25.748"N	80°37'05.680"W	80.14	129.253	1.49	1.36	5.24
2125.00	7.600	176.880	2121.41	-83.46	-56.27	62.48	1747941.16	14383222.85	39°36'25.693"N	80°37'05.675"W	84.09	132.005	1.61	1.41	6.11
2167.00	8.220	177.800	2163.01	-86.99	-62.04	62.75	1747941.43	14383217.08	39°36'25.636"N	80°37'05.672"W	88.24	134.676	1.51	1.48	2.19
2210.00	8.220	177.580	2205.56	-90.71	-68.19	63.00	1747941.67	14383210.94	39°36'25.595"N	80°37'05.669"W	92.83	137.263	0.67	0.00	-0.51
2255.00	7.910	177.800	2250.12	-94.54	-74.50	63.25	1747941.93	14383204.63	39°36'25.513"N	80°37'05.666"W	97.73	139.666	0.69	-0.69	0.49
2301.00	7.600	177.410	2295.70	-98.31	-80.70	63.51	1747942.19	14383198.43	39°36'25.451"N	80°37'05.663"W	102.69	141.796	0.68	-0.67	-0.85
2343.00	7.290	176.790	2337.34	-101.65	-86.13	63.79	1747942.46	14383193.00	39°36'25.398"N	80°37'05.660"W	107.18	143.478	0.76	-0.74	-1.48
2386.00	6.980	175.510	2380.01	-105.00	-91.46	64.14	1747942.82	14383187.68	39°36'25.345"N	80°37'05.656"W	111.71	144.957	0.81	-0.72	-2.98
2429.00	6.720	174.280	2422.70	-108.31	-96.57	64.68	1747943.27	14383182.37	39°36'25.293"N	80°37'05.653"W	116.18	146.220	0.69	-0.60	-2.86
2471.00	6.810	174.500	2464.41	-111.53	-101.49	65.08	1747943.76	14383177.65	39°36'25.246"N	80°37'05.644"W	120.57	147.330	0.22	0.21	0.52
2514.00	6.720	173.880	2507.11	-114.84	-106.53	65.59	1747944.27	14383172.61	39°36'25.196"N	80°37'05.638"W	125.11	148.378	0.27	-0.21	-1.44
2558.00	5.700	173.880	2550.85	-117.97	-111.26	66.10	1747944.78	14383167.88	39°36'25.149"N	80°37'05.632"W	129.42	149.285	2.32	-2.32	0.00
2603.00	5.210	170.710	2595.65	-120.86	-115.50	66.67	1747945.34	14383163.64	39°36'25.107"N	80°37'05.625"W	133.36	150.006	1.28	-1.09	-7.04
2646.00	4.510	168.200	2638.50	-123.46	-119.08	67.33	1747946.00	14383160.06	39°36'25.072"N	80°37'05.617"W	136.80	150.516	1.70	-1.63	-5.84
2691.00	3.400	163.790	2683.39	-125.79	-122.10	68.07	1747946.74	14383157.05	39°36'25.042"N	80°37'05.607"W	139.79	150.862	2.56	-2.47	-9.80
2738.00	3.000	158.990	2730.31	-127.89	-124.58	68.90	1747947.57	14383154.56	39°36'25.017"N	80°37'05.597"W	142.36	151.057	1.02	-0.85	-10.21
2781.00	2.390	145.190	2773.27	-129.67	-126.37	69.81	1747948.48	14383152.78	39°36'25.000"N	80°37'05.585"W	144.37	151.083	2.06	-1.42	-32.09
2825.00	2.120	138.280	2817.23	-131.32	-127.73	70.88	1747949.55	14383151.42	39°36'24.986"N	80°37'05.572"W	146.08	150.975	0.87	-0.61	-15.70
2869.00	2.120	133.580	2861.20	-132.92	-128.90	72.01	1747950.68	14383150.25	39°36'24.975"N	80°37'05.557"W	147.65	150.810	0.41	0.00	-11.14
2912.00	1.810	119.110	2904.18	-134.38	-129.77	73.18	1747951.85	14383149.38	39°36'24.966"N	80°37'05.542"W	148.99	150.581	1.34	-0.72	-33.19
2955.00	1.590	105.970	2947.16	-135.62	-130.27	74.35	1747953.02	14383148.88	39°36'24.961"N	80°37'05.528"W	149.99	150.286	1.04	-0.51	-30.56
2999.00	1.590	106.190	2991.14	-136.78	-130.61	75.52	1747954.19	14383148.54	39°36'24.957"N	80°37'05.513"W	150.87	149.962	0.01	0.00	0.50
3044.00	1.020	100.770	3036.13	-137.73	-130.86	76.51	1747955.18	14383148.30	39°36'24.955"N	80°37'05.500"W	151.58	149.685	1.29	-1.27	-12.04
3088.00	0.880	102.400	3080.12	-138.40	-131.00	77.22	1747955.90	14383148.15	39°36'24.954"N	80°37'05.481"W	152.07	149.480	0.32	-0.32	3.70
3133.00	1.020	99.010	3125.12	-139.08	-131.14	77.96	1747956.63	14383148.01	39°36'24.952"N	80°37'05.481"W	152.56	149.269	0.34	0.31	-7.53
3175.00	0.800	106.370	3167.11	-139.69	-131.28	78.61	1747957.28	14383147.87	39°36'24.951"N	80°37'05.473"W	153.02	149.086	0.59	-0.52	17.52
3217.00	0.800	110.470	3209.11	-140.26	-131.46	79.17	1747957.84	14383147.69	39°36'24.949"N	80°37'05.466"W	153.46	148.944	0.14	0.00	9.76
3259.00	0.880	109.810	3251.10	-140.85	-131.68	79.75	1747958.41	14383147.47	39°36'24.947"N	80°37'05.459"W	153.94	148.800	0.19	0.19	-1.57
3301.00	0.880	115.580	3293.10	-141.48	-131.93	80.34	1747959.01	14383147.23	39°36'24.944"N	80°37'05.451"W	154.46	148.659	0.21	0.00	13.74

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REFERENCE WELLPATH IDENTIFICATION

