

69-00088

## Chesapeake DDC

Ohio County

Benjamin Honecker OHI

Benjamin Honecker OHI 5H

Wellbore #1

Survey: Gyro/MWD Survey

## Standard Survey Report

09 April, 2012

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WV Department of  
Environmental Protection

**Archer**  
The well company

05/23/2014

69-00088

Great White Directional Services  
Survey Report



<b>Company:</b>	Chesapeake DDC	<b>Local Co-ordinate Reference:</b>	Well Benjamin Honecker OHI 5H
<b>Project:</b>	Ohio County	<b>TVD Reference:</b>	KB @ 1126.0usft
<b>Site:</b>	Benjamin Honecker OHI	<b>MD Reference:</b>	KB @ 1126.0usft
<b>Well:</b>	Benjamin Honecker OHI 5H	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db

<b>Project</b>	Ohio County		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	West Virginia North 4701		

<b>Site</b>	Benjamin Honecker OHI				
<b>Site Position:</b>		<b>Northing:</b>	604,619.90 usft	<b>Latitude:</b>	40° 9' 16.939 N
<b>From:</b>	Map	<b>Easting:</b>	1,689,318.50 usft	<b>Longitude:</b>	80° 36' 41.260 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	-0.71 °

<b>Well</b>	Benjamin Honecker OHI 5H					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	604,619.90 usft	<b>Latitude:</b>	40° 9' 16.939 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,689,318.50 usft	<b>Longitude:</b>	80° 36' 41.260 W
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	1,110.0 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	2012/03/22	-8.71	67.68	52,983

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	278.68	

<b>Survey Program</b>	<b>Date</b>	2012/04/09			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
50.0	5,300.0	Gyro/MWD Survey (Wellbore #1)	MWD	MWD - Standard	
5,335.0	6,333.0	MWD ST 1 (Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
50.0	0.46	317.92	50.0	0.1	-0.1	0.2	0.92	0.92	0.00	0.00
100.0	0.13	211.13	100.0	0.2	-0.3	0.3	1.03	-0.66	-213.58	
150.0	0.38	299.45	150.0	0.3	-0.5	0.5	0.80	0.50	176.64	
200.0	0.08	245.18	200.0	0.3	-0.6	0.7	0.68	-0.60	-108.54	
250.0	0.37	287.82	250.0	0.4	-0.8	0.9	0.63	0.58	85.28	
300.0	0.57	318.81	300.0	0.6	-1.2	1.2	0.63	0.40	61.98	
350.0	0.52	333.22	350.0	1.0	-1.4	1.6	0.29	-0.10	28.82	
400.0	0.23	340.09	400.0	1.3	-1.6	1.7	0.59	-0.58	13.74	
450.0	0.47	281.21	450.0	1.4	-1.8	2.0	0.81	0.48	-117.76	



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<b>Site:</b>	Benjamin Honecker OHI	<b>MD Reference:</b>	KB @ 1126.0usft
<b>Well:</b>	Benjamin Honecker OHI 5H	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db

