



Company:	Chesapeake Energy Corp	Local Co-ordinate Reference:	Well George Gantzer OHI 1H
Project:	Ohio County, WV	TVD Reference:	WELL @ 1262.0usft (Nomac 37)
Site:	George Gantzer OHI Pad	MD Reference:	WELL @ 1262.0usft (Nomac 37)
Well:	George Gantzer OHI 1H	North Reference:	Grid
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Project	Ohio County, WV		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia North 4701		Using geodetic scale factor

Site	George Gantzer OHI Pad				
Site Position:		Northing:	564,648.81 usft	Latitude:	40.045074
From:	Lat/Long	Easting:	1,691,907.90 usft	Longitude:	-80.600447
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	-0.70 °

Well	George Gantzer OHI 1H					
Well Position	+N/-S	0.0 usft	Northing:	564,648.80 usft	Latitude:	40.045074
	+E/-W	0.0 usft	Easting:	1,691,907.90 usft	Longitude:	-80.600447
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,244.0 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/9/2013	-8.73	67.49	52,799

Design	FINAL				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	323.32	

Survey Program	Date 5/7/2013				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	550.0	Surface Gyro (Hz)	Gyro	Gyro	
659.0	13,236.0	Survey #2 (Hz)	MWD	Geolink MWD	

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Formations / Comments
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.09	87.36	100.0	0.0	0.1	0.0	0.09	0.09	
200.0	0.10	324.11	200.0	0.1	0.1	0.0	0.17	0.01	
300.0	0.13	345.45	300.0	0.3	0.0	0.2	0.05	0.09	
400.0	0.14	28.84	400.0	0.5	0.1	0.3	0.10	0.01	
500.0	0.15	44.82	500.0	0.7	0.2	0.4	0.04	0.01	
550.0	0.16	43.55	550.0	0.8	0.3	0.4	0.02	0.02	RECEIVED Office of Oil and Gas DEC 03 2013 Last Gyro Survey @ 550' MD
659.0	0.60	30.00	659.0	1.4	0.7	0.7	0.41	0.40	
722.0	0.40	93.90	722.0	1.6	1.1	0.7	0.88	-0.32	
785.0	1.30	81.00	785.0	1.7	2.0	0.2	1.45	1.43	WV Department of Environmental Protection
848.0	1.60	109.70	848.0	1.6	3.5	-0.9	1.21	1.31	
910.0	2.50	98.00	909.9	1.1	5.7	-2.5	1.59	1.45	