Operator	HG ENERGY	Slot	Slot 01
Area	Wetzel County, WV	Well	WJ Criswell 405 N-1H
Field	Wetzel (UTM 17N NAD 27)	Wellbore	WJ Criswell 405 N-1H AWB
Facility	WJ Criswell 405 Pad		

WELLPATH DATA (238 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]
3344.00	1.020	120.600	3336.09	-142.19	-132.26	80.97	1747959.64	14383146.89	39°36'24.941"N	80°37'05.443"W	155.08	148.526	0.38	0.33	11.67
3388.00	0.880	117.780	3380.09	-142.91	-132.62	81.60	1747960.27	14383146.53	39°36'24.937"N	80°37'05.435"W	155.71	148.395	0.34	-0.32	-6.41
3430.00	1.020	107.080	3422.08	-143.59	-132.88	82.25	1747960.91	14383146.27	39°36'24.935"N	80°37'05.427"W	156.27	148.244	0.54	0.33	-25.48
3473.00	0.800	105.580	3465.08	-144.24	-133.07	82.90	1747961.57	14383146.08	39°36'24.933"N	80°37'05.418"W	156.78	148.078	0.51	-0.51	-3.49
3516.00	1.020	108.970	3508.07	-144.89	-133.28	83.55	1747962.22	14383145.87	39°36'24.931"N	80°37'05.410"W	157.30	147.916	0.53	0.51	7.88
3605.00	0.130	116.120	3597.06	-145.75	-133.58	84.39	1747963.06	14383145.57	39°36'24.928"N	80°37'05.399"W	158.00	147.716	1.00	-1.00	8.03
3693.00	0.040	61.450	3685.06	-145.86	-133.61	84.51	1747963.18	14383145.54	39°36'24.927"N	80°37'05.398"W	158.09	147.686	0.13	-0.10	-62.12
3783.00	0.000	81.120	3775.06	-145.87	-133.59	84.54	1747963.20	14383145.56	39°36'24.928"N	80°37'05.398"W	158.09	147.675	0.04	-0.04	0.00
3872.00	0.110	97.170	3864.06	-145.95	-133.60	84.62	1747963.29	14383145.55	39°36'24.927"N	80°37'05.397"W	158.15	147.651	0.12	0.12	0.00
3959.00	0.220	74.260	3951.06	-146.13	-133.57	84.85	1747963.53	14383145.58	39°36'24.928"N	80°37'05.393"W	158.25	147.570	0.15	0.13	-26.33
4048.00	0.190	105.930	4040.06	-146.38	-133.56	85.17	1747963.84	14383145.59	39°36'24.928"N	80°37'05.389"W	158.41	147.475	0.13	-0.03	35.58
4135.00	0.090	33.800	4127.06	-146.51	-133.55	85.35	1747964.01	14383145.61	39°36'24.928"N	80°37'05.387"W	158.49	147.418	0.21	-0.11	-82.91
4223.00	0.130	47.920	4215.06	-146.53	-133.42	85.46	1747964.13	14383145.73	39°36'24.929"N	80°37'05.386"W	158.45	147.359	0.05	0.05	16.05
4310.00	0.250	335.830	4302.06	-146.39	-133.18	85.46	1747964.12	14383145.97	39°36'24.932"N	80°37'05.386"W	158.24	147.314	0.28	0.14	-82.86
4398.00	0.280	278.970	4390.06	-146.03	-132.97	85.15	1747963.83	14383146.18	39°36'24.934"N	80°37'05.380"W	157.91	147.362	-0.29	0.03	-64.61
4482.00	0.220	204.250	4474.06	-145.88	-133.09	84.90	1747963.56	14383146.06	39°36'24.933"N	80°37'05.393"W	157.86	147.467	0.37	-0.07	-88.95
4567.00	0.220	147.500	4559.06	-146.06	-133.38	84.92	1747963.58	14383145.78	39°36'24.930"N	80°37'05.393"W	158.11	147.516	0.25	0.00	-66.76
4655.00	0.210	252.170	4647.06	-146.12	-133.57	84.85	1747963.52	14383145.58	39°36'24.928"N	80°37'05.394"W	158.24	147.573	0.39	-0.01	118.94
4739.00	0.070	340.020	4731.06	-145.98	-133.57	84.69	1747963.36	14383145.59	39°36'24.928"N	80°37'05.396"W	158.15	147.623	0.26	-0.17	104.58
4828.00	0.100	8.120	4820.06	-145.90	-133.44	84.68	1747963.35	14383145.71	39°36'24.929"N	80°37'05.396"W	158.04	147.600	0.06	0.03	31.57
4914.00	0.190	179.170	4906.06	-145.95	-133.51	84.69	1747963.36	14383145.65	39°36'24.928"N	80°37'05.396"W	158.11	147.610	0.34	0.10	198.90
5005.00	0.100	75.630	4997.06	-146.09	-133.64	84.77	1747963.44	14383145.51	39°36'24.927"N	80°37'05.395"W	158.26	147.611	0.26	-0.10	-113.78
5091.00	0.070	343.810	5083.06	-146.10	-133.57	84.83	1747963.50	14383145.58	39°36'24.928"N	80°37'05.394"W	158.23	147.580	0.14	-0.03	-106.77
5180.00	0.110	17.310	5172.06	-146.03	-133.44	84.84	1747963.51	14383145.72	39°36'24.929"N	80°37'05.394"W	158.12	147.551	0.07	0.04	37.64
5270.00	0.110	47.310	5262.06	-146.03	-133.29	84.98	1747963.60	14383145.86	39°36'24.931"N	80°37'05.393"W	158.05	147.496	0.06	0.00	33.33
5358.00	0.100	206.830	5350.06	-146.05	-133.31	84.96	1747963.63	14383145.85	39°36'24.930"N	80°37'05.392"W	158.08	147.490	0.23	-0.01	181.27
5444.00	0.170	303.490	5436.06	-145.94	-133.30	84.82	1747963.49	14383145.85	39°36'24.930"N	80°37'05.394"W	158.00	147.532	0.24	0.08	112.40
5530.00	0.140	72.820	5522.06	-145.87	-133.20	84.81	1747963.48	14383145.95	39°36'24.931"N	80°37'05.394"W	157.91	147.514	0.33	-0.03	150.38
5617.00	0.330	294.250	5609.06	-145.69	-133.07	84.69	1747963.35	14383146.09	39°36'24.933"N	80°37'05.396"W	157.73	147.527	0.51	0.22	-159.28
5702.00	0.040	151.810	5694.06	-145.48	-132.99	84.45	1747963.14	14383146.16	39°36'24.934"N	80°37'05.395"W	157.55	147.576	0.43	-0.34	-168.52