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)
500.0	0.55	321.21	500.0	1.7	-2.1	2.4	0.71	0.16	80.00
550.0	0.54	315.61	550.0	2.0	-2.5	2.7	0.11	-0.02	-11.20
600.0	0.47	302.56	600.0	2.3	-2.8	3.1	0.27	-0.14	-26.10
650.0	0.52	301.98	650.0	2.5	-3.2	3.5	0.10	0.10	-1.16
700.0	0.35	267.02	700.0	2.6	-3.5	3.9	0.62	-0.34	-69.92
750.0	1.11	287.42	750.0	2.8	-4.1	4.5	1.58	1.52	40.80
800.0	0.74	289.33	800.0	3.0	-4.9	5.3	0.74	-0.74	3.82
850.0	1.15	224.25	850.0	2.8	-5.5	5.9	2.15	0.82	-130.16
900.0	0.76	276.97	900.0	2.5	-6.2	6.5	1.83	-0.78	105.44
950.0	0.36	337.63	950.0	2.6	-6.6	6.9	1.33	-0.80	121.32
1,000.0	0.43	303.15	1,000.0	2.9	-6.8	7.2	0.49	0.14	-68.96
1,050.0	0.53	272.23	1,050.0	3.0	-7.2	7.6	0.55	0.20	-61.84
1,100.0	0.31	221.92	1,100.0	2.9	-7.5	7.9	0.82	-0.44	-100.62
1,150.0	0.81	268.28	1,150.0	2.8	-8.0	8.3	1.27	1.00	92.72
1,200.0	0.62	251.92	1,199.9	2.7	-8.6	8.9	0.55	-0.38	-32.72
1,250.0	0.86	235.57	1,249.9	2.4	-9.2	9.4	0.63	0.48	-32.70
1,300.0	0.17	264.20	1,299.9	2.2	-9.5	9.8	1.43	-1.38	57.26
1,350.0	0.61	246.74	1,349.9	2.1	-9.9	10.1	0.90	0.88	-34.92
1,400.0	0.53	277.71	1,399.9	2.0	-10.3	10.5	0.63	-0.16	61.94
1,450.0	0.30	283.82	1,449.9	2.1	-10.7	10.9	0.47	-0.46	12.22
1,500.0	0.44	241.05	1,499.9	2.0	-11.0	11.2	0.60	0.28	-85.54
1,550.0	0.33	246.28	1,549.9	1.9	-11.3	11.4	0.23	-0.22	10.46
1,600.0	0.27	276.37	1,599.9	1.8	-11.5	11.7	0.33	-0.12	60.18
1,650.0	0.42	273.56	1,649.9	1.8	-11.8	12.0	0.30	0.30	-5.62
1,661.0	0.36	226.24	1,660.9	1.8	-11.9	12.0	2.89	-0.55	-430.18
Last VES Gyro									
1,832.0	0.31	247.97	1,831.9	1.3	-12.7	12.8	0.08	-0.03	12.71
1,840.0	0.40	259.97	1,839.9	1.3	-12.8	12.8	1.45	1.13	150.00
1,864.0	0.31	145.27	1,863.9	1.2	-12.8	12.8	2.50	-0.38	-477.92
1,895.0	0.62	107.74	1,894.9	1.1	-12.6	12.6	1.35	1.00	-121.06
1,926.0	1.10	108.84	1,925.9	0.9	-12.2	12.2	1.55	1.55	3.55
1,958.0	1.80	105.68	1,957.9	0.7	-11.4	11.4	2.20	2.19	-9.88
1,988.0	2.42	100.14	1,987.9	0.4	-10.3	10.3	2.17	2.07	-18.47
2,020.0	3.30	94.56	2,019.9	0.3	-8.7	8.7	2.88	2.75	-17.44
2,050.0	3.91	93.55	2,049.8	0.1	-6.8	6.8	2.04	2.03	-3.37
2,081.0	4.70	94.78	2,080.7	0.0	-4.5	4.5	2.57	2.55	3.97
2,113.0	5.71	94.08	2,112.6	-0.3	-1.6	1.6	3.16	3.16	-2.19
2,144.0	6.50	94.56	2,143.4	-0.5	1.7	-1.7	2.55	2.55	1.55
2,175.0	7.29	93.37	2,174.2	-0.8	5.4	-5.4	2.59	2.55	-3.84
2,206.0	8.09	94.34	2,204.9	-1.1	9.5	-9.6	2.61	2.58	3.13
2,237.0	9.01	95.04	2,235.5	-1.4	14.1	-14.2	2.99	2.97	2.26
2,269.0	9.80	95.75	2,267.1	-1.9	19.3	-19.4	2.50	2.47	2.22
2,301.0	10.59	94.96	2,298.6	-2.5	25.0	-25.0	2.51	2.47	-2.47



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<b>Site:</b>	Benjamin Honecker OHI	<b>MD Reference:</b>	KB @ 1126.0usft
<b>Well:</b>	Benjamin Honecker OHI 5H	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db