Cathedral Energy Services  
Survey Report

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Well:	George Gantzer OHI 1H	North Reference:	Grid
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Formations / Comments
974.0	3.20	115.80	973.8	0.1	8.7	-5.1	1.75	1.09	
1,036.0	4.40	125.10	1,035.7	-2.0	12.2	-8.9	2.17	1.94	
1,099.0	5.50	124.40	1,098.5	-5.1	16.7	-14.0	1.75	1.75	
1,161.0	6.60	130.40	1,160.1	-9.1	21.8	-20.3	2.04	1.77	
1,223.0	7.30	138.10	1,221.7	-14.3	27.2	-27.7	1.88	1.13	
1,284.0	7.10	145.10	1,282.2	-20.3	31.9	-35.4	1.47	-0.33	
1,348.0	7.60	149.70	1,345.7	-27.2	36.3	-43.5	1.21	0.78	
1,410.0	7.90	157.50	1,407.1	-34.7	40.0	-51.7	1.76	0.48	
1,473.0	8.00	166.30	1,469.5	-42.9	42.7	-60.0	1.94	0.16	
1,535.0	7.70	168.50	1,530.9	-51.2	44.5	-67.7	0.68	-0.48	
1,599.0	7.50	173.60	1,594.4	-59.6	45.9	-75.2	1.10	-0.31	
1,662.0	7.20	181.20	1,656.8	-67.6	46.2	-81.8	1.61	-0.48	
1,725.0	6.10	193.50	1,719.4	-74.8	45.4	-87.1	2.85	-1.75	
1,788.0	4.90	199.70	1,782.1	-80.6	43.7	-90.7	2.12	-1.90	
1,852.0	3.80	203.30	1,845.9	-85.1	41.9	-93.3	1.77	-1.72	
1,914.0	2.60	205.60	1,907.8	-88.3	40.5	-95.0	1.95	-1.94	
1,977.0	1.90	215.90	1,970.8	-90.4	39.3	-96.0	1.28	-1.11	
2,039.0	1.90	219.60	2,032.8	-92.0	38.0	-96.5	0.20	0.00	
2,065.0	1.90	219.30	2,058.7	-92.7	37.5	-96.7	0.04	0.00	
2,180.0	1.40	218.80	2,173.7	-95.3	35.4	-97.5	0.43	-0.43	
2,305.0	1.00	245.90	2,298.7	-96.9	33.4	-97.7	0.55	-0.32	
2,428.0	0.40	269.40	2,421.7	-97.3	32.0	-97.2	0.53	-0.49	
2,554.0	0.40	305.60	2,547.7	-97.1	31.2	-96.5	0.20	0.00	
3,054.0	0.60	329.70	3,047.6	-93.8	28.5	-92.3	0.06	0.04	
3,432.0	0.20	309.20	3,425.6	-91.7	27.0	-89.6	0.11	-0.11	
3,494.0	0.70	276.50	3,487.6	-91.6	26.5	-89.3	0.88	0.81	
3,557.0	0.50	275.20	3,550.6	-91.5	25.9	-88.8	0.32	-0.32	
3,618.0	0.40	278.30	3,611.6	-91.4	25.4	-88.5	0.17	-0.16	
3,680.0	0.20	278.60	3,673.6	-91.4	25.1	-88.3	0.32	-0.32	
3,742.0	0.40	267.90	3,735.6	-91.4	24.7	-88.1	0.33	0.32	
3,806.0	0.40	321.20	3,799.6	-91.2	24.4	-87.7	0.56	0.00	
3,867.0	0.40	11.30	3,860.6	-90.9	24.3	-87.4	0.56	0.00	
3,929.0	0.40	323.00	3,922.6	-90.5	24.2	-87.0	0.53	0.00	
4,115.0	0.70	310.70	4,108.6	-89.2	22.9	-85.3	0.17	0.16	
4,240.0	0.60	296.20	4,233.6	-88.4	21.8	-83.9	0.15	-0.08	
4,365.0	0.20	324.80	4,358.6	-88.0	21.1	-83.1	0.35	-0.32	
4,491.0	0.50	337.90	4,484.6	-87.3	20.7	-82.4	0.24	0.24	
4,615.0	0.20	354.30	4,608.6	-86.5	20.5	-81.7	0.25	-0.24	
4,740.0	0.00	212.30	4,733.6	-86.3	20.5	-81.5	0.16	-0.16	
4,866.0	0.40	251.80	4,859.6	-86.5	20.1	-81.3	0.32	-0.32	
4,993.0	0.20	13.30	4,986.6	-86.4	19.7	-81.1	0.42	-0.16	
5,118.0	0.20	171.00	5,111.6	-86.4	19.8	-81.1	0.31	0.00	
5,243.0	0.80	288.90	5,236.6	-86.3	19.0	-80.6	0.73	0.48	
5,366.0	0.40	311.70	5,359.6	-85.8	17.9	-79.4	0.37	0.36	
5,491.0	0.10	301.00	5,484.6	-85.4	17.4	-78.9	0.24	-0.24	
5,618.0	0.40	179.90	5,611.6	-85.8	17.3	-79.2	0.36	0.24	
5,659.0	0.40	243.80	5,652.6	-86.0	17.2	-79.3	1.03	0.99	
5,698.0	0.60	244.70	5,691.6	-86.2	16.9	-79.2	0.51	0.51	
5,730.0	2.40	230.20	5,723.6	-86.7	16.2	-79.2	0.70	0.63	
5,762.0	3.90	235.70	5,755.5	-87.7	14.8	-79.2	4.78	4.69	
5,793.0	5.90	244.20	5,786.4	-89.0	12.5	-78.8	6.85	6.45	
5,824.0	7.60	245.50	5,817.2	-90.5	9.2	-78.1	5.51	5.48	
5,856.0	9.40	244.90	5,848.8	-92.5	4.9	-77.1	5.63	5.63	

