



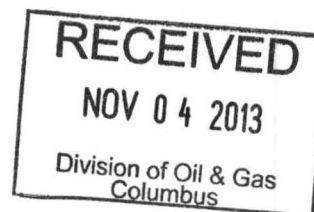
Inteq

U.S. Land - Northeast  
370 Westec Drive  
Mt. Pleasant, PA 15666  
Tel: 724-696-6769  
Fax: 724-696-6766  
www.bakerhughes.com

34-019-2-2414-00-00

9/16/2013

Division of Oil & Gas Resources  
Attn: Steve Opritza  
2045 Morse Road  
Building F-2  
Columbus, OH  
43229-6693



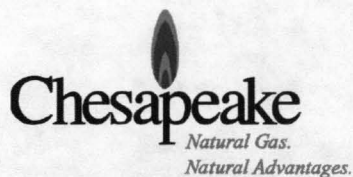
Chesapeake Appalachia, L.L.C  
Attn: Tal Oden, Mgr. Regulatory Eastern Div.  
6100 N Western Ave  
Oklahoma City, OK 73118

**TRANSMITTAL LETTER**

RE: End of Well Directional Survey Report  
Chesapeake Appalachia Job # **5712357A**  
Well Name: **Jones A 33-13-4 10H**

Enclosed please find the End of Well directional survey for the above mentioned well.

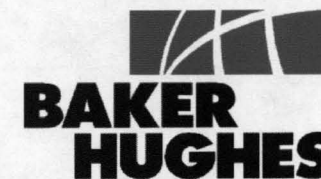
BGGM (1945.0 to 2015.0) Dip: 67.94° Field: 53019.6 nT  
Magnetic North is 8.62 degrees West of True North (at 9/3/2013)  
Grid North is 1.01 degrees East of True North  
To correct azimuth from True to Grid subtract 1.01 degrees  
To correct azimuth from Magnetic to Grid subtract 9.63 degrees



# Actual Wellpath Report

Jones A 33-13-4 10H AWP Proj: 15690'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE	Slot	Slot #10
Area	Carroll County, OH	Well	Jones A 33-13-4 10H
Field	Carroll	Wellbore	Jones A 33-13-4 10H AWB
Facility	Jones A 33-13-4 Pad		

## REPORT SETUP INFORMATION

Projection System	NAD27 / Lambert Ohio SP, Northern Zone (3401), US feet	Software System	WellArchitect® 4.0.1
North Reference	Grid	User	Edsaryar
Scale	0.999972	Report Generated	9/16/2013 at 8:54:26 PM
Convergence at slot	1.01° East	Database/Source file	Well Architect Eastern US/Jones_A_33-13-4_10H_AWB.xml

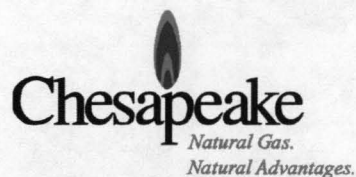
## WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-11.29	37.46	2425004.71	343643.28	40°35'58.852"N	80°58'10.045"W
Facility Reference Pt			2424967.25	343654.57	40°35'58.970"N	80°58'10.528"W
Field Reference Pt			0.00	0.00	39°26'36.703"N	89°35'12.429"W

## WELLPATH DATUM

Calculation method	Minimum curvature	Nomac 73 (RT) to Facility Vertical Datum	20.00ft
Horizontal Reference Pt	Slot	Nomac 73 (RT) to Mean Sea Level	1227.00ft
Vertical Reference Pt	Nomac 73 (RT)	Nomac 73 (RT) to Mud Line at Slot (Slot #10)	20.00ft
MD Reference Pt	Nomac 73 (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	149.64°

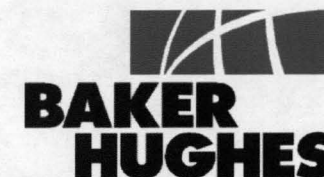




# Actual Wellpath Report

Jones A 33-13-4 10H AWP Proj: 15690'

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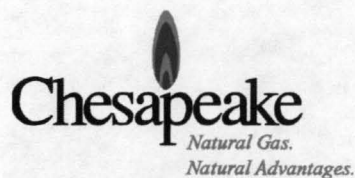


## REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE	Slot	Slot #10
Area	Carroll County, OH	Well	Jones A 33-13-4 10H
Field	Carroll	Wellbore	Jones A 33-13-4 10H AWB
Facility	Jones A 33-13-4 Pad		

