

Location: Weitzel County, WV
 Field: Weitzel (UTM 17N NAD 27)
 Facility: Long 409 Pad

HG ENERGY

Slot: Slot #01A
 Well: Long 409 S-1HA
 Wellbore: Long 409 S-1HA PWB



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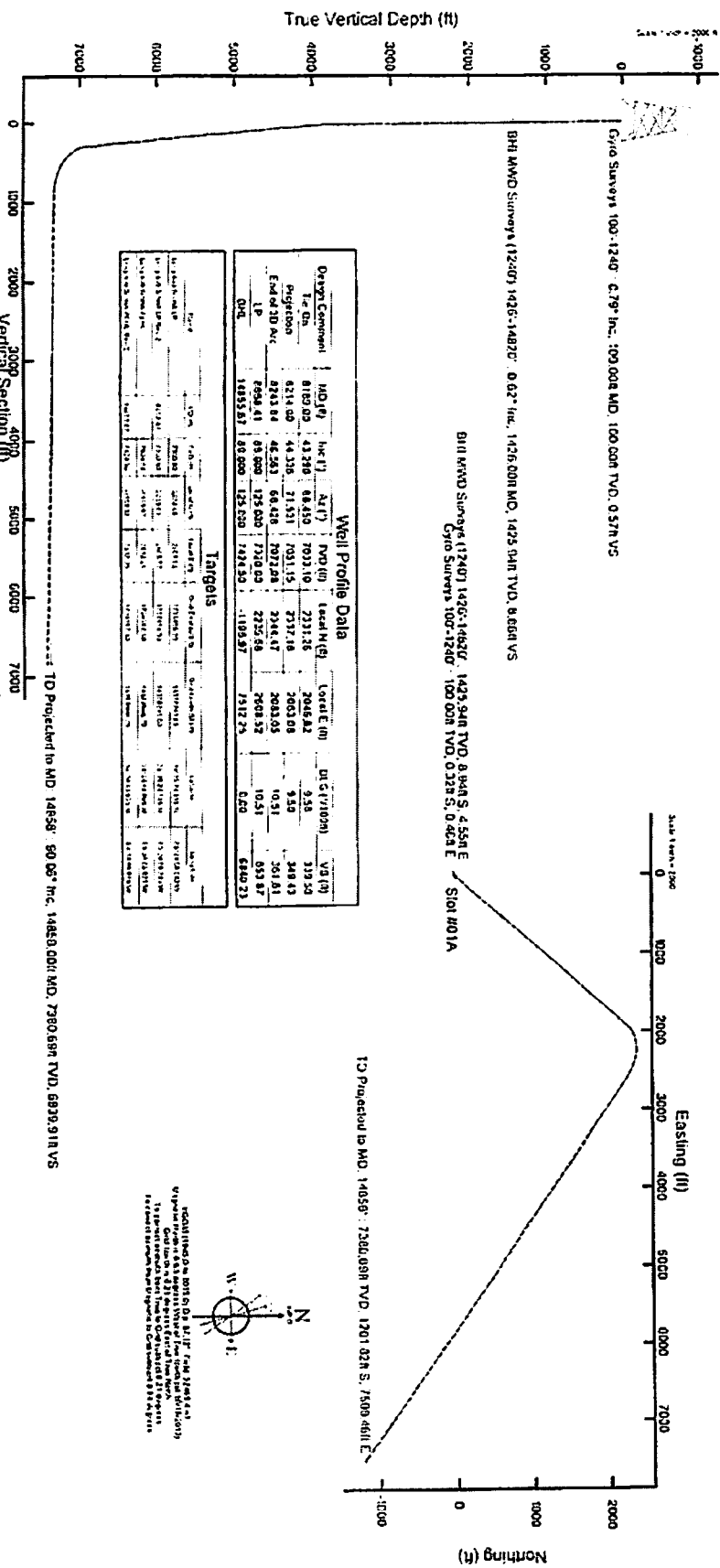
07/08/2016

Plot Reference Well Path is Long 409 S-1HA PWB Rev: C.0
 Well Name: Long 409 Pad
 Well ID: 100-1240-01
 Well Type: Production
 Well Status: Active
 Well Path: 100-1240-01-01
 Well Path Length: 1327.74 ft
 Well Path Depth: 1327.74 ft
 Well Path Orientation: 132.74°

Location Information	
Grid Easting (m)	672401.507 W
Grid Northing (m)	627011.701 W
Grid Elevation (m)	1327.74
Grid Section	1327.74
Grid UTM Zone	17N
Grid UTM Datum	NAD 27
Grid UTM Spheroid	Clarke 1866
Grid UTM Datum Shift	118.061
Grid UTM Scale Factor	0.999603
Grid UTM False Easting	500000.000
Grid UTM False Northing	10000000.000
Grid UTM False Elevation	118.061
Grid UTM False Section	1327.74

Well Data			
Well ID	100-1240-01	Well Name	Long 409 S-1HA
Well Path	100-1240-01-01	Well Path Length	1327.74
Well Path Depth	1327.74	Well Path Orientation	132.74°
Well Path UTM Zone	17N	Well Path UTM Datum	NAD 27
Well Path UTM Spheroid	Clarke 1866	Well Path UTM Datum Shift	118.061
Well Path UTM Scale Factor	0.999603	Well Path UTM False Easting	500000.000
Well Path UTM False Northing	10000000.000	Well Path UTM False Elevation	118.061
Well Path UTM False Section	1327.74		

API #: 47-103-02878-0000
 Rig: Dallas Morris 24
 BHJ Job #: 5792142
 Duration: 09/23/2013-10/15/2013



Well Profile Data									
Depth (ft)	MD (ft)	AT (ft)	MD (ft)	MD (ft)	Local N/E (ft)	Local E (ft)	UTM Easting (m)	UTM Northing (m)	UTM Elevation (m)
0	0	0	0	0	0	0	500000.000	10000000.000	118.061
1000	1000	1000	1000	1000	1000	1000	672401.507	627011.701	1327.74
2000	2000	2000	2000	2000	2000	2000	672401.507	627011.701	1327.74
3000	3000	3000	3000	3000	3000	3000	672401.507	627011.701	1327.74
4000	4000	4000	4000	4000	4000	4000	672401.507	627011.701	1327.74
5000	5000	5000	5000	5000	5000	5000	672401.507	627011.701	1327.74
6000	6000	6000	6000	6000	6000	6000	672401.507	627011.701	1327.74
7000	7000	7000	7000	7000	7000	7000	672401.507	627011.701	1327.74

Targets									
Target Name	Depth (ft)	MD (ft)	AT (ft)	MD (ft)	Local N/E (ft)	Local E (ft)	UTM Easting (m)	UTM Northing (m)	UTM Elevation (m)
Target 1	1000	1000	1000	1000	1000	1000	672401.507	627011.701	1327.74
Target 2	2000	2000	2000	2000	2000	2000	672401.507	627011.701	1327.74
Target 3	3000	3000	3000	3000	3000	3000	672401.507	627011.701	1327.74
Target 4	4000	4000	4000	4000	4000	4000	672401.507	627011.701	1327.74
Target 5	5000	5000	5000	5000	5000	5000	672401.507	627011.701	1327.74
Target 6	6000	6000	6000	6000	6000	6000	672401.507	627011.701	1327.74
Target 7	7000	7000	7000	7000	7000	7000	672401.507	627011.701	1327.74

Actual Wellpath Report

Long 409 S-1HA (AWP) Proj: 14858'
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WELLBATH IDENTIFICATION			
Operator	HG ENERGY	Slot	Slot #01A
Area	Wetzel County, WV	Well	Long 409 S-1HA
Field	Wetzel (UTM 17N NAD 27)	Wellbore	Long 409 S-1HA (AWB)
Facility	Long 409 Pad		

REPORT SETUP INFORMATION			
Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 4.0.1
North Reference	Grid	User	Steward
Scale	0.99961	Report Generated	10/18/2013 at 11:26:19 AM
Convergence at slot	0.21° East	Database/Source file	Well Architect Eastern/Long_409_S-1HA_AWB_.xml

	Local coordinates		Grid coordinates		Geographic coordinates	
	North(ft)	East(ft)	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-7.70	-12.91	1731847.80	14374705.20	39°35'02.104"N	80°40'31.762"W
Facility Reference Pt			1731860.70	14374712.90	39°35'02.180"N	80°40'31.597"W
Field Reference Pt			1731860.70	14374712.90	39°35'02.180"N	80°40'31.597"W