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Cathedral Energy Services  
Survey Report

69 00119

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<b>Site:</b>	George Gantzer OHI Pad	<b>MD Reference:</b>	WELL @ 1262.0usft (Nomac 37)
<b>Well:</b>	George Gantzer OHI 1H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Formations / Comments
5,887.0	12.40	241.20	5,879.3	-95.2	-0.3	-76.2	9.93	9.68	
5,919.0	15.50	239.70	5,910.3	-99.0	-7.0	-75.2	9.75	9.69	
5,950.0	18.70	239.50	5,939.9	-103.6	-14.8	-74.2	10.32	10.32	
5,981.0	21.80	240.40	5,969.0	-109.0	-24.1	-73.0	10.05	10.00	
6,012.0	23.40	241.90	5,997.6	-114.7	-34.6	-71.4	5.48	5.16	
6,044.0	25.80	243.00	6,026.7	-120.9	-46.4	-69.2	7.63	7.50	
6,075.0	27.20	242.30	6,054.5	-127.2	-58.7	-67.0	4.63	4.52	
6,107.0	31.20	240.40	6,082.4	-134.7	-72.4	-64.8	12.83	12.50	
6,138.0	34.10	239.80	6,108.5	-143.1	-86.8	-62.9	9.41	9.35	
6,168.0	37.80	241.20	6,132.8	-151.7	-102.2	-60.7	12.63	12.33	
6,200.0	39.40	242.50	6,157.8	-161.2	-119.8	-57.7	5.61	5.00	
6,232.0	43.10	242.90	6,181.9	-170.8	-138.5	-54.3	11.59	11.56	
6,263.0	44.80	243.90	6,204.2	-180.5	-157.8	-50.5	5.93	5.49	
6,295.0	47.60	244.70	6,226.3	-190.5	-178.6	-46.1	8.93	8.75	
6,325.0	49.60	244.70	6,246.2	-200.1	-198.9	-41.6	6.67	6.67	
6,357.0	53.60	245.10	6,266.0	-210.7	-221.6	-36.6	12.54	12.50	
6,389.0	57.90	245.90	6,284.0	-221.7	-245.7	-31.0	13.60	13.44	
6,421.0	61.00	247.80	6,300.3	-232.5	-271.0	-24.6	10.95	9.69	
6,452.0	64.20	251.30	6,314.6	-242.1	-296.8	-16.9	14.39	10.32	
6,484.0	66.90	252.00	6,327.8	-251.3	-324.5	-7.7	8.67	8.44	
6,515.0	71.20	254.20	6,338.9	-259.7	-352.1	2.1	15.37	13.87	
6,547.0	75.80	256.30	6,348.0	-267.5	-381.8	13.6	15.69	14.38	
6,578.0	78.80	259.80	6,354.8	-273.7	-411.4	26.2	14.66	9.68	
6,610.0	80.60	263.00	6,360.5	-278.4	-442.5	41.0	11.33	5.63	
6,640.0	81.80	266.70	6,365.1	-281.1	-472.0	56.5	12.83	4.00	
6,672.0	83.10	270.10	6,369.3	-282.0	-503.7	74.8	11.29	4.06	
6,704.0	85.00	273.50	6,372.6	-281.0	-535.5	94.6	12.12	5.94	
6,735.0	85.50	277.40	6,375.2	-278.1	-566.3	115.3	12.64	1.61	
6,766.0	85.30	281.60	6,377.7	-273.0	-596.8	137.6	13.52	-0.65	
6,797.0	85.10	286.50	6,380.3	-265.5	-626.7	161.5	15.76	-0.65	
6,829.0	86.70	291.00	6,382.6	-255.2	-656.9	187.8	14.89	5.00	
6,861.0	87.40	294.40	6,384.2	-242.9	-686.4	215.2	10.83	2.19	
6,892.0	87.30	296.70	6,385.7	-229.5	-714.3	242.6	7.42	-0.32	
6,954.0	89.80	301.30	6,387.2	-199.5	-768.5	299.1	8.44	4.03	
7,017.0	89.40	303.90	6,387.7	-165.5	-821.6	358.0	4.18	-0.63	
7,080.0	91.80	307.90	6,387.0	-128.6	-872.6	418.1	7.40	3.81	
7,143.0	91.60	308.60	6,385.1	-89.6	-922.1	478.9	1.16	-0.32	
7,204.0	90.60	307.10	6,384.0	-52.2	-970.2	537.7	2.95	-1.64	
7,267.0	89.50	306.70	6,383.9	-14.4	-1,020.6	598.1	1.86	-1.75	
7,328.0	88.80	305.60	6,384.8	21.6	-1,069.9	656.4	2.14	-1.15	
7,391.0	89.70	306.30	6,385.6	58.6	-1,120.9	716.5	1.81	1.43	
7,454.0	90.40	308.10	6,385.6	96.7	-1,171.0	777.0	3.07	1.11	
7,518.0	91.40	310.20	6,384.6	137.1	-1,220.7	839.1	3.63	1.56	
7,581.0	91.90	310.20	6,382.8	177.7	-1,268.8	900.4	0.79	0.79	
7,644.0	91.50	310.20	6,380.9	218.4	-1,316.9	961.7	0.63	-0.63	
7,708.0	89.00	309.60	6,380.6	259.4	-1,365.9	1,024.0	4.02	-3.91	
7,770.0	89.70	309.50	6,381.3	298.9	-1,413.7	1,084.2	1.14	0.48	
7,833.0	90.00	311.10	6,381.5	339.6	-1,461.8	1,145.6	2.58	0.48	
7,895.0	89.40	312.10	6,381.8	380.8	-1,508.2	1,206.3	1.88	-0.97	
7,958.0	90.10	312.10	6,382.1	423.0	-1,554.9	1,268.1	1.11	1.11	
8,021.0	90.60	312.20	6,381.7	465.3	-1,601.6	1,329.9	0.81	0.79	
8,085.0	91.50	313.10	6,380.5	508.7	-1,648.7	1,392.8	1.99	1.94	
8,147.0	92.70	315.80	6,378.2	552.0	-1,692.9	1,454.0	4.76	4.76	