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Actual Wellpath Report

WJ Criswell 405 N-1H AWP Proj:16512'

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REFERENCE WELLPATH IDENTIFICATION

Operator	HGENERGY	Slot	Slot 01
Area	Wetzel County, WV	Well	WJ Criswell 405 N-1H
Field	Wetzel (UTM 17N NAD 27)	Wellbore	WJ Criswell 405 N-1H AWB
Facility	WJ Criswell 405 Pad		

WELLPATH DATA (238 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]
5789.00	0.120	291.600	5781.06	-145.42	-132.98	84.41	1747963.07	14383146.17	39°36'24.934"N	80°37'05.399"W	157.51	147.596	0.18	0.09	161.60
5877.00	0.040	304.380	5869.06	-145.30	-132.93	84.30	1747962.96	14383146.22	39°36'24.934"N	80°37'05.401"W	157.41	147.620	0.09	-0.09	14.52
5964.00	0.110	197.520	5956.06	-145.29	-133.00	84.25	1747962.91	14383146.16	39°36'24.934"N	80°37'05.401"W	157.43	147.648	0.15	0.08	-122.83
6050.00	0.100	286.500	6042.06	-145.25	-133.05	84.15	1747962.82	14383146.10	39°36'24.933"N	80°37'05.403"W	157.43	147.689	0.17	-0.01	103.47
6136.00	0.200	163.990	6128.06	-145.29	-133.18	84.31	1747962.78	14383145.97	39°36'24.932"N	80°37'05.403"W	157.52	147.724	0.31	0.12	-140.59
6222.00	0.110	221.060	6214.06	-145.39	-133.38	84.10	1747962.76	14383145.77	39°36'24.930"N	80°37'05.403"W	157.68	147.769	0.19	-0.10	64.50
6312.00	0.150	181.840	6304.06	-145.45	-133.57	84.04	1747962.70	14383145.58	39°36'24.928"N	80°37'05.404"W	157.81	147.823	0.11	0.04	-43.58
6397.00	0.140	172.780	6389.06	-145.58	-133.78	84.05	1747962.71	14383145.37	39°36'24.926"N	80°37'05.404"W	157.99	147.862	0.03	-0.01	-10.66
6442.00	2.130	256.420	6434.05	-145.06	-134.03	83.24	1747961.91	14383145.12	39°36'24.923"N	80°37'05.414"W	157.78	148.158	4.71	4.42	185.87
6486.00	5.760	258.300	6477.94	-145.01	-134.68	80.28	1747958.95	14383144.48	39°36'24.917"N	80°37'05.452"W	156.79	148.208	8.25	8.25	4.05
6530.00	8.190	262.780	6521.61	-139.18	-135.52	75.01	1747953.68	14383143.63	39°36'24.909"N	80°37'05.519"W	154.90	151.035	5.66	5.52	10.41
6572.00	10.460	272.680	6563.05	-133.74	-135.72	68.23	1747946.91	14383143.43	39°36'24.907"N	80°37'05.606"W	151.91	153.309	6.60	5.40	23.57
6614.00	12.580	276.830	6604.20	-126.49	-135.00	59.88	1747938.56	14383144.15	39°36'24.915"N	80°37'05.713"W	147.68	156.078	5.42	5.05	9.88
6655.00	13.900	277.060	6644.11	-118.20	-133.86	50.56	1747929.24	14383145.29	39°36'24.926"N	80°37'05.832"W	143.09	159.307	3.22	3.22	0.56
6699.00	14.870	275.970	6686.73	-108.59	-132.62	39.70	1747918.39	14383146.53	39°36'24.939"N	80°37'05.950"W	138.44	163.335	2.29	2.20	-2.48
6744.00	17.860	276.310	6729.91	-97.49	-131.27	27.10	1747905.79	14383147.89	39°36'24.953"N	80°37'06.131"W	134.03	168.336	6.65	6.64	0.76
6789.00	21.980	278.630	6772.20	-83.88	-129.24	11.91	1747890.60	14383149.91	39°36'24.974"N	80°37'06.325"W	129.79	174.737	9.32	9.16	5.16
6830.00	22.800	281.170	6810.11	-69.74	-126.55	-3.47	1747875.23	14383152.60	39°36'25.001"N	80°37'06.522"W	126.60	181.572	3.09	2.00	6.20
6874.00	20.980	283.320	6850.94	-54.62	-123.09	-19.50	1747859.20	14383156.06	39°36'25.036"N	80°37'06.726"W	124.62	189.004	4.52	-4.14	4.89
6919.00	21.570	285.710	6892.87	-39.33	-119.99	-35.31	1747843.41	14383160.16	39°36'25.077"N	80°37'06.928"W	124.12	196.527	2.33	1.31	5.31
6962.00	23.130	289.030	6932.64	-23.75	-114.09	-50.90	1747827.82	14383165.05	39°36'25.126"N	80°37'07.127"W	124.93	204.043	4.67	3.63	7.72
7006.00	24.950	291.780	6972.83	-6.40	-107.83	-67.69	1747811.04	14383171.31	39°36'25.189"N	80°37'07.341"W	127.32	212.118	4.86	4.14	6.25
7049.00	27.800	291.140	7011.35	12.17	-100.85	-85.47	1747793.26	14383178.29	39°36'25.258"N	80°37'07.568"W	132.20	220.281	6.66	6.63	-1.49
7094.00	31.320	289.520	7050.49	33.63	-93.15	-106.29	1747772.45	14383185.98	39°36'25.335"N	80°37'07.833"W	141.33	228.767	8.02	7.82	-3.60
7138.00	35.810	291.790	7087.14	57.20	-84.55	-129.03	1747749.72	14383194.58	39°36'25.421"N	80°37'08.124"W	154.27	236.764	10.59	10.20	5.16
7183.00	38.990	293.950	7122.89	83.92	-73.91	-154.20	1747724.56	14383205.21	39°36'25.527"N	80°37'08.445"W	171.00	244.390	7.64	7.07	4.80
7228.00	41.870	295.700	7157.14	112.64	-61.65	-180.68	1747698.09	14383217.47	39°36'25.650"N	80°37'08.782"W	190.91	251.159	6.88	6.40	3.89
7272.00	45.200	295.880	7189.03	142.55	-48.47	-207.96	1747670.82	14383230.65	39°36'25.781"N	80°37'09.130"W	213.53	256.881	7.57	7.57	0.41
7315.00	49.220	295.690	7218.24	173.69	-34.74	-236.37	1747642.42	14383244.37	39°36'25.918"N	80°37'09.492"W	238.91	261.638	9.35	9.35	-0.44
7358.00	53.880	295.540	7244.97	206.90	-20.25	-266.75	1747612.05	14383258.86	39°36'26.063"N	80°37'09.880"W	267.52	265.660	10.86	10.84	-0.81

