

Chesapeake Energy

EOW Survey Report

Well Name: Alice Edge OHI

Well Number: 5H

Date: 10/29/14

Prepared by Troy Lewis



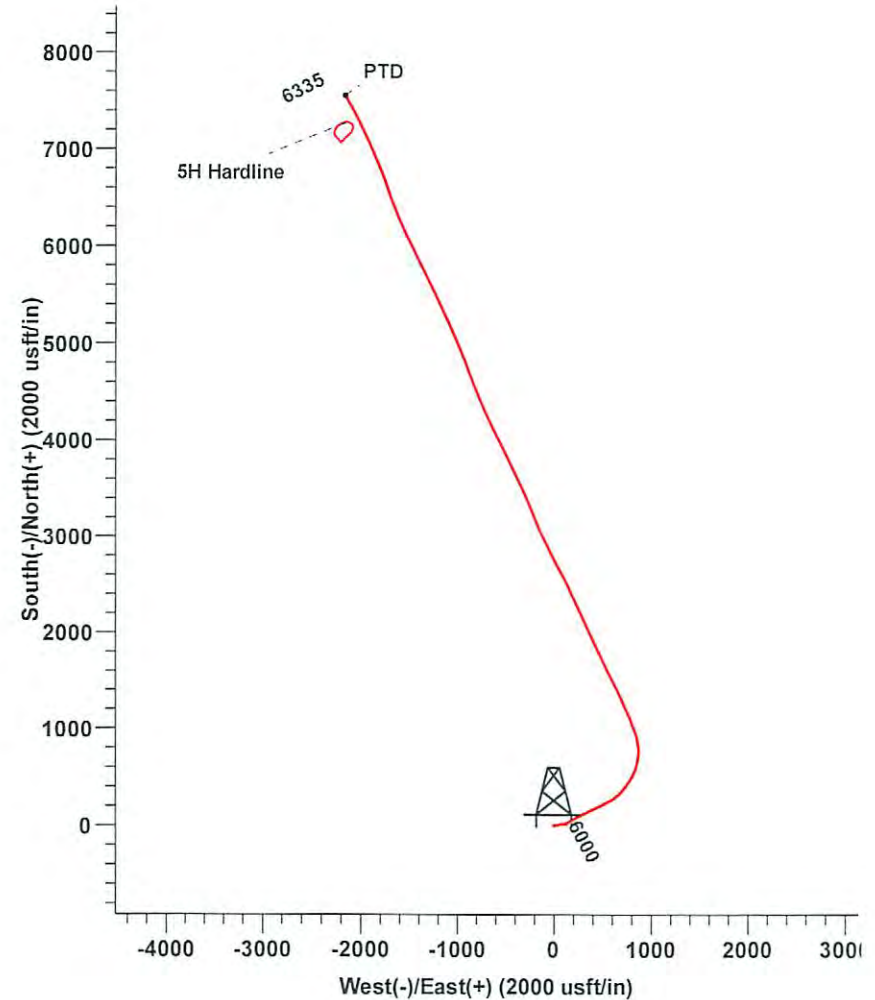
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Department of
Energy

Project: Ohio Co, WV
 Site: Alice Edge OHI
 Well: 5H
 Wellbore: OH
 Plan: OH

WELL DETAILS: 5H

Ground Level: GL 1198+RKB 20 @ 1218.00usft (Nomac 74)							Slot
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude		
0.00	0.00	584454.30	1703313.50	40° 5' 59.339 N	80° 33' 37.970 W		

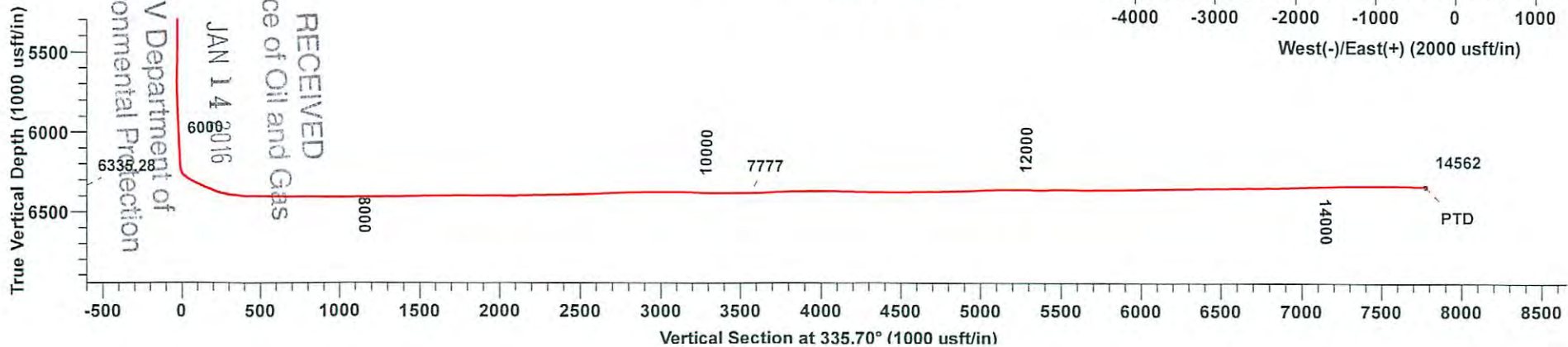


Target Line = 6428' TVD @ 90.70 Inc. @ 335.70 Azm.



Azimuths to Grid North
 True North: 0.68°
 Magnetic North: -8.10°

Magnetic Field
 Strength: 52587.8snT
 Dip Angle: 67.43°
 Date: 10/23/2014
 Model: BGGM2014



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Company:	Chesapeake	Local Co-ordinate Reference:	Well 5H
Project:	Ohio Co, WV	TVD Reference:	GL 1198+RKB 20 @ 1218.00usft (Nomac 74)
Site:	Alice Edge OHI	MD Reference:	GL 1198+RKB 20 @ 1218.00usft (Nomac 74)
Well:	5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM LEWIS

Project	Ohio Co, 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		

Site	Alice Edge OHI				
Site Position:		Northing:	584,442.30 usft	Latitude:	40° 5' 59.221 N
From:	Map	Easting:	1,703,320.70 usft	Longitude:	80° 33' 37.876 W
Position Uncertainty:	0.00 usft	Slot Radius:	0 "	Grid Convergence:	-0.68 °

Well	5H					
Well Position	+N/-S	0.00 usft	Northing:	584,454.30 usft	Latitude:	40° 5' 59.339 N
	+E/-W	0.00 usft	Easting:	1,703,313.50 usft	Longitude:	80° 33' 37.970 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	1,198.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	10/23/14	-8.78	67.43	52,588

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00		335.70

Survey Program	Date	10/27/14			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	5,500.00	Survey #1 (OH)	NS-GYRO-MS	North sensing gyrocompassing m	
5,578.00	14,562.00	Survey #2 (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.09	66.45	100.00	0.03	0.07	0.00	0.09	0.09	0.00	
200.00	0.25	37.88	200.00	0.23	0.28	0.10	0.18	0.16	28.57	
300.00	0.32	36.86	300.00	0.63	0.58	0.34	0.07	0.07	0.02	
400.00	0.34	84.34	400.00	0.88	1.04	0.38	0.27	0.02	47.48	
500.00	0.20	102.19	500.00	0.88	1.51	0.18	0.16	0.14	17.85	
600.00	0.41	96.23	599.99	0.80	2.03	-0.11	0.21	0.21	-5.96	
700.00	0.70	113.88	699.99	0.51	2.95	-0.75	0.33	0.29	17.65	
800.00	1.13	102.82	799.98	0.05	4.47	-1.80	0.46	0.43	-11.06	
900.00	2.05	90.16	899.94	-0.18	7.22	-3.13	0.98	0.92	12.66	

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Company: Chesapeake	Local Co-ordinate Reference: Well 5H
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Site: Alice Edge OHI	MD Reference: GL 1198+RKB 20 @ 1218.00usft (Nomac 74)
Well: 5H	North Reference: Grid
Wellbore: OH	Survey Calculation Method: Minimum Curvature
Design: OH	Database: EDM LEWIS