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)	
2,332.0	11.38	97.07	2,329.0	-3.1	30.8	-30.9	2.86	2.55	6.81	
2,363.0	11.51	99.57	2,359.4	-4.0	36.9	-37.1	1.65	0.42	8.06	
2,395.0	12.08	100.45	2,390.8	-5.1	43.4	-43.6	1.87	1.78	2.75	
2,426.0	12.92	101.94	2,421.0	-6.4	49.9	-50.3	2.90	2.71	4.81	
2,456.0	13.58	102.25	2,450.2	-7.9	56.7	-57.2	2.21	2.20	1.03	
2,485.0	14.28	102.34	2,478.4	-9.3	63.5	-64.2	2.41	2.41	0.31	
2,517.0	14.72	103.88	2,509.3	-11.2	71.3	-72.1	1.83	1.38	4.81	
2,548.0	14.59	106.47	2,539.3	-13.2	78.8	-79.9	2.15	-0.42	8.35	
2,580.0	14.50	108.75	2,570.3	-15.6	86.5	-87.9	1.81	-0.28	7.13	
2,612.0	14.28	108.75	2,601.3	-18.2	94.0	-95.7	0.69	-0.69	0.00	
2,642.0	14.11	108.84	2,630.4	-20.6	101.0	-102.9	0.57	-0.57	0.30	
2,672.0	13.80	106.95	2,659.5	-22.8	107.9	-110.1	1.84	-1.03	-6.30	
2,704.0	14.02	106.85	2,690.6	-25.0	115.2	-117.7	0.69	0.69	-0.31	
2,734.0	14.02	106.78	2,719.7	-27.1	122.2	-124.9	0.06	0.00	-0.23	
2,766.0	13.80	105.06	2,750.7	-29.2	129.6	-132.5	1.46	-0.69	-5.38	
2,798.0	13.49	104.67	2,781.8	-31.2	136.9	-140.0	1.01	-0.97	-1.22	
2,830.0	13.49	104.45	2,813.0	-33.1	144.1	-147.5	0.16	0.00	-0.69	
2,862.0	13.08	105.46	2,844.1	-34.9	151.2	-154.8	1.47	-1.28	3.16	
2,893.0	14.10	105.15	2,874.2	-36.9	158.2	-162.0	3.30	3.29	-1.00	
2,925.0	14.19	105.85	2,905.3	-39.0	165.8	-169.8	0.60	0.28	2.19	
2,957.0	14.19	106.07	2,936.3	-41.1	173.3	-177.5	0.17	0.00	0.69	
2,988.0	14.02	105.15	2,966.3	-43.2	180.6	-185.0	0.91	-0.55	-2.97	
3,019.0	14.11	105.24	2,996.4	-45.1	187.9	-192.5	0.30	0.29	0.29	
3,051.0	14.19	106.16	3,027.4	-47.2	195.4	-200.3	0.75	0.25	2.88	
3,082.0	14.72	106.65	3,057.5	-49.4	202.8	-208.0	1.75	1.71	1.58	
3,114.0	14.72	107.04	3,088.4	-51.8	210.6	-216.0	0.31	0.00	1.22	
3,145.0	14.81	107.26	3,118.4	-54.1	218.2	-223.8	0.34	0.29	0.71	
3,177.0	15.38	107.35	3,149.3	-56.6	226.1	-232.1	1.78	1.78	0.28	
3,208.0	15.82	107.96	3,179.1	-59.1	234.1	-240.3	1.51	1.42	1.97	
3,239.0	16.22	107.35	3,208.9	-61.7	242.2	-248.7	1.40	1.29	-1.97	
3,271.0	16.30	107.66	3,239.7	-64.4	250.8	-257.6	0.37	0.25	0.97	
3,303.0	16.22	108.45	3,270.4	-67.2	259.3	-266.4	0.74	-0.25	2.47	
3,335.0	16.39	107.74	3,301.1	-70.0	267.8	-275.3	0.82	0.53	-2.22	
3,365.0	16.08	108.27	3,329.9	-72.6	275.8	-283.6	1.15	-1.03	1.77	
3,396.0	15.69	107.35	3,359.7	-75.2	283.9	-292.0	1.50	-1.26	-2.97	
3,428.0	15.38	107.74	3,390.5	-77.7	292.0	-300.4	1.02	-0.97	1.22	
3,460.0	15.12	106.95	3,421.4	-80.3	300.1	-308.7	1.04	-0.81	-2.47	
3,492.0	14.90	107.17	3,452.3	-82.7	308.0	-316.9	0.71	-0.69	0.69	
3,523.0	15.29	107.74	3,482.3	-85.1	315.7	-324.9	1.35	1.26	1.84	
3,555.0	15.51	108.97	3,513.1	-87.8	323.8	-333.3	1.23	0.69	3.84	
3,587.0	15.38	108.14	3,544.0	-90.5	331.8	-341.7	0.80	-0.41	-2.59	
3,619.0	14.90	108.67	3,574.8	-93.1	339.8	-349.9	1.56	-1.50	1.66	
3,650.0	14.59	109.06	3,604.8	-95.7	347.2	-357.7	1.05	-1.00	1.26	