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Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
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8,210.0	93.00	317.40	6,375.1	597.8	-1,736.1	1,516.5	2.58	0.48	
8,273.0	92.20	319.00	6,372.3	644.7	-1,778.1	1,579.1	2.84	-1.27	
8,335.0	91.70	320.30	6,370.1	691.9	-1,818.2	1,641.0	2.25	-0.81	
8,398.0	90.60	322.40	6,368.9	741.1	-1,857.5	1,703.9	3.76	-1.75	
8,462.0	89.90	323.80	6,368.6	792.3	-1,896.0	1,767.9	2.45	-1.09	
8,525.0	89.30	325.20	6,369.0	843.6	-1,932.5	1,830.9	2.42	-0.95	
8,588.0	89.30	326.20	6,369.8	895.6	-1,968.0	1,893.8	1.59	0.00	
8,651.0	89.30	327.20	6,370.6	948.2	-2,002.6	1,956.7	1.59	0.00	
8,714.0	88.60	326.00	6,371.7	1,000.8	-2,037.3	2,019.6	2.20	-1.11	
8,778.0	89.50	325.60	6,372.8	1,053.8	-2,073.3	2,083.5	1.54	1.41	
8,841.0	91.20	326.70	6,372.4	1,106.1	-2,108.3	2,146.5	3.21	2.70	
8,903.0	92.00	324.90	6,370.7	1,157.3	-2,143.2	2,208.4	3.18	1.29	
8,966.0	91.30	325.20	6,368.9	1,208.9	-2,179.3	2,271.3	1.21	-1.11	
9,026.0	90.80	325.50	6,367.8	1,258.3	-2,213.4	2,331.3	0.97	-0.83	
9,090.0	90.60	326.20	6,367.0	1,311.3	-2,249.3	2,395.2	1.14	-0.31	
9,152.0	90.70	324.90	6,366.3	1,362.4	-2,284.4	2,457.2	2.10	0.16	
9,214.0	89.60	324.60	6,366.1	1,413.0	-2,320.1	2,519.1	1.84	-1.77	
9,277.0	88.90	323.10	6,366.9	1,463.9	-2,357.3	2,582.1	2.63	-1.11	
9,340.0	88.80	322.40	6,368.2	1,514.0	-2,395.4	2,645.1	1.12	-0.16	
9,404.0	89.30	321.80	6,369.3	1,564.5	-2,434.7	2,709.1	1.22	0.78	
9,466.0	90.70	321.70	6,369.3	1,613.2	-2,473.1	2,771.1	2.26	2.26	
9,529.0	90.20	322.40	6,368.8	1,662.9	-2,511.9	2,834.0	1.37	-0.79	
9,592.0	89.60	323.10	6,368.9	1,713.0	-2,550.0	2,897.0	1.46	-0.95	
9,656.0	90.50	324.50	6,368.8	1,764.7	-2,587.8	2,961.0	2.60	1.41	
9,720.0	91.30	326.00	6,366.9	1,816.2	-2,626.6	3,025.8	1.35	0.63	
9,782.0	91.30	326.00	6,366.9	1,868.2	-2,659.6	3,086.9	1.35	0.63	