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,000.00	4.24	81.59	999.78	0.36	12.66	-4.88	2.23	2.19	-8.57
1,100.00	6.70	76.03	1,099.32	2.31	21.98	-6.94	2.51	2.46	-5.56
1,200.00	8.52	78.79	1,198.43	5.16	34.91	-9.67	1.86	1.82	2.76
1,300.00	9.81	76.57	1,297.16	8.58	50.47	-12.95	1.34	1.29	-2.22
1,400.00	9.99	81.07	1,395.67	11.90	67.32	-16.86	0.79	0.18	4.50
1,500.00	10.04	81.92	1,494.14	14.47	84.52	-21.59	0.16	0.05	0.85
1,600.00	8.49	81.44	1,592.84	16.80	100.45	-26.03	1.55	-1.55	-0.48
1,700.00	6.59	87.63	1,691.97	18.13	113.49	-30.17	2.06	-1.90	6.19
1,800.00	5.05	83.95	1,791.45	18.83	123.60	-33.70	1.58	-1.54	-3.68
1,900.00	3.53	88.97	1,891.17	19.35	131.05	-36.29	1.56	-1.52	5.02
2,000.00	1.82	98.17	1,991.06	19.18	135.70	-38.36	1.76	-1.71	9.20
2,100.00	0.85	159.26	2,091.03	18.26	137.54	-39.95	1.59	-0.97	61.09
2,200.00	0.68	188.12	2,191.02	16.98	137.72	-41.19	0.42	-0.17	28.86
2,300.00	0.47	220.41	2,291.02	16.08	137.37	-41.87	0.38	-0.21	32.29
2,400.00	0.68	227.70	2,391.01	15.37	136.66	-42.23	0.22	0.21	7.29
2,500.00	0.69	244.18	2,491.01	14.71	135.68	-42.43	0.20	0.01	16.48
2,600.00	0.64	270.85	2,591.00	14.46	134.58	-42.21	0.31	-0.05	26.67
2,700.00	0.80	284.77	2,690.99	14.64	133.35	-41.53	0.24	0.16	13.92
2,800.00	0.91	299.24	2,790.98	15.21	131.98	-40.45	0.24	0.11	14.47
2,900.00	0.96	295.97	2,890.97	15.96	130.53	-39.17	0.07	0.05	-3.27
3,000.00	0.75	295.36	2,990.96	16.61	129.19	-38.02	0.21	-0.21	-0.61
3,100.00	0.56	280.15	3,090.95	16.98	128.11	-37.25	0.26	-0.19	-15.21
3,200.00	0.49	292.09	3,190.95	17.22	127.24	-36.66	0.13	-0.07	11.94
3,300.00	0.72	304.01	3,290.94	17.74	126.32	-35.82	0.26	0.23	11.92
3,400.00	0.70	308.61	3,390.93	18.47	125.32	-34.74	0.06	-0.02	4.60
3,500.00	0.70	311.85	3,490.93	19.26	124.39	-33.64	0.04	0.00	3.24
3,600.00	0.41	317.50	3,590.92	19.93	123.69	-32.74	0.29	-0.29	5.65
3,700.00	0.23	300.10	3,690.92	20.29	123.28	-32.24	0.20	-0.18	-17.40
3,800.00	0.20	292.34	3,790.92	20.46	122.94	-31.95	0.04	-0.03	-7.76
3,900.00	0.13	285.92	3,890.92	20.56	122.67	-31.75	0.07	-0.07	-6.42
4,000.00	0.17	348.67	3,990.92	20.73	122.53	-31.53	0.16	0.04	62.75
4,100.00	0.35	11.32	4,090.92	21.18	122.56	-31.13	0.20	0.18	22.65
4,200.00	0.48	8.37	4,190.91	21.89	122.69	-30.53	0.13	0.13	-2.95
4,300.00	0.19	31.46	4,290.91	22.45	122.83	-30.09	0.31	-0.29	23.09
4,400.00	0.19	63.01	4,390.91	22.67	123.07	-29.99	0.10	0.00	31.55
4,500.00	0.21	26.75	4,490.91	22.90	123.30	-29.86	0.13	0.02	-36.26
4,600.00	0.20	33.35	4,590.91	23.21	123.48	-29.66	0.03	-0.01	6.60
4,700.00	0.46	30.32	4,690.91	23.71	123.77	-29.33	0.26	0.26	-3.03
4,800.00	0.34	35.94	4,790.91	24.29	124.15	-28.95	0.13	-0.12	5.62
4,900.00	0.15	0.20	4,890.91	24.66	124.33	-28.68	0.24	-0.19	-35.74
5,000.00	0.15	5.45	4,990.90	24.92	124.34	-28.45	0.01	0.00	5.25
5,100.00	0.12	12.33	5,090.90	25.16	124.37	-28.25	0.03	0.03	6.88
5,200.00	0.51	8.81	5,190.90	25.70	124.46	-27.80	0.39	0.39	-3.52

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Site:	Alice Edge OHI	MD Reference:	GL 1198+RKB 20 @ 1218.00usft (Nomac 74)
Well:	5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM LEWIS

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,300.00	0.50	44.71	5,290.90	26.45	124.84	-27.27	0.31	-0.01	35.90
5,400.00	0.47	108.57	5,390.90	26.63	125.54	-27.39	0.51	-0.03	63.86
5,500.00	1.36	127.21	5,490.88	25.78	126.87	-28.71	0.93	0.89	18.64
5,578.00	1.50	143.10	5,568.86	24.40	128.22	-30.52	0.54	0.18	20.37
5,610.00	2.80	96.10	5,600.84	23.99	129.25	-31.33	6.53	4.06	-146.88
5,641.00	5.30	73.60	5,631.76	24.31	131.37	-31.91	9.41	8.06	-72.58
5,673.00	8.00	64.20	5,663.54	25.70	134.80	-32.05	9.07	8.44	-29.38
5,705.00	11.00	60.20	5,695.10	28.18	139.45	-31.70	9.59	9.38	-12.50
5,736.00	13.90	60.80	5,725.37	31.47	145.27	-31.10	9.36	9.35	1.94
5,768.00	16.40	60.80	5,756.25	35.55	152.57	-30.38	7.81	7.81	0.00
5,799.00	19.50	59.90	5,785.74	40.28	160.87	-29.49	10.04	10.00	-2.90
5,831.00	21.90	61.00	5,815.67	45.85	170.71	-28.46	7.60	7.50	3.44
5,863.00	24.10	59.40	5,845.13	52.07	181.56	-27.25	7.15	6.88	-5.00
5,894.00	26.40	60.20	5,873.16	58.72	192.99	-25.90	7.50	7.42	2.58
5,926.00	28.20	60.40	5,901.60	65.99	205.73	-24.52	5.63	5.63	0.63
5,957.00	31.20	61.90	5,928.52	73.39	219.19	-23.31	9.97	9.68	4.84
5,989.00	34.00	62.20	5,955.48	81.47	234.42	-22.21	8.76	8.75	0.94
6,021.00	36.90	62.80	5,981.54	90.04	250.88	-21.18	9.13	9.06	1.88
6,052.00	39.60	61.70	6,005.89	98.98	267.86	-20.02	8.98	8.71	-3.55
6,084.00	42.10	62.80	6,030.09	108.72	286.38	-18.76	8.13	7.81	3.44
6,115.00	45.30	63.40	6,052.50	118.40	305.48	-17.80	10.41	10.32	1.94
6,147.00	47.20	62.50	6,074.63	128.92	326.07	-16.68	6.28	5.94	-2.81
6,178.00	49.80	63.30	6,095.17	139.49	346.74	-15.55	8.61	8.39	2.58
6,210.00	52.20	62.90	6,115.30	150.74	368.91	-14.42	7.56	7.50	-1.25
6,241.00	55.70	64.90	6,133.55	161.76	391.42	-13.65	12.44	11.29	6.45
6,273.00	57.80	65.30	6,151.09	173.02	415.69	-13.37	6.65	6.56	1.25
6,304.00	60.30	64.50	6,167.03	184.30	439.76	-12.99	8.36	8.06	-2.58
6,336.00	62.40	64.20	6,182.37	196.46	465.08	-12.33	6.61	6.56	-0.94
6,367.00	64.20	64.00	6,196.30	208.56	489.99	-11.56	5.83	5.81	-0.65
6,399.00	66.60	63.00	6,209.62	221.54	516.02	-10.44	8.02	7.50	-3.13
6,430.00	68.50	61.70	6,221.46	234.84	541.40	-8.76	7.25	6.13	-4.19
6,462.00	70.10	61.10	6,232.77	249.17	567.68	-6.52	5.30	5.00	-1.88
6,493.00	70.30	59.20	6,243.27	263.68	592.97	-3.70	5.80	0.65	-6.13
6,525.00	71.10	56.30	6,253.85	279.80	618.51	0.48	8.91	2.50	-9.06
6,556.00	72.30	49.60	6,263.60	297.52	641.98	6.98	20.88	3.87	-21.61
6,588.00	73.70	44.90	6,272.96	318.29	664.44	16.66	14.71	4.38	-14.69
6,619.00	74.60	44.00	6,281.42	339.58	685.33	27.47	4.03	2.90	-2.90
6,651.00	75.00	41.10	6,289.81	362.33	706.20	39.61	8.83	1.25	-9.06
6,682.00	75.60	40.90	6,297.68	384.96	725.88	52.14	2.03	1.94	-0.65
6,714.00	76.10	35.90	6,305.51	409.27	745.14	66.37	15.23	1.56	-15.63
6,746.00	75.90	35.90	6,313.25	434.42	763.35	81.80	0.63	-0.63	0.00
6,777.00	75.60	29.90	6,320.89	459.63	779.66	98.07	18.78	-0.97	-19.35
6,809.00	75.60	31.00	6,328.85	486.35	795.37	115.96	3.33	0.00	3.44