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3,682.0	14.19	108.27	3,635.8	-98.2	354.8	-365.5	1.39	-1.25	-2.47
3,713.0	14.02	108.36	3,665.9	-100.6	361.9	-373.0	0.55	-0.55	0.29
3,745.0	14.28	109.28	3,696.9	-103.1	369.3	-380.7	1.07	0.81	2.88
3,776.0	14.72	109.28	3,726.9	-105.7	376.7	-388.3	1.42	1.42	0.00
3,808.0	14.41	109.55	3,757.9	-108.4	384.3	-396.2	0.99	-0.97	0.84
3,840.0	14.41	109.37	3,788.9	-111.0	391.8	-404.0	0.14	0.00	-0.56
3,871.0	14.41	109.28	3,818.9	-113.6	399.1	-411.6	0.07	0.00	-0.29
3,903.0	14.50	108.75	3,849.9	-116.2	406.6	-419.5	0.50	0.28	-1.66
3,935.0	14.90	107.66	3,880.9	-118.7	414.3	-427.5	1.52	1.25	-3.41
3,967.0	14.90	106.86	3,911.8	-121.2	422.2	-435.6	0.64	0.00	-2.50
3,998.0	14.41	106.25	3,941.8	-123.4	429.7	-443.4	1.66	-1.58	-1.97
4,030.0	14.19	105.77	3,972.8	-125.6	437.3	-451.2	0.78	-0.69	-1.50
4,060.0	14.50	105.37	4,001.8	-127.6	444.4	-458.6	1.08	1.03	-1.33
4,092.0	14.81	105.81	4,032.8	-129.7	452.2	-466.6	1.03	0.97	1.38
4,124.0	14.72	106.07	4,063.7	-132.0	460.1	-474.7	0.35	-0.28	0.81
4,187.0	14.72	103.48	4,124.7	-136.1	475.6	-490.6	1.04	0.00	-4.11
4,219.0	14.59	103.96	4,155.6	-138.0	483.4	-498.7	0.56	-0.41	1.50
4,249.0	14.28	102.47	4,184.7	-139.7	490.7	-506.2	1.61	-1.03	-4.97
4,280.0	14.11	103.48	4,214.7	-141.4	498.1	-513.7	0.97	-0.55	3.26
4,312.0	14.41	102.87	4,245.8	-143.2	505.8	-521.6	1.05	0.94	-1.91
4,343.0	14.41	103.26	4,275.8	-144.9	513.3	-529.3	0.31	0.00	1.26
4,374.0	14.72	103.88	4,305.8	-146.8	520.9	-537.1	1.12	1.00	2.00
4,406.0	14.59	104.58	4,336.7	-148.8	528.7	-545.1	0.69	-0.41	2.19
4,437.0	15.12	105.94	4,366.7	-150.9	536.4	-553.0	2.05	1.71	4.39
4,468.0	15.51	106.78	4,396.6	-153.2	544.3	-561.1	1.45	1.26	2.71
4,499.0	15.51	107.17	4,426.5	-155.6	552.2	-569.3	0.34	0.00	1.26
4,530.0	15.51	106.86	4,456.3	-158.0	560.1	-577.5	0.27	0.00	-1.00
4,560.0	15.51	106.86	4,485.3	-160.3	567.8	-585.5	0.00	0.00	0.00
4,593.0	15.29	105.94	4,517.1	-162.8	576.2	-594.2	1.00	-0.67	-2.79
4,625.0	15.21	106.78	4,547.9	-165.2	584.3	-602.5	0.73	-0.25	2.63
4,656.0	15.21	106.86	4,577.9	-167.5	592.1	-610.6	0.07	0.00	0.26
4,688.0	15.21	107.57	4,608.7	-170.0	600.1	-618.9	0.58	0.00	2.22
4,722.0	14.99	106.78	4,641.6	-172.6	608.5	-627.6	0.89	-0.65	-2.32
4,753.0	14.99	106.38	4,671.5	-174.9	616.2	-635.6	0.33	0.00	-1.29
4,785.0	15.21	105.77	4,702.4	-177.2	624.2	-643.8	0.85	0.69	-1.91
4,816.0	15.12	105.94	4,732.3	-179.4	632.0	-651.9	0.32	-0.29	0.55
4,847.0	14.59	105.94	4,762.3	-181.6	639.7	-659.8	1.71	-1.71	0.00
4,878.0	14.50	105.46	4,792.3	-183.7	647.2	-667.5	0.49	-0.29	-1.55
4,909.0	14.41	104.84	4,822.3	-185.8	654.6	-675.2	0.58	-0.29	-2.00
4,940.0	14.41	104.76	4,852.3	-187.7	662.1	-682.8	0.06	0.00	-0.26
4,972.0	14.41	104.14	4,883.3	-189.7	669.8	-690.8	0.48	0.00	-1.94
5,003.0	14.19	104.05	4,913.4	-191.6	677.2	-698.4	0.71	-0.71	-0.29
5,034.0	14.11	104.27	4,943.4	-193.4	684.6	-705.9	0.31	-0.26	0.71
5,065.0	13.80	104.76	4,973.5	-195.3	691.8	-713.4	1.07	-1.00	1.58