WELLBATH DATUM			
Calculation method	Minimum curvature	DM 24 (RT) to Facility Vertical Datum	18.00ft
Horizontal Reference Pt	Slot	DM 24 (RT) to Mean Sea Level	1358.00ft
Vertical Reference Pt	DM 24 (RT)	DM 24 (RT) to Mud Line at Slot (Slot #01A)	18.00ft
MID Reference Pt	DM 24 (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	125.00°

Actual Wellpath Report

Long 409 S-11A (AWP) Proj: 14858'
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Operator		HIG ENERGY	
Area		Wetzel County, WV	
Field		Wetzel (UTM 17N NAD 27)	
Facility		Long 409 Pad	
Slot		Well	
Slot #01A		Wellbore	
Long 409 S-11A		Long 409 S-11A (AWB)	

WELLPATH DATA (252 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	Terra Rate
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[°]	[%/100ft]	[%/100ft]	[%/100ft]
0.007	0.000	125.000	0.00	0.00	0.00	0.00	1731847.80	14374705.20	39°35'02.104"N	80°40'31.762"W	0.00	0.000	0.00	0.00	0.00
18.00	0.000	125.000	18.00	0.00	0.00	0.00	1731847.80	14374705.20	39°35'02.104"N	80°40'31.762"W	0.00	0.000	0.00	0.00	0.00
100.00	0.796	125.000	100.00	0.57	-0.32	0.46	1731848.26	14374704.88	39°35'02.101"N	80°40'31.756"W	0.57	125.000	0.96	0.96	0.00
200.00	0.390	201.900	199.99	1.33	-1.04	0.90	1731848.70	14374704.16	39°35'02.094"N	80°40'31.751"W	1.37	138.977	0.80	-0.40	76.90
300.00	0.690	90.800	299.99	1.91	-1.36	1.38	1731849.18	14374703.84	39°35'02.090"N	80°40'31.745"W	1.93	134.658	0.91	0.30	-111.10
400.00	0.900	159.500	399.98	3.05	-2.10	2.25	1731850.05	14374703.10	39°35'02.083"N	80°40'31.733"W	3.08	133.036	0.91	0.21	68.70
500.00	0.290	193.100	499.98	3.79	-3.09	2.47	1731850.27	14374702.12	39°35'02.073"N	80°40'31.731"W	3.95	141.316	0.68	-0.61	33.60
600.00	0.520	101.100	599.98	4.30	-3.42	2.86	1731850.66	14374701.78	39°35'02.070"N	80°40'31.726"W	4.46	140.106	0.60	0.23	-92.00
700.00	0.920	140.100	699.97	5.49	-4.12	3.82	1731851.62	14374701.08	39°35'02.063"N	80°40'31.714"W	5.62	137.192	0.61	0.40	39.00
800.00	0.460	212.500	799.96	6.29	-5.08	4.12	1731851.92	14374700.12	39°35'02.054"N	80°40'31.710"W	6.54	140.954	0.90	-0.46	72.40
900.00	0.220	89.700	899.96	6.46	-5.41	4.09	1731851.89	14374699.79	39°35'02.050"N	80°40'31.710"W	6.79	142.905	0.61	-0.24	-122.80
1000.00	0.260	201.800	999.96	6.67	-5.62	4.20	1731852.00	14374699.58	39°35'02.048"N	80°40'31.709"W	7.02	143.236	0.40	0.04	112.10
1100.00	0.650	111.000	1099.96	7.27	-6.04	4.65	1731852.45	14374699.16	39°35'02.044"N	80°40'31.703"W	7.62	142.416	0.70	0.39	-90.80
1200.00	0.980	176.000	1199.95	8.36	-7.69	5.24	1731853.03	14374698.11	39°35'02.034"N	80°40'31.696"W	8.82	143.569	0.92	0.33	65.00
1240.00	0.340	215.100	1239.95	8.57	-7.53	5.19	1731852.99	14374697.67	39°35'02.029"N	80°40'31.696"W	9.15	145.423	1.87	-1.60	97.75
1426.00	0.620	198.570	1425.94	8.86	-8.94	4.55	1731852.35	14374696.26	39°35'02.015"N	80°40'31.704"W	10.03	153.000	0.17	0.15	-8.89
1489.00	1.030	63.970	1488.94	9.23	-9.01	4.95	1731852.75	14374696.19	39°35'02.015"N	80°40'31.699"W	10.29	151.201	2.43	0.65	-213.65
1553.00	3.670	51.950	1552.88	10.10	-7.50	7.09	1731854.88	14374697.70	39°35'02.030"N	80°40'31.672"W	10.32	136.622	4.17	-4.12	-18.78
1616.00	6.460	48.610	1615.63	11.53	-3.91	11.33	1731859.13	14374701.29	39°35'02.065"N	80°40'31.618"W	11.99	109.042	4.45	4.43	-5.30
1679.00	7.740	47.050	1678.14	13.25	1.32	17.10	1731864.89	14374706.52	39°35'02.116"N	80°40'31.544"W	17.15	85.576	2.05	2.03	-2.48
1743.00	8.170	45.300	1741.53	14.96	7.46	23.48	1731871.27	14374712.65	39°35'02.177"N	80°40'31.462"W	24.64	72.382	0.77	0.67	-2.73
1806.00	7.680	40.490	1803.92	16.16	13.81	29.40	1731877.19	14374719.00	39°35'02.239"N	80°40'31.386"W	32.48	64.842	1.31	-0.78	-7.63
1869.00	7.190	37.090	1866.39	16.71	20.43	34.51	1731882.30	14374725.35	39°35'02.302"N	80°40'31.320"W	39.96	59.714	1.04	-0.78	-5.40
1932.00	6.680	33.970	1928.93	16.79	26.34	38.94	1731886.72	14374731.53	39°35'02.363"N	80°40'31.264"W	47.01	55.923	1.01	-0.81	-4.95
1995.00	6.290	31.300	1991.53	16.50	32.33	42.78	1731890.56	14374737.51	39°35'02.422"N	80°40'31.214"W	53.62	52.921	0.98	-0.62	-4.24
2059.00	6.380	36.950	2055.14	16.39	38.16	46.73	1731894.52	14374743.35	39°35'02.479"N	80°40'31.163"W	60.34	50.765	0.98	-0.62	8.83
2122.00	5.850	40.420	2117.78	16.82	43.41	50.92	1731898.60	14374748.59	39°35'02.531"N	80°40'31.110"W	66.91	49.555	1.03	-0.84	5.51
2185.00	5.030	43.730	2180.50	17.34	47.85	54.91	1731902.79	14374753.03	39°35'02.575"N	80°40'31.059"W	72.83	48.934	1.39	-1.30	5.23
2249.00	4.520	36.900	2244.28	18.05	51.89	58.37	1731906.14	14374757.07	39°35'02.615"N	80°40'31.014"W	78.10	48.361	1.19	-0.80	-10.67
2312.00	4.450	34.740	2307.08	18.12	55.88	61.25	1731909.02	14374761.06	39°35'02.654"N	80°40'30.977"W	82.91	47.623	0.29	-0.11	-3.43

Actual Wellpath Report

Long 409 S-11A (AWP) Prof: 14858'
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Operator	Wetzel Energy	Slot	Slot #01A
Area	Wetzel County, WV	Well	Long 409 S-11A
Field	Wetzel (UTM 17N NAD 27)	Wellbore	Long 409 S-11A (AWB)
Facility	Long 409 Pad		

WELLPATH DATA (252 stations)