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6,841.00	75.40	27.40	6,336.86	513.39	810.48	134.38	10.91	-0.63	-11.25
6,872.00	75.40	25.30	6,344.68	540.27	823.79	153.40	6.56	0.00	-6.77
6,904.00	74.30	21.50	6,353.04	568.61	836.06	174.18	11.97	-3.44	-11.88
6,935.00	73.80	16.40	6,361.56	596.79	845.74	195.88	15.90	-1.61	-16.45
6,967.00	74.60	12.80	6,370.28	626.58	853.50	219.84	11.11	2.50	-11.25
6,998.00	76.20	9.80	6,378.10	655.99	859.37	244.23	10.69	5.16	-9.68
7,030.00	79.10	8.40	6,384.94	686.86	864.31	270.33	10.02	9.06	-4.38
7,061.00	81.40	6.80	6,390.19	717.14	868.35	296.26	9.00	7.42	-5.16
7,093.00	83.40	2.90	6,394.42	748.73	871.03	323.96	13.60	6.25	-12.19
7,124.00	84.80	358.20	6,397.61	779.56	871.32	351.93	15.74	4.52	-15.16
7,156.00	86.00	353.60	6,400.18	811.37	869.04	381.86	14.81	3.75	-14.38
7,188.00	87.30	350.60	6,402.05	843.00	864.65	412.50	10.20	4.06	-9.38
7,219.00	88.30	350.80	6,403.24	873.57	859.65	442.42	3.29	3.23	0.65
7,251.00	88.60	346.50	6,404.11	904.93	853.35	473.59	13.47	0.94	-13.44
7,282.00	88.80	342.90	6,404.81	934.82	845.18	504.19	11.63	0.65	-11.61
7,377.00	88.50	338.10	6,407.05	1,024.32	813.48	598.81	5.06	-0.32	-5.05
7,472.00	90.00	339.00	6,408.29	1,112.73	778.75	693.68	1.84	1.58	0.95
7,566.00	90.10	334.60	6,408.21	1,199.10	741.73	787.64	4.68	0.11	-4.68
7,660.00	89.50	336.80	6,408.54	1,284.77	703.05	881.63	2.43	-0.64	2.34
7,755.00	90.90	333.90	6,408.21	1,371.10	663.43	976.61	3.39	1.47	-3.05
7,850.00	91.00	332.70	6,406.63	1,455.96	620.75	1,071.52	1.27	0.11	-1.26
7,944.00	90.40	333.10	6,405.48	1,539.63	577.93	1,165.40	0.77	-0.64	0.43
8,039.00	90.80	335.00	6,404.49	1,625.04	536.37	1,260.35	2.04	0.42	2.00
8,134.00	91.00	335.30	6,403.00	1,711.24	496.45	1,355.33	0.38	0.21	0.32
8,229.00	89.80	333.60	6,402.33	1,796.94	455.48	1,450.30	2.19	-1.26	-1.79
8,324.00	90.60	335.20	6,402.00	1,882.61	414.43	1,545.27	1.88	0.84	1.68
8,418.00	91.00	335.60	6,400.69	1,968.07	375.31	1,639.26	0.60	0.43	0.43
8,513.00	90.60	336.50	6,399.36	2,054.88	336.75	1,734.25	1.04	-0.42	0.95
8,608.00	90.10	335.20	6,398.78	2,141.56	297.88	1,829.24	1.47	-0.53	-1.37
8,702.00	90.00	336.30	6,398.70	2,227.27	259.27	1,923.24	1.18	-0.11	1.17
8,797.00	89.60	335.70	6,399.03	2,314.05	220.63	2,018.24	0.76	-0.42	-0.63
8,891.00	90.30	335.00	6,399.11	2,399.48	181.43	2,112.24	1.05	0.74	-0.74
8,986.00	92.20	336.60	6,397.04	2,486.11	142.50	2,207.21	2.61	2.00	1.68
9,080.00	90.70	331.30	6,394.66	2,570.50	101.25	2,301.10	5.86	-1.60	-5.64
9,175.00	90.40	330.50	6,393.75	2,653.50	55.05	2,395.76	0.90	-0.32	-0.84
9,270.00	92.50	333.50	6,391.34	2,737.34	10.47	2,490.51	3.85	2.21	3.16
9,365.00	92.80	335.60	6,386.95	2,823.03	-30.31	2,585.39	2.23	0.32	2.21
9,459.00	91.60	332.50	6,383.34	2,907.47	-71.41	2,679.27	3.53	-1.28	-3.30
9,553.00	91.90	334.80	6,380.47	2,991.66	-113.11	2,773.16	2.47	0.32	2.45
9,648.00	91.50	336.10	6,377.65	3,078.03	-152.56	2,868.11	1.43	-0.42	1.37
9,742.00	90.00	337.90	6,376.42	3,164.55	-189.28	2,962.07	2.49	-1.60	1.91
9,837.00	89.80	337.90	6,376.59	3,252.57	-225.03	3,057.00	0.21	-0.21	0.00
9,932.00	88.90	337.80	6,377.67	3,340.55	-260.84	3,151.93	0.95	-0.95	-0.11
10,027.00	87.70	338.30	6,380.48	3,428.62	-296.34	3,246.80	1.37	-1.26	0.53

Company:	Chesapeake	Local Co-ordinate Reference:	Well 5H
Project:	Ohio Co, WV	TVD Reference:	GL 1198+RKB 20 @ 1218.00usft (Nomac 74)
Site:	Alice Edge OHI	MD Reference:	GL 1198+RKB 20 @ 1218.00usft (Nomac 74)
Well:	5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM LEWIS