## WELLPATH DATA (175 stations) † = interpolated/extrapolated station

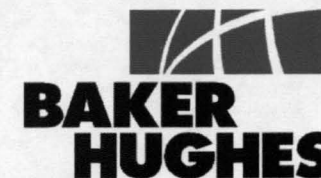
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
0.00†	0.000	159.850	0.00	0.00	0.00	0.00	2425004.71	343643.28	40°35'58.852"N	80°58'10.045"W	0.00	0.000	0.00	0.00	0.00
20.00	0.000	159.850	20.00	0.00	0.00	0.00	2425004.71	343643.28	40°35'58.852"N	80°58'10.045"W	0.00	0.000	0.00	0.00	0.00
31.20	0.290	159.850	31.20	0.03	-0.03	0.01	2425004.72	343643.25	40°35'58.852"N	80°58'10.045"W	0.03	159.850	2.59	2.59	0.00
124.60	0.410	236.470	124.60	0.28	-0.43	-0.19	2425004.53	343642.85	40°35'58.848"N	80°58'10.048"W	0.47	203.396	0.48	0.13	82.03
217.70	0.660	255.700	217.69	0.15	-0.75	-0.98	2425003.73	343642.53	40°35'58.845"N	80°58'10.058"W	1.24	232.721	0.33	0.27	20.66
311.90	0.450	293.390	311.89	-0.30	-0.74	-1.85	2425002.86	343642.54	40°35'58.845"N	80°58'10.069"W	1.99	248.286	0.44	-0.22	40.01
410.10	0.140	331.030	410.09	-0.73	-0.48	-2.26	2425002.45	343642.80	40°35'58.848"N	80°58'10.074"W	2.31	258.052	0.36	-0.32	38.33
504.80	0.210	146.070	504.79	-0.67	-0.52	-2.22	2425002.49	343642.76	40°35'58.847"N	80°58'10.074"W	2.28	256.789	0.37	0.07	184.84
599.50	0.400	172.130	599.49	-0.19	-0.99	-2.08	2425002.63	343642.29	40°35'58.843"N	80°58'10.072"W	2.30	244.472	0.24	0.20	27.52
694.50	0.110	247.640	694.49	0.10	-1.36	-2.12	2425002.60	343641.92	40°35'58.839"N	80°58'10.073"W	2.51	237.370	0.41	-0.31	79.48
789.30	0.020	159.540	789.29	0.10	-1.41	-2.20	2425002.52	343641.87	40°35'58.838"N	80°58'10.074"W	2.61	237.371	0.12	-0.09	-92.93
883.90	0.180	108.000	883.89	0.23	-1.47	-2.05	2425002.66	343641.81	40°35'58.838"N	80°58'10.072"W	2.52	234.391	0.18	0.17	-54.48
978.80	1.720	115.970	978.77	1.53	-2.14	-0.63	2425004.09	343641.14	40°35'58.831"N	80°58'10.054"W	2.23	196.348	1.62	1.62	8.40
1073.50	3.710	120.170	1073.36	5.38	-4.30	3.30	2425008.01	343638.98	40°35'58.809"N	80°58'10.003"W	5.42	142.494	2.11	2.10	4.44
1168.00	6.020	112.620	1167.51	12.00	-7.74	10.52	2425015.23	343635.54	40°35'58.774"N	80°58'09.910"W	13.06	126.357	2.53	2.44	-7.99
1262.80	8.260	103.860	1261.58	20.72	-11.29	21.72	2425026.43	343631.99	40°35'58.737"N	80°58'09.766"W	24.48	117.458	2.62	2.36	-9.24
1357.90	8.890	99.840	1355.61	30.22	-14.18	35.59	2425040.31	343629.10	40°35'58.706"N	80°58'09.587"W	38.31	111.720	0.91	0.66	-4.23
1452.60	8.580	97.240	1449.21	39.26	-16.32	49.81	2425054.52	343626.96	40°35'58.682"N	80°58'09.403"W	52.42	108.140	0.53	-0.33	-2.75
1547.30	7.800	95.220	1542.95	47.31	-17.79	63.22	2425067.93	343625.49	40°35'58.665"N	80°58'09.230"W	65.68	105.721	0.88	-0.82	-2.13
1643.20	7.210	92.230	1638.03	54.33	-18.62	75.71	2425080.42	343624.66	40°35'58.655"N	80°58'09.068"W	77.97	103.817	0.74	-0.62	-3.12
1738.00	7.000	88.670	1732.10	60.34	-18.72	87.43	2425092.14	343624.56	40°35'58.652"N	80°58'08.916"W	89.41	102.084	0.51	-0.22	-3.76
1832.60	5.730	87.870	1826.11	65.37	-18.41	97.91	2425102.63	343624.87	40°35'58.653"N	80°58'08.780"W	99.63	100.648	1.35	-1.34	-0.85
1927.30	4.400	86.030	1920.44	69.22	-17.98	106.26	2425110.97	343625.30	40°35'58.656"N	80°58'08.672"W	107.77	99.604	1.41	-1.40	-1.94
2022.20	3.680	82.980	2015.11	72.05	-17.36	112.92	2425117.63	343625.92	40°35'58.661"N	80°58'08.585"W	114.24	98.739	0.79	-0.76	-3.21
2116.80	2.700	79.400	2109.56	74.01	-16.58	118.12	2425122.83	343626.70	40°35'58.668"N	80°58'08.518"W	119.28	97.988	1.06	-1.04	-3.78
2211.70	1.940	78.520	2204.38	75.28	-15.85	121.89	2425126.60	343627.43	40°35'58.674"N	80°58'08.469"W	122.92	97.407	0.80	-0.80	-0.93
2306.60	1.330	78.090	2299.24	76.15	-15.30	124.54	2425129.25	343627.98	40°35'58.679"N	80°58'08.434"W	125.48	97.003	0.64	-0.64	-0.45
2401.20	0.890	74.740	2393.82	76.69	-14.88	126.33	2425131.04	343628.40	40°35'58.683"N	80°58'08.411"W	127.20	96.717	0.47	-0.47	-3.54
2495.90	0.640	72.970	2488.51	77.00	-14.53	127.54	2425132.25	343628.75	40°35'58.686"N	80°58'08.395"W	128.37	96.499	0.27	-0.26	-1.87
2590.70	0.420	57.500	2583.31	77.11	-14.19	128.34	2425133.05	343629.09	40°35'58.690"N	80°58'08.385"W	129.12	96.309	0.27	-0.23	-16.32



# Actual Wellpath Report

Jones A 33-13-4 10H AWP Proj: 15690'

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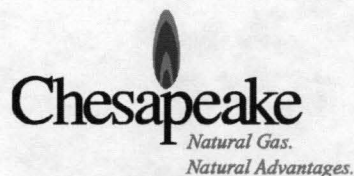
## REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE	Slot	Slot #10
Area	Carroll County, OH	Well	Jones A 33-13-4 10H
Field	Carroll	Wellbore	Jones A 33-13-4 10H AWB
Facility	Jones A 33-13-4 Pad		