9,846.0	89.20	325.40	6,366.6	1,921.0	-2,695.7	3,150.9	3.41	-3.28	
9,909.0	87.90	323.60	6,368.2	1,972.3	-2,732.2	3,213.8	3.52	-2.06	
9,971.0	88.60	323.70	6,370.1	2,022.2	-2,769.0	3,275.8	1.14	1.13	
10,034.0	89.60	323.80	6,371.1	2,073.0	-2,806.2	3,338.8	1.60	1.59	
10,097.0	88.70	323.90	6,372.0	2,123.9	-2,843.4	3,401.8	1.44	-1.43	
10,161.0	89.40	324.00	6,373.0	2,175.6	-2,881.0	3,465.8	1.10	1.09	
10,223.0	90.40	323.90	6,373.2	2,225.8	-2,917.5	3,527.8	1.62	1.61	
10,287.0	91.20	323.90	6,372.3	2,277.5	-2,955.2	3,591.8	1.25	1.25	
10,350.0	90.50	323.60	6,371.3	2,328.3	-2,992.5	3,654.8	1.21	-1.11	
10,412.0	91.50	323.40	6,370.2	2,378.1	-3,029.4	3,716.8	1.64	1.61	
10,475.0	91.20	323.50	6,368.8	2,428.7	-3,066.9	3,779.7	0.50	-0.48	
10,538.0	90.20	322.90	6,368.0	2,479.1	-3,104.6	3,842.7	1.85	-1.59	
10,601.0	90.90	322.00	6,367.4	2,529.1	-3,143.0	3,905.7	1.81	1.11	
10,665.0	90.40	321.20	6,366.7	2,579.2	-3,182.7	3,969.7	1.47	-0.78	
10,727.0	91.00	320.40	6,365.9	2,627.3	-3,221.9	4,031.6	1.61	0.97	
10,791.0	90.70	321.50	6,365.0	2,677.0	-3,262.2	4,095.6	1.78	-0.47	
10,853.0	91.30	321.30	6,363.9	2,725.4	-3,300.9	4,157.5	1.02	0.97	
10,915.0	92.50	321.40	6,361.8	2,773.8	-3,339.6	4,219.5	1.94	1.94	
10,977.0	93.10	323.30	6,358.8	2,822.8	-3,377.4	4,281.4	3.21	0.97	
11,039.0	92.40	323.90	6,355.8	2,872.7	-3,414.2	4,343.3	1.49	-1.13	
11,102.0	91.90	325.10	6,353.4	2,923.9	-3,450.7	4,406.2	2.06	-0.79	
11,165.0	90.50	325.40	6,352.1	2,975.7	-3,486.6	4,469.2	2.27	1.22	
11,226.0	89.70	324.30	6,352.0	3,025.5	-3,521.7	4,530.1	2.23	1.31	
11,289.0	88.90	323.90	6,352.8	3,076.6	-3,558.7	4,593.1	1.42	-1.27	
11,350.0	89.70	323.80	6,353.5	3,125.8	-3,594.7	4,654.1	1.32	1.31	
11,414.0	89.60	323.60	6,353.9	3,177.4	-3,632.6	4,718.1	0.35	1.59	
11,477.0	90.60	323.90	6,353.8	3,228.2	-3,669.8	4,781.1	1.66	1.59	
11,539.0	89.90	323.40	6,353.5	3,278.1	-3,706.6	4,843.1	1.39	-1.13	