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,121.00	89.50	335.00	6,382.78	3,514.88	-333.58	3,340.75	4.00	1.91	-3.51
10,216.00	89.50	335.00	6,383.61	3,600.98	-373.72	3,435.74	0.00	0.00	0.00
10,311.00	90.90	333.90	6,383.28	3,686.68	-414.69	3,530.71	1.87	1.47	-1.16
10,406.00	92.70	333.90	6,380.29	3,771.95	-456.47	3,625.61	1.89	1.89	0.00
10,501.00	92.70	334.60	6,375.82	3,857.42	-497.69	3,720.47	0.74	0.00	0.74
10,595.00	92.00	333.10	6,371.97	3,941.73	-539.08	3,814.34	1.76	-0.74	-1.60
10,690.00	91.40	333.70	6,369.15	4,026.63	-581.60	3,909.22	0.89	-0.63	0.63
10,785.00	89.90	334.90	6,368.07	4,112.23	-622.79	4,004.19	2.02	-1.58	1.26
10,880.00	88.90	333.10	6,369.06	4,197.60	-664.44	4,099.13	2.17	-1.05	-1.89
10,974.00	88.90	336.70	6,370.87	4,282.70	-704.30	4,193.09	3.83	0.00	3.83
11,069.00	88.70	336.20	6,372.86	4,369.76	-742.24	4,288.06	0.57	-0.21	-0.53
11,164.00	89.10	337.80	6,374.68	4,457.19	-779.36	4,383.02	1.74	0.42	1.68
11,258.00	90.00	337.50	6,375.42	4,544.13	-815.10	4,476.96	1.01	0.96	-0.32
11,353.00	91.10	339.70	6,374.51	4,632.57	-849.76	4,571.83	2.59	1.16	2.32
11,448.00	90.20	338.40	6,373.43	4,721.28	-883.72	4,666.65	1.66	-0.95	-1.37
11,542.00	91.30	340.30	6,372.20	4,809.23	-916.87	4,760.45	2.34	1.17	2.02
11,636.00	92.90	337.00	6,368.76	4,896.70	-951.06	4,854.25	3.90	1.70	-3.51
11,731.00	92.70	336.90	6,364.11	4,984.01	-988.21	4,949.11	0.24	-0.21	-0.11
11,826.00	92.20	335.70	6,360.05	5,070.92	-1,026.36	5,044.02	1.37	-0.53	-1.26
11,920.00	90.00	336.60	6,358.25	5,156.87	-1,064.36	5,137.99	2.53	-2.34	0.96
12,015.00	88.50	335.60	6,359.49	5,243.71	-1,102.84	5,232.97	1.90	-1.58	-1.05
12,109.00	90.40	334.80	6,360.39	5,329.04	-1,142.27	5,326.96	2.19	2.02	-0.85
12,204.00	90.70	334.30	6,359.48	5,414.81	-1,183.09	5,421.94	0.61	0.32	-0.53
12,298.00	90.00	333.00	6,358.91	5,499.04	-1,224.81	5,515.87	1.57	-0.74	-1.38
12,393.00	89.70	333.70	6,359.16	5,583.95	-1,267.42	5,610.79	0.80	-0.32	0.74
12,488.00	89.00	333.00	6,360.23	5,668.85	-1,310.03	5,705.70	1.04	-0.74	-0.74
12,583.00	90.50	333.60	6,360.65	5,753.72	-1,352.71	5,800.62	1.70	1.58	0.63
12,677.00	91.70	333.40	6,358.84	5,837.82	-1,394.65	5,894.53	1.29	1.28	-0.21
12,772.00	90.80	332.70	6,356.77	5,922.49	-1,437.69	5,989.40	1.20	-0.95	-0.74
12,867.00	91.20	334.70	6,355.11	6,007.63	-1,479.77	6,084.33	2.15	0.42	2.11
12,961.00	91.10	334.40	6,353.23	6,092.50	-1,520.16	6,178.29	0.34	-0.11	-0.32
13,056.00	91.20	334.70	6,351.32	6,178.26	-1,560.97	6,273.25	0.33	0.11	0.32
13,151.00	90.80	338.20	6,349.66	6,265.32	-1,598.92	6,368.21	3.71	-0.42	3.68
13,245.00	90.00	338.30	6,349.01	6,352.63	-1,633.75	6,462.12	0.86	-0.85	0.11
13,340.00	90.00	337.90	6,349.01	6,440.77	-1,669.18	6,557.03	0.42	0.00	-0.42
13,435.00	90.50	342.00	6,348.59	6,529.99	-1,701.75	6,651.75	4.35	0.53	4.32
13,530.00	90.90	341.40	6,347.43	6,620.18	-1,731.57	6,746.22	0.76	0.42	-0.63
13,624.00	91.50	337.80	6,345.46	6,708.25	-1,764.33	6,839.97	3.88	0.64	-3.83
13,719.00	91.10	338.90	6,343.31	6,796.52	-1,799.37	6,934.84	1.23	-0.42	1.16
13,814.00	92.40	337.10	6,340.41	6,884.56	-1,834.93	7,029.71	2.34	1.37	-1.89
13,909.00	91.80	336.30	6,336.92	6,971.75	-1,872.49	7,124.63	1.05	-0.63	-0.84
14,003.00	91.20	335.60	6,334.46	7,057.56	-1,910.78	7,218.60	0.98	0.64	-0.74
14,098.00	90.00	335.50	6,333.47	7,144.04	-1,950.10	7,313.59	1.27	-1.26	-0.11

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 Office of Oil and Gas
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 WV Department of
 Environmental Protection

Company:	Chesapeake	Local Co-ordinate Reference:	Well 5H
Project:	Ohio Co, WV	TVD Reference:	GL 1198+RKB 20 @ 1218.00usft (Nomac 74)
Site:	Alice Edge OHI	MD Reference:	GL 1198+RKB 20 @ 1218.00usft (Nomac 74)
Well:	5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM LEWIS

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
14,193.00	89.50	335.70	6,333.88	7,230.55	-1,989.34	7,408.59	0.57	-0.53	0.21	
14,287.00	90.20	332.40	6,334.13	7,315.06	-2,030.47	7,502.54	3.59	0.74	-3.51	
14,382.00	90.00	331.60	6,333.96	7,398.94	-2,075.07	7,597.34	0.87	-0.21	-0.84	
14,477.00	89.60	333.50	6,334.29	7,483.24	-2,118.86	7,692.19	2.04	-0.42	2.00	
14,499.00	89.30	332.70	6,334.51	7,502.86	-2,128.81	7,714.17	3.88	-1.36	-3.64	
14,562.00	89.30	332.70	6,335.28	7,558.84	-2,157.70	7,777.08	0.00	0.00	0.00	

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
14,562.00	6,335.28	7,558.84	-2,157.70	PTD	

Checked By: _____ Approved By: _____ Date: _____

Company:	Chesapeake	Local Co-ordinate Reference:	Well 5H
Project:	Ohio Co, WV	TVD Reference:	GL 1198+RKB 20 @ 1218.00usft (Nomac 74)
Site:	Alice Edge OHI	MD Reference:	GL 1198+RKB 20 @ 1218.00usft (Nomac 74)
Well:	5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM LEWIS

Project	Ohio Co, 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		

Site	Alice Edge OHI				
Site Position:	Northing:	584,442.30 usft	Latitude:	40° 5' 59.221 N	
From: Map	Easting:	1,703,320.70 usft	Longitude:	80° 33' 37.876 W	
Position Uncertainty:	0.00 usft	Slot Radius:	0 "	Grid Convergence:	-0.68 °

Well	5H					
Well Position	+N/-S	0.00 usft	Northing:	584,454.30 usft	Latitude:	40° 5' 59.339 N
	+E/-W	0.00 usft	Easting:	1,703,313.50 usft	Longitude:	80° 33' 37.970 W
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	1,198.00 usft	

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	10/23/14	-8.78	67.43	52,588

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00		335.70

Survey Program	Date	10/27/14			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	5,500.00	Survey #1 (OH)	NS-GYRO-MS	North sensing gyrocompassing m	
5,578.00	14,562.00	Survey #2 (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1	

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	584,454.30	1,703,313.50	40° 5' 59.339 N	80° 33' 37.970 W
100.00	0.09	66.45	100.00	0.03	0.07	584,454.33	1,703,313.57	40° 5' 59.339 N	80° 33' 37.969 W
200.00	0.25	37.88	200.00	0.23	0.28	584,454.54	1,703,313.78	40° 5' 59.342 N	80° 33' 37.967 W
300.00	0.32	36.86	300.00	0.63	0.58	584,454.93	1,703,314.08	40° 5' 59.345 N	80° 33' 37.963 W
400.00	0.34	84.34	400.00	0.88	1.04	584,455.19	1,703,314.54	40° 5' 59.348 N	80° 33' 37.957 W
500.00	0.20	102.19	500.00	0.88	1.51	584,455.18	1,703,315.01	40° 5' 59.348 N	80° 33' 37.951 W
600.00	0.41	96.23	599.99	0.80	2.03	584,455.10	1,703,315.53	40° 5' 59.347 N	80° 33' 37.944 W
700.00	0.70	113.88	699.99	0.51	2.95	584,454.82	1,703,316.45	40° 5' 59.345 N	80° 33' 37.932 W
800.00	1.13	102.82	799.98	0.05	4.47	584,454.35	1,703,317.97	40° 5' 59.340 N	80° 33' 37.913 W
900.00	2.05	90.16	899.94	-0.18	7.22	584,454.13	1,703,320.72	40° 5' 59.338 N	80° 33' 37.877 W
1,000.00	4.24	81.59	999.78	0.36	12.66	584,454.66	1,703,326.16	40° 5' 59.344 N	80° 33' 37.807 W

