

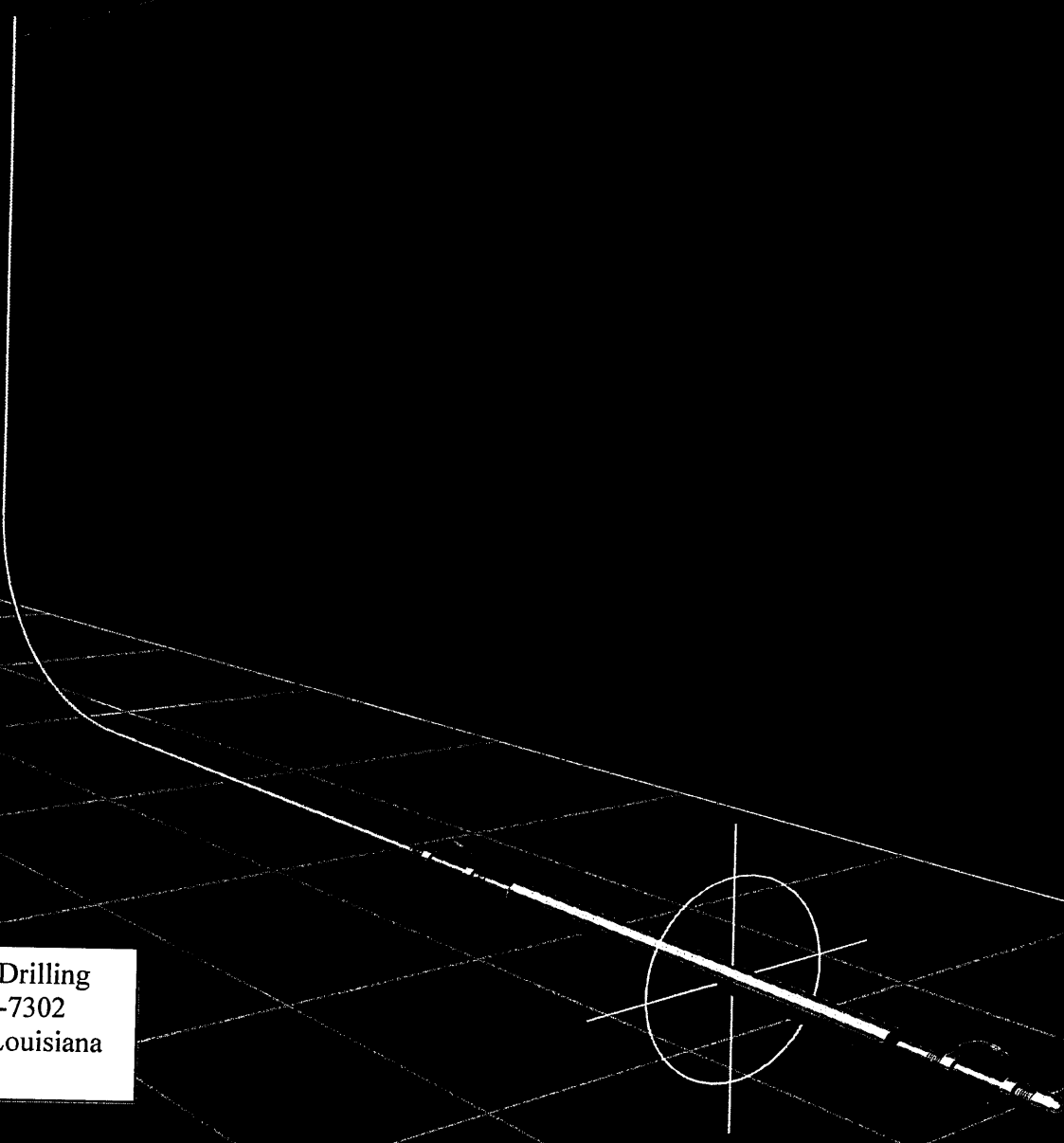
DEC 2 2011

MORGAN

SCIENTIFIC DRILLING

End of Well Survey Report for

Chesapeake Operating, Inc.
Arthur Chidester 2H (627005)
Upshur County, WV



Scientific Drilling
337-232-7302
Lafayette, Louisiana

RECEIVED

CHESAPEAKE OPERATING, INC.

