



Cathedral Energy Services  
Survey Report

69 00138

Company:	Chesapeake Energy Corp	Local Co-ordinate Reference:	Well George Gantzer OHI 201H
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 201H	North Reference:	Grid
Wellbore:	HZ	Survey Calculation Method:	Minimum Curvature
Design:	HZ	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° 2' 42.27 N
From:	Lat/Long	Easting:	1,691,907.90 usft	Longitude:	80° 36' 1.61 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	-0.70 °

Well:	George Gantzer OHI 201H					
Well Position	+N/-S	0.0 usft	Northing:	564,672.52 usft	Latitude:	40° 2' 42.50 N
	+E/-W	0.0 usft	Easting:	1,691,904.27 usft	Longitude:	80° 36' 1.66 W
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	4/11/2013	-8.73	67.49	52,798

Design:	HZ				
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	323.33	

Survey Program	Date	6/11/2013			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	540.0	Survey #1 (HZ)	Gyro	Gyro	
668.0	13,100.0	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	0.21	28.72	100.0	0.2	0.1	0.1	0.21	0.21	
200.0	0.14	10.63	200.0	0.4	0.2	0.2	0.09	-0.07	
300.0	0.27	346.82	300.0	0.8	0.2	0.5	0.15	0.13	
400.0	0.36	355.72	400.0	1.3	0.1	1.0	0.10	0.09	
500.0	0.50	17.91	500.0	2.1	0.2	1.5	0.22	0.14	
540.0	0.40	26.97	540.0	2.4	0.3	1.7	0.31	-0.25	Last Gyro Survey @ 540' MD
668.0	0.70	4.80	668.0	3.5	0.6	2.5	0.28	0.23	
700.0	0.60	359.80	700.0	3.9	0.6	2.8	0.36	-0.31	
732.0	0.80	325.30	732.0	4.2	0.5	3.1	0.43	0.38	
762.0	1.30	320.90	762.0	4.7	0.1	3.7	1.69	1.67	
793.0	1.70	308.70	793.0	5.2	-0.4	4.5	1.64	1.29	