Company:	Chesapeake	Local Co-ordinate Reference:	Well 5H
Project:	Ohio Co, WV	TVD Reference:	GL 1198+RKB 20 @ 1218.00usft (Nomac 74)
Site:	Alice Edge OHI	MD Reference:	GL 1198+RKB 20 @ 1218.00usft (Nomac 74)
Well:	5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM LEWIS

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
1,100.00	6.70	76.03	1,099.32	2.31	21.98	584,456.61	1,703,335.48	40° 5' 59.365 N	80° 33' 37.688 W	
1,200.00	8.52	78.79	1,198.43	5.16	34.91	584,459.46	1,703,348.41	40° 5' 59.394 N	80° 33' 37.522 W	
1,300.00	9.81	76.57	1,297.16	8.58	50.47	584,462.88	1,703,363.96	40° 5' 59.430 N	80° 33' 37.322 W	
1,400.00	9.99	81.07	1,395.67	11.90	67.32	584,466.20	1,703,380.82	40° 5' 59.465 N	80° 33' 37.106 W	
1,500.00	10.04	81.92	1,494.14	14.47	84.52	584,468.78	1,703,398.02	40° 5' 59.492 N	80° 33' 36.885 W	
1,600.00	8.49	81.44	1,592.84	16.80	100.45	584,471.10	1,703,413.95	40° 5' 59.517 N	80° 33' 36.680 W	
1,700.00	6.59	87.63	1,691.97	18.13	113.49	584,472.44	1,703,426.98	40° 5' 59.532 N	80° 33' 36.513 W	
1,800.00	5.05	83.95	1,791.45	18.83	123.60	584,473.14	1,703,437.09	40° 5' 59.540 N	80° 33' 36.383 W	
1,900.00	3.53	88.97	1,891.17	19.35	131.05	584,473.66	1,703,444.55	40° 5' 59.546 N	80° 33' 36.287 W	
2,000.00	1.82	98.17	1,991.06	19.18	135.70	584,473.49	1,703,449.20	40° 5' 59.545 N	80° 33' 36.227 W	
2,100.00	0.85	159.26	2,091.03	18.26	137.54	584,472.57	1,703,451.03	40° 5' 59.536 N	80° 33' 36.203 W	
2,200.00	0.68	188.12	2,191.02	16.98	137.72	584,471.29	1,703,451.21	40° 5' 59.523 N	80° 33' 36.201 W	
2,300.00	0.47	220.41	2,291.02	16.08	137.37	584,470.39	1,703,450.86	40° 5' 59.514 N	80° 33' 36.205 W	
2,400.00	0.68	227.70	2,391.01	15.37	136.66	584,469.67	1,703,450.16	40° 5' 59.507 N	80° 33' 36.214 W	
2,500.00	0.69	244.18	2,491.01	14.71	135.68	584,469.01	1,703,449.18	40° 5' 59.500 N	80° 33' 36.227 W	
2,600.00	0.64	270.85	2,591.00	14.46	134.58	584,468.76	1,703,448.08	40° 5' 59.498 N	80° 33' 36.241 W	
2,700.00	0.80	284.77	2,690.99	14.64	133.35	584,468.95	1,703,446.84	40° 5' 59.499 N	80° 33' 36.257 W	
2,800.00	0.91	299.24	2,790.98	15.21	131.98	584,469.51	1,703,445.48	40° 5' 59.505 N	80° 33' 36.274 W	
2,900.00	0.96	295.97	2,890.97	15.96	130.53	584,470.27	1,703,444.03	40° 5' 59.512 N	80° 33' 36.293 W	
3,000.00	0.75	295.36	2,990.96	16.61	129.19	584,470.91	1,703,442.69	40° 5' 59.518 N	80° 33' 36.310 W	
3,100.00	0.56	280.15	3,090.95	16.98	128.11	584,471.28	1,703,441.61	40° 5' 59.522 N	80° 33' 36.324 W	
3,200.00	0.49	292.09	3,190.95	17.22	127.24	584,471.53	1,703,440.74	40° 5' 59.524 N	80° 33' 36.336 W	
3,300.00	0.72	304.01	3,290.94	17.74	126.32	584,472.04	1,703,439.82	40° 5' 59.529 N	80° 33' 36.347 W	
3,400.00	0.70	308.61	3,390.93	18.47	125.32	584,472.77	1,703,438.82	40° 5' 59.536 N	80° 33' 36.360 W	
3,500.00	0.70	311.85	3,490.93	19.26	124.39	584,473.56	1,703,437.89	40° 5' 59.544 N	80° 33' 36.372 W	
3,600.00	0.41	317.50	3,590.92	19.93	123.69	584,474.23	1,703,437.19	40° 5' 59.551 N	80° 33' 36.382 W	
3,700.00	0.23	300.10	3,690.92	20.29	123.28	584,474.60	1,703,436.78	40° 5' 59.554 N	80° 33' 36.387 W	
3,800.00	0.20	292.34	3,790.92	20.46	122.94	584,474.76	1,703,436.44	40° 5' 59.556 N	80° 33' 36.391 W	
3,900.00	0.13	285.92	3,890.92	20.56	122.67	584,474.86	1,703,436.17	40° 5' 59.557 N	80° 33' 36.395 W	
4,000.00	0.17	348.67	3,990.92	20.73	122.53	584,475.04	1,703,436.03	40° 5' 59.558 N	80° 33' 36.397 W	
4,100.00	0.35	11.32	4,090.92	21.18	122.56	584,475.48	1,703,436.06	40° 5' 59.563 N	80° 33' 36.396 W	
4,200.00	0.48	8.37	4,190.91	21.89	122.69	584,476.20	1,703,436.18	40° 5' 59.570 N	80° 33' 36.395 W	
4,300.00	0.19	31.46	4,290.91	22.45	122.83	584,476.75	1,703,436.33	40° 5' 59.575 N	80° 33' 36.393 W	
4,400.00	0.19	63.01	4,390.91	22.67	123.07	584,476.97	1,703,436.57	40° 5' 59.577 N	80° 33' 36.390 W	
4,500.00	0.21	26.75	4,490.91	22.90	123.30	584,477.21	1,703,436.80	40° 5' 59.580 N	80° 33' 36.387 W	
4,600.00	0.20	33.35	4,590.91	23.21	123.48	584,477.52	1,703,436.97	40° 5' 59.583 N	80° 33' 36.385 W	
4,700.00	0.46	30.32	4,690.91	23.71	123.77	584,478.01	1,703,437.27	40° 5' 59.588 N	80° 33' 36.381 W	
4,800.00	0.34	35.94	4,790.91	24.29	124.15	584,478.60	1,703,437.65	40° 5' 59.594 N	80° 33' 36.376 W	
4,900.00	0.15	0.20	4,890.91	24.66	124.33	584,478.97	1,703,437.82	40° 5' 59.597 N	80° 33' 36.374 W	
5,000.00	0.15	5.45	4,990.90	24.92	124.34	584,479.23	1,703,437.84	40° 5' 59.600 N	80° 33' 36.374 W	
5,100.00	0.12	12.33	5,090.90	25.16	124.37	584,479.46	1,703,437.87	40° 5' 59.602 N	80° 33' 36.374 W	
5,200.00	0.51	8.81	5,190.90	25.70	124.46	584,480.00	1,703,437.96	40° 5' 59.608 N	80° 33' 36.372 W	
5,300.00	0.50	44.71	5,290.90	26.45	124.84	584,480.75	1,703,438.34	40° 5' 59.615 N	80° 33' 36.368 W	
5,400.00	0.47	108.57	5,390.90	26.63	125.54	584,480.93	1,703,439.03	40° 5' 59.617 N	80° 33' 36.359 W	
5,500.00	1.36	127.21	5,490.88	25.78	126.87	584,480.08	1,703,440.37	40° 5' 59.609 N	80° 33' 36.342 W	
5,578.00	1.50	143.10	5,568.86	24.40	128.22	584,478.71	1,703,441.72	40° 5' 59.595 N	80° 33' 36.324 W	
5,610.00	2.80	96.10	5,600.84	23.99	129.25	584,478.29	1,703,442.75	40° 5' 59.591 N	80° 33' 36.311 W	
5,641.00	5.30	73.60	5,631.76	24.31	131.37	584,478.61	1,703,444.87	40° 5' 59.595 N	80° 33' 36.283 W	
5,673.00	8.00	64.20	5,663.54	25.70	134.80	584,480.00	1,703,448.30	40° 5' 59.609 N	80° 33' 36.240 W	
5,705.00	11.00	60.20	5,695.10	28.18	139.45	584,482.49	1,703,452.95	40° 5' 59.634 N	80° 33' 36.180 W	
5,736.00	13.90	60.80	5,725.37	31.47	145.27	584,485.77	1,703,458.77	40° 5' 59.667 N	80° 33' 36.106 W	
5,768.00	16.40	60.80	5,756.25	35.55	152.57	584,489.85	1,703,466.07	40° 5' 59.708 N	80° 33' 36.012 W	
5,799.00	19.50	59.90	5,785.74	40.28	160.87	584,494.58	1,703,474.37	40° 5' 59.756 N	80° 33' 35.906 W	
5,831.00	21.90	61.00	5,815.67	45.85	170.71	584,500.16	1,703,484.21	40° 5' 59.812 N	80° 33' 35.790 W	
5,863.00	24.10	59.40	5,845.13	52.07	181.56	584,506.38	1,703,495.05	40° 5' 59.875 N	80° 33' 35.642 W	