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REFERENCE WELLPATH IDENTIFICATION			
Operator	REG ENERGY	Slot	Slot 01
Area	Wetzel County, WV	Well	WJ Criswell 405 N-1H
Field	Wetzel (UTM 17N NAD 27)	Wellbore	WJ Criswell 405 N-1H AWB
Facility	WJ Criswell 405 Pad		

WELLPATH DATA (238 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]	
7401.00	59.200	294.640	7268.67	242.21	-5.10	-299.26	1747579.56	14383274.00	39°36'26.214"N	80°37'10.294"W	299.30	269.023	12.45	12.37	-1.63	
7443.00	61.510	295.040	7289.44	278.14	10.23	-332.38	1747546.45	14383289.33	39°36'26.367"N	80°37'10.716"W	332.54	271.763	5.56	5.50	0.95	
7488.00	63.670	295.010	7310.15	317.48	27.13	-368.58	1747510.27	14383306.22	39°36'26.535"N	80°37'11.178"W	369.57	274.210	4.80	4.80	-0.07	
7533.00	69.200	295.920	7328.14	358.14	44.86	-405.80	1747473.06	14383323.95	39°36'26.712"N	80°37'11.653"W	408.27	276.309	12.43	12.29	2.02	
7578.00	72.820	297.400	7342.77	400.24	63.96	-443.82	1747435.05	14383343.03	39°36'26.903"N	80°37'12.137"W	448.40	278.200	8.69	8.11	3.29	
7621.00	72.140	297.740	7355.70	440.91	82.94	-480.17	1747398.72	14383362.01	39°36'27.091"N	80°37'12.601"W	487.28	279.800	1.82	-1.65	0.79	
7664.00	71.830	297.800	7369.00	481.47	101.99	-516.35	1747362.55	14383381.05	39°36'27.281"N	80°37'13.062"W	526.33	281.173	0.73	-0.72	0.14	
7707.00	73.390	297.850	7381.85	522.18	121.14	-552.64	1747326.27	14383400.20	39°36'27.472"N	80°37'13.525"W	565.76	282.364	3.63	3.63	0.12	
7752.00	73.810	299.420	7394.56	565.09	141.83	-590.53	1747288.40	14383420.88	39°36'27.678"N	80°37'14.008"W	607.32	283.505	3.47	0.93	3.49	
7796.00	74.610	301.640	7406.53	607.29	163.34	-627.00	1747251.95	14383442.38	39°36'27.892"N	80°37'14.472"W	647.92	284.602	5.18	1.82	5.05	
7839.00	78.410	304.080	7416.56	649.07	186.03	-662.11	1747216.85	14383465.06	39°36'28.118"N	80°37'14.920"W	687.74	285.693	10.42	8.84	5.67	
7882.00	84.110	304.570	7423.09	691.55	209.98	-697.19	1747181.78	14383489.00	39°36'28.356"N	80°37'15.367"W	728.13	286.762	13.30	13.26	1.14	
7926.00	87.200	304.430	7426.43	735.41	234.83	-733.34	1747145.64	14383513.84	39°36'28.603"N	80°37'15.827"W	770.02	287.756	7.03	7.02	-0.32	
7971.00	86.300	305.210	7428.98	780.34	260.48	-770.23	1747108.77	14383539.48	39°36'28.858"N	80°37'16.297"W	813.08	288.685	2.64	-2.00	1.73	
8015.00	85.620	305.420	7432.08	824.23	285.86	-806.04	1747072.97	14383564.85	39°36'29.110"N	80°37'16.753"W	855.23	289.527	1.62	-1.55	0.48	
8058.00	82.440	306.290	7436.55	866.99	310.90	-840.70	1747038.33	14383589.88	39°36'29.359"N	80°37'17.195"W	896.34	290.295	7.66	-7.40	2.02	
8102.00	80.570	306.450	7443.05	910.49	336.71	-875.74	1747003.30	14383615.68	39°36'29.616"N	80°37'17.641"W	938.24	291.031	4.27	-4.25	0.36	
8146.00	80.420	306.770	7450.32	953.87	362.59	-910.57	1746968.48	14383641.55	39°36'29.873"N	80°37'18.085"W	980.11	291.712	0.79	-0.34	0.73	
8190.00	80.410	306.960	7457.64	997.23	388.61	-945.28	1746933.79	14383667.56	39°36'30.132"N	80°37'18.527"W	1022.05	292.348	0.43	-0.02	0.43	
8236.00	81.880	306.930	7464.72	1042.65	413.93	-981.61	1746897.47	14383694.87	39°36'30.403"N	80°37'18.989"W	1066.09	292.964	3.20	3.20	-0.07	
8281.00	81.900	306.820	7471.07	1087.18	442.67	-1017.24	1746861.85	14383721.59	39°36'30.669"N	80°37'19.443"W	1109.39	293.517	0.25	0.04	-0.24	
8326.00	83.280	306.390	7476.87	1131.79	469.27	-1053.07	1746826.04	14383748.19	39°36'30.933"N	80°37'19.900"W	1152.89	294.019	3.21	3.07	-0.96	
8369.00	87.510	306.190	7480.33	1174.63	494.64	-1087.61	1746791.52	14383773.54	39°36'31.185"N	80°37'20.339"W	1194.80	294.456	9.85	9.84	-0.47	
8413.00	84.920	306.270	7483.23	1218.52	520.58	-1123.02	1746756.12	14383799.48	39°36'31.443"N	80°37'20.790"W	1237.81	294.870	5.89	-5.89	0.18	
8457.00	84.820	305.790	7487.17	1262.33	546.36	-1158.46	1746720.69	14383825.25	39°36'31.700"N	80°37'21.242"W	1280.83	295.250	1.11	-0.23	-1.09	
8500.00	84.760	304.850	7491.07	1305.15	571.12	-1193.40	1746685.77	14383850.00	39°36'31.946"N	80°37'21.687"W	1323.02	295.574	2.18	-0.14	-2.19	
8543.00	85.190	304.100	7494.84	1347.99	595.36	-1228.71	1746650.47	14383874.23	39°36'32.187"N	80°37'22.137"W	1365.35	295.852	2.00	1.00	-1.74	
8587.00	88.090	302.340	7497.42	1391.88	619.42	-1265.45	1746613.74	14383898.28	39°36'32.426"N	80°37'22.605"W	1408.92	296.081	7.71	6.59	-4.00	
8631.00	90.090	303.650	7498.11	1435.85	643.38	-1302.35	1746576.86	14383922.23	39°36'32.664"N	80°37'23.075"W	1452.60	296.290	5.43	4.55	2.98	
8674.00	89.910	304.530	7498.11	1478.84	667.48	-1337.96	1746541.26	14383946.32	39°36'32.904"N	80°37'23.529"W	1495.21	296.514	2.09	-0.42	2.05	