## WELLPATH DATA (175 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]
2685.60	0.380	26.370	2678.21	76.92	-13.72	128.77	2425133.48	343629.56	40°35'58.694"N	80°58'08.379"W	129.50	96.081	0.23	-0.04	-32.80
2780.30	0.370	4.250	2772.91	76.50	-13.13	128.94	2425133.65	343630.15	40°35'58.700"N	80°58'08.377"W	129.60	95.816	0.15	-0.01	-23.36
2875.20	0.350	346.910	2867.80	75.97	-12.55	128.89	2425133.60	343630.73	40°35'58.706"N	80°58'08.377"W	129.50	95.559	0.12	-0.02	-18.27
2969.70	0.370	343.510	2962.30	75.40	-11.97	128.74	2425133.45	343631.31	40°35'58.711"N	80°58'08.379"W	129.30	95.313	0.03	0.02	-3.60
3064.50	0.450	316.030	3057.10	74.74	-11.41	128.40	2425133.11	343631.87	40°35'58.717"N	80°58'08.383"W	128.90	95.078	0.22	0.08	-28.99
3159.00	0.400	314.030	3151.60	74.06	-10.91	127.90	2425132.61	343632.37	40°35'58.722"N	80°58'08.390"W	128.37	94.877	0.06	-0.05	-2.12
3253.70	0.480	313.740	3246.29	73.36	-10.41	127.38	2425132.09	343632.87	40°35'58.727"N	80°58'08.396"W	127.80	94.672	0.08	0.08	-0.31
3348.60	0.460	313.060	3341.19	72.62	-9.87	126.81	2425131.52	343633.40	40°35'58.732"N	80°58'08.404"W	127.20	94.453	0.02	-0.02	-0.72
3443.40	0.450	314.910	3435.99	71.89	-9.35	126.27	2425130.98	343633.93	40°35'58.738"N	80°58'08.410"W	126.62	94.236	0.02	-0.01	1.95
3538.30	0.440	319.980	3530.89	71.17	-8.81	125.77	2425130.48	343634.47	40°35'58.743"N	80°58'08.417"W	126.08	94.007	0.04	-0.01	5.34
3633.30	0.440	326.800	3625.88	70.45	-8.23	125.34	2425130.05	343635.05	40°35'58.749"N	80°58'08.422"W	125.61	93.755	0.06	0.00	7.18
3728.10	0.450	333.120	3720.68	69.71	-7.59	124.97	2425129.68	343635.69	40°35'58.755"N	80°58'08.427"W	125.20	93.475	0.05	0.01	6.67
3823.00	0.450	333.780	3815.58	68.97	-6.92	124.64	2425129.35	343636.36	40°35'58.762"N	80°58'08.431"W	124.83	93.179	0.01	0.00	0.70
3917.90	0.400	339.760	3910.47	68.27	-6.28	124.36	2425129.07	343637.00	40°35'58.768"N	80°58'08.435"W	124.52	92.890	0.07	-0.05	6.30
4012.60	0.480	20.940	4005.17	67.70	-5.60	124.39	2425129.10	343637.68	40°35'58.775"N	80°58'08.434"W	124.51	92.576	0.34	0.08	43.48
4107.00	0.620	28.110	4099.57	67.18	-4.78	124.77	2425129.48	343638.50	40°35'58.783"N	80°58'08.429"W	124.86	92.192	0.16	0.15	7.60
4201.60	0.730	25.970	4194.16	66.58	-3.78	125.27	2425129.98	343639.50	40°35'58.793"N	80°58'08.422"W	125.33	91.730	0.12	0.12	-2.26
4296.40	0.660	31.430	4288.95	65.99	-2.77	125.82	2425130.53	343640.50	40°35'58.803"N	80°58'08.415"W	125.85	91.263	0.10	-0.07	5.76
4391.00	0.630	36.800	4383.55	65.53	-1.89	126.42	2425131.13	343641.39	40°35'58.811"N	80°58'08.407"W	126.43	90.858	0.07	-0.03	5.68
4486.00	0.600	38.790	4478.54	65.15	-1.09	127.04	2425131.75	343642.19	40°35'58.819"N	80°58'08.399"W	127.05	90.490	0.04	-0.03	2.09
4581.20	0.580	39.830	4573.74	64.81	-0.33	127.66	2425132.37	343642.95	40°35'58.827"N	80°58'08.390"W	127.66	90.148	0.02	-0.02	1.09
4675.50	0.680	45.200	4668.23	64.51	0.43	128.37	2425133.08	343643.71	40°35'58.834"N	80°58'08.381"W	128.37	89.806	0.12	0.11	5.68
4770.50	0.910	55.350	4763.02	64.31	1.26	129.39	2425134.10	343644.54	40°35'58.842"N	80°58'08.368"W	129.39	89.443	0.28	0.24	10.71
4865.20	1.000	44.580	4857.71	64.04	2.27	130.58	2425135.29	343645.55	40°35'58.852"N	80°58'08.352"W	130.60	89.002	0.21	0.10	-11.37
4959.90	0.980	26.170	4952.40	63.38	3.59	131.52	2425136.23	343646.87	40°35'58.865"N	80°58'08.339"W	131.57	88.437	0.34	-0.02	-19.44
5054.80	0.780	18.910	5047.28	62.51	4.93	132.09	2425136.80	343648.21	40°35'58.878"N	80°58'08.332"W	132.18	87.863	0.24	-0.21	-7.65
5149.50	0.740	38.140	5141.98	61.86	6.02	132.67	2425137.38	343649.30	40°35'58.888"N	80°58'08.324"W	132.81	87.402	0.27	-0.04	20.31
5244.90	0.550	35.860	5237.37	61.45	6.88	133.32	2425138.03	343650.15	40°35'58.897"N	80°58'08.315"W	133.50	87.048	0.20	-0.20	-2.39
5339.50	0.410	37.110	5331.97	61.14	7.51	133.79	2425138.50	343650.79	40°35'58.903"N	80°58'08.309"W	134.00	86.786	0.15	-0.15	1.32
5434.10	0.360	34.810	5426.56	60.89	8.03	134.17	2425138.88	343651.31	40°35'58.908"N	80°58'08.304"W	134.41	86.576	0.06	-0.05	-2.43

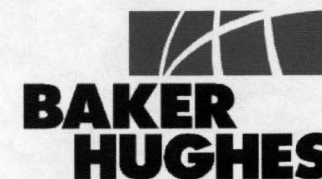




# Actual Wellpath Report

Jones A 33-13-4 10H AWP Proj: 15690'