Company:	Chesapeake	Local Co-ordinate Reference:	Well 5H
Project:	Ohio Co, WV	TVD Reference:	GL 1198+RKB 20 @ 1218.00usft (Nomac 74)
Site:	Alice Edge OHI	MD Reference:	GL 1198+RKB 20 @ 1218.00usft (Nomac 74)
Well:	5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM LEWIS

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
5,894.00	26.40	60.20	5,873.16	58.72	192.99	584,513.03	1,703,506.48	40° 5' 59.942 N	80° 33' 35.496 W	
5,926.00	28.20	60.40	5,901.60	65.99	205.73	584,520.30	1,703,519.23	40° 6' 0.015 N	80° 33' 35.333 W	
5,957.00	31.20	61.90	5,928.52	73.39	219.19	584,527.70	1,703,532.69	40° 6' 0.090 N	80° 33' 35.161 W	
5,989.00	34.00	62.20	5,955.48	81.47	234.42	584,535.78	1,703,547.92	40° 6' 0.172 N	80° 33' 34.966 W	
6,021.00	36.90	62.80	5,981.54	90.04	250.88	584,544.34	1,703,564.38	40° 6' 0.258 N	80° 33' 34.756 W	
6,052.00	39.60	61.70	6,005.89	98.98	267.86	584,553.28	1,703,581.36	40° 6' 0.348 N	80° 33' 34.538 W	
6,084.00	42.10	62.80	6,030.09	108.72	286.38	584,563.02	1,703,599.88	40° 6' 0.447 N	80° 33' 34.302 W	
6,115.00	45.30	63.40	6,052.50	118.40	305.48	584,572.71	1,703,618.98	40° 6' 0.545 N	80° 33' 34.057 W	
6,147.00	47.20	62.50	6,074.63	128.92	326.07	584,583.22	1,703,639.57	40° 6' 0.651 N	80° 33' 33.794 W	
6,178.00	49.80	63.30	6,095.17	139.49	346.74	584,593.79	1,703,660.23	40° 6' 0.758 N	80° 33' 33.530 W	
6,210.00	52.20	62.90	6,115.30	150.74	368.91	584,605.05	1,703,682.41	40° 6' 0.872 N	80° 33' 33.246 W	
6,241.00	55.70	64.90	6,133.55	161.76	391.42	584,616.06	1,703,704.92	40° 6' 0.983 N	80° 33' 32.958 W	
6,273.00	57.80	65.30	6,151.09	173.02	415.69	584,627.33	1,703,729.19	40° 6' 1.097 N	80° 33' 32.647 W	
6,304.00	60.30	64.50	6,167.03	184.30	439.76	584,638.61	1,703,753.26	40° 6' 1.212 N	80° 33' 32.339 W	
6,336.00	62.40	64.20	6,182.37	196.46	465.08	584,650.76	1,703,778.57	40° 6' 1.335 N	80° 33' 32.016 W	
6,367.00	64.20	64.00	6,196.30	208.56	489.99	584,662.86	1,703,803.48	40° 6' 1.457 N	80° 33' 31.697 W	
6,399.00	66.60	63.00	6,209.62	221.54	516.02	584,675.84	1,703,829.52	40° 6' 1.589 N	80° 33' 31.364 W	
6,430.00	68.50	61.70	6,221.46	234.84	541.40	584,689.14	1,703,854.90	40° 6' 1.723 N	80° 33' 31.039 W	
6,462.00	70.10	61.10	6,232.77	249.17	567.68	584,703.47	1,703,881.18	40° 6' 1.868 N	80° 33' 30.703 W	
6,493.00	70.30	59.20	6,243.27	263.68	592.97	584,717.99	1,703,906.47	40° 6' 2.014 N	80° 33' 30.380 W	
6,525.00	71.10	56.30	6,253.85	279.80	618.51	584,734.10	1,703,932.01	40° 6' 2.176 N	80° 33' 30.054 W	
6,556.00	72.30	49.60	6,263.60	297.52	641.98	584,751.83	1,703,955.48	40° 6' 2.354 N	80° 33' 29.755 W	
6,588.00	73.70	44.90	6,272.96	318.29	664.44	584,772.59	1,703,977.94	40° 6' 2.562 N	80° 33' 29.469 W	
6,619.00	74.60	44.00	6,281.42	339.58	685.33	584,793.88	1,703,998.82	40° 6' 2.775 N	80° 33' 29.203 W	
6,651.00	75.00	41.10	6,289.81	362.33	706.20	584,816.63	1,704,019.70	40° 6' 3.002 N	80° 33' 28.938 W	
6,682.00	75.60	40.90	6,297.68	384.96	725.88	584,839.26	1,704,039.37	40° 6' 3.228 N	80° 33' 28.688 W	
6,714.00	76.10	35.90	6,305.51	409.27	745.14	584,863.57	1,704,058.64	40° 6' 3.470 N	80° 33' 28.444 W	
6,746.00	75.90	35.90	6,313.25	434.42	763.35	584,888.72	1,704,076.85	40° 6' 3.721 N	80° 33' 28.214 W	
6,777.00	75.60	29.90	6,320.89	459.63	779.66	584,913.93	1,704,093.16	40° 6' 3.972 N	80° 33' 28.007 W	
6,809.00	75.60	31.00	6,328.85	486.35	795.37	584,940.65	1,704,108.87	40° 6' 4.238 N	80° 33' 27.809 W	
6,841.00	75.40	27.40	6,336.86	513.39	810.48	584,967.69	1,704,123.98	40° 6' 4.507 N	80° 33' 27.619 W	
6,872.00	75.40	25.30	6,344.68	540.27	823.79	584,994.57	1,704,137.29	40° 6' 4.774 N	80° 33' 27.452 W	
6,904.00	74.30	21.50	6,353.04	568.61	836.06	585,022.91	1,704,149.56	40° 6' 5.056 N	80° 33' 27.298 W	
6,935.00	73.80	16.40	6,361.56	596.79	845.74	585,051.09	1,704,159.24	40° 6' 5.335 N	80° 33' 27.178 W	
6,967.00	74.60	12.80	6,370.28	626.58	853.50	585,080.88	1,704,167.00	40° 6' 5.630 N	80° 33' 27.083 W	
6,998.00	76.20	9.80	6,378.10	655.99	859.37	585,110.30	1,704,172.87	40° 6' 5.922 N	80° 33' 27.012 W	
7,030.00	79.10	8.40	6,384.94	686.86	864.31	585,141.16	1,704,177.81	40° 6' 6.227 N	80° 33' 26.953 W	
7,061.00	81.40	6.80	6,390.19	717.14	868.35	585,171.44	1,704,181.85	40° 6' 6.527 N	80° 33' 26.905 W	
7,093.00	83.40	2.90	6,394.42	748.73	871.03	585,203.04	1,704,184.53	40° 6' 6.840 N	80° 33' 26.876 W	
7,124.00	84.80	358.20	6,397.61	779.56	871.32	585,233.86	1,704,184.82	40° 6' 7.144 N	80° 33' 26.876 W	
7,156.00	86.00	353.60	6,400.18	811.37	869.04	585,265.67	1,704,182.54	40° 6' 7.458 N	80° 33' 26.911 W	
7,188.00	87.30	350.60	6,402.05	843.00	864.65	585,297.31	1,704,178.15	40° 6' 7.770 N	80° 33' 26.972 W	
7,219.00	88.30	350.80	6,403.24	873.57	859.65	585,327.88	1,704,173.14	40° 6' 8.072 N	80° 33' 27.041 W	
7,251.00	88.60	346.50	6,404.11	904.93	853.35	585,359.23	1,704,166.85	40° 6' 8.381 N	80° 33' 27.127 W	
7,282.00	88.80	342.90	6,404.81	934.82	845.18	585,389.12	1,704,158.67	40° 6' 8.675 N	80° 33' 27.236 W	
7,377.00	88.50	338.10	6,407.05	1,024.32	813.48	585,478.62	1,704,126.98	40° 6' 9.556 N	80° 33' 27.658 W	
7,472.00	90.00	339.00	6,408.29	1,112.73	778.75	585,567.03	1,704,092.25	40° 6' 10.426 N	80° 33' 28.118 W	
7,566.00	90.10	334.60	6,408.21	1,199.10	741.73	585,653.41	1,704,055.22	40° 6' 11.275 N	80° 33' 28.608 W	
7,660.00	89.50	336.80	6,408.54	1,284.77	703.05	585,739.07	1,704,016.54	40° 6' 12.117 N	80° 33' 29.118 W	
7,755.00	90.90	333.90	6,408.21	1,371.10	663.43	585,825.40	1,703,976.93	40° 6' 12.966 N	80° 33' 29.641 W	
7,850.00	91.00	332.70	6,406.63	1,455.96	620.75	585,910.26	1,703,934.25	40° 6' 13.799 N	80° 33' 30.203 W	
7,944.00	90.40	333.10	6,405.48	1,539.63	577.93	585,993.93	1,703,891.43	40° 6' 14.621 N	80° 33' 30.767 W	
8,039.00	90.80	335.00	6,404.49	1,625.04	536.37	586,079.35	1,703,849.86	40° 6' 15.460 N	80° 33' 31.315 W	
8,134.00	91.00	335.30	6,403.00	1,711.24	496.45	586,165.54	1,703,809.95	40° 6' 16.307 N	80° 33' 31.842 W	
8,229.00	89.80	333.60	6,402.33	1,796.94	455.48	586,251.24	1,703,768.98	40° 6' 17.149 N	80° 33' 32.382 W	