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REFERENCE WELLPATH IDENTIFICATION			
Operator	BG ENERGY	Slot	Slot 01
Area	Wetzel County, WV	Well	WJ Criswell 405 N-1H
Field	Wetzel (UTM 17N NAD 27)	Wellbore	WJ Criswell 405 N-1H AWB
Facility	WJ Criswell 405 Pad		

WELLPATH DATA (238 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]
8760.00	88.920	302.870	7498.99	1564.81	715.19	-1409.50	1746469.75	14383994.01	39°36'33.379"N	80°37'24.440"W	1580.57	296.904	2.25	-1.15	-1.93
8843.00	88.830	306.640	7500.62	1647.78	762.49	-1477.67	1746401.61	14384041.29	39°36'33.849"N	80°37'25.309"W	1662.80	297.294	4.54	-0.11	4.54
8931.00	88.490	309.130	7502.68	1735.64	816.51	-1547.10	1746332.21	14384095.29	39°36'34.386"N	80°37'26.193"W	1749.34	297.824	2.86	-0.39	2.83
9019.00	88.860	310.650	7504.72	1823.29	872.93	-1614.60	1746264.73	14384151.69	39°36'34.946"N	80°37'27.052"W	1835.46	298.398	1.78	0.42	1.73
9107.00	88.830	304.980	7506.49	1911.13	926.85	-1684.07	1746195.28	14384205.59	39°36'35.482"N	80°37'27.937"W	1922.28	298.827	6.44	-0.03	-6.44
9192.00	88.210	306.300	7508.69	1996.09	976.36	-1753.13	1746126.26	14384255.08	39°36'35.974"N	80°37'28.817"W	2006.67	299.115	1.72	-0.73	1.55
9278.00	88.180	303.630	7511.40	2082.04	1025.62	-1823.56	1746055.85	14384304.32	39°36'36.464"N	80°37'29.714"W	2092.19	299.354	3.10	-0.03	-3.10
9365.00	88.180	303.050	7514.16	2168.96	1073.41	-1896.21	1745983.23	14384352.09	39°36'36.939"N	80°37'30.640"W	2178.95	299.513	0.67	0.00	-0.67
9453.00	88.150	307.330	7516.98	2256.90	1124.08	-1968.07	1745911.39	14384402.75	39°36'37.443"N	80°37'31.555"W	2266.47	299.733	4.86	-0.03	4.86
9538.00	88.280	305.550	7519.63	2341.83	1174.55	-2036.42	1745843.08	14384453.19	39°36'37.944"N	80°37'32.426"W	2350.86	299.975	2.10	0.15	-2.09
9623.00	89.510	307.940	7521.26	2426.76	1225.38	-2104.51	1745775.01	14384504.01	39°36'38.449"N	80°37'33.293"W	2435.27	300.211	3.16	1.45	2.81
9712.00	90.220	308.190	7521.47	2515.63	1280.26	-2174.58	1745704.97	14384558.86	39°36'38.995"N	80°37'34.185"W	2523.46	300.487	0.85	0.80	0.28
9799.00	89.510	303.960	7521.68	2602.60	1331.47	-2244.88	1745634.69	14384610.06	39°36'39.504"N	80°37'35.081"W	2610.04	300.673	4.93	-0.82	-4.86
9886.00	90.180	302.650	7521.92	2689.56	1379.24	-2317.59	1745562.01	14384665.81	39°36'39.979"N	80°37'36.007"W	2696.95	300.758	1.69	0.77	-1.51
9975.00	90.430	304.500	7521.44	2778.53	1428.46	-2391.73	1745487.90	14384707.00	39°36'40.468"N	80°37'36.952"W	2785.84	300.848	2.10	0.28	2.08
10066.00	89.750	305.490	7521.30	2869.52	1480.65	-2466.28	1745413.38	14384759.17	39°36'40.987"N	80°37'37.902"W	2876.61	300.979	1.32	-0.75	1.09
10150.00	89.600	309.690	7521.78	2953.42	1531.88	-2532.83	1745346.86	14384810.38	39°36'41.496"N	80°37'38.749"W	2960.04	301.166	5.00	-0.18	5.00
10240.00	89.080	307.310	7522.81	3043.24	1587.89	-2603.25	1745276.46	14384866.38	39°36'42.053"N	80°37'39.646"W	3049.31	301.382	2.71	-0.58	-2.64
10329.00	89.750	303.270	7523.72	3132.21	1639.30	-2675.88	1745203.86	14384917.76	39°36'42.564"N	80°37'40.572"W	3138.09	301.492	4.60	0.75	-4.54
10422.00	89.780	299.660	7524.10	3225.02	1687.83	-2736.19	1745124.58	14384966.28	39°36'43.047"N	80°37'41.582"W	3231.07	301.492	3.88	0.03	-3.88
10515.00	90.950	295.420	7523.51	3317.21	1730.82	-2837.63	1745042.18	14385009.25	39°36'43.475"N	80°37'42.633"W	3323.83	301.381	4.73	1.26	-4.56
10608.00	91.140	301.210	7521.81	3409.52	1774.91	-2919.45	1744960.38	14385053.32	39°36'43.914"N	80°37'43.677"W	3416.65	301.298	6.23	0.20	6.23
10700.00	90.060	305.450	7520.85	3501.45	1825.44	-2996.30	1744883.57	14385103.83	39°36'44.416"N	80°37'44.656"W	3508.57	301.351	4.76	-1.17	4.61
10793.00	90.370	309.410	7520.50	3594.35	1881.96	-3070.13	1744809.76	14385160.32	39°36'44.978"N	80°37'45.596"W	3601.04	301.508	4.27	0.33	4.26
10886.00	90.340	310.200	7519.92	3687.02	1941.49	-3141.58	1744738.35	14385219.84	39°36'45.569"N	80°37'46.506"W	3693.09	301.716	0.85	-0.03	0.85
10979.00	90.340	303.370	7519.37	3779.92	1997.15	-3216.01	1744663.94	14385275.47	39°36'46.122"N	80°37'47.454"W	3785.67	301.840	7.34	0.00	-7.34
11071.00	91.230	303.330	7518.11	3871.87	2047.72	-3292.86	1744587.12	14385326.02	39°36'46.625"N	80°37'48.433"W	3877.63	301.876	0.97	0.97	-0.04
11164.00	91.200	305.460	7516.14	3964.84	2100.24	-3369.57	1744510.44	14385378.52	39°36'47.147"N	80°37'49.411"W	3970.52	301.935	2.29	-0.03	2.29
11257.00	90.950	304.010	7514.39	4057.82	2153.22	-3445.99	1744434.05	14385431.48	39°36'47.674"N	80°37'50.384"W	4063.39	301.999	1.58	-0.27	-1.56
11349.00	90.090	298.370	7513.56	4149.58	2200.84	-3524.65	1744355.42	14385479.08	39°36'48.148"N	80°37'51.387"W	4155.34	301.981	6.20	-0.93	-6.13