097-03653



Scientific Drilling
Directional Drilling Operations

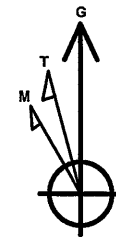
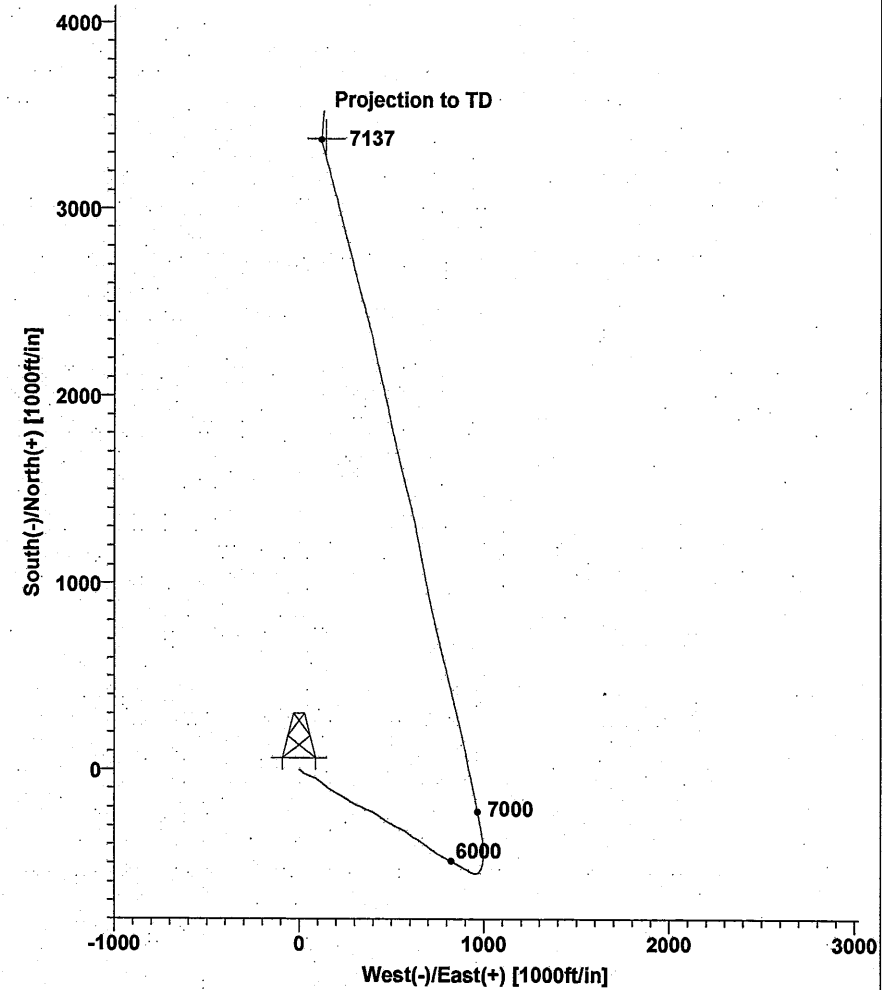
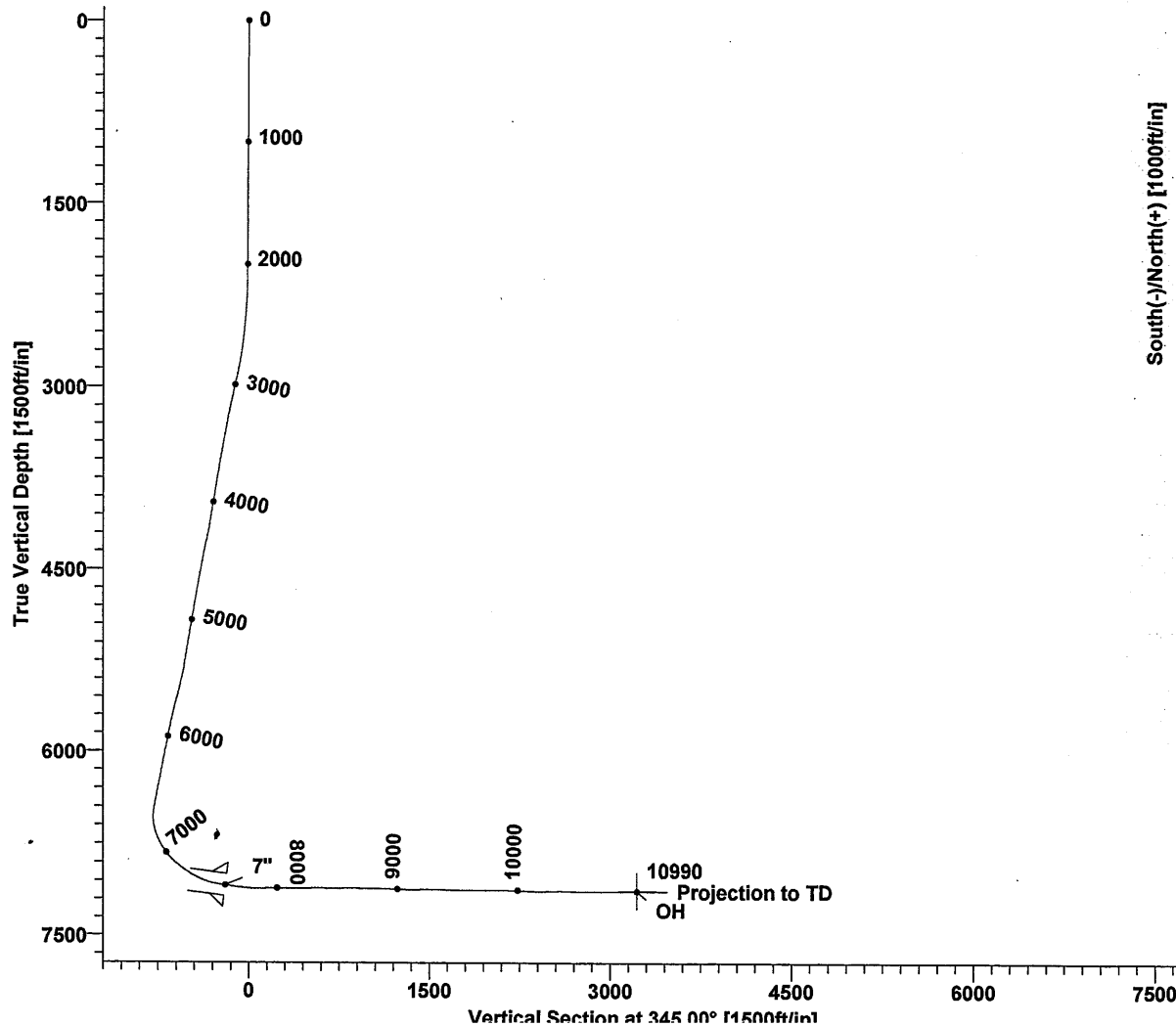
DEC 2 2010
WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Field: Upshur, WV
Site: Arthur Chidester
Well: 2H
Wellpath: OH