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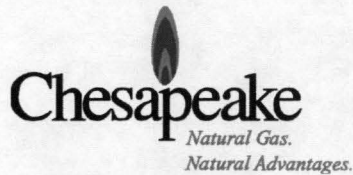


## REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE	Slot	Slot #10
Area	Carroll County, OH	Well	Jones A 33-13-4 10H
Field	Carroll	Wellbore	Jones A 33-13-4 10H AWP
Facility	Jones A 33-13-4 Pad		

## WELLPATH DATA (175 stations)

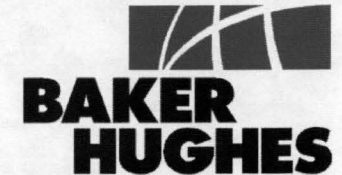
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
5528.60	0.290	21.190	5521.06	60.61	8.49	134.42	2425139.13	343651.77	40°35'58.913"N	80°58'08.301"W	134.69	86.384	0.11	-0.07	-14.41
5623.50	0.310	8.810	5615.96	60.26	8.97	134.55	2425139.26	343652.25	40°35'58.917"N	80°58'08.299"W	134.85	86.185	0.07	0.02	-13.05
5718.10	0.270	345.000	5710.56	59.85	9.44	134.53	2425139.24	343652.72	40°35'58.922"N	80°58'08.299"W	134.86	85.986	0.13	-0.04	-25.17
5812.80	0.210	343.140	5805.26	59.47	9.82	134.42	2425139.13	343653.10	40°35'58.926"N	80°58'08.300"W	134.78	85.821	0.06	-0.06	-1.96
5907.30	0.220	6.200	5899.76	59.15	10.17	134.39	2425139.10	343653.45	40°35'58.929"N	80°58'08.301"W	134.78	85.673	0.09	0.01	24.40
6002.00	0.300	359.220	5994.46	58.79	10.60	134.41	2425139.12	343653.88	40°35'58.933"N	80°58'08.300"W	134.83	85.492	0.09	0.08	-7.37
6096.70	0.340	352.670	6089.16	58.32	11.12	134.37	2425139.08	343654.40	40°35'58.939"N	80°58'08.301"W	134.83	85.268	0.06	0.04	-6.92
6191.50	0.150	309.860	6183.96	57.94	11.48	134.24	2425138.95	343654.76	40°35'58.942"N	80°58'08.302"W	134.73	85.111	0.27	-0.20	-45.16
6286.30	0.060	286.820	6278.76	57.79	11.58	134.10	2425138.81	343654.85	40°35'58.943"N	80°58'08.304"W	134.59	85.066	0.10	-0.09	-24.30
6381.20	0.070	306.180	6373.66	57.70	11.62	134.00	2425138.71	343654.90	40°35'58.944"N	80°58'08.306"W	134.50	85.042	0.03	0.01	20.40
6476.00	0.220	277.470	6468.46	57.53	11.68	133.77	2425138.48	343654.96	40°35'58.944"N	80°58'08.308"W	134.28	85.009	0.17	0.16	-30.28
6570.80	0.290	277.900	6563.25	57.27	11.74	133.36	2425138.07	343655.02	40°35'58.945"N	80°58'08.314"W	133.87	84.970	0.07	0.07	0.45
6665.70	0.140	258.590	6658.15	57.09	11.75	133.00	2425137.71	343655.03	40°35'58.945"N	80°58'08.318"W	133.52	84.952	0.17	-0.16	-20.35
6760.40	0.170	251.380	6752.85	57.02	11.68	132.76	2425137.47	343654.96	40°35'58.944"N	80°58'08.322"W	133.27	84.972	0.04	0.03	-7.61
6855.00	0.280	201.370	6847.45	57.14	11.42	132.54	2425137.25	343654.70	40°35'58.942"N	80°58'08.324"W	133.03	85.075	0.23	0.12	-52.86
6940.00	0.070	96.440	6932.45	57.30	11.22	132.52	2425137.23	343654.50	40°35'58.940"N	80°58'08.325"W	132.99	85.160	0.36	-0.25	-123.45
7035.00	0.420	118.970	7027.45	57.63	11.05	132.88	2425137.59	343654.33	40°35'58.938"N	80°58'08.320"W	133.34	85.248	0.38	0.37	23.72
7129.00	1.200	65.090	7121.44	58.02	11.29	134.07	2425138.78	343654.57	40°35'58.940"N	80°58'08.305"W	134.55	85.185	1.08	0.83	-57.32
7161.00	3.070	55.830	7153.42	57.99	11.92	135.09	2425139.80	343655.20	40°35'58.946"N	80°58'08.291"W	135.61	84.959	5.92	5.84	-28.94
7192.00	4.630	54.400	7184.35	57.83	13.11	136.79	2425141.50	343656.39	40°35'58.958"N	80°58'08.269"W	137.42	84.525	5.04	5.03	-4.61
7224.00	6.040	57.490	7216.21	57.64	14.77	139.26	2425143.97	343658.05	40°35'58.974"N	80°58'08.237"W	140.04	83.947	4.50	4.41	9.66
7255.00	8.310	61.750	7246.96	57.67	16.70	142.61	2425147.32	343659.98	40°35'58.992"N	80°58'08.193"W	143.58	83.319	7.52	7.32	13.74
7287.00	10.810	64.440	7278.52	58.00	19.09	147.35	2425152.06	343662.37	40°35'59.015"N	80°58'08.131"W	148.59	82.617	7.93	7.81	8.41
7318.00	13.150	65.300	7308.84	58.59	21.82	153.18	2425157.89	343665.10	40°35'59.041"N	80°58'08.055"W	154.73	81.892	7.57	7.55	2.77
7350.00	15.420	65.740	7339.85	59.40	25.09	160.37	2425165.08	343668.37	40°35'59.072"N	80°58'07.961"W	162.32	81.107	7.10	7.09	1.37
7413.00	19.560	67.260	7399.92	61.69	32.61	177.74	2425182.45	343675.89	40°35'59.143"N	80°58'07.734"W	180.71	79.602	6.61	6.57	2.41
7507.00	28.300	70.560	7485.76	68.01	46.14	213.33	2425218.04	343689.42	40°35'59.271"N	80°58'07.269"W	218.26	77.796	9.40	9.30	3.51
7602.00	39.200	67.850	7564.64	76.59	65.01	262.52	2425267.23	343708.29	40°35'59.449"N	80°58'06.628"W	270.45	76.091	11.58	11.47	-2.85
7697.00	49.680	64.960	7632.38	84.26	91.74	323.32	2425328.02	343735.01	40°35'59.702"N	80°58'05.833"W	336.08	74.160	11.23	11.03	-3.04
7792.00	57.700	62.770	7688.59	89.82	125.49	391.95	2425396.65	343768.77	40°36'00.024"N	80°58'04.936"W	411.55	72.246	8.64	8.44	-2.31