ID	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 [ft/100ft]	Build Rate [ft/100ft]	Turn Rate [ft/100ft]
2374.00	4.550	31.990	2368.89	17.98	59.95	63.92	1731911.70	14374765.12	39°35'02.694"N	80°40'30.943"W	87.63	46.839	0.38	0.16	-4.44
2437.00	4.610	38.180	2431.69	17.99	64.06	66.81	1731914.58	14374769.23	39°35'02.733"N	80°40'30.906"W	92.56	46.206	0.79	0.10	9.83
2500.00	4.190	40.160	2494.49	18.35	67.93	69.97	1731917.74	14374773.10	39°35'02.773"N	80°40'30.865"W	97.52	45.846	0.31	-0.19	3.14
2563.00	4.140	36.790	2557.31	18.64	71.64	72.92	1731920.69	14374776.81	39°35'02.809"N	80°40'30.828"W	102.22	45.508	0.69	-0.56	-5.35
2626.00	3.540	41.340	2620.17	18.93	74.92	75.57	1731923.34	14374780.09	39°35'02.842"N	80°40'30.794"W	106.41	45.247	1.07	-0.95	7.22
2689.00	2.880	37.010	2683.07	19.20	77.64	77.80	1731925.57	14374782.81	39°35'02.868"N	80°40'30.765"W	109.92	45.059	1.12	-1.05	-6.87
2752.00	2.640	39.790	2746.00	19.38	80.02	79.68	1731927.45	14374785.19	39°35'02.892"N	80°40'30.741"W	112.93	44.879	0.44	-0.38	4.41
2816.00	2.100	38.640	2809.95	19.57	82.07	81.36	1731929.13	14374787.24	39°35'02.920"N	80°40'30.719"W	115.56	44.751	0.85	-0.84	-1.80
2879.00	2.000	35.940	2872.91	19.66	83.86	82.75	1731930.49	14374789.03	39°35'02.950"N	80°40'30.702"W	117.80	44.610	0.22	-0.16	-4.29
2942.00	1.380	26.370	2935.88	19.57	85.43	85.71	1731931.47	14374790.60	39°35'02.945"N	80°40'30.689"W	119.60	44.417	1.08	-0.98	-15.19
3006.00	1.240	25.850	2999.86	19.34	86.74	84.35	1731932.12	14374791.91	39°35'02.958"N	80°40'30.681"W	120.99	44.199	0.22	-0.22	-0.81
3069.00	0.870	21.960	3062.85	19.13	87.80	84.83	1731933.29	14374792.97	39°35'02.969"N	80°40'30.675"W	122.08	44.013	0.60	-0.59	-6.17
3132.00	0.870	28.440	3125.84	18.96	88.66	85.23	1731933.09	14374793.83	39°35'02.977"N	80°40'30.669"W	122.99	43.870	0.16	0.00	10.29
3196.00	0.560	10.960	3189.84	18.78	89.40	85.53	1731933.29	14374794.56	39°35'02.984"N	80°40'30.666"W	123.72	43.731	0.59	-0.48	-27.31
3259.00	0.440	51.270	3252.84	18.72	89.85	85.77	1731933.54	14374795.02	39°35'02.989"N	80°40'30.663"W	124.22	43.669	0.58	-0.19	63.98
3322.00	0.380	53.170	3315.83	18.86	90.13	86.13	1731933.89	14374795.29	39°35'02.992"N	80°40'30.658"W	124.67	43.700	0.10	-0.10	3.02
3385.00	0.310	342.160	3378.83	18.79	90.42	86.24	1731934.01	14374795.58	39°35'02.994"N	80°40'30.656"W	124.95	43.647	0.64	-0.11	-112.71
3466.00	0.160	47.230	3459.83	18.63	90.70	86.26	1731934.03	14374795.87	39°35'02.997"N	80°40'30.656"W	125.17	43.562	0.35	-0.19	80.33
3528.00	0.120	98.310	3521.83	18.71	90.75	86.39	1731934.15	14374795.92	39°35'02.998"N	80°40'30.655"W	125.29	43.589	0.20	-0.06	82.39
3592.00	0.740	45.570	3585.83	18.85	91.03	86.75	1731934.51	14374796.20	39°35'03.000"N	80°40'30.650"W	125.75	43.620	1.05	0.97	-82.41
3624.00	3.300	35.290	3617.81	18.89	91.93	87.43	1731935.19	14374797.09	39°35'03.009"N	80°40'30.641"W	126.86	43.563	8.05	8.00	-32.12
3655.00	5.670	33.040	3648.71	18.84	93.94	88.78	1731936.54	14374799.10	39°35'03.029"N	80°40'30.624"W	129.25	43.382	7.66	7.66	-7.26
3686.00	8.650	32.120	3679.47	18.67	97.20	90.85	1731938.62	14374802.36	39°35'03.061"N	80°40'30.597"W	133.05	43.068	9.62	9.61	-2.97
3718.00	11.850	35.850	3710.95	18.60	101.90	94.06	1731941.82	14374807.06	39°35'03.108"N	80°40'30.556"W	138.68	42.708	10.21	10.00	11.66
3750.00	15.600	40.800	3742.03	19.08	107.82	98.80	1731946.56	14374812.98	39°35'03.166"N	80°40'30.492"W	146.24	42.498	12.27	11.72	15.47
3781.00	18.920	46.270	3771.63	20.49	114.46	105.15	1731952.91	14374819.61	39°35'03.231"N	80°40'30.414"W	155.43	42.575	11.91	10.71	17.65
3812.00	22.460	48.940	3800.63	22.90	121.82	113.25	1731961.01	14374826.97	39°35'03.304"N	80°40'30.310"W	166.33	42.912	11.82	11.42	8.61
3844.00	24.410	49.640	3829.99	26.04	130.12	122.90	1731970.65	14374833.27	39°35'03.386"N	80°40'30.186"W	178.99	43.366	6.16	6.09	2.19
3875.00	25.970	49.180	3858.04	29.32	138.71	132.92	1731980.67	14374843.85	39°35'03.470"N	80°40'30.058"W	192.11	43.780	5.07	5.05	-1.48
3907.00	28.670	46.580	3886.47	32.58	148.56	143.80	1731991.54	14374853.71	39°35'03.567"N	80°40'29.919"W	206.76	44.066	9.22	8.44	-8.12

Actual Wellpath Report
 Long 409 S-1HA (AWP) Proj: 14858'
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Operator	HIG ENERGY	Slot	Slot #01A
Area	Wetzel County, WV	Well	Long 409 S-1HA
Field	Wetzel (UTM 17N NAD 27)	Wellbore	Long 409 S-1HA (AWB)
Facility	Long 409 Pad		

WELLPATH DATA (252 stations)															
ID	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)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(°/100ft)	(°/100ft)	(°/100ft)
3939.00	31.990	44.350	3914.09	35.50	159.90	155.30	1732003.04	14374865.04	39°35'03.679"N	80°40'29.771"W	222.91	44.164	10.95	10.37	-6.97
3970.00	34.740	42.580	3939.98	38.00	172.28	167.02	1732014.76	14374877.42	39°35'03.801"N	80°40'29.621"W	239.95	44.112	9.41	8.87	-5.71
4002.00	38.510	39.840	3965.66	40.04	186.65	1732027.31	14374891.78	39°35'03.942"N	80°40'29.460"W	259.01	43.894	12.84	11.78	-8.56	
4033.00	41.420	37.610	3989.41	41.33	202.19	192.02	1732039.75	14374907.31	39°35'04.092"N	80°40'29.300"W	278.84	43.523	10.46	9.39	-7.19
4065.00	43.760	38.120	4012.97	42.41	219.28	205.32	1732053.04	14374921.40	39°35'04.264"N	80°40'29.150"W	300.40	43.116	7.39	7.31	-1.59
4096.00	43.840	39.460	4035.35	43.83	236.01	218.76	1732066.47	14374941.11	39°35'04.429"N	80°40'28.957"W	321.80	42.828	3.00	0.26	4.32
4159.00	43.790	40.810	4080.81	47.73	269.35	246.87	1732094.58	14374974.45	39°35'04.757"N	80°40'28.597"W	365.37	42.507	1.49	-0.08	2.14
4223.00	43.680	40.150	4127.05	51.96	303.01	275.60	1732123.29	14375008.09	39°35'05.089"N	80°40'28.228"W	409.59	42.288	0.73	-0.17	-1.03
4286.00	43.940	39.600	4171.97	55.66	336.48	303.56	1732151.24	14375041.54	39°35'05.418"N	80°40'27.870"W	453.17	42.055	0.73	-0.41	-0.87
4349.00	43.700	39.580	4217.97	59.15	370.09	331.35	1732179.02	14375075.15	39°35'05.750"N	80°40'27.513"W	496.75	41.839	0.38	-0.38	-0.03
4412.00	43.860	38.530	4263.46	62.24	403.94	358.82	1732206.48	14375108.98	39°35'06.083"N	80°40'27.161"W	540.29	41.614	1.18	0.25	-1.67
4475.00	43.580	38.460	4308.99	64.89	438.02	385.92	1732233.57	14375143.05	39°35'06.419"N	80°40'26.813"W	583.78	41.382	0.45	-0.44	-0.11
4537.00	43.780	38.880	4353.83	67.63	471.45	412.67	1732260.31	14375176.46	39°35'06.749"N	80°40'26.470"W	626.55	41.197	0.57	-0.32	0.68
4600.00	42.700	40.150	4399.72	71.02	504.75	440.13	1732287.76	14375209.75	39°35'07.077"N	80°40'26.117"W	669.69	41.088	2.20	-1.71	2.02
4664.00	42.630	40.380	4446.78	75.00	537.84	468.16	1732315.78	14375242.83	39°35'07.403"N	80°40'25.758"W	713.06	41.038	0.27	-0.11	0.36
4727.00	42.910	39.890	4493.03	78.83	570.55	495.74	1732343.34	14375275.53	39°35'07.725"N	80°40'25.404"W	755.83	40.987	0.69	0.44	-0.78
4790.00	42.840	41.690	4539.20	83.16	603.00	523.74	1732371.33	14375307.96	39°35'08.045"N	80°40'25.045"W	798.69	40.976	1.95	-0.11	2.86
4853.00	42.590	43.920	4585.49	88.96	634.35	552.77	1732400.36	14375339.30	39°35'08.354"N	80°40'24.673"W	841.40	41.069	2.43	-0.40	3.54
4916.00	42.650	39.680	4631.86	94.00	666.14	581.19	1732428.77	14375371.08	39°35'08.667"N	80°40'24.308"W	884.04	41.104	4.56	0.71	-6.73
4978.00	43.090	36.380	4677.31	96.23	699.36	607.17	1732454.73	14375404.28	39°35'09.045"N	80°40'23.975"W	926.15	40.964	3.69	0.10	-5.32
5040.00	43.130	38.850	4722.57	98.16	732.92	633.03	1732480.58	14375437.81	39°35'09.325"N	80°40'23.643"W	968.45	40.817	2.72	0.06	3.98
5103.00	43.010	40.990	4768.60	101.85	765.91	660.63	1732508.17	14375470.83	39°35'09.650"N	80°40'23.289"W	1011.46	40.779	2.33	-0.19	3.40
5166.00	42.890	41.770	4814.74	106.62	798.09	688.98	1732536.51	14375502.98	39°35'09.967"N	80°40'22.925"W	1054.34	40.804	0.91	-0.33	1.24
5230.00	42.960	41.800	4861.64	111.76	830.56	718.00	1732565.52	14375535.44	39°35'10.287"N	80°40'22.553"W	1097.89	40.843	0.25	0.25	0.05
5293.00	42.880	41.330	4907.78	116.66	862.66	746.46	1732593.97	14375567.52	39°35'10.603"N	80°40'22.188"W	1140.79	40.870	0.53	-0.13	-0.76
5356.00	42.940	41.180	4953.92	121.33	894.91	774.74	1732622.24	14375599.76	39°35'10.921"N	80°40'21.825"W	1183.68	40.883	0.18	0.10	-0.22
5419.00	43.060	41.340	5000.00	126.02	927.21	803.08	1732650.56	14375632.05	39°35'11.239"N	80°40'21.462"W	1226.64	40.897	0.26	0.19	0.25
5482.00	43.140	40.690	5046.00	130.53	959.69	831.33	1732678.80	14375664.51	39°35'11.559"N	80°40'21.100"W	1269.69	40.901	0.72	0.13	-1.03
5545.00	42.940	39.550	5092.04	134.36	992.57	859.03	1732706.50	14375697.38	39°35'11.883"N	80°40'20.744"W	1312.68	40.875	1.28	-0.32	-1.81
5607.00	42.920	38.860	5137.44	137.46	1025.29	885.73	1732733.18	14375730.09	39°35'12.205"N	80°40'20.402"W	1354.89	40.823	0.76	-0.03	-1.11