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<b>Well:</b>	George Gantzer OHI 201H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	HZ	<b>Database:</b>	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
825.0	2.30	311.00	824.9	6.0	-1.3	5.6	1.89	1.88	
856.0	3.00	306.90	855.9	6.9	-2.4	6.9	2.34	2.26	
887.0	3.90	300.30	886.9	7.9	-4.0	8.7	3.17	2.90	
919.0	4.60	302.70	918.8	9.1	-6.0	10.9	2.26	2.19	
950.0	4.90	304.10	949.7	10.5	-8.1	13.3	1.04	0.97	
982.0	5.00	305.50	981.5	12.1	-10.4	15.9	0.49	0.31	
1,013.0	5.20	302.10	1,012.4	13.6	-12.7	18.5	1.17	0.65	
1,044.0	5.30	302.50	1,043.3	15.2	-15.1	21.2	0.34	0.32	
1,075.0	5.50	298.20	1,074.2	16.6	-17.6	23.8	1.46	0.65	
1,107.0	5.60	298.80	1,106.0	18.1	-20.3	26.7	0.36	0.31	
1,139.0	5.90	298.40	1,137.8	19.6	-23.1	29.6	0.95	0.94	
1,170.0	6.10	297.60	1,168.7	21.2	-26.0	32.5	0.70	0.65	
1,202.0	5.80	291.80	1,200.5	22.5	-29.0	35.4	2.10	-0.94	
1,233.0	5.40	284.70	1,231.4	23.5	-31.9	37.9	2.58	-1.29	
1,265.0	5.00	280.40	1,263.2	24.1	-34.7	40.1	1.74	-1.25	
1,297.0	4.70	273.40	1,295.1	24.5	-37.4	41.9	2.07	-0.94	
1,328.0	4.60	267.00	1,326.0	24.5	-39.9	43.4	1.70	-0.32	
1,359.0	4.50	257.20	1,356.9	24.1	-42.3	44.6	2.53	-0.32	
1,391.0	4.60	249.20	1,388.8	23.4	-44.7	45.5	2.01	0.31	
1,422.0	4.60	241.10	1,419.7	22.4	-47.0	46.0	2.09	0.00	
1,453.0	4.80	233.70	1,450.6	21.0	-49.1	46.2	2.06	0.65	
1,485.0	4.80	229.50	1,482.5	19.3	-51.2	46.1	1.10	0.00	
1,516.0	5.00	225.60	1,513.4	17.5	-53.2	45.8	1.25	0.65	
1,548.0	5.20	228.10	1,545.2	15.6	-55.3	45.5	0.93	0.63	
1,580.0	5.30	226.50	1,577.1	13.6	-57.4	45.2	0.55	0.31	
1,643.0	5.00	224.20	1,639.9	9.6	-61.4	44.4	0.58	-0.48	
1,705.0	4.90	227.70	1,701.6	5.9	-65.3	43.7	0.51	-0.16	
1,767.0	4.80	229.40	1,763.4	2.4	-69.2	43.3	0.28	-0.16	
1,830.0	4.80	230.80	1,826.2	-0.9	-73.2	43.0	0.19	0.00	
1,893.0	5.00	232.30	1,889.0	-4.3	-77.5	42.8	0.38	0.32	
1,957.0	5.20	228.10	1,952.7	-7.9	-81.8	42.5	0.66	0.31	
2,012.0	5.10	223.60	2,007.5	-11.4	-85.4	41.9	0.76	-0.18	
2,116.0	5.10	221.40	2,111.1	-18.2	-91.6	40.1	0.19	0.00	
2,146.0	5.00	227.20	2,141.0	-20.1	-93.4	39.7	1.73	-0.33	
2,178.0	5.00	233.40	2,172.8	-21.8	-95.6	39.6	1.69	0.00	
2,210.0	5.20	234.90	2,204.7	-23.5	-97.9	39.6	0.75	0.63	
2,241.0	5.80	234.80	2,235.6	-25.2	-100.3	39.7	1.94	1.94	
2,272.0	6.80	230.70	2,266.4	-27.3	-103.0	39.6	3.54	3.23	
2,303.0	7.80	230.30	2,297.1	-29.8	-106.1	39.5	3.23	3.23	
2,334.0	8.40	230.10	2,327.8	-32.6	-109.4	39.2	1.94	1.94	
2,366.0	9.10	232.00	2,359.4	-35.6	-113.2	39.0	2.37	2.19	
2,396.0	9.30	233.20	2,389.1	-38.5	-117.0	39.0	0.92	0.65	
2,427.0	9.80	232.70	2,419.6	-41.6	-121.1	38.9	1.63	1.61	
2,459.0	10.60	232.70	2,451.1	-45.1	-125.6	38.9	2.50	2.50	
2,491.0	10.90	228.80	2,482.6	-48.9	-130.2	38.6	2.46	0.94	
2,522.0	11.50	228.00	2,513.0	-52.9	-134.8	38.1	2.00	0.97	
2,553.0	11.80	227.70	2,543.3	-57.1	-139.4	37.5	0.99	0.97	
2,584.0	12.30	228.00	2,573.6	-61.4	-144.2	36.9	1.63	1.61	
2,614.0	12.70	230.40	2,602.9	-65.6	-149.1	36.4	2.19	1.94	
2,645.0	13.30	230.20	2,633.1	-70.1	-154.5	36.0	1.94	1.94	
2,677.0	13.80	229.70	2,664.2	-74.9	-160.2	35.6	1.60	1.56	
2,708.0	14.10	229.40	2,694.3	-79.8	-165.9	35.1	1.00	0.97	
2,740.0	14.60	228.40	2,725.3	-85.0	-171.9	34.5	1.74	1.56	