Company:	Chesapeake	Local Co-ordinate Reference:	Well 5H
Project:	Ohio Co, WV	TVD Reference:	GL 1198+RKB 20 @ 1218.00usft (Nomac 74)
Site:	Alice Edge OHI	MD Reference:	GL 1198+RKB 20 @ 1218.00usft (Nomac 74)
Well:	5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM LEWIS

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
8,324.00	90.60	335.20	6,402.00	1,882.61	414.43	586,336.91	1,703,727.93	40° 6' 17.991 N	80° 33' 32.923 W	
8,418.00	91.00	335.60	6,400.69	1,968.07	375.31	586,422.37	1,703,688.80	40° 6' 18.831 N	80° 33' 33.440 W	
8,513.00	90.60	336.50	6,399.36	2,054.88	336.75	586,509.18	1,703,650.24	40° 6' 19.685 N	80° 33' 33.949 W	
8,608.00	90.10	335.20	6,398.78	2,141.56	297.88	586,595.86	1,703,611.38	40° 6' 20.537 N	80° 33' 34.462 W	
8,702.00	90.00	336.30	6,398.70	2,227.27	259.27	586,681.57	1,703,572.77	40° 6' 21.379 N	80° 33' 34.972 W	
8,797.00	89.60	335.70	6,399.03	2,314.05	220.63	586,768.35	1,703,534.13	40° 6' 22.232 N	80° 33' 35.482 W	
8,891.00	90.30	335.00	6,399.11	2,399.48	181.43	586,853.79	1,703,494.93	40° 6' 23.072 N	80° 33' 36.000 W	
8,986.00	92.20	336.60	6,397.04	2,486.11	142.50	586,940.41	1,703,456.00	40° 6' 23.923 N	80° 33' 36.514 W	
9,080.00	90.70	331.30	6,394.66	2,570.50	101.25	587,024.80	1,703,414.74	40° 6' 24.752 N	80° 33' 37.058 W	
9,175.00	90.40	330.50	6,393.75	2,653.50	55.05	587,107.81	1,703,368.54	40° 6' 25.567 N	80° 33' 37.665 W	
9,270.00	92.50	333.50	6,391.34	2,737.34	10.47	587,191.64	1,703,323.97	40° 6' 26.390 N	80° 33' 38.251 W	
9,365.00	92.80	335.60	6,386.95	2,823.03	-30.31	587,277.33	1,703,283.19	40° 6' 27.232 N	80° 33' 38.789 W	
9,459.00	91.60	332.50	6,383.34	2,907.47	-71.41	587,361.78	1,703,242.09	40° 6' 28.062 N	80° 33' 39.331 W	
9,553.00	91.90	334.80	6,380.47	2,991.66	-113.11	587,445.96	1,703,200.39	40° 6' 28.889 N	80° 33' 39.880 W	
9,648.00	91.50	336.10	6,377.65	3,078.03	-152.56	587,532.34	1,703,160.94	40° 6' 29.738 N	80° 33' 40.401 W	
9,742.00	90.00	337.90	6,376.42	3,164.55	-189.28	587,618.85	1,703,124.21	40° 6' 30.589 N	80° 33' 40.887 W	
9,837.00	89.80	337.90	6,376.59	3,252.57	-225.03	587,706.87	1,703,088.47	40° 6' 31.454 N	80° 33' 41.360 W	
9,932.00	88.90	337.80	6,377.67	3,340.55	-260.84	587,794.85	1,703,052.66	40° 6' 32.320 N	80° 33' 41.834 W	
10,027.00	87.70	338.30	6,380.48	3,428.62	-296.34	587,882.93	1,703,017.16	40° 6' 33.186 N	80° 33' 42.305 W	
10,121.00	89.50	335.00	6,382.78	3,514.88	-333.58	587,969.19	1,702,979.92	40° 6' 34.034 N	80° 33' 42.797 W	
10,216.00	89.50	335.00	6,383.61	3,600.98	-373.72	588,055.28	1,702,939.78	40° 6' 34.880 N	80° 33' 43.327 W	
10,311.00	90.90	333.90	6,383.28	3,686.68	-414.69	588,140.99	1,702,898.80	40° 6' 35.722 N	80° 33' 43.867 W	
10,406.00	92.70	333.90	6,380.29	3,771.95	-456.47	588,226.25	1,702,857.03	40° 6' 36.560 N	80° 33' 44.418 W	
10,501.00	92.70	334.60	6,375.82	3,857.42	-497.69	588,311.73	1,702,815.81	40° 6' 37.400 N	80° 33' 44.961 W	
10,595.00	92.00	333.10	6,371.97	3,941.73	-539.08	588,396.03	1,702,774.41	40° 6' 38.228 N	80° 33' 45.507 W	
10,690.00	91.40	333.70	6,369.15	4,026.63	-581.60	588,480.94	1,702,731.90	40° 6' 39.062 N	80° 33' 46.067 W	
10,785.00	89.90	334.90	6,368.07	4,112.23	-622.79	588,566.53	1,702,690.70	40° 6' 39.903 N	80° 33' 46.610 W	
10,880.00	88.90	333.10	6,369.06	4,197.60	-664.44	588,651.91	1,702,649.06	40° 6' 40.742 N	80° 33' 47.159 W	
10,974.00	88.90	336.70	6,370.87	4,282.70	-704.30	588,737.00	1,702,609.20	40° 6' 41.578 N	80° 33' 47.685 W	
11,069.00	88.70	336.20	6,372.86	4,369.76	-742.24	588,824.07	1,702,571.25	40° 6' 42.434 N	80° 33' 48.187 W	
11,164.00	89.10	337.80	6,374.68	4,457.19	-779.36	588,911.50	1,702,534.14	40° 6' 43.294 N	80° 33' 48.678 W	
11,258.00	90.00	337.50	6,375.42	4,544.13	-815.10	588,998.43	1,702,498.40	40° 6' 44.148 N	80° 33' 49.151 W	
11,353.00	91.10	339.70	6,374.51	4,632.57	-849.76	589,086.87	1,702,463.74	40° 6' 45.018 N	80° 33' 49.610 W	
11,448.00	90.20	338.40	6,373.43	4,721.28	-883.72	589,175.58	1,702,429.78	40° 6' 45.891 N	80° 33' 50.061 W	
11,542.00	91.30	340.30	6,372.20	4,809.23	-916.87	589,263.53	1,702,396.63	40° 6' 46.756 N	80° 33' 50.501 W	