# Actual Wellpath Report

Jones A 33-13-4 10H AWP Proj: 15690'

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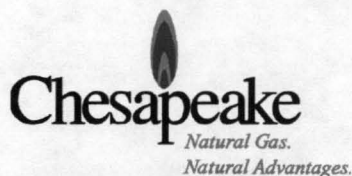
## REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE	Slot	Slot #10
Area	Carroll County, OH	Well	Jones A 33-13-4 10H
Field	Carroll	Wellbore	Jones A 33-13-4 10H AWB
Facility	Jones A 33-13-4 Pad		

## WELLPATH DATA (175 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]
7886.00	70.840	64.320	7729.31	95.64	163.08	467.62	2425472.32	343806.35	40°36'00.382"N	80°58'03.947"W	495.24	70.774	14.06	13.98	1.65
7981.00	72.590	64.530	7759.12	103.16	202.01	548.98	2425553.68	343845.29	40°36'00.753"N	80°58'02.883"W	584.97	69.797	1.85	1.84	0.22
8076.00	70.980	63.370	7788.81	109.95	241.64	630.05	2425634.75	343884.91	40°36'01.130"N	80°58'01.824"W	674.80	69.017	2.05	-1.69	-1.22
8170.00	72.490	61.580	7818.28	114.36	282.89	709.20	2425713.90	343926.16	40°36'01.524"N	80°58'00.788"W	763.54	68.254	2.42	1.61	-1.90
8265.00	73.060	64.830	7846.41	120.00	323.79	790.19	2425794.88	343967.06	40°36'01.914"N	80°57'59.729"W	853.95	67.718	3.32	0.60	3.42
8360.00	72.890	78.240	7874.35	138.67	352.48	876.12	2425880.80	343995.75	40°36'02.182"N	80°57'58.609"W	944.37	68.084	13.50	-0.18	14.12
8455.00	74.700	90.660	7900.95	176.90	361.24	966.71	2425971.39	344004.51	40°36'02.253"N	80°57'57.433"W	1032.00	69.510	12.70	1.91	13.07
8549.00	75.440	98.720	7925.21	229.02	353.81	1057.15	2426061.83	343997.08	40°36'02.164"N	80°57'56.262"W	1114.78	71.495	8.32	0.79	8.57
8644.00	78.220	108.870	7946.90	293.39	331.74	1146.83	2426151.51	343975.01	40°36'01.930"N	80°57'55.105"W	1193.85	73.866	10.81	2.93	10.68
8739.00	82.030	121.030	7963.25	370.22	292.30	1231.48	2426236.16	343935.57	40°36'01.526"N	80°57'54.017"W	1265.69	76.648	13.23	4.01	12.80
8834.00	86.830	133.040	7972.51	457.33	235.44	1306.77	2426311.44	343878.71	40°36'00.951"N	80°57'53.054"W	1327.81	79.787	13.56	5.05	12.64
8929.00	89.780	140.330	7975.32	549.80	166.40	1371.86	2426376.53	343809.67	40°36'00.258"N	80°57'52.226"W	1381.91	83.084	8.27	3.11	7.67
9024.00	90.770	150.990	7974.86	644.43	88.07	1425.37	2426430.04	343731.35	40°35'59.475"N	80°57'51.550"W	1428.09	86.464	11.27	1.04	11.22
9118.00	89.480	152.370	7974.66	738.37	5.33	1469.96	2426474.63	343648.61	40°35'58.649"N	80°57'50.991"W	1469.97	89.792	2.01	-1.37	1.47
9213.00	89.380	152.220	7975.60	833.26	-78.78	1514.13	2426518.79	343564.50	40°35'57.811"N	80°57'50.438"W	1516.17	92.978	0.19	-0.11	-0.16
9308.00	89.380	154.030	7976.63	928.08	-163.51	1557.07	2426561.73	343479.78	40°35'56.966"N	80°57'49.901"W	1565.63	95.995	1.91	0.00	1.91
9402.00	89.880	155.480	7977.24	1021.70	-248.53	1597.15	2426601.82	343394.76	40°35'56.119"N	80°57'49.400"W	1616.37	98.845	1.63	0.53	1.54
9497.00	89.350	152.630	7977.87	1116.40	-333.94	1638.71	2426643.38	343309.35	40°35'55.268"N	80°57'48.881"W	1672.39	101.518	3.05	-0.56	-3.00
9591.00	89.570	153.450	7978.76	1210.23	-417.72	1681.33	2426685.99	343225.57	40°35'54.433"N	80°57'48.348"W	1732.44	103.952	0.90	0.23	0.87
9686.00	89.080	154.910	7979.88	1304.92	-503.23	1722.70	2426727.36	343140.07	40°35'53.581"N	80°57'47.831"W	1794.69	106.284	1.62	-0.52	1.54
9781.00	90.740	154.600	7980.03	1399.54	-589.15	1763.21	2426767.87	343054.14	40°35'52.725"N	80°57'47.326"W	1859.04	108.476	1.78	1.75	-0.33
9875.00	86.980	141.430	7981.91	1493.26	-668.68	1812.87	2426817.53	342974.62	40°35'51.930"N	80°57'46.700"W	1932.26	110.247	14.57	-4.00	-14.01
9970.00	86.520	142.920	7987.29	1587.30	-743.60	1871.03	2426875.69	342899.71	40°35'51.180"N	80°57'45.964"W	2013.38	111.674	1.64	-0.48	1.57
10065.00	86.830	146.000	7992.80	1681.74	-820.76	1926.15	2426930.81	342822.54	40°35'50.408"N	80°57'45.267"W	2093.73	113.079	3.25	0.33	3.24
10160.00	88.980	151.760	7996.28	1776.63	-902.00	1975.19	2426979.85	342741.31	40°35'49.597"N	80°57'44.650"W	2171.40	114.544	6.47	2.26	6.06
10254.00	89.630	152.990	7997.42	1870.51	-985.27	2018.78	2427023.43	342658.04	40°35'48.767"N	80°57'44.104"W	2246.38	116.015	1.48	0.69	1.31
10349.00	88.770	149.380	7998.75	1965.45	-1068.49	2064.55	2427069.20	342574.82	40°35'47.937"N	80°57'43.530"W	2324.66	117.363	3.91	-0.91	-3.80
10444.00	88.770	148.160	8000.79	2060.42	-1149.70	2113.79	2427118.45	342493.61	40°35'47.126"N	80°57'42.910"W	2406.23	118.542	1.28	0.00	-1.28
10538.00	89.110	148.210	8002.53	2154.37	-1229.56	2163.34	2427167.99	342413.75	40°35'46.328"N	80°57'42.286"W	2488.35	119.612	0.37	0.36	0.05
10633.00	89.820	148.880	8003.41	2249.35	-1310.60	2212.91	2427217.56	342332.72	40°35'45.519"N	80°57'41.662"W	2571.90	120.636	1.03	0.75	0.71