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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
2,770.0	15.30	230.20	2,754.3	-90.0	-177.7	33.9	2.80	2.33	
2,802.0	16.10	230.10	2,785.1	-95.6	-184.4	33.5	2.50	2.50	
2,833.0	16.70	231.20	2,814.9	-101.1	-191.2	33.0	2.18	1.94	
2,864.0	17.00	230.30	2,844.5	-106.8	-198.1	32.6	1.28	0.97	
2,896.0	17.60	231.00	2,875.1	-112.8	-205.5	32.2	1.98	1.88	
2,930.0	18.00	230.40	2,907.5	-119.4	-213.5	31.7	1.29	1.18	
2,962.0	18.90	232.80	2,937.8	-125.7	-221.5	31.4	3.68	2.81	
2,993.0	19.50	232.90	2,967.1	-131.9	-229.6	31.3	1.94	1.94	
3,024.0	19.90	232.30	2,996.3	-138.2	-237.9	31.2	1.45	1.29	
3,055.0	20.40	232.90	3,025.4	-144.7	-246.4	31.1	1.75	1.61	
3,086.0	21.10	232.30	3,054.4	-151.4	-255.1	30.9	2.36	2.26	
3,117.0	21.40	229.40	3,083.3	-158.5	-263.8	30.4	3.53	0.97	
3,149.0	22.10	229.60	3,113.0	-166.2	-272.8	29.6	2.20	2.19	
3,181.0	22.30	229.30	3,142.6	-174.0	-282.0	28.8	0.72	0.63	
3,211.0	22.80	229.90	3,170.3	-181.5	-290.8	28.1	1.83	1.67	
3,274.0	24.00	231.30	3,228.1	-197.4	-310.1	26.9	2.10	1.90	
3,335.0	24.50	232.10	3,283.7	-212.9	-329.8	26.2	0.98	0.82	
3,399.0	24.00	230.10	3,342.1	-229.4	-350.2	25.2	1.50	-0.78	
3,461.0	23.60	227.60	3,398.8	-245.8	-369.1	23.2	1.75	-0.65	
3,523.0	22.80	226.20	3,455.8	-262.5	-386.9	20.5	1.57	-1.29	
3,584.0	21.80	228.30	3,512.3	-278.2	-403.9	18.0	2.10	-1.64	
3,647.0	21.90	228.90	3,570.7	-293.7	-421.5	16.1	0.39	0.16	
3,711.0	21.50	228.50	3,630.2	-309.4	-439.2	14.2	0.67	-0.63	
3,773.0	21.40	229.40	3,687.9	-324.3	-456.3	12.5	0.55	-0.16	
3,835.0	22.30	229.70	3,745.4	-339.2	-473.9	10.9	1.46	1.45	
3,897.0	22.80	231.80	3,802.7	-354.3	-492.3	9.9	1.53	0.81	
3,959.0	23.20	229.70	3,859.8	-369.6	-511.1	8.8	1.47	0.65	
4,022.0	24.00	228.60	3,917.5	-386.1	-530.1	6.9	1.45	1.27	
4,085.0	25.30	229.10	3,974.8	-403.4	-549.9	4.9	2.09	2.06	
4,147.0	24.70	229.00	4,031.0	-420.5	-569.7	2.9	0.97	-0.97	
4,210.0	24.50	229.40	4,088.2	-437.7	-589.6	1.0	0.41	-0.32	
4,274.0	23.90	228.70	4,146.6	-454.9	-609.4	-0.9	1.04	-0.94	
4,337.0	24.20	228.80	4,204.1	-471.8	-628.7	-3.0	0.48	0.48	
4,400.0	24.10	229.40	4,261.6	-488.7	-648.2	-4.9	0.42	-0.16	
4,463.0	23.00	229.80	4,319.4	-505.0	-667.3	-6.5	1.76	-1.75	
4,526.0	22.30	227.00	4,377.5	-521.1	-685.5	-8.6	2.04	-1.11	
4,588.0	21.80	228.00	4,435.0	-536.8	-702.6	-11.0	1.01	-0.81	
4,650.0	22.10	229.60	4,492.5	-552.1	-720.1	-12.8	1.08	0.48	
4,712.0	22.50	229.40	4,549.9	-567.4	-738.0	-14.4	0.66	0.65	
4,773.0	21.10	228.00	4,606.5	-582.3	-755.0	-16.2	2.45	-2.30	
4,834.0	20.90	229.40	4,663.4	-596.7	-771.4	-17.9	0.89	-0.33	
4,897.0	21.70	230.40	4,722.1	-611.5	-788.9	-19.3	1.39	1.27	
4,959.0	22.30	229.50	4,779.6	-626.4	-806.7	-20.7	1.11	0.97	
5,021.0	22.30	231.20	4,837.0	-641.4	-824.8	-21.9	1.04	0.00	
5,085.0	21.70	229.90	4,896.3	-656.7	-843.3	-23.1	1.21	-0.94	
5,149.0	20.80	228.50	4,956.0	-671.8	-860.9	-24.7	1.61	-1.41	
5,212.0	20.60	227.80	5,014.9	-686.7	-877.5	-26.7	0.51	-0.33	
5,275.0	20.70	232.60	5,073.9	-700.9	-894.5	-27.9	2.69	0.16	
5,339.0	20.60	234.20	5,133.8	-714.3	-912.7	-27.9	0.90	0.66	
5,401.0	20.80	237.70	5,191.8	-726.6	-930.8	-26.9	2.02	0.32	
5,464.0	21.10	240.50	5,250.6	-738.2	-950.1	-24.6	1.66	0.48	
5,526.0	19.50	239.10	5,308.7	-749.0	-968.7	-22.2	2.70	-2.58	
5,589.0	18.80	238.30	5,368.3	-759.7	-986.4	-20.3	1.19	-1.11	