Actual Wellpath Report

Long 409 S-11A (AWP) Prof: 14858'
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Operator	HG ENERGY	Slot	Slot #01A
Area	Wetzel County, WV	Well	Long 409 S-11A
Field	Wetzel (UTM 17N NAD 27)	Wellbore	Long 409 S-11A (AWB)
Facility	Long 409 Pad		

WELLPATH DATA (252 stations)

MDI	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Built Rate	Turn Rate
ft	pt	pt	ft	ft	ft	ft	ft	ft	°N	°W	ft	pt	pt/100ft	pt/100ft	pt/100ft
5670.00	43.080	38.320	5183.51	140.15	1058.87	912.52	1732759.97	14375763.66	39°35'12.536"N	80°40'20.058"W	1397.83	40.754	0.64	0.25	-0.86
5733.00	42.870	39.240	5229.61	142.98	1092.35	939.42	1732786.85	14375977.12	39°35'12.866"N	80°40'19.713"W	1440.75	40.695	1.05	-0.33	1.46
5796.00	43.020	39.790	5275.72	146.36	1125.46	966.73	1732814.15	14375830.22	39°35'13.192"N	80°40'19.363"W	1483.66	40.661	0.64	0.24	0.87
5839.00	43.020	40.190	5321.78	150.10	1158.40	994.35	1732841.76	14375863.14	39°35'13.517"N	80°40'19.008"W	1526.64	40.642	0.43	0.00	0.63
5921.00	42.600	41.340	5367.27	154.33	1190.31	1021.86	1732869.26	14375895.04	39°35'13.831"N	80°40'18.655"W	1568.77	40.646	1.43	-0.68	1.85
5984.00	42.580	41.220	5413.65	158.99	1222.35	1049.99	1732897.38	14375927.07	39°35'14.147"N	80°40'18.295"W	1611.40	40.662	0.13	-0.03	-0.19
6047.00	42.870	40.930	5459.93	163.52	1254.57	1078.08	1732925.45	14375959.28	39°35'14.464"N	80°40'17.934"W	1654.14	40.673	0.56	0.46	-0.46
6109.00	42.850	39.770	5505.38	167.45	1286.71	1105.38	1732952.75	14375991.40	39°35'14.781"N	80°40'17.584"W	1696.32	40.665	1.27	-0.03	-1.87
6173.00	43.220	39.500	5552.16	170.98	1320.34	1133.24	1732980.60	14376025.03	39°35'15.112"N	80°40'17.227"W	1739.98	40.639	0.65	0.58	-0.42
6237.00	43.010	40.640	5598.88	174.84	1353.82	1161.40	1733008.74	14376058.49	39°35'15.442"N	80°40'16.866"W	1783.72	40.625	1.26	-0.33	1.78
6299.00	42.970	40.470	5644.23	178.94	1385.94	1188.88	1733036.22	14376090.59	39°35'15.759"N	80°40'16.513"W	1826.00	40.624	0.20	-0.06	-0.27
6363.00	43.180	40.860	5690.98	183.25	1419.09	1217.37	1733064.69	14376123.74	39°35'16.085"N	80°40'16.148"W	1869.71	40.625	0.53	0.33	0.61
6426.00	43.130	43.780	5736.94	188.37	1451.20	1246.10	1733093.41	14376155.83	39°35'16.402"N	80°40'15.779"W	1912.78	40.652	2.09	-0.08	3.05
6488.00	42.700	45.630	5782.35	195.11	1481.46	1275.52	1733122.82	14376186.08	39°35'16.700"N	80°40'15.402"W	1954.91	40.728	3.21	-0.69	4.60
6552.00	42.910	43.150	5829.31	202.21	1512.54	1305.94	1733153.22	14376217.14	39°35'17.006"N	80°40'15.012"W	1998.31	40.808	2.65	0.33	-3.87
6615.00	42.710	37.550	5875.55	206.20	1545.13	1333.63	1733180.91	14376249.72	39°35'17.327"N	80°40'14.657"W	2041.08	40.798	0.05	-0.33	-8.89
6678.00	42.680	38.500	5921.86	208.45	1578.78	1359.95	1733207.21	14376283.36	39°35'17.658"N	80°40'14.319"W	2083.75	40.741	1.02	-0.03	1.51
6741.00	42.770	41.770	5968.14	212.28	1611.45	1387.49	1733234.75	14376316.02	39°35'17.980"N	80°40'13.966"W	2126.48	40.729	3.52	0.14	5.19
6805.00	42.660	43.490	6015.17	218.04	1643.39	1416.89	1733264.14	14376347.94	39°35'18.295"N	80°40'13.589"W	2169.86	40.767	1.83	0.17	2.69
6867.00	42.830	42.390	6060.70	223.85	1674.19	1445.56	1733292.79	14376378.74	39°35'18.598"N	80°40'13.221"W	2211.91	40.808	1.24	-0.27	-1.77
6930.00	42.820	39.960	6106.91	228.46	1706.42	1473.75	1733320.97	14376410.95	39°35'18.916"N	80°40'12.859"W	2254.73	40.815	2.62	-0.02	-3.86
6993.00	42.870	41.140	6153.10	233.60	1738.97	1501.60	1733348.81	14376443.49	39°35'19.236"N	80°40'12.502"W	2297.57	40.810	1.28	0.08	1.87
7057.00	42.710	42.260	6200.07	237.67	1771.43	1530.52	1733377.72	14376475.94	39°35'19.556"N	80°40'12.131"W	2341.04	40.827	1.21	-0.25	1.75
7120.00	42.750	40.870	6246.35	242.56	1803.42	1558.88	1733406.07	14376507.91	39°35'19.871"N	80°40'11.768"W	2383.78	40.840	1.50	0.06	2.21
7183.00	42.850	38.210	6292.57	245.95	1836.42	1586.12	1733433.30	14376540.90	39°35'20.196"N	80°40'11.418"W	2426.57	40.817	2.87	0.16	-4.22
7246.00	42.850	38.360	6338.76	248.40	1870.05	1612.67	1733459.84	14376574.52	39°35'20.528"N	80°40'11.077"W	2469.37	40.773	0.16	0.00	0.24
7308.00	42.710	40.760	6384.27	251.75	1902.51	1639.48	1733486.64	14376606.97	39°35'20.848"N	80°40'10.733"W	2514.17	40.770	2.64	-0.23	3.87
7371.00	42.710	42.820	6430.57	256.80	1934.37	1667.96	1733515.10	14376638.81	39°35'21.162"N	80°40'10.368"W	2554.19	40.770	2.22	0.00	3.27
7434.00	42.680	41.120	6476.87	261.98	1966.13	1696.52	1733543.66	14376670.56	39°35'21.474"N	80°40'10.002"W	2596.89	40.790	1.83	-0.05	-2.70
7497.00	42.800	38.350	6523.14	265.51	1999.00	1723.85	1733570.97	14376703.42	39°35'21.798"N	80°40'09.651"W	2639.63	40.773	2.99	0.19	-4.40