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Actual Wellpath Report

WJ Criswell 405 N-1H AWP Proj:16512'



REFERENCE WELLPATH IDENTIFICATION			
Operator	HG ENERGY	Slot	Slot 01
Area	Wetzel County, WV	Well	WJ Criswell 405 N-1H
Field	Wetzel (UTM 17N NAD 27)	Wellbore	WJ Criswell 405 N-1H AWB
Facility	WJ Criswell 405 Pad		

WELLPATH DATA (238 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]
11442.00	90.090	298.540	7513.41	4241.97	2245.15	-3606.42	1744273.69	14385523.38	39°36'48.589"N	80°37'52.429"W	4248.17	301.904	0.18	0.00	0.18
11535.00	90.030	304.060	7513.31	4334.74	2293.45	-3685.85	1744194.28	14385571.66	39°36'49.070"N	80°37'53.442"W	4341.13	301.891	5.94	-0.06	5.94
11628.00	90.120	303.480	7513.19	4427.72	2345.14	-3763.16	1744117.00	14385623.33	39°36'49.584"N	80°37'54.427"W	4434.08	301.931	0.63	0.10	-0.62
11721.00	90.830	308.200	7512.42	4520.68	2399.58	-3838.53	1744041.67	14385677.75	39°36'50.125"N	80°37'55.387"W	4526.84	302.011	5.13	0.76	5.08
11814.00	90.150	305.350	7511.63	4613.62	2455.25	-3913.01	1743967.51	14385733.39	39°36'50.678"N	80°37'56.386"W	4619.51	302.107	3.15	-0.73	-3.06
11906.00	90.280	302.940	7511.28	4705.60	2506.88	-3989.14	1743891.11	14385785.01	39°36'51.191"N	80°37'57.306"W	4711.44	302.146	2.62	0.14	-2.62
11999.00	90.280	307.680	7510.83	4798.57	2560.62	-4065.01	1743815.27	14385838.72	39°36'51.726"N	80°37'58.273"W	4804.28	302.208	5.10	0.00	5.10
12092.00	90.180	309.570	7510.45	4891.38	2618.67	-4137.66	1743742.65	14385896.75	39°36'52.302"N	80°37'59.198"W	4896.70	302.329	2.04	-0.11	2.03
12184.00	90.090	307.130	7510.24	4983.22	2675.75	-4209.81	1743670.53	14385953.81	39°36'52.869"N	80°38'00.117"W	4988.20	302.440	2.65	-0.10	-2.65
12277.00	90.060	308.230	7510.11	5076.11	2732.59	-4283.41	1743596.96	14386010.63	39°36'53.434"N	80°38'01.054"W	5080.81	302.536	1.18	-0.03	1.18
12370.00	90.150	311.800	7509.94	5168.74	2792.38	-4354.62	1743525.77	14386070.40	39°36'54.028"N	80°38'01.961"W	5173.02	302.670	3.84	0.10	3.84
12463.00	90.180	308.340	7509.67	5261.36	2852.24	-4425.78	1743454.64	14386130.23	39°36'54.622"N	80°38'02.867"W	5265.25	302.800	3.72	0.03	-3.72
12555.00	90.150	303.250	7509.41	5353.33	2906.03	-4500.38	1743380.07	14386184.00	39°36'55.157"N	80°38'03.818"W	5357.09	302.852	5.53	-0.03	-5.53
12648.00	90.150	303.430	7509.17	5446.29	2957.14	-4578.07	1743302.41	14386235.09	39°36'55.665"N	80°38'04.808"W	5450.09	302.860	0.19	0.00	0.19
12741.00	89.820	305.150	7509.19	5539.27	3019.54	-4654.91	1743225.60	14386287.47	39°36'56.186"N	80°38'05.787"W	5548.06	302.884	1.88	-0.35	1.85
12833.00	89.850	305.810	7509.46	5631.27	3062.93	-4729.82	1743150.72	14386340.84	39°36'56.717"N	80°38'06.741"W	5634.96	302.926	0.72	0.03	0.72
12926.00	89.910	309.700	7509.65	5724.15	3119.86	-4803.34	1743077.23	14386397.75	39°36'57.282"N	80°38'07.678"W	5727.62	303.005	4.18	0.06	4.18
13018.00	89.690	306.340	7509.97	5816.00	3176.52	-4875.80	1743004.79	14386454.39	39°36'57.845"N	80°38'08.601"W	5819.26	303.084	3.66	-0.24	-3.65
13111.00	90.180	300.880	7510.08	5908.94	3227.98	-4953.23	1742927.40	14386505.83	39°36'58.357"N	80°38'09.587"W	5912.22	303.092	5.89	0.53	-5.87
13204.00	90.180	304.390	7509.79	6001.85	3283.13	-5031.53	1742849.12	14386555.95	39°36'58.856"N	80°38'10.585"W	6005.20	303.085	3.77	0.00	3.77
13297.00	90.030	304.680	7509.61	6094.84	3330.85	-5108.14	1742772.54	14386608.65	39°36'59.380"N	80°38'11.562"W	6098.17	303.107	0.35	-0.16	0.31
13389.00	90.920	303.600	7508.85	6186.83	3382.48	-5184.28	1742696.43	14386660.26	39°36'59.893"N	80°38'12.532"W	6190.15	303.122	1.52	0.97	-1.17
13482.00	90.120	300.880	7508.01	6279.71	3432.08	-5262.94	1742617.81	14386709.85	39°37'00.386"N	80°38'13.534"W	6283.13	303.109	3.05	-0.86	-2.92
13575.00	90.250	304.420	7507.71	6372.61	3482.25	-5341.23	1742539.55	14386760.00	39°37'00.885"N	80°38'14.532"W	6376.11	303.103	3.81	0.14	3.81
13667.00	90.490	306.170	7507.11	6464.61	3535.40	-5416.31	1742464.49	14386813.13	39°37'01.414"N	80°38'15.489"W	6468.04	303.134	1.92	0.26	1.90
13760.00	90.430	298.410	7506.37	6557.43	3585.04	-5494.87	1742385.97	14386862.75	39°37'01.907"N	80°38'16.490"W	6560.95	303.122	8.34	-0.06	-8.34
13853.00	90.370	296.820	7505.72	6649.65	3628.15	-5577.27	1742303.60	14386905.84	39°37'02.337"N	80°38'17.541"W	6653.52	303.045	1.71	-0.06	-1.71
13945.00	90.580	302.200	7504.95	6741.19	3673.45	-5657.30	1742223.60	14386951.12	39°37'02.788"N	80°38'18.561"W	6745.31	302.997	5.85	0.23	5.85
14038.00	90.520	304.250	7504.06	6834.14	3724.40	-5735.09	1742145.84	14387002.05	39°37'03.294"N	80°38'19.552"W	6838.30	303.000	2.21	-0.06	2.20
14131.00	90.680	309.220	7503.09	6927.06	3780.00	-5809.49	1742071.37	14387057.64	39°37'03.847"N	80°38'20.502"W	6931.08	303.056	5.35	0.17	5.34

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Actual Wellpath Report

WJ Criswell 405 N-1H AWP Proj:16512'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	HGENERCS	Slot	Slot 01
Area	Wetzel County, WV	Well	WJ Criswell 405 N-1H
Field	Wetzel (M 17N NAD 27)	Wellbore	WJ Criswell 405 N-1H AWP
Facility	WJ Criswell 405 Pad		