Great White Directional Services  
Survey Report



<b>Company:</b>	Chesapeake DDC	<b>Local Co-ordinate Reference:</b>	Well Benjamin Honecker OHI 5H
<b>Project:</b>	Ohio County	<b>TVD Reference:</b>	KB @ 1126.0usft
<b>Site:</b>	Benjamin Honecker OHI	<b>MD Reference:</b>	KB @ 1126.0usft
<b>Well:</b>	Benjamin Honecker OHI 5H	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db

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)	
5,097.0	13.58	104.58	5,004.6	-197.2	699.1	-720.9	0.70	-0.69	-0.56	
5,129.0	13.80	104.45	5,035.7	-199.1	706.5	-728.4	0.69	0.69	-0.41	
5,160.0	14.41	104.45	5,065.8	-201.0	713.8	-735.9	1.97	1.97	0.00	
5,191.0	14.50	105.06	5,095.8	-203.0	721.3	-743.6	0.57	0.29	1.97	
5,222.0	14.90	103.96	5,125.8	-204.9	728.9	-751.5	1.57	1.29	-3.55	
5,253.0	15.12	103.48	5,155.7	-206.9	736.7	-759.5	0.82	0.71	-1.55	
5,285.0	15.12	102.65	5,186.6	-208.7	744.8	-767.8	0.68	0.00	-2.59	
5,300.0	14.97	102.79	5,201.1	-209.6	748.6	-771.7	1.03	-1.00	0.93	
Tie-in ST1										
5,335.0	14.40	76.60	5,235.0	-209.6	757.3	-780.2	18.88	-1.63	-74.83	
5,378.0	13.80	74.20	5,276.7	-207.0	767.4	-789.8	1.95	-1.40	-5.58	
5,421.0	14.80	75.90	5,318.4	-204.2	777.7	-799.6	2.52	2.33	3.95	
5,465.0	16.70	77.30	5,360.7	-201.5	789.3	-810.6	4.40	4.32	3.18	
5,508.0	18.60	79.50	5,401.7	-198.9	802.1	-822.9	4.68	4.42	5.12	
5,552.0	20.10	79.50	5,443.2	-196.2	816.4	-836.6	3.41	3.41	0.00	
5,595.0	21.40	77.40	5,483.4	-193.1	831.3	-850.9	3.48	3.02	-4.88	
5,638.0	22.60	67.30	5,523.3	-188.2	846.6	-865.3	9.22	2.79	-23.49	
5,682.0	25.50	57.80	5,563.5	-179.9	862.4	-879.7	10.97	6.59	-21.59	
5,725.0	27.40	46.80	5,602.0	-168.2	877.5	-892.8	12.20	4.42	-25.58	
5,769.0	30.50	35.20	5,640.5	-152.1	891.3	-904.1	14.55	7.05	-26.36	
5,812.0	34.90	29.50	5,676.7	-132.5	903.7	-913.3	12.48	10.23	-13.26	
5,856.0	40.60	25.20	5,711.5	-108.6	916.0	-921.9	14.26	12.95	-9.77	