# Actual Wellpath Report

Jones A 33-13-4 10H AWP Proj: 15690'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE	Slot	Slot #10
Area	Carroll County, OH	Well	Jones A 33-13-4 10H
Field	Carroll	Wellbore	Jones A 33-13-4 10H AWB
Facility	Jones A 33-13-4 Pad		

## WELLPATH DATA (175 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]
10728.00	88.920	147.690	8004.46	2344.31	-1391.40	2262.85	2427267.50	342251.92	40°35'44.712"N	80°57'41.034"W	2656.41	121.587	1.57	-0.95	-1.25
10823.00	88.770	147.330	8006.37	2439.23	-1471.52	2313.87	2427318.51	342171.80	40°35'43.911"N	80°57'40.391"W	2742.14	122.455	0.41	-0.16	-0.38
10917.00	88.860	146.360	8008.32	2533.09	-1550.20	2365.26	2427369.91	342093.13	40°35'43.125"N	80°57'39.742"W	2828.00	123.241	1.04	0.10	-1.03
11012.00	88.830	148.910	8010.23	2628.01	-1630.42	2416.10	2427420.75	342012.91	40°35'42.323"N	80°57'39.102"W	2914.76	124.012	2.68	-0.03	2.68
11107.00	88.950	151.460	8012.07	2722.98	-1712.82	2463.33	2427467.97	341930.51	40°35'41.501"N	80°57'38.509"W	3000.29	124.812	2.69	0.13	2.68
11202.00	89.570	151.230	8013.30	2817.93	-1796.18	2508.88	2427513.52	341847.15	40°35'40.670"N	80°57'37.937"W	3085.57	125.600	0.70	0.65	-0.24
11296.00	88.860	150.410	8014.59	2911.90	-1878.24	2554.70	2427559.34	341765.10	40°35'39.851"N	80°57'37.362"W	3170.85	126.324	1.15	-0.76	-0.87
11391.00	88.980	149.910	8016.38	3006.88	-1960.63	2601.96	2427606.60	341682.71	40°35'39.029"N	80°57'36.769"W	3257.96	126.999	0.54	0.13	-0.53
11486.00	88.950	147.440	8018.09	3101.84	-2041.76	2651.34	2427655.98	341601.58	40°35'38.218"N	80°57'36.147"W	3346.40	127.599	2.60	-0.03	-2.60
11581.00	90.060	148.540	8018.91	3196.79	-2122.31	2701.70	2427706.33	341521.03	40°35'37.414"N	80°57'35.513"W	3435.60	128.151	1.64	1.17	1.16
11676.00	89.910	150.100	8018.94	3291.79	-2204.01	2750.17	2427754.80	341439.33	40°35'36.598"N	80°57'34.904"W	3524.36	128.709	1.65	-0.16	1.64
11770.00	89.910	149.480	8019.09	3385.79	-2285.25	2797.46	2427802.10	341358.10	40°35'35.787"N	80°57'34.309"W	3612.22	129.245	0.66	0.00	-0.66
11865.00	89.820	148.470	8019.31	3480.78	-2366.65	2846.43	2427851.06	341276.70	40°35'34.974"N	80°57'33.693"W	3701.78	129.742	1.07	-0.09	-1.06
11959.00	89.910	147.350	8019.53	3574.74	-2446.29	2896.36	2427900.99	341197.06	40°35'34.179"N	80°57'33.064"W	3791.21	130.185	1.20	0.10	-1.19
12054.00	89.720	148.490	8019.84	3669.69	-2526.78	2946.82	2427951.44	341116.57	40°35'33.375"N	80°57'32.429"W	3881.80	130.612	1.22	-0.20	1.20
12149.00	89.970	149.320	8020.10	3764.68	-2608.13	2995.88	2428000.51	341035.23	40°35'32.563"N	80°57'31.812"W	3972.11	131.042	0.91	0.26	0.87
12244.00	90.030	149.880	8020.10	3859.68	-2690.07	3043.95	2428048.58	340953.29	40°35'31.745"N	80°57'31.207"W	4062.28	131.468	0.59	0.06	0.59
12339.00	89.820	149.780	8020.22	3954.68	-2772.20	3091.70	2428096.32	340871.16	40°35'30.925"N	80°57'30.607"W	4152.55	131.881	0.24	-0.22	-0.11
12433.00	89.320	151.710	8020.93	4048.66	-2854.21	3137.63	2428142.25	340789.16	40°35'30.107"N	80°57'30.031"W	4241.61	132.292	2.12	-0.53	2.05
12527.00	89.350	153.900	8022.02	4142.50	-2937.80	3180.59	2428185.21	340705.56	40°35'29.273"N	80°57'29.493"W	4329.76	132.728	2.33	0.03	2.33
12622.00	89.350	153.000	8023.10	4237.28	-3022.78	3223.05	2428227.66	340620.59	40°35'28.426"N	80°57'28.963"W	4418.73	133.163	0.95	0.00	-0.95
12717.00	89.260	149.820	8024.25	4332.22	-3106.18	3268.50	2428273.12	340537.19	40°35'27.594"N	80°57'28.393"W	4509.04	133.541	3.35	-0.09	-3.35
12811.00	89.540	153.250	8025.23	4426.15	-3188.80	3313.29	2428317.91	340454.58	40°35'26.770"N	80°57'27.831"W	4598.51	133.903	3.66	0.30	3.65
12906.00	89.660	157.650	8025.90	4520.64	-3275.19	3352.75	2428357.37	340368.19	40°35'25.910"N	80°57'27.340"W	4686.98	134.330	4.63	0.13	4.63
13001.00	90.120	156.420	8026.08	4614.84	-3362.65	3389.82	2428394.43	340280.72	40°35'25.039"N	80°57'26.879"W	4774.76	134.770	1.38	0.48	-1.29
13096.00	89.630	148.970	8026.29	4709.64	-3447.01	3433.37	2428437.98	340196.37	40°35'24.198"N	80°57'26.334"W	4865.17	135.114	7.86	-0.52	-7.84
13190.00	89.540	140.800	8026.97	4803.24	-3523.83	3487.39	2428492.00	340119.55	40°35'23.430"N	80°57'25.652"W	4957.75	135.298	8.69	-0.10	-8.69
13285.00	89.540	142.180	8027.73	4897.27	-3598.17	3546.54	2428551.15	340045.22	40°35'22.685"N	80°57'24.902"W	5052.20	135.414	1.45	0.00	1.45
13379.00	89.660	145.990	8028.39	4990.81	-3674.28	3601.66	2428606.27	339969.11	40°35'21.923"N	80°57'24.205"W	5145.13	135.572	4.06	0.13	4.05
13474.00	89.780	148.380	8028.85	5085.71	-3754.11	3653.14	2428657.75	339889.28	40°35'21.125"N	80°57'23.556"W	5238.21	135.781	2.52	0.13	2.52