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5,652.0	19.40	239.90	5,427.8	-770.3	-1,004.1	-18.2	1.26	0.95	
5,714.0	21.40	239.60	5,485.9	-781.2	-1,022.7	-15.8	3.23	3.23	
5,778.0	22.70	236.40	5,545.2	-793.9	-1,043.1	-13.8	2.77	2.03	
5,840.0	23.10	234.50	5,602.3	-807.6	-1,063.0	-13.0	1.36	0.65	
5,904.0	23.90	234.50	5,661.0	-822.4	-1,083.7	-12.4	1.25	1.25	
5,967.0	24.70	234.30	5,718.4	-837.5	-1,104.8	-12.0	1.28	1.27	
6,030.0	25.40	230.90	5,775.5	-853.7	-1,126.0	-12.3	2.54	1.11	
6,045.0	25.90	228.50	5,789.0	-857.9	-1,130.9	-12.7	7.69	3.33	
6,137.0	28.70	235.60	5,870.8	-883.7	-1,164.2	-13.5	4.66	3.04	
6,168.0	30.10	243.90	5,897.8	-891.3	-1,177.4	-11.8	13.89	4.52	
6,200.0	32.70	247.90	5,925.1	-898.1	-1,192.6	-8.2	10.41	8.13	
6,231.0	36.10	248.00	5,950.7	-904.7	-1,208.8	-3.7	10.97	10.97	
6,263.0	38.50	249.40	5,976.2	-911.7	-1,226.9	1.4	7.95	7.50	
6,295.0	40.10	254.30	6,000.9	-918.0	-1,246.1	7.9	10.91	5.00	
6,326.0	41.60	258.90	6,024.4	-922.7	-1,265.8	15.9	10.84	4.84	
6,357.0	43.60	261.90	6,047.2	-926.2	-1,286.5	25.4	9.19	6.45	
6,389.0	44.90	265.80	6,070.1	-928.6	-1,308.7	36.8	9.42	4.06	
6,421.0	45.80	269.80	6,092.6	-929.5	-1,331.5	49.7	9.33	2.81	
6,453.0	46.90	273.70	6,114.7	-928.7	-1,354.6	64.0	9.46	3.44	
6,485.0	48.40	277.30	6,136.3	-926.5	-1,378.1	79.9	9.54	4.69	
6,516.0	49.00	281.30	6,156.7	-922.7	-1,401.1	96.7	9.88	1.94	
6,548.0	49.30	283.80	6,177.7	-917.4	-1,424.7	115.0	5.98	0.94	
6,580.0	49.60	286.60	6,198.5	-911.1	-1,448.2	134.1	6.71	0.94	
6,610.0	48.90	288.40	6,218.1	-904.2	-1,469.9	152.5	5.11	-2.33	
6,642.0	48.50	290.00	6,239.2	-896.3	-1,492.6	172.4	3.96	-1.25	
6,674.0	50.40	291.80	6,260.0	-887.7	-1,515.3	193.0	7.32	5.94	