11,636.00	92.90	337.00	6,368.76	4,896.70	-951.06	589,351.01	1,702,362.44	40° 6' 47.617 N	80° 33' 50.954 W	
11,731.00	92.70	336.90	6,364.11	4,984.01	-988.21	589,438.32	1,702,325.29	40° 6' 48.475 N	80° 33' 51.446 W	
11,826.00	92.20	335.70	6,360.05	5,070.92	-1,026.36	589,525.22	1,702,287.14	40° 6' 49.329 N	80° 33' 51.950 W	
11,920.00	90.00	336.60	6,358.25	5,156.87	-1,064.36	589,611.17	1,702,249.14	40° 6' 50.174 N	80° 33' 52.452 W	
12,015.00	88.50	335.60	6,359.49	5,243.71	-1,102.84	589,698.02	1,702,210.66	40° 6' 51.028 N	80° 33' 52.961 W	
12,109.00	90.40	334.80	6,360.39	5,329.04	-1,142.27	589,783.34	1,702,171.23	40° 6' 51.867 N	80° 33' 53.481 W	
12,204.00	90.70	334.30	6,359.48	5,414.81	-1,183.09	589,869.12	1,702,130.41	40° 6' 52.709 N	80° 33' 54.020 W	
12,298.00	90.00	333.00	6,358.91	5,499.04	-1,224.81	589,953.35	1,702,088.69	40° 6' 53.537 N	80° 33' 54.569 W	
12,393.00	89.70	333.70	6,359.16	5,583.95	-1,267.42	590,038.25	1,702,046.08	40° 6' 54.371 N	80° 33' 55.131 W	
12,488.00	89.00	333.00	6,360.23	5,668.85	-1,310.03	590,123.15	1,702,003.47	40° 6' 55.205 N	80° 33' 55.692 W	
12,583.00	90.50	333.60	6,360.65	5,753.72	-1,352.71	590,208.02	1,701,960.79	40° 6' 56.038 N	80° 33' 56.254 W	
12,677.00	91.70	333.40	6,358.84	5,837.82	-1,394.65	590,292.13	1,701,918.85	40° 6' 56.865 N	80° 33' 56.807 W	
12,772.00	90.80	332.70	6,356.77	5,922.49	-1,437.69	590,376.79	1,701,875.81	40° 6' 57.696 N	80° 33' 57.374 W	
12,867.00	91.20	334.70	6,355.11	6,007.63	-1,479.77	590,461.94	1,701,833.73	40° 6' 58.533 N	80° 33' 57.929 W	
12,961.00	91.10	334.40	6,353.23	6,092.50	-1,520.16	590,546.80	1,701,793.34	40° 6' 59.367 N	80° 33' 58.461 W	
13,056.00	91.20	334.70	6,351.32	6,178.26	-1,560.97	590,632.56	1,701,752.52	40° 7' 0.209 N	80° 33' 59.000 W	
13,151.00	90.80	338.20	6,349.66	6,265.32	-1,598.92	590,719.62	1,701,714.58	40° 7' 1.065 N	80° 33' 59.501 W	
13,245.00	90.00	338.30	6,349.01	6,352.63	-1,633.75	590,806.93	1,701,679.75	40° 7' 1.924 N	80° 33' 59.963 W	
13,340.00	90.00	337.90	6,349.01	6,440.77	-1,669.18	590,895.07	1,701,644.31	40° 7' 2.791 N	80° 34' 0.433 W	
13,435.00	90.50	342.00	6,348.59	6,529.99	-1,701.75	590,984.30	1,701,611.75	40° 7' 3.669 N	80° 34' 0.865 W	

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Company:	Chesapeake	Local Co-ordinate Reference:	Well 5H
Project:	Ohio Co, WV	TVD Reference:	GL 1198+RKB 20 @ 1218.00usft (Nomac 74)
Site:	Alice Edge OHI	MD Reference:	GL 1198+RKB 20 @ 1218.00usft (Nomac 74)
Well:	5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM LEWIS

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
13,530.00	90.90	341.40	6,347.43	6,620.18	-1,731.57	591,074.48	1,701,581.92	40° 7' 4.556 N	80° 34' 1.263 W
13,624.00	91.50	337.80	6,345.46	6,708.25	-1,764.33	591,162.55	1,701,549.17	40° 7' 5.423 N	80° 34' 1.698 W
13,719.00	91.10	338.90	6,343.31	6,796.52	-1,799.37	591,250.83	1,701,514.13	40° 7' 6.291 N	80° 34' 2.162 W
13,814.00	92.40	337.10	6,340.41	6,884.56	-1,834.93	591,338.86	1,701,478.56	40° 7' 7.157 N	80° 34' 2.634 W
13,909.00	91.80	336.30	6,336.92	6,971.75	-1,872.49	591,426.06	1,701,441.01	40° 7' 8.014 N	80° 34' 3.130 W
14,003.00	91.20	335.60	6,334.46	7,057.56	-1,910.78	591,511.87	1,701,402.72	40° 7' 8.857 N	80° 34' 3.636 W
14,098.00	90.00	335.50	6,333.47	7,144.04	-1,950.10	591,598.34	1,701,363.40	40° 7' 9.707 N	80° 34' 4.156 W
14,193.00	89.50	335.70	6,333.88	7,230.55	-1,989.34	591,684.85	1,701,324.16	40° 7' 10.558 N	80° 34' 4.674 W
14,287.00	90.20	332.40	6,334.13	7,315.06	-2,030.47	591,769.36	1,701,283.03	40° 7' 11.388 N	80° 34' 5.216 W
14,382.00	90.00	331.60	6,333.96	7,398.94	-2,075.07	591,853.24	1,701,238.43	40° 7' 12.212 N	80° 34' 5.803 W
14,477.00	89.60	333.50	6,334.29	7,483.24	-2,118.86	591,937.54	1,701,194.64	40° 7' 13.039 N	80° 34' 6.380 W
14,499.00	89.30	332.70	6,334.51	7,502.86	-2,128.81	591,957.16	1,701,184.69	40° 7' 13.232 N	80° 34' 6.511 W
14,562.00	89.30	332.70	6,335.28	7,558.84	-2,157.70	592,013.14	1,701,155.79	40° 7' 13.782 N	80° 34' 6.891 W

Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
14,562.00	6,335.28	7,558.84	-2,157.70	PTD

Checked By: _____ Approved By: _____ Date: _____

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