WELLPATH DATA (238 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]
14224.00	90.180	311.450	7502.39	7019.65	3840.19	-5880.48	1742000.51	14387117.80	39°37'04.444"N	80°38'21.404"W	7023.33	303.146	2.46	-0.54	2.40
14317.00	90.150	307.700	7502.12	7112.34	3899.43	-5952.15	1741928.87	14387177.02	39°37'05.033"N	80°38'22.317"W	7115.73	303.230	4.03	-0.03	-4.03
14409.00	90.220	309.720	7501.82	7204.14	3956.96	-6023.93	1741857.11	14387234.53	39°37'05.604"N	80°38'23.231"W	7207.31	303.300	2.20	0.08	2.20
14502.00	90.220	305.550	7501.47	7297.02	4013.74	-6097.57	1741783.51	14387291.28	39°37'06.168"N	80°38'24.169"W	7300.03	303.355	4.48	0.00	-4.48
14593.00	90.090	305.060	7501.21	7390.02	4067.49	-6173.46	1741707.64	14387345.00	39°37'06.702"N	80°38'25.137"W	7392.97	303.380	0.55	-0.14	-0.53
14688.00	90.620	306.510	7500.64	7483.00	4121.86	-6248.90	1741632.23	14387399.36	39°37'07.243"N	80°38'26.098"W	7485.89	303.409	1.66	0.57	1.56
14780.00	90.490	300.600	7499.75	7574.93	4172.69	-6325.53	1741555.63	14387450.17	39°37'07.748"N	80°38'27.074"W	7577.84	303.411	6.43	-0.14	-6.42
14874.00	90.550	298.650	7498.89	7668.51	4219.15	-6407.24	1741473.95	14387496.61	39°37'08.211"N	80°38'28.116"W	7671.63	303.365	2.08	0.06	-2.07
14966.00	90.150	297.840	7498.33	7759.87	4262.69	-6488.28	1741392.94	14387540.13	39°37'08.644"N	80°38'29.149"W	7763.27	303.304	0.98	-0.43	-0.88
15056.00	90.090	298.480	7498.14	7849.23	4315.16	-6567.63	1741313.63	14387582.59	39°37'09.067"N	80°38'30.161"W	7852.91	303.245	0.71	-0.07	0.71
15148.00	89.940	305.380	7498.12	7941.04	4353.79	-6645.66	1741235.62	14387631.20	39°37'09.551"N	80°38'31.156"W	7944.83	303.230	7.50	-0.16	7.50
15232.00	89.910	305.690	7498.23	8025.03	4402.61	-6714.01	1741167.30	14387680.00	39°37'10.036"N	80°38'32.027"W	8028.76	303.254	0.37	-0.04	0.37
15317.00	89.600	306.580	7498.59	8110.02	4452.74	-6782.66	1741098.68	14387730.10	39°37'10.534"N	80°38'32.902"W	8113.65	303.284	1.11	-0.36	1.05
15405.00	89.540	310.050	7499.25	8197.85	4507.28	-6851.70	1741029.67	14387784.63	39°37'11.076"N	80°38'33.781"W	8201.30	303.338	3.94	-0.07	3.94
15494.00	89.480	313.950	7500.01	8286.17	4565.82	-6917.82	1740963.57	14387844.15	39°37'11.667"N	80°38'34.823"W	8289.28	303.431	4.38	-0.07	4.38
15583.00	89.450	307.200	7500.85	8374.69	4624.68	-6985.38	1740896.04	14387901.98	39°37'12.241"N	80°38'35.483"W	8377.54	303.507	7.58	-0.03	-7.58
15669.00	89.570	303.040	7501.58	8460.67	4674.14	-7055.70	1740825.74	14387951.42	39°37'12.733"N	80°38'36.379"W	8463.48	303.523	4.84	0.14	-4.84
15756.00	89.600	308.790	7502.21	8547.62	4725.15	-7126.13	1740755.34	14388002.41	39°37'13.240"N	80°38'37.277"W	8550.37	303.547	6.61	0.03	6.61
15844.00	89.630	311.880	7502.80	8635.23	4782.10	-7193.20	1740688.29	14388059.34	39°37'13.805"N	80°38'38.131"W	8637.75	303.616	3.51	0.03	3.51