6,704.0	53.20	293.40	6,278.5	-878.6	-1,537.0	213.2	10.23	9.33	
6,736.0	56.10	293.90	6,297.0	-868.1	-1,560.9	235.9	9.15	9.06	
6,767.0	59.90	295.00	6,313.5	-857.2	-1,584.9	258.9	12.62	12.26	
6,798.0	63.20	295.80	6,328.2	-845.5	-1,609.5	283.0	10.88	10.65	
6,829.0	66.00	295.70	6,341.5	-833.4	-1,634.7	307.8	9.04	9.03	
6,859.0	69.30	295.60	6,352.9	-821.4	-1,659.7	332.4	11.00	11.00	
6,891.0	72.90	296.40	6,363.3	-808.1	-1,686.9	359.3	11.50	11.25	
6,921.0	75.20	296.80	6,371.5	-795.2	-1,712.7	385.0	7.77	7.67	
6,953.0	77.40	297.80	6,379.1	-780.9	-1,740.3	413.0	7.52	6.88	
6,984.0	79.10	299.20	6,385.4	-766.4	-1,767.0	440.5	7.04	5.48	
7,016.0	82.00	299.90	6,390.7	-750.9	-1,794.5	469.4	9.32	9.06	
7,048.0	85.20	300.60	6,394.3	-734.9	-1,821.9	498.6	10.23	10.00	
7,079.0	89.30	301.70	6,395.7	-718.8	-1,848.4	527.3	13.69	13.23	
7,111.0	89.60	304.60	6,396.1	-701.3	-1,875.2	557.3	9.11	0.94	
7,143.0	90.60	306.40	6,396.0	-682.8	-1,901.2	587.8	6.43	3.13	
7,174.0	92.40	309.90	6,395.2	-663.6	-1,925.6	617.7	12.69	5.81	
7,205.0	92.50	312.00	6,393.9	-643.3	-1,949.0	647.9	6.78	0.32	
7,268.0	93.50	313.60	6,390.6	-600.6	-1,995.2	709.8	2.99	1.59	
7,331.0	93.30	315.40	6,386.8	-556.5	-2,040.0	771.9	2.87	-0.32	
7,393.0	92.30	317.40	6,383.8	-511.7	-2,082.7	833.4	3.60	-1.61	
7,457.0	90.90	318.00	6,382.0	-464.3	-2,125.8	897.1	2.38	-2.19	
7,520.0	90.80	317.20	6,381.1	-417.8	-2,168.3	959.8	1.28	-0.16	
7,584.0	91.50	316.40	6,379.8	-371.2	-2,212.1	1,023.3	1.66	1.09	
7,642.0	92.10	316.70	6,378.0	-329.1	-2,251.9	1,080.9	1.16	1.03	
7,705.0	90.70	318.20	6,376.4	-282.7	-2,294.5	1,143.5	3.26	-2.22	
7,768.0	90.60	316.90	6,375.7	-236.2	-2,337.0	1,206.2	2.07	-0.16	
7,830.0	89.70	317.70	6,375.6	-190.7	-2,379.1	1,267.9	1.94	-1.45	