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Cathedral Energy Services  
Survey Report

<b>Company:</b> Chesapeake Energy Corp	<b>Local Co-ordinate Reference:</b> Well George Gantzer OHI 1H
<b>Project:</b> Ohio County, WV	<b>TVD Reference:</b> WELL @ 1262.0usft (Nomac 37)
<b>Site:</b> George Gantzer OHI Pad	<b>MD Reference:</b> WELL @ 1262.0usft (Nomac 37)
<b>Well:</b> George Gantzer OHI 1H	<b>North Reference:</b> Grid
<b>Wellbore:</b> Hz	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> FINAL	<b>Database:</b> USA EDM 5000 Multi Users DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Formations / Comments
11,602.0	90.60	323.50	6,353.3	3,328.8	-3,744.1	4,906.1	1.12	1.11	
11,664.0	89.70	322.80	6,353.1	3,378.4	-3,781.3	4,968.1	1.84	-1.45	
11,726.0	90.80	322.60	6,352.8	3,427.7	-3,818.8	5,030.1	1.80	1.77	
11,789.0	90.60	322.70	6,352.1	3,477.8	-3,857.0	5,093.1	0.35	-0.32	
11,851.0	89.10	322.70	6,352.2	3,527.1	-3,894.6	5,155.1	2.42	-2.42	
11,913.0	89.90	323.90	6,352.8	3,576.8	-3,931.7	5,217.1	2.33	1.29	
11,975.0	90.80	326.70	6,352.4	3,627.7	-3,967.0	5,279.0	4.74	1.45	
12,038.0	90.60	325.50	6,351.6	3,680.0	-4,002.1	5,342.0	1.93	-0.32	
12,102.0	89.60	325.30	6,351.5	3,732.7	-4,038.4	5,405.9	1.59	-1.56	
12,164.0	89.00	324.40	6,352.3	3,783.4	-4,074.1	5,467.9	1.74	-0.97	
12,226.0	89.70	323.80	6,353.0	3,833.6	-4,110.5	5,529.9	1.49	1.13	
12,289.0	89.30	323.50	6,353.5	3,884.4	-4,147.8	5,592.9	0.79	-0.63	
12,351.0	91.20	323.50	6,353.3	3,934.2	-4,184.7	5,654.9	3.06	3.06	
12,414.0	90.30	323.30	6,352.4	3,984.8	-4,222.2	5,717.9	1.46	-1.43	
12,476.0	88.90	324.20	6,352.9	4,034.8	-4,258.9	5,779.9	2.68	-2.26	
12,540.0	90.20	325.50	6,353.4	4,087.1	-4,295.7	5,843.8	2.87	2.03	
12,602.0	89.90	325.40	6,353.3	4,138.2	-4,330.9	5,905.8	0.51	-0.48	
12,666.0	91.20	325.30	6,352.7	4,190.8	-4,367.3	5,969.7	2.04	2.03	
12,729.0	88.90	324.40	6,352.6	4,242.3	-4,403.6	6,032.7	3.92	-3.65	
12,792.0	90.40	324.50	6,353.0	4,293.6	-4,440.2	6,095.7	2.39	2.38	
12,856.0	89.80	323.30	6,352.9	4,345.3	-4,477.9	6,159.7	2.10	-0.94	
12,919.0	90.70	323.80	6,352.6	4,396.0	-4,515.3	6,222.7	1.63	1.43	
12,982.0	90.30	322.50	6,352.1	4,446.4	-4,553.1	6,285.7	2.16	-0.63	
13,045.0	91.10	321.70	6,351.3	4,496.1	-4,591.8	6,348.7	1.80	1.27	
13,107.0	92.20	321.20	6,349.5	4,544.5	-4,630.4	6,410.6	1.95	1.77	
13,168.0	93.50	321.00	6,346.5	4,591.9	-4,668.7	6,471.5	2.16	2.13	
13,190.0	94.20	321.30	6,345.0	4,609.1	-4,682.5	6,493.4	3.46	3.18	Last Cathedral Survey @ 13190' MD
13,236.0	95.60	321.90	6,341.1	4,645.0	-4,710.9	6,539.2	3.31	3.05	Projection to Bit @ 13236' MD