15929.00	89.380	308.490	7503.54	8719.86	4836.94	-7258.13	1740623.39	14388114.16	39°37'14.350"N	80°38'38.958"W	8722.18	303.680	4.00	-0.29	-3.99
16015.00	89.540	304.980	7504.35	8805.81	4888.36	-7327.04	1740554.51	14388165.56	39°37'14.861"N	80°38'39.836"W	8808.04	303.710	4.09	0.19	-4.08
16099.00	90.340	305.280	7504.44	8889.81	4936.70	-7395.73	1740485.84	14388213.88	39°37'15.341"N	80°38'40.711"W	8892.01	303.723	1.02	0.95	0.36
16183.00	90.550	305.880	7503.78	8973.80	4985.57	-7464.05	1740417.55	14388262.73	39°37'15.827"N	80°38'41.582"W	8975.97	303.741	0.76	0.25	0.71
16273.00	90.490	300.770	7502.97	9063.73	5035.00	-7539.22	1740342.41	14388312.14	39°37'16.318"N	80°38'42.540"W	9065.93	303.737	5.68	-0.07	-5.68
16359.00	89.820	297.300	7502.73	9149.25	5076.73	-7614.40	1740267.26	14388353.86	39°37'16.733"N	80°38'43.499"W	9151.63	303.692	4.11	-0.78	-4.03
16445.00	89.720	298.880	7503.08	9234.62	5117.22	-7690.27	1740191.42	14388394.33	39°37'17.137"N	80°38'44.466"W	9237.22	303.640	1.84	-0.12	1.84
16488.00	89.600	300.890	7503.33	9277.44	5138.65	-7727.55	1740154.16	14388415.75	39°37'17.350"N	80°38'44.941"W	9280.12	303.623	4.68	-0.28	4.67
16512.00	89.600	300.890	7503.50	9301.38	5150.97	-7748.14	1740133.57	14388428.07	39°37'17.472"N	80°38'45.204"W	9304.10	303.616	0.00	0.00	0.00

Actual Wellpath Report

WJ Criswell 405 N-1H AWP Proj:16512'

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 Office of
 Records

REFERENCE WELLPATH IDENTIFICATION			
Operator	HG ENERGY	Slot	Slot 01
Area	Wetzel County, WV	Well	WJ Criswell 405 N-1H
Field	Wetzel (PTM 17N NAD 27)	Wellbore	WJ Criswell 405 N-1H AWB
Facility	WJ Criswell 405 Pad		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
405 N-1H LP		7381.00	161.86	-613.04	1747265.90	14383440.90	39°36'27.877"N	80°37'14.294"W	point
405 N-1H LP Rev-2		7431.00	237.98	-721.75	1747157.23	14383516.99	39°36'28.634"N	80°37'15.679"W	point
405 N-1H BHL Rev-4		7437.13	5156.00	-7745.51	1740136.20	14388433.10	39°37'17.522"N	80°38'45.170"W	point
405 N-1H LP Rev-4		7500.00	664.80	-1331.32	1746547.90	14383943.64	39°36'32.877"N	80°37'23.444"W	point

WELLPATH COMPOSITION - Ref Wellbore: WJ Criswell 405 N-1H AWB Ref Wellpath: WJ Criswell 405 N-1H AWP Proj:16512'				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
17.00	1264.00	Generic gyro - northseeking (Standard)	01_ADC Gyro 100'-1265'	WJ Criswell 405 N-1H AWB
1264.00	3516.00	ISCWSA MWD, Rev. 2 (Standard)	02_ADC MWD 12.25in Section 1379'-3517'	WJ Criswell 405 N-1H AWB
3516.00	16488.00	NaviTrak (AT Curve Short Spaced)	03_BH AT Curve 8.5in Section 3605'-16488'	WJ Criswell 405 N-1H AWB
16488.00	16512.00	Blind Drilling (std)	Projection to bit	WJ Criswell 405 N-1H AWB