5,899.0	46.50	21.50	5,742.6	-81.4	927.7	-929.3	14.94	13.72	-8.60	
5,942.0	52.30	16.90	5,770.6	-50.5	938.3	-935.2	15.74	13.49	-10.70	
5,986.0	57.50	10.70	5,795.9	-15.6	946.8	-938.4	16.50	11.82	-14.09	
6,029.0	62.90	5.30	5,817.3	21.3	952.0	-937.9	16.62	12.56	-12.56	
6,072.0	68.30	0.20	5,835.1	60.4	953.8	-933.8	16.56	12.56	-11.86	
6,116.0	72.40	354.90	5,849.9	101.8	952.0	-925.8	14.68	9.32	-12.05	
6,159.0	74.90	350.30	5,862.0	142.7	946.7	-914.4	11.80	5.81	-10.70	
6,203.0	77.80	346.70	5,872.4	184.6	938.2	-899.6	10.33	6.59	-8.18	
6,246.0	80.80	341.50	5,880.4	225.2	926.6	-882.0	13.78	6.98	-12.09	
6,289.0	84.20	336.40	5,886.0	264.9	911.3	-860.9	14.17	7.91	-11.86	
6,333.0	87.20	331.30	5,889.3	304.3	892.0	-835.8	13.42	6.82	-11.59	
6,377.0	88.40	330.20	5,891.0	342.7	870.5	-808.8	3.70	2.73	-2.50	
6,420.0	89.10	330.60	5,891.9	380.0	849.2	-782.2	1.87	1.63	0.93	
6,463.0	88.40	332.20	5,892.8	417.8	828.7	-756.1	4.06	-1.63	3.72	
6,507.0	88.40	331.80	5,894.1	456.6	808.0	-729.9	0.91	0.00	-0.91	
6,550.0	88.80	335.70	5,895.1	495.2	789.0	-705.3	9.11	0.93	9.07	
6,594.0	88.40	337.50	5,896.2	535.5	771.5	-681.9	4.19	-0.91	4.09	
6,637.0	88.40	337.90	5,897.4	575.3	755.2	-659.8	0.93	0.00	0.93	
6,723.0	90.70	340.00	5,898.1	655.5	724.3	-617.1	3.62	2.67	2.44	
6,810.0	90.60	340.30	5,897.1	737.4	694.8	-575.6	0.36	-0.11	0.34	
6,897.0	89.70	341.20	5,896.9	819.5	666.1	-534.9	1.46	-1.03	1.03	



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Great White Directional Services

Survey Report



<b>Company:</b>	Chesapeake DDC	<b>Local Co-ordinate Reference:</b>	Well Benjamin Honecker OHI 5H
<b>Project:</b>	Ohio County	<b>TVD Reference:</b>	KB @ 1126.0usft
<b>Site:</b>	Benjamin Honecker OHI	<b>MD Reference:</b>	KB @ 1126.0usft
<b>Well:</b>	Benjamin Honecker OHI 5H	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db