Actual Wellpath Report

Long 409 S-11A (AWP) Proj: 14858'
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Operator		HIG ENERGY		Slot	Slot #01A
Area		Weizel County, WV		Well	Long 409 S-11A
Field		Weizel (UTM 17N NAD 27)		Wellbore	Long 409 S-11A (AWB)
Facility		Long 409 Pad			

WELLPATH DATA (252 stations)

MD ID	Station	Asynch ID	TVD ID	Vert ID	North ID	East ID	Grid East ID	Grid North ID	Latitude	Longitude	Closure ID	Closure Dir	DLS ID	Built ID	Turn ID
7560.00	42.660	37.990	6569.42	267.88	2032.61	1750.27	1733597.38	14376737.01	39°35'22.129"N	80°40'09.312"W	2682.34	40.731	0.45	-0.22	-0.57
7621.00	42.710	40.740	6616.17	271.18	2066.15	1777.78	1733624.88	14376770.51	39°35'22.460"N	80°40'08.959"W	2725.71	40.710	2.91	0.08	4.30
7686.00	42.820	43.910	6661.99	276.55	2097.27	1806.12	1733653.21	14376801.64	39°35'22.766"N	80°40'08.506"W	2767.78	40.734	3.48	0.18	5.11
7749.00	42.970	45.810	6708.15	283.89	2127.66	1836.37	1733683.45	14376832.02	39°35'23.066"N	80°40'08.208"W	2810.55	40.797	2.07	0.24	3.02
7812.00	42.770	42.740	6754.33	290.80	2158.34	1866.28	1733713.35	14376862.69	39°35'23.368"N	80°40'07.824"W	2853.32	40.849	3.33	-0.32	-4.87
7875.00	42.730	38.130	6800.60	294.85	2190.87	1894.00	1733741.06	14376895.21	39°35'23.688"N	80°40'07.469"W	2896.06	40.843	4.97	-0.06	-7.32
7937.00	42.780	36.860	6846.13	296.68	2224.26	1919.62	1733766.67	14376928.59	39°35'24.017"N	80°40'07.140"W	2938.08	40.795	1.39	0.08	-2.05
8000.00	42.700	38.940	6892.40	298.84	2258.00	1945.88	1733792.92	14376962.31	39°35'24.350"N	80°40'06.803"W	2980.77	40.754	2.24	-0.13	3.30
8063.00	42.320	44.260	6915.26	301.24	2273.65	1959.78	1733806.81	14376992.71	39°35'24.649"N	80°40'06.426"W	3023.00	40.760	11.66	-1.23	17.16
8095.00	41.690	48.570	6939.04	305.47	2288.41	1975.28	1733822.30	14377005.91	39°35'24.779"N	80°40'06.214"W	3043.81	40.873	11.98	-1.38	17.97
8126.00	41.220	54.320	6963.03	311.46	2301.61	1991.83	1733838.85	14377005.91	39°35'24.779"N	80°40'06.214"W	3043.81	40.873	11.98	-1.38	17.97
8157.00	41.920	58.880	6986.35	318.98	2312.85	2008.88	1733855.89	14377017.14	39°35'24.890"N	80°40'05.996"W	3063.48	40.977	9.69	-0.10	14.71
8189.00	43.290	64.400	7009.55	328.20	2322.61	2026.97	1733873.97	14377026.90	39°35'24.985"N	80°40'05.764"W	3082.71	41.112	12.03	2.26	17.81
8252.00	45.410	72.200	7055.99	332.44	2338.78	2067.88	1733893.82	14377035.55	39°35'25.070"N	80°40'05.510"W	3102.30	41.283	9.58	4.28	12.66
8321.00	47.540	75.190	7077.34	366.50	2345.07	2089.45	1733914.87	14377043.06	39°35'25.144"N	80°40'05.241"W	3121.86	41.482	10.53	6.63	11.72
8384.00	50.100	78.100	7098.37	382.53	2350.63	2112.91	1733929.88	14377054.91	39°35'25.259"N	80°40'04.965"W	3140.89	41.701	9.80	6.87	9.65
8316.00	52.660	80.630	7118.30	400.04	2355.24	2137.52	1733984.48	14377059.52	39°35'25.304"N	80°40'04.665"W	3160.68	41.951	11.02	8.63	9.09
8347.00	52.990	80.870	7137.12	417.69	2359.20	2161.83	1734008.78	14377063.48	39°35'25.342"N	80°40'04.410"W	3180.59	42.226	9.62	7.37	7.91
8379.00	54.020	83.330	7156.24	436.48	2362.72	2187.24	1734034.18	14377067.00	39°35'25.376"N	80°40'04.175"W	3219.70	42.791	7.61	4.47	7.69
8411.00	56.270	87.190	7174.53	456.67	2364.88	2213.40	1734060.33	14377069.74	39°35'25.396"N	80°40'03.981"W	3239.11	43.105	12.14	5.12	12.06
8443.00	57.910	90.280	7191.92	478.33	2365.47	2240.26	1734087.18	14377070.95	39°35'25.401"N	80°40'03.838"W	3257.94	43.443	9.59	7.03	9.66
8474.00	59.180	93.140	7208.12	500.43	2364.67	2266.67	1734113.58	14377068.95	39°35'25.392"N	80°40'02.700"W	3275.59	43.788	8.75	3.84	9.23
8506.00	60.490	95.850	7224.22	524.25	2362.50	2294.24	1734141.14	14377066.77	39°35'25.370"N	80°40'02.348"W	3293.17	44.160	8.51	4.34	8.47
8538.00	62.660	100.020	7239.45	549.31	2358.61	2322.10	1734168.99	14377062.88	39°35'25.330"N	80°40'01.993"W	3309.86	44.553	13.31	6.78	13.03
8570.00	65.300	102.890	7253.49	575.67	2352.89	2350.27	1734197.15	14377057.17	39°35'25.273"N	80°40'01.633"W	3325.64	44.968	11.53	8.25	8.97
8601.00	68.520	106.420	7265.65	602.40	2345.67	2377.85	1734224.72	14377049.95	39°35'25.201"N	80°40'01.281"W	3340.11	45.390	14.75	10.39	11.39
8633.00	71.100	108.940	7276.70	631.07	2336.54	2406.46	1734253.31	14377040.83	39°35'25.109"N	80°40'00.916"W	3354.17	45.845	10.94	8.06	7.87
8665.00	74.060	111.900	7286.28	660.61	2325.89	2435.06	1734281.91	14377030.17	39°35'25.003"N	80°40'00.551"W	3367.39	46.314	12.78	9.25	9.25
8697.00	75.380	113.770	7294.71	690.79	2313.91	2463.51	1734310.34	14377018.20	39°35'24.884"N	80°40'00.189"W	3379.80	46.794	6.99	4.13	5.84

Actual Wellpath Report
 Long 409 S-1HA (AWP) Proj: 14858'
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Operator	HIG ENERGY	Slot	Slot #01A
Area	Wetzel County, WV	Well	Long 409 S-1HA
Field	Wetzel (UTM 17N NAD 27)	Wellbore	Long 409 S-1HA (AWB)
Facility	Long 409 Pad		

WELLPATH DATA (252 stations)

MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (ftUS)	Grid North (ftUS)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8728.00	75.3501	115.330	7302.54	720.28	2301.45	2490.79	1734337.61	14377005.74	39°35'24.759"N	80°39'59.841"W	3391.27	47.263	-4.87	-0.10	5.03
8760.00	77.2801	117.590	7310.11	751.03	2287.59	2518.62	1734365.43	14376991.89	39°35'24.621"N	80°39'59.486"W	3402.43	47.752	9.14	6.03	7.06
8791.00	79.4401	120.030	7316.37	781.21	2272.96	2545.22	1734392.02	14376977.27	39°35'24.476"N	80°39'59.147"W	3412.40	48.234	10.39	6.97	7.87
8823.00	81.3501	121.510	7321.71	812.67	2256.82	2572.33	1734419.12	14376961.13	39°35'24.315"N	80°39'58.801"W	3422.00	48.738	7.51	5.97	4.63
8854.00	84.1401	123.140	7325.62	843.39	2240.38	2598.31	1734445.09	14376944.70	39°35'24.152"N	80°39'58.470"W	3430.82	49.231	10.40	9.00	5.26
8886.00	85.5901	124.310	7328.49	875.25	2222.68	2624.82	1734471.59	14376927.01	39°35'23.976"N	80°39'58.132"W	3439.47	49.742	5.81	4.53	3.66
8918.00	87.0101	125.130	7330.55	907.18	2204.49	2651.06	1734497.82	14376908.83	39°35'23.795"N	80°39'57.798"W	3447.89	50.255	5.12	4.14	2.56
8950.00	88.0601	125.190	7331.93	939.15	2186.08	2677.20	1734523.95	14376890.42	39°35'23.612"N	80°39'57.465"W	3456.35	50.766	3.29	3.28	1.19
9013.00	89.4201	123.970	7333.32	1002.13	2150.34	2729.06	1734575.79	14376875.79	39°35'23.257"N	80°39'56.804"W	3474.43	51.764	2.90	2.16	-1.94
9076.00	87.2301	122.850	7335.16	1065.07	2115.66	2781.62	1734628.33	14376862.03	39°35'22.913"N	80°39'56.155"W	3494.77	52.744	3.90	3.48	-1.78
9140.00	87.5701	125.120	7338.06	1128.99	2079.93	2834.63	1734681.32	14376847.54	39°35'22.557"N	80°39'55.459"W	3515.85	53.730	3.58	0.53	3.55
9203.00	87.2901	126.420	7340.89	1191.92	2043.14	2885.69	1734732.36	14376832.36	39°35'22.192"N	80°39'54.809"W	3535.77	54.701	2.11	-0.44	2.06
9266.00	89.3801	125.460	7342.72	1254.88	2006.18	2936.67	1734783.32	14376817.60	39°35'21.825"N	80°39'54.159"W	3558.41	56.610	1.20	0.49	-1.10
9329.00	89.6901	126.150	7343.23	1317.87	1969.33	2987.77	1734834.39	14376802.75	39°35'21.459"N	80°39'53.509"W	3578.41	57.562	0.77	0.05	-0.77
9393.00	89.7201	125.660	7343.56	1381.87	1931.80	3039.60	1734885.21	14376787.24	39°35'21.086"N	80°39'52.848"W	3601.53	58.484	0.93	-0.10	-0.92
9456.00	89.6601	125.080	7343.90	1444.86	1895.33	3090.98	1734937.56	14376772.56	39°35'20.714"N	80°39'52.194"W	3625.80	59.391	0.41	0.00	-0.41
9519.00	89.6601	124.820	7344.27	1507.86	1859.24	3142.61	1734989.18	14376757.81	39°35'20.365"N	80°39'51.536"W	3651.41	60.275	0.41	0.00	-0.41
9582.00	89.6001	122.600	7344.68	1570.84	1824.28	3195.02	1735041.56	14376742.76	39°35'20.018"N	80°39'50.868"W	3679.15	61.128	3.53	-0.10	-3.52
9645.00	89.6301	120.620	7345.10	1633.73	1791.26	3248.66	1735093.19	14376727.76	39°35'19.689"N	80°39'50.185"W	3709.78	62.000	3.14	0.05	-3.14
9708.00	89.5701	118.850	7345.54	1696.46	1760.01	3303.37	1735149.87	14376712.52	39°35'19.378"N	80°39'49.487"W	3742.98	62.754	2.81	-0.14	-2.81
9771.00	89.6601	119.230	7345.96	1759.11	1729.43	3358.44	1735204.93	14376697.39	39°35'19.074"N	80°39'48.785"W	3777.58	63.548	0.62	0.14	0.60
9834.00	89.6601	120.330	7346.34	1821.85	1698.14	3413.12	1735259.94	14376682.68	39°35'18.763"N	80°39'48.088"W	3812.23	64.331	1.75	0.00	1.75
9896.00	89.9701	122.620	7346.54	1886.73	1663.77	3466.00	1735312.44	14376667.32	39°35'18.444"N	80°39'47.415"W	3845.51	65.114	3.73	0.50	3.69
9959.00	89.7801	124.680	7346.80	1946.71	1630.87	3518.44	1735364.86	14376652.43	39°35'18.094"N	80°39'46.746"W	3878.03	65.900	3.28	-0.30	3.27
10022.00	90.0001	126.760	7346.88	2009.70	1594.09	3569.58	1735415.98	14376637.66	39°35'17.729"N	80°39'46.095"W	3909.35	66.742	3.32	0.35	3.30
10085.00	89.6601	128.540	7346.98	2072.63	1555.61	3619.46	1735465.84	14376622.20	39°35'17.347"N	80°39'45.460"W	3939.60	67.540	2.88	-0.54	2.83
10148.00	89.4801	127.510	7347.46	2135.54	1516.80	3669.09	1735515.45	14376606.41	39°35'16.961"N	80°39'44.828"W	3970.25	68.332	1.66	-0.29	-1.63
10212.00	89.7201	127.320	7347.90	2199.48	1477.92	3719.92	1735566.26	14376591.54	39°35'16.575"N	80°39'44.180"W	4002.75	69.105	0.48	0.38	-0.30
10275.00	89.6001	126.390	7348.28	2262.45	1440.13	3770.33	1735616.65	14376576.77	39°35'16.200"N	80°39'43.538"W	4036.00	69.847	1.49	-0.19	-1.48
10339.00	89.5401	124.950	7348.76	2326.44	1402.81	3822.32	1735668.62	14376561.46	39°35'15.829"N	80°39'42.876"W	4071.61	70.600	2.25	-0.09	-2.25

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RECORDING WELLPATH INFORMATION

Operator	HIG ENERGY	Slot	Slot #01A
Area	Wetzel County, WV	Well	Long 409 S-1HA
Field	Wetzel (UTM 17N NAD 27)	Wellbore	Long 409 S-1HA (AWB)
Facility	Long 409 Pad		

WELLPATH DATA (252 stations)