# Actual Wellpath Report

Jones A 33-13-4 10H AWP Proj: 15690'

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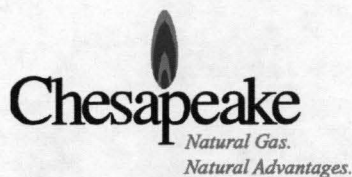


## REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE	Slot	Slot #10
Area	Carroll County, OH	Well	Jones A 33-13-4 10H
Field	Carroll	Wellbore	Jones A 33-13-4 10H AWB
Facility	Jones A 33-13-4 Pad		

## WELLPATH DATA (175 stations)

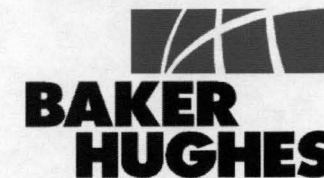
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
13569.00	89.750	150.220	8029.24	5180.71	-3835.80	3701.64	2428706.25	339807.60	40°35'20.310"N	80°57'22.947"W	5330.62	136.020	1.94	-0.03	1.94
13663.00	89.630	150.030	8029.75	5274.70	-3917.30	3748.46	2428753.07	339726.09	40°35'19.497"N	80°57'22.359"W	5421.83	136.262	0.24	-0.13	-0.20
13758.00	89.720	149.520	8030.29	5369.70	-3999.39	3796.29	2428800.89	339644.01	40°35'18.677"N	80°57'21.758"W	5514.24	136.492	0.55	0.09	-0.54
13852.00	89.660	149.290	8030.80	5463.70	-4080.30	3844.13	2428848.73	339563.10	40°35'17.869"N	80°57'21.156"W	5605.90	136.707	0.25	-0.06	-0.24
13947.00	88.950	146.570	8031.95	5558.64	-4160.79	3894.56	2428899.16	339482.61	40°35'17.065"N	80°57'20.521"W	5699.10	136.893	2.96	-0.75	-2.86
14042.00	89.480	145.590	8033.25	5653.45	-4239.61	3947.57	2428952.16	339403.79	40°35'16.277"N	80°57'19.852"W	5792.89	137.043	1.17	0.56	-1.03
14137.00	89.660	151.410	8033.96	5748.38	-4320.58	3997.18	2429001.78	339322.83	40°35'15.469"N	80°57'19.228"W	5885.99	137.227	6.13	0.19	6.13
14232.00	89.780	153.880	8034.43	5843.24	-4404.95	4040.83	2429045.42	339238.46	40°35'14.628"N	80°57'18.682"W	5977.61	137.469	2.60	0.13	2.60
14326.00	89.600	154.960	8034.94	5936.92	-4489.73	4081.42	2429086.01	339153.68	40°35'13.783"N	80°57'18.175"W	6067.59	137.727	1.16	-0.19	1.15
14421.00	89.570	147.640	8035.63	6031.81	-4573.00	4127.00	2429131.60	339070.41	40°35'12.952"N	80°57'17.604"W	6159.91	137.935	7.71	-0.03	-7.71
14516.00	89.660	144.710	8036.27	6126.62	-4651.91	4179.88	2429184.47	338991.51	40°35'12.163"N	80°57'16.936"W	6253.93	138.059	3.09	0.09	-3.08
14611.00	89.750	151.090	8036.75	6221.53	-4732.34	4230.34	2429234.92	338911.08	40°35'11.360"N	80°57'16.301"W	6347.51	138.206	6.72	0.09	6.72
14705.00	89.970	155.130	8036.98	6315.34	-4816.16	4272.84	2429277.43	338827.26	40°35'10.524"N	80°57'15.770"W	6438.37	138.421	4.30	0.23	4.30
14800.00	89.750	161.150	8037.22	6409.25	-4904.29	4308.20	2429312.78	338739.13	40°35'09.647"N	80°57'15.332"W	6527.84	138.702	6.34	-0.23	6.34
14894.00	89.750	156.410	8037.63	6502.03	-4991.89	4342.21	2429346.80	338651.54	40°35'08.776"N	80°57'14.911"W	6616.18	138.982	5.04	0.00	-5.04
14989.00	89.970	148.990	8037.86	6596.83	-5076.25	4385.75	2429390.34	338567.18	40°35'07.935"N	80°57'14.366"W	6708.44	139.174	7.81	0.23	-7.81
15084.00	89.630	144.590	8038.19	6691.68	-5155.71	4437.77	2429442.35	338487.72	40°35'07.140"N	80°57'13.710"W	6802.59	139.280	4.65	-0.36	-4.63
15179.00	89.630	144.390	8038.81	6786.30	-5233.04	4492.95	2429497.53	338410.39	40°35'06.367"N	80°57'13.013"W	6897.20	139.352	0.21	0.00	-0.21