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)	
6,984.0	87.20	338.30	5,899.2	901.1	636.0	-492.8	4.40	-2.87	-3.33	
7,071.0	86.70	337.90	5,903.8	981.7	603.6	-448.6	0.74	-0.57	-0.46	
7,157.0	86.90	338.40	5,908.6	1,061.4	571.7	-405.0	0.63	0.23	0.58	
7,244.0	86.70	338.70	5,913.5	1,142.2	539.9	-361.4	0.41	-0.23	0.34	
7,331.0	89.00	337.50	5,916.8	1,222.9	507.5	-317.2	2.98	2.64	-1.38	
7,418.0	89.10	337.20	5,918.2	1,303.2	474.0	-271.9	0.36	0.11	-0.34	
7,505.0	91.30	337.40	5,917.9	1,383.4	440.4	-226.6	2.54	2.53	0.23	
7,591.0	91.30	337.50	5,915.9	1,462.8	407.4	-182.1	0.12	0.00	0.12	
7,678.0	90.90	336.70	5,914.3	1,543.0	373.6	-136.5	1.03	-0.46	-0.92	
7,765.0	90.60	335.10	5,913.1	1,622.4	338.1	-89.4	1.87	-0.34	-1.84	
7,852.0	90.20	335.10	5,912.5	1,701.3	301.4	-41.3	0.46	-0.46	0.00	
7,939.0	89.50	335.40	5,912.8	1,780.3	265.0	6.6	0.88	-0.80	0.34	
8,026.0	91.70	335.70	5,911.8	1,859.5	229.0	54.2	2.55	2.53	0.34	
8,112.0	92.30	335.60	5,908.8	1,937.8	193.6	101.0	0.71	0.70	-0.12	
8,199.0	92.10	335.50	5,905.5	2,016.9	157.6	148.5	0.26	-0.23	-0.11	
8,286.0	91.60	335.50	5,902.7	2,096.0	121.5	196.1	0.57	-0.57	0.00	
8,373.0	90.40	333.00	5,901.2	2,174.4	83.7	245.3	3.19	-1.38	-2.87	
8,460.0	90.70	335.30	5,900.3	2,252.7	45.8	294.6	2.67	0.34	2.64	
8,547.0	91.40	338.60	5,898.7	2,332.7	11.8	340.3	3.88	0.80	3.79	
8,633.0	91.60	339.30	5,896.5	2,412.9	-19.1	382.9	0.85	0.23	0.81	
8,720.0	91.30	339.20	5,894.3	2,494.3	-49.9	425.7	0.36	-0.34	-0.11	
8,807.0	90.30	337.70	5,893.1	2,575.2	-81.9	469.5	2.07	-1.15	-1.72	
8,894.0	90.50	336.70	5,892.5	2,655.4	-115.6	514.9	1.17	0.23	-1.15	
8,980.0	91.00	336.80	5,891.3	2,734.4	-149.5	560.4	0.59	0.58	0.12	
9,060.0	90.50	336.60	5,890.3	2,807.8	-181.2	602.7	0.67	-0.63	-0.25	
9,154.0	90.70	336.40	5,889.3	2,894.0	-218.7	652.8	0.30	0.21	-0.21	
9,241.0	90.80	335.90	5,888.2	2,973.6	-253.8	699.6	0.59	0.11	-0.57	
9,328.0	90.90	335.10	5,886.9	3,052.8	-289.9	747.2	0.93	0.11	-0.92	
9,415.0	90.00	336.70	5,886.2	3,132.2	-325.4	794.3	2.11	-1.03	1.84	
9,501.0	92.70	338.50	5,884.2	3,211.7	-358.2	838.6	3.77	3.14	2.09	
9,588.0	92.70	338.50	5,880.1	3,292.5	-390.0	882.3	0.00	0.00	0.00	
9,675.0	92.30	337.90	5,876.3	3,373.2	-422.3	926.4	0.83	-0.46	-0.69	
9,762.0	92.00	337.90	5,873.0	3,453.8	-455.0	970.9	0.34	-0.34	0.00	
9,848.0	91.70	338.30	5,870.2	3,533.5	-487.1	1,014.6	0.58	-0.35	0.47	
9,935.0	91.60	338.50	5,867.7	3,614.4	-519.1	1,058.5	0.26	-0.11	0.23	
10,022.0	91.40	339.00	5,865.5	3,695.4	-550.6	1,101.9	0.62	-0.23	0.57	
10,109.0	89.80	338.80	5,864.5	3,776.6	-581.9	1,145.1	1.85	-1.84	-0.23	
10,196.0	90.00	339.60	5,864.7	3,857.9	-612.8	1,187.9	0.95	0.23	0.92	
10,282.0	90.10	340.20	5,864.6	3,938.7	-642.4	1,229.3	0.71	0.12	0.70	
10,369.0	90.00	340.80	5,864.6	4,020.7	-671.4	1,270.3	0.70	-0.11	0.69	
10,456.0	89.80	340.50	5,864.7	4,102.8	-700.3	1,311.2	0.41	-0.23	-0.34	
10,543.0	89.50	340.80	5,865.2	4,184.9	-729.1	1,352.1	0.49	-0.34	0.34	
10,629.0	89.30	340.90	5,866.1	4,266.1	-757.3	1,392.2	0.26	-0.23	0.12	
10,716.0	90.30	340.00	5,866.4	4,348.1	-786.4	1,433.4	1.55	1.15	-1.03	