MD ftq	Inclination °	Azimuth °	TVD ft	Vert Sect ft	North ft	East ft	Grid East ftUS ft	Grid North ftUS ft	Latitude	Longitude	Closure Dist ft	Closure Dir °	DLS %/100ft	Build Rate %/100ft	Turn Rate %/100ft
10402.00	89.510	125.680	7349.28	2389.43	1366.40	3873.72	1735720.00	14376071.06	39°35'15.467"N	80°39'42.221"W	4107.65	70.570	1.16	-0.05	1.16
10404.00	89.450	126.570	7340.84	2451.42	1329.85	3923.80	1735770.06	14376034.52	39°35'15.104"N	80°39'41.583"W	4143.03	71.278	1.44	-0.10	1.44
10527.00	89.480	125.990	7350.43	2514.40	1292.57	3974.58	1735820.82	14375997.26	39°35'14.734"N	80°39'40.937"W	4179.48	71.985	0.92	0.05	-0.92
10591.00	89.600	127.120	7350.94	2578.37	1254.45	4025.99	1735872.21	14375959.16	39°35'14.355"N	80°39'40.282"W	4216.90	72.694	1.78	0.19	1.77
10654.00	89.380	128.130	7351.51	2641.30	1215.99	4075.88	1735922.09	14375920.72	39°35'13.973"N	80°39'39.646"W	4253.41	73.388	1.64	-0.35	1.60
10717.00	89.480	128.210	7352.13	2704.20	1177.06	4125.41	1735971.59	14375881.80	39°35'13.586"N	80°39'39.016"W	4290.05	74.076	0.20	0.16	0.13
10781.00	89.580	126.880	7352.77	2768.14	1138.06	4176.15	1736022.31	14375842.82	39°35'13.199"N	80°39'38.369"W	4328.44	74.756	2.08	-0.16	-2.08
10844.00	89.420	124.150	7353.45	2831.12	1101.47	4227.42	1736073.56	14375806.24	39°35'12.836"N	80°39'37.716"W	4368.56	75.396	4.33	0.06	-4.33
10906.00	89.570	123.970	7353.98	2893.11	1066.75	4278.79	1736124.91	14375771.53	39°35'12.491"N	80°39'37.062"W	4409.76	76.001	0.38	0.24	-0.29
10968.00	89.540	126.490	7354.46	2955.11	1030.99	4329.42	1736175.53	14375735.78	39°35'12.135"N	80°39'36.417"W	4450.49	76.605	4.06	-0.05	-4.06
11031.00	89.540	130.900	7354.96	3017.96	991.61	4378.58	1736224.66	14375696.42	39°35'11.744"N	80°39'35.791"W	4489.46	77.240	7.00	0.00	7.00
11095.00	89.690	131.800	7355.39	3081.56	949.33	4426.62	1736272.69	14375654.16	39°35'11.325"N	80°39'35.179"W	4527.28	77.896	1.43	0.23	1.41
11158.00	89.510	127.720	7355.83	3144.33	909.05	4475.04	1736321.09	14375613.89	39°35'10.925"N	80°39'34.563"W	4565.44	78.517	6.48	-0.29	-6.48
11221.00	89.570	126.430	7356.34	3207.29	871.07	4523.30	1736371.33	14375575.93	39°35'10.547"N	80°39'33.923"W	4608.38	79.104	2.05	0.10	-2.05
11284.00	89.690	124.490	7356.75	3270.28	834.52	4576.62	1736422.62	14375539.40	39°35'10.184"N	80°39'33.269"W	4652.08	79.666	3.09	0.19	-3.08
11347.00	89.600	123.760	7357.14	3333.27	799.18	4628.77	1736474.75	14375504.07	39°35'09.833"N	80°39'32.605"W	4697.25	80.204	1.17	-0.14	-1.16
11410.00	89.690	122.510	7357.53	3396.24	764.75	4681.52	1736527.48	14375469.65	39°35'09.491"N	80°39'31.933"W	4743.57	80.722	1.99	0.14	-1.98
11474.00	89.570	121.630	7357.94	3460.15	730.77	4735.75	1736581.69	14375435.68	39°35'09.153"N	80°39'31.242"W	4791.80	81.228	1.39	-0.19	-1.37
11537.00	89.600	122.580	7358.40	3523.07	697.29	4789.12	1736635.04	14375402.21	39°35'08.820"N	80°39'30.562"W	4839.61	81.716	1.51	0.05	1.51
11600.00	89.480	123.010	7358.90	3586.02	663.16	4842.07	1736687.97	14375368.10	39°35'08.441"N	80°39'29.887"W	4887.27	82.201	0.71	-0.19	0.68
11663.00	89.540	122.620	7359.04	3648.97	629.02	4895.02	1736740.90	14375330.58	39°35'08.141"N	80°39'29.212"W	4935.27	82.677	0.63	0.10	-0.62
11726.00	89.450	121.830	7359.95	3711.88	595.62	4948.43	1736794.28	14375300.98	39°35'07.809"N	80°39'28.532"W	4984.14	83.137	1.89	0.00	-1.89
11789.00	89.480	121.860	7360.49	3774.74	562.56	5002.06	1736847.89	14375267.54	39°35'07.481"N	80°39'27.848"W	5033.59	83.583	0.69	-0.10	0.68
11852.00	89.600	124.030	7360.99	3837.73	528.31	5054.92	1736900.74	14375235.30	39°35'07.140"N	80°39'27.175"W	5082.45	84.033	3.45	0.19	3.44
11915.00	89.600	125.120	7361.43	3900.72	492.56	5106.79	1736952.59	14375197.56	39°35'06.785"N	80°39'26.514"W	5130.49	84.491	1.73	0.00	1.73
11978.00	89.570	123.860	7361.89	3963.72	456.88	5158.72	1737004.49	14375161.90	39°35'06.430"N	80°39'25.853"W	5178.91	84.939	2.00	-0.65	-2.00
12041.00	89.290	123.890	7362.52	4027.70	421.21	5211.85	1737057.60	14375126.25	39°35'06.076"N	80°39'25.176"W	5228.84	85.379	0.44	-0.44	0.05
12104.00	89.350	125.830	7363.28	4091.69	384.64	5264.36	1737110.09	14375089.69	39°35'05.712"N	80°39'24.507"W	5278.39	85.821	3.03	0.09	3.03
12166.00	89.420	129.280	7363.96	4154.62	346.24	5314.29	1737160.01	14375051.31	39°35'05.331"N	80°39'23.871"W	5325.56	86.272	5.48	0.11	5.48
12223.00	89.320	129.030	7364.65	4217.45	306.47	5363.14	1737208.84	14375011.55	39°35'04.936"N	80°39'23.249"W	5371.89	86.729	0.43	-0.16	-0.40

Actual Wellpath Report

Long 409 S-1HA (AWP) Proj: 14858'
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(NORTH) LONG 409 S-1HA (AWP) (252 STATIONS)		Operator	HG ENERGY	Slot	Slot #01A
Area	Wetzel County, WV	Well	Well	Wellbore	Long 409 S-1HA
Field	Wetzel (UTM 17N NAD 27)				Long 409 S-1HA (AWB)
Facility	Long 409 Pad				

WELLPATH DATA (252 stations)

MDI	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	D.S	Build Rate	Turn Rate
ft	pt	pt	ft	ft	ft	ft	ft	ft			ft	pt	(%/100ft)	(%/100ft)	(%/100ft)
12296.00	89.350	128.940	7365.40	4281.29	266.21	5412.89	1737258.56	14374971.30	39°35'04.536"N	80°39'22.616"W	5419.43	87.184	0.15	0.05	-0.14
12359.00	88.890	125.750	7366.36	4344.22	228.00	5462.96	1737308.62	14374933.11	39°35'04.157"N	80°39'21.978"W	5467.72	87.610	5.12	-0.73	-5.06
12422.00	88.920	125.040	7367.57	4407.21	191.52	5514.31	1737359.94	14374896.64	39°35'03.794"N	80°39'21.524"W	5517.63	88.011	1.13	0.05	-1.13
12485.00	88.890	126.310	7368.77	4470.19	154.78	5565.47	1737411.09	14374859.92	39°35'03.429"N	80°39'20.672"W	5567.63	88.407	2.02	-0.05	2.02
12548.00	89.380	122.840	7369.72	4533.17	119.04	5617.33	1737462.93	14374824.19	39°35'03.074"N	80°39'20.012"W	5618.59	88.786	5.56	0.78	-5.51
12611.00	89.480	119.900	7370.35	4596.03	86.25	5671.11	1737516.69	14374791.42	39°35'02.748"N	80°39'19.326"W	5671.77	89.129	4.67	0.16	-4.67
12674.00	89.570	121.760	7370.87	4658.86	53.97	5725.21	1737570.76	14374759.15	39°35'02.427"N	80°39'18.637"W	5725.46	89.460	2.96	0.14	2.95
12737.00	89.660	125.280	7371.50	4721.83	19.18	5777.72	1737623.25	14374724.37	39°35'02.081"N	80°39'17.968"W	5777.75	89.810	5.59	0.14	5.59
12801.00	89.570	128.260	7371.73	4785.79	-19.12	5828.98	1737674.49	14374686.08	39°35'01.700"N	80°39'17.315"W	5829.01	90.188	4.66	-0.14	4.66
12864.00	89.660	129.380	7372.15	4848.65	-58.61	5878.06	1737723.56	14374646.61	39°35'01.308"N	80°39'16.690"W	5878.36	90.571	1.78	0.14	1.78
12927.00	89.260	128.960	7372.74	4911.48	-98.41	5926.90	1737772.38	14374606.83	39°35'00.913"N	80°39'16.068"W	5927.72	90.951	0.92	-0.63	-0.67
12989.00	89.260	127.730	7373.54	4973.37	-136.87	5975.52	1737820.98	14374566.39	39°35'00.511"N	80°39'15.449"W	5977.09	91.312	1.98	0.00	-1.98
13053.00	89.260	123.290	7374.37	5037.34	-174.03	6027.60	1737873.04	14374531.24	39°35'00.162"N	80°39'14.786"W	6030.12	91.654	6.94	0.00	-6.94
13116.00	89.110	120.630	7375.27	5100.24	-207.37	6081.04	1737926.46	14374497.91	39°34'59.830"N	80°39'14.105"W	6084.58	91.953	4.23	-0.24	-4.22
13179.00	89.170	123.190	7376.21	5163.14	-240.66	6134.51	1737979.91	14374464.63	39°34'59.499"N	80°39'13.424"W	6139.23	92.247	4.06	0.10	4.06
13242.00	89.200	124.260	7377.11	5226.11	-275.64	6186.91	1738032.28	14374429.67	39°34'59.152"N	80°39'12.756"W	6193.04	92.551	1.70	0.05	1.70
13306.00	89.450	125.140	7377.86	5290.11	-312.07	6239.52	1738084.87	14374393.25	39°34'58.790"N	80°39'12.086"W	6247.32	92.863	1.43	0.39	1.37
13368.00	89.910	127.480	7378.21	5352.09	-348.78	6289.47	1738134.81	14374356.56	39°34'58.425"N	80°39'11.450"W	6299.14	93.174	3.85	0.74	3.77
13431.00	89.150	128.370	7378.18	5415.00	-387.50	6339.17	1738184.48	14374321.85	39°34'58.040"N	80°39'10.817"W	6351.00	93.498	1.46	0.38	1.41
13495.00	89.780	125.420	7378.21	5478.96	-425.92	6390.35	1738235.64	14374287.45	39°34'57.659"N	80°39'10.166"W	6404.53	93.813	4.65	-0.58	-4.61
13558.00	89.940	123.020	7378.37	5541.95	-461.34	6442.44	1738287.71	14374254.04	39°34'57.306"N	80°39'09.502"W	6458.93	94.096	3.82	0.25	-3.81
13621.00	90.060	124.110	7378.37	5604.93	-496.18	6494.93	1738340.18	14374220.22	39°34'56.960"N	80°39'08.833"W	6513.86	94.369	1.74	0.19	1.73
13684.00	90.030	124.550	7378.32	5667.93	-531.70	6546.96	1738392.19	14374187.70	39°34'56.607"N	80°39'08.171"W	6568.51	94.643	0.70	-0.05	0.70
13747.00	89.820	125.210	7378.40	5730.93	-567.73	6598.64	1738443.85	14374153.69	39°34'56.249"N	80°39'07.512"W	6623.02	94.917	1.10	-0.33	1.05
13810.00	89.880	123.950	7378.57	5793.92	-603.49	6650.51	1738495.70	14374121.95	39°34'55.894"N	80°39'06.852"W	6677.83	95.185	2.00	0.10	-2.00
13872.00	90.220	124.350	7378.51	5855.92	-638.29	6703.82	1738546.99	14374087.16	39°34'55.548"N	80°39'06.198"W	6732.14	95.441	0.85	0.55	0.65
13935.00	90.310	123.920	7378.22	5918.91	-673.64	6753.96	1738599.11	14374053.02	39°34'55.196"N	80°39'05.545"W	6787.47	95.696	0.70	0.14	-0.68
13999.00	90.440	126.260	7377.86	5982.90	-710.43	6806.33	1738651.45	14373995.05	39°34'54.831"N	80°39'04.867"W	6843.30	95.959	3.66	0.05	3.66
14062.00	90.250	126.510	7377.53	6045.88	-747.80	6857.04	1738702.15	14373957.69	39°34'54.460"N	80°39'04.221"W	6897.70	96.224	0.42	-0.14	0.40
14126.00	90.310	123.030	7377.22	6109.87	-784.29	6909.61	1738754.70	14373921.21	39°34'54.097"N	80°39'03.551"W	6953.98	96.476	5.44	0.09	-5.44