Cathedral Energy Services  
Survey Report

69 00138

Company:	Chesapeake Energy Corp	Local Co-ordinate Reference:	Well George Gantzer OHI 201H
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 201H	North Reference:	Grid
Wellbore:	HZ	Survey Calculation Method:	Minimum Curvature
Design:	HZ	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
7,894.0	89.50	319.40	6,376.0	-142.7	-2,421.4	1,331.6	2.67	-0.31	
7,957.0	89.60	321.00	6,376.5	-94.3	-2,461.8	1,394.5	2.54	0.16	
8,019.0	90.50	322.00	6,376.4	-45.8	-2,500.4	1,456.5	2.17	1.45	
8,082.0	90.10	323.30	6,376.1	4.3	-2,538.6	1,519.5	2.16	-0.63	
8,209.0	90.80	325.90	6,375.1	107.8	-2,612.1	1,646.5	2.12	0.55	
8,333.0	91.10	326.40	6,373.1	210.8	-2,681.2	1,770.3	0.47	0.24	
8,459.0	91.30	325.40	6,370.4	315.1	-2,751.8	1,896.1	0.81	0.16	
8,585.0	90.60	323.60	6,368.3	417.7	-2,825.0	2,022.1	1.53	-0.56	
8,711.0	89.40	322.90	6,368.3	518.6	-2,900.4	2,148.1	1.10	-0.95	
8,837.0	89.80	322.20	6,369.2	618.6	-2,977.0	2,274.1	0.64	0.32	
8,962.0	90.00	322.20	6,369.4	717.4	-3,053.6	2,399.0	0.16	0.16	
9,088.0	90.20	322.00	6,369.2	816.8	-3,131.0	2,525.0	0.22	0.16	
9,215.0	90.20	321.80	6,368.8	916.8	-3,209.3	2,652.0	0.16	0.00	
9,340.0	90.10	321.30	6,368.4	1,014.7	-3,287.1	2,776.9	0.41	-0.08	
9,466.0	90.60	321.70	6,367.7	1,113.3	-3,365.5	2,902.8	0.51	0.40	
9,591.0	91.20	325.60	6,365.7	1,213.9	-3,439.6	3,027.8	3.16	0.48	
9,715.0	91.90	324.40	6,362.3	1,315.4	-3,510.7	3,151.7	1.12	0.56	
9,842.0	90.90	324.60	6,359.2	1,418.8	-3,584.4	3,278.6	0.80	-0.79	
9,969.0	91.30	324.00	6,356.8	1,521.9	-3,658.5	3,405.6	0.57	0.31	
10,094.0	92.20	324.10	6,353.0	1,623.1	-3,731.8	3,530.5	0.72	0.72	
10,219.0	91.50	323.80	6,349.0	1,724.1	-3,805.4	3,655.4	0.61	-0.56	
10,346.0	91.00	323.70	6,346.2	1,826.5	-3,880.4	3,782.4	0.40	-0.39	
10,472.0	93.00	322.80	6,341.8	1,927.4	-3,955.8	3,908.3	1.74	1.59	
10,598.0	91.00	323.00	6,337.4	2,027.8	-4,031.7	4,034.2	1.60	-1.59	
10,723.0	89.60	323.00	6,336.7	2,127.6	-4,107.0	4,159.2	1.12	-1.12	
10,848.0	89.30	325.50	6,337.9	2,229.0	-4,180.0	4,284.2	2.01	-0.24	
10,975.0	88.30	324.60	6,340.6	2,333.1	-4,252.7	4,411.1	1.06	-0.79	
11,102.0	88.30	324.80	6,344.4	2,436.7	-4,326.1	4,538.0	0.16	0.00	
11,226.0	88.90	324.50	6,347.4	2,537.8	-4,397.8	4,661.9	0.54	0.48	
11,352.0	90.00	321.60	6,348.6	2,638.5	-4,473.5	4,787.9	2.46	0.87	
11,478.0	92.50	320.60	6,345.9	2,736.5	-4,552.6	4,913.8	2.14	1.98	
11,603.0	92.20	321.50	6,340.7	2,833.7	-4,631.1	5,038.6	0.76	-0.24	
11,729.0	92.00	321.10	6,336.1	2,931.9	-4,709.9	5,164.4	0.35	-0.16	
11,852.0	91.10	322.70	6,332.8	3,028.7	-4,785.7	5,287.3	1.49	-0.73	
11,977.0	91.40	322.20	6,330.1	3,127.8	-4,861.9	5,412.3	0.47	0.24	
12,102.0	90.00	322.60	6,328.5	3,226.8	-4,938.1	5,537.3	1.16	-1.12	
12,229.0	90.40	323.80	6,328.1	3,328.5	-5,014.2	5,664.2	1.00	0.31	
12,355.0	90.40	322.30	6,327.2	3,429.2	-5,090.0	5,790.2	1.19	0.00	
12,480.0	89.40	324.20	6,327.4	3,529.3	-5,164.7	5,915.2	1.72	-0.80	
12,605.0	89.60	324.00	6,328.5	3,630.6	-5,238.0	6,040.2	0.23	0.16	
12,730.0	89.70	324.20	6,329.3	3,731.8	-5,311.3	6,165.2	0.18	0.08	
12,854.0	89.90	323.50	6,329.7	3,831.9	-5,384.5	6,289.2	0.59	0.16	
12,980.0	89.70	323.70	6,330.2	3,933.4	-5,459.2	6,415.2	0.22	-0.16	
13,053.0	89.90	323.40	6,330.4	3,992.1	-5,502.6	6,488.2	0.49	0.27	0.27 Last Cathedral Survey @ 13053' MD
13,100.0	90.03	323.21	6,330.4	4,029.8	-5,530.7	6,535.2	0.49	0.28	0.28 Projection to Bit @ 13100' MD