Great White Directional Services

Survey Report



<b>Company:</b>	Chesapeake DDC	<b>Local Co-ordinate Reference:</b>	Well Benjamin Honecker OHI 5H
<b>Project:</b>	Ohio County	<b>TVD Reference:</b>	KB @ 1126.0usft
<b>Site:</b>	Benjamin Honecker OHI	<b>MD Reference:</b>	KB @ 1126.0usft
<b>Well:</b>	Benjamin Honecker OHI 5H	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1 Single User Db

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)
10,803.0	89.10	338.70	5,866.9	4,429.5	-817.1	1,476.0	2.03	-1.38	-1.49
10,890.0	88.40	337.40	5,868.8	4,510.2	-849.6	1,520.3	1.70	-0.80	-1.49
10,976.0	88.40	335.80	5,871.2	4,589.0	-883.7	1,566.0	1.86	0.00	-1.86
11,063.0	88.60	335.60	5,873.5	4,668.3	-919.5	1,613.3	0.33	0.23	-0.23
11,152.0	88.60	335.40	5,875.6	4,749.3	-956.4	1,662.0	0.22	0.00	-0.22
11,241.0	88.00	335.00	5,878.3	4,830.0	-993.7	1,711.1	0.81	-0.67	-0.45
11,328.0	88.40	335.90	5,881.0	4,909.1	-1,029.9	1,758.7	1.13	0.46	1.03
11,414.0	87.60	334.80	5,884.0	4,987.2	-1,065.7	1,805.9	1.58	-0.93	-1.28
11,501.0	89.30	333.90	5,886.4	5,065.6	-1,103.4	1,855.0	2.21	1.95	-1.03
11,588.0	91.30	336.20	5,885.9	5,144.5	-1,140.1	1,903.2	3.50	2.30	2.64
11,675.0	89.80	331.60	5,885.1	5,222.6	-1,178.3	1,952.8	5.56	-1.72	-5.29
11,762.0	90.30	334.80	5,885.0	5,300.3	-1,217.5	2,003.2	3.72	0.57	3.68
11,849.0	90.00	334.00	5,884.8	5,378.7	-1,255.1	2,052.2	0.98	-0.34	-0.92
11,936.0	90.30	336.30	5,884.5	5,457.6	-1,291.7	2,100.3	2.67	0.34	2.64
12,022.0	92.80	338.40	5,882.2	5,537.0	-1,324.8	2,145.0	3.80	2.91	2.44
12,110.0	93.10	338.30	5,877.7	5,618.7	-1,357.2	2,189.4	0.36	0.34	-0.11
12,197.0	92.90	338.40	5,873.1	5,699.4	-1,389.3	2,233.2	0.26	-0.23	0.11
12,284.0	92.70	338.40	5,868.9	5,780.2	-1,421.3	2,277.0	0.23	-0.23	0.00
12,371.0	89.30	339.30	5,867.4	5,861.3	-1,452.6	2,320.3	4.04	-3.91	1.03
12,458.0	88.80	339.10	5,868.8	5,942.6	-1,483.5	2,363.1	0.62	-0.57	-0.23
12,544.0	88.80	339.10	5,870.6	6,023.0	-1,514.2	2,405.5	0.00	0.00	0.00
12,631.0	89.00	338.70	5,872.3	6,104.1	-1,545.5	2,448.7	0.51	0.23	-0.46
12,701.0	89.20	338.00	5,873.4	6,169.2	-1,571.3	2,484.1	1.04	0.29	-1.00
<b>Last MWD Survey</b>									
12,755.0	89.30	337.70	5,874.1	6,219.2	-1,591.7	2,511.8	0.59	0.19	-0.56
<b>Projection to TD</b>									

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,661.0	1,660.9	1.8	-11.9	Last VES Gyro
5,300.0	5,201.1	-209.6	748.6	Tie-in ST1
12,701.0	5,873.4	6,169.2	-1,571.3	Last MWD Survey
12,755.0	5,874.1	6,219.2	-1,591.7	Projection to TD

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