Actual Wellpath Report
 Long 409 S-11A (AWP) Proj: 14858'
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REFERENCE WELLPATH INFORMATION		Slot	Slot #01A
Operator	HIG ENERGY	Well	Long 409 S-11A
Area	Wetzel County, WV	Wellbore	Long 409 S-11A (AWB)
Field	Wetzel (UTM 17N NAD 27)		
Facility	Long 409 Pad		

WELLPATH DATA (252 stations)

MD	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 [ft/100ft]	Build Rate [ft/ft]	Turn Rate [°/100ft]
14188.00	90.580	122.150	7376.74	6171.81	-817.69	6961.84	1738806.91	14373887.83	39°34'53.765"N	80°39'02.886"W	7009.70	96.699	1.48	0.44	-1.42
14252.00	89.450	121.166	7376.72	6235.70	-851.27	7016.32	1738861.37	14373854.26	39°34'53.431"N	80°39'02.192"W	7067.77	96.918	2.35	-1.77	-1.55
14315.00	89.380	119.880	7377.37	6298.51	-883.27	7070.59	1738915.61	14373822.28	39°34'53.113"N	80°39'01.500"W	7125.54	97.121	2.03	-0.11	-2.03
14378.00	89.380	122.990	7378.05	6361.37	-916.12	7124.33	1738969.34	14373789.44	39°34'52.786"N	80°39'00.816"W	7182.99	97.327	4.94	0.00	4.94
14441.00	89.420	125.120	7378.71	6424.36	-951.39	7176.52	1739021.50	14373754.18	39°34'52.435"N	80°39'00.151"W	7239.31	97.552	3.38	0.06	3.38
14504.00	89.380	129.000	7379.37	6487.30	-989.35	7226.78	1739071.75	14373716.24	39°34'52.058"N	80°38'59.511"W	7294.19	97.795	6.16	-0.06	6.16
14568.00	89.200	131.990	7380.11	6551.00	-1030.90	7275.44	1739120.39	14373674.70	39°34'51.646"N	80°38'58.891"W	7348.12	98.065	4.67	-0.14	4.67
14631.00	89.910	131.450	7380.55	6613.56	-1072.83	7322.47	1739167.39	14373632.79	39°34'51.229"N	80°38'58.293"W	7400.64	98.335	1.11	0.98	-0.86
14694.00	89.940	129.450	7380.63	6676.27	-1113.70	7370.40	1739215.31	14373591.94	39°34'50.824"N	80°38'57.683"W	7454.07	98.593	3.17	0.05	-3.17
14757.00	89.910	122.050	7380.72	6739.22	-1150.48	7421.50	1739266.39	14373555.17	39°34'50.458"N	80°38'57.032"W	7510.14	98.812	11.75	-0.05	-11.75
14820.00	90.060	119.880	7380.73	6802.06	-1182.89	7475.52	1739320.38	14373522.77	39°34'49.947"N	80°38'56.344"W	7568.53	98.992	3.45	0.24	-3.44
14858.00	90.060	119.880	7380.69	6839.91	-1201.82	7508.46	1739353.32	14373503.85			7604.04	99.094	0.00	0.00	0.00

Actual Wellpath Report

Long 409 S-111A (AWP) Proj: 14858'
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REFERENCE WELL/DEPTH/DEPTH INFORMATION

Operator	HIG ENERGY	Slot	Slot #01A
Area	Wetzel County, WV	Well	Long 409 S-11A
Field	Wetzel (UTAI 17N NAD 27)	Wellbore	Long 409 S-11A (AWB)
Facility	Long 409 Pad		

TARGETS

Name	MID [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Long 409 S-11A LP		7300.00	2236.68	2608.52	1734455.30	14376941.00	39°35'24.115"N	80°39'58.340"W	point
Long 409 S-11A LP:Rev-2		7320.00	2236.68	2608.52	1734455.30	14376941.00	39°35'24.115"N	80°39'58.340"W	point
Long 409 S-11A PBH		7404.50	-1196.97	7512.25	1739357.10	14373508.70	39°34'49.995"N	80°38'55.875"W	point
Long 409 S-11A PBH:Rev-2		7424.50	-1196.97	7512.25	1739357.10	14373508.70	39°34'49.995"N	80°38'55.875"W	point

WELLPATH COMPOSITION - Ref Wellbore: Long 409 S-11A (AWB) Ref Wellpath: Long 409 S-11A (AWP) Proj: 14858'

Start MID [ft]	End MID [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
18.00	1240.00	Generic Gyro - northseeking (Standard)	Gyro Svcs (100'-1240')	Long 409 S-11A (AWB)
1240.00	14820.00	NavTrk (MagCorr)	12 1/4" Nudge (1240'(1426'-14820')	Long 409 S-11A (AWB)
14820.00	14858.00	Blind Drilling (std)	Projection to bit	Long 409 S-11A (AWB)

Actual Wellpath Report
 Long 409 S-11A (AWB) Proj: 14858
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REFERENCE WELLPATH IDENTIFICATION

Operator	Area	Field	Facility	Slot	Slot #01A
HG ENERGY	Wellzel County, WV	Wellzel (UTM 17N NAD 27)	Long 409 Pad	Well	Long 409 S-11A
				Wellbore	Long 409 S-11A (AWB)

COMMENTS

Wellpath general comments
 API #: 47-103-02878-0000
 Rig: Dallas Morris 24
 BHH Job #: 5792142
 Duration: 09/23/2013-10/15/2013
 Gyno Surveys 100-1240'
 BHH MWD Surveys (1240') 1426'-14820'
 TD Projected to MD: 14858'