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Company:	Chesapeake Energy Corp	Local Co-ordinate Reference:	Well George Gantzer OHI 1H
Project:	Ohio County, WV	TVD Reference:	WELL @ 1262.0usft (Nomac 37)
Site:	George Gantzer OHI Pad	MD Reference:	WELL @ 1262.0usft (Nomac 37)
Well:	George Gantzer OHI 1H	North Reference:	Grid
Wellbore:	HZ	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
George Gantzer OHI 1H - actual wellpath misses target center by 35.3usft at 13236.0usft MD (6341.1 TVD, 4645.0 N, -4710.9 E) - Point	0.00	360.00	6,306.5	4,640.5	-4,716.7	569,289.19	1,687,191.36	40.057652	-80.617498
George Gantzer OHI 1H - actual wellpath misses target center by 27.0usft at 13236.0usft MD (6341.1 TVD, 4645.0 N, -4710.9 E) - Point	0.00	360.00	6,315.1	4,640.5	-4,716.7	569,289.19	1,687,191.36	40.057652	-80.617498
George Gantzer OHI 1H - actual wellpath misses target center by 187.0usft at 7287.7usft MD (6384.1 TVD, -2.0 N, -1037.3 E) - Point	0.00	360.00	6,369.1	-152.4	-1,147.4	564,496.40	1,690,760.55	40.044617	-80.604538
George Gantzer OHI 1H - actual wellpath misses target center by 12.0usft at 13236.0usft MD (6341.1 TVD, 4645.0 N, -4710.9 E) - Point	0.00	360.00	6,331.5	4,640.5	-4,716.7	569,289.19	1,687,191.36	40.057652	-80.617498
George Gantzer OHI 1H - actual wellpath misses target center by 7.4usft at 13236.0usft MD (6341.1 TVD, 4645.0 N, -4710.9 E) - Point	0.00	360.00	6,339.9	4,640.5	-4,716.7	569,289.19	1,687,191.36	40.057652	-80.617498
George Gantzer OHI 1H - actual wellpath misses target center by 12.7usft at 13235.2usft MD (6341.2 TVD, 4644.4 N, -4710.4 E) - Point	0.00	360.00	6,351.5	4,640.5	-4,716.7	569,289.19	1,687,191.36	40.057652	-80.617498

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
550.0	550.0	0.8	0.3	Last Gyro Survey @ 550' MD	
13,190.0	6,345.0	4,609.1	-4,682.5	Last Cathedral Survey @ 13190' MD	
13,236.0	6,341.1	4,645.0	-4,710.9	Projection to Bit @ 13236' MD	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

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