15274.00	89.540	143.000	8039.49	6880.78	-5309.60	4549.20	2429553.77	338333.84	40°35'05.601"N	80°57'12.302"W	6991.93	139.410	1.47	-0.09	-1.46
15369.00	89.720	145.280	8040.11	6975.34	-5386.59	4604.84	2429609.42	338256.85	40°35'04.830"N	80°57'11.598"W	7086.60	139.474	2.41	0.19	2.40
15464.00	89.480	152.320	8040.77	7070.26	-5467.79	4654.02	2429658.60	338175.65	40°35'04.019"N	80°57'10.980"W	7180.30	139.597	7.41	-0.25	7.41
15558.00	89.570	154.710	8041.55	7164.04	-5551.92	4695.94	2429700.51	338091.53	40°35'03.181"N	80°57'10.456"W	7271.56	139.775	2.54	0.10	2.54
15653.00	89.690	146.870	8042.16	7258.94	-5634.77	4742.26	2429746.84	338008.68	40°35'02.354"N	80°57'09.875"W	7364.76	139.916	8.25	0.13	-8.25
15666.00	90.030	145.740	8042.20	7271.92	-5645.59	4749.47	2429754.05	337997.86	40°35'02.246"N	80°57'09.784"W	7377.68	139.927	9.08	2.62	-8.69
15690.00	90.030	145.740	8042.18	7295.87	-5665.42	4762.99	2429767.56	337978.03	40°35'02.048"N	80°57'09.613"W	7401.56	139.946	0.00	0.00	0.00



# Actual Wellpath Report

Jones A 33-13-4 10H AWP Proj: 15690'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE	Slot	Slot #10
Area	Carroll County, OH	Well	Jones A 33-13-4 10H
Field	Carroll	Wellbore	Jones A 33-13-4 10H AWB
Facility	Jones A 33-13-4 Pad		

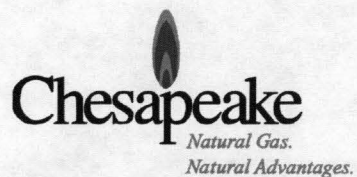
## TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Jones A 33-13-4 10H LP Rev-6		7997.20	116.78	1380.28	2426384.95	343760.06	40°35'59.766"N	80°57'52.128"W	point
Jones A 33-13-4 10H FP Rev-6		8042.70	-5511.31	4676.93	2429681.50	338132.13	40°35'03.585"N	80°57'10.693"W	point
Jones A 33-13-4 10H BHL Rev-6		8043.96	-5666.47	4767.81	2429772.38	337976.98	40°35'02.036"N	80°57'09.551"W	point
Jones A 33-13-4 10H D.C.		8200.00	0.00	0.00	2425004.71	343643.28	40°35'58.852"N	80°58'10.045"W	polygon
Jones A 33-13-4 South LL		8500.00	0.00	0.00	2425004.71	343643.28	40°35'58.852"N	80°58'10.045"W	polygon

## WELLPATH COMPOSITION - Ref Wellbore: Jones A 33-13-4 10H AWB Ref Wellpath: Jones A 33-13-4 10H AWP Proj: 15690'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
20.00	6855.00	Generic gyro - northseeking (Standard)	Gyrodata MS Gyro (31.2'-6855')	Jones A 33-13-4 10H AWB
6855.00	15666.00	NaviTrak (MagCorr)	BHI AT Curve (6855')(6940'-15666')	Jones A 33-13-4 10H AWB
15666.00	15690.00	Blind Drilling (std)	Projection to bit	Jones A 33-13-4 10H AWB

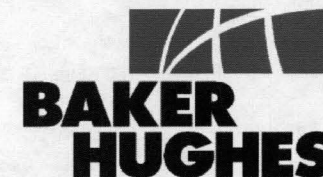




## Actual Wellpath Report

Jones A 33-13-4 10H AWP Proj: 15690'

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### REFERENCE WELLPATH IDENTIFICATION

Operator	CHESAPEAKE	Slot	Slot #10
Area	Carroll County, OH	Well	Jones A 33-13-4 10H
Field	Carroll	Wellbore	Jones A 33-13-4 10H AWB
Facility	Jones A 33-13-4 Pad		

### COMMENTS

#### Wellpath general comments

API: 34-019-22414-0000

BHI Job #: 5712357A

Rig: Nomac 73

Duration: 9/4/2013-9/8/2013

Gyrodata MS Gyro (31.2'-6855')

BHI AT Curve (6855')(6940'-15666')

Projected MD at TD: 15690'