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Company:	Chesapeake Energy Corp	Local Co-ordinate Reference:	Well George Gantzer OHI 201H
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 201H	North Reference:	Grid
Wellbore:	HZ	Survey Calculation Method:	Minimum Curvature
Design:	HZ	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 20'	0.00	0.00	6,343.0	4,033.8	-5,525.8	568,706.23	1,686,378.68	40° 3' 21.69 N	80° 37' 13.35 W
- actual wellpath misses target center by 14.1usft at 13100.0usft MD (6330.4 TVD, 4029.8 N, -5530.7 E)									
- Point									
George Gantzer OHI 20'	0.00	0.00	6,341.2	4,033.8	-5,525.8	568,706.23	1,686,378.68	40° 3' 21.69 N	80° 37' 13.35 W
- actual wellpath misses target center by 12.5usft at 13100.0usft MD (6330.4 TVD, 4029.8 N, -5530.7 E)									
- Point									
George Gantzer OHI 20'	0.00	0.00	6,300.9	4,033.8	-5,525.8	568,706.23	1,686,378.68	40° 3' 21.69 N	80° 37' 13.35 W
- actual wellpath misses target center by 30.2usft at 13100.0usft MD (6330.4 TVD, 4029.8 N, -5530.7 E)									
- Point									
LP	0.00	360.00	6,395.7	-739.5	-1,793.9	563,933.03	1,690,110.42	40° 2' 34.97 N	80° 36' 24.61 W
- actual wellpath misses target center by 11.0usft at 7021.8usft MD (6391.5 TVD, -748.0 N, -1799.4 E)									
- Point									
George Gantzer OHI 20'	0.00	0.00	6,333.0	4,033.8	-5,525.8	568,706.23	1,686,378.68	40° 3' 21.69 N	80° 37' 13.35 W
- actual wellpath misses target center by 6.9usft at 13100.0usft MD (6330.4 TVD, 4029.8 N, -5530.7 E)									
- Point									
George Gantzer OHI 20'	0.00	0.00	6,317.1	4,033.8	-5,525.8	568,706.23	1,686,378.68	40° 3' 21.69 N	80° 37' 13.35 W
- actual wellpath misses target center by 14.8usft at 13100.0usft MD (6330.4 TVD, 4029.8 N, -5530.7 E)									
- Point									

Design Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
540.0	540.0	2.4	0.3	Last Gyro Survey @ 540' MD
13,053.0	6,330.4	3,992.1	-5,502.6	Last Cathedral Survey @ 13053' MD
13,100.0	6,330.4	4,029.8	-5,530.7	Projection to Bit @ 13100' MD

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

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