2H	-4.00	-13.80	665017.00	2190272.20	38°49'27.786N	080°19'55.797W	N/A
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2H PBHL P4	7129.00	3377.00	144.80	668394.00	2190417.00	Point
------------	---------	---------	--------	-----------	------------	-------



Azimuths to Grid North
True North: -0.41°
Magnetic North: -8.93°

Magnetic Field
Strength: 52498nT
Dip Angle: 66.77°
Date: 06/28/2010
Model: IGRF2010

Plot Date: 07/20/2010
By: Troy Lewis
Scientific Drilling, Inc.
337-781-1162 cell
337-232-7302 office

SDI Survey Report

DEC 2 2011
WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Company: CHESAPEAKE OPERATING, INC.	Date: 07/21/2010	Time: 09:54:06	Page: 1
Field: Upshur, WV	Co-ordinate(NE) Reference: Well: 2H, Grid North		
Site: Arthur Chidester	Vertical (TVD) Reference: GL1900+RKB 19 1919.0		
Well: 2H	Section (VS) Reference: Well (0.00N,0.00E,345.00Azi)		
Wellpath: OH	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Field: Upshur, WV			
Map System: US State Plane Coordinate System 1927		Map Zone: West Virginia, Southern Zone	
Geo Datum: NAD27 (Clarke 1866)		Coordinate System: Well Centre	
Sys Datum: Mean Sea Level		Geomagnetic Model: IGRF2010	

Site: Arthur Chidester			
Site Position:	Northing: 665021.00 ft	Latitude: 38 49 27.825 N	
From: Map	Easting: 2190286.00 ft	Longitude: 80 19 55.623 W	
Position Uncertainty: 0.00 ft		North Reference: Grid	
Ground Level: 1900.00 ft		Grid Convergence: 0.41 deg	

Well: 2H		Slot Name:	
Well Position:	+N/-S -4.00 ft	Northing: 665017.00 ft	Latitude: 38 49 27.786 N
	+E/-W -13.80 ft	Easting: 2190272.20 ft	Longitude: 80 19 55.797 W
Position Uncertainty: 0.00 ft			

Wellpath: OH		Drilled From: Surface	
Current Datum: GL1900+RKB 19	Height 1919.00 ft	Tie-on Depth: 0.00 ft	
Magnetic Data: 06/28/2010		Above System Datum: Mean Sea Level	
Field Strength: 52498 nT		Declination: -8.52 deg	
Vertical Section: Depth From (TVD)	+N/-S	Mag Dip Angle: 66.77 deg	
ft	ft	+E/-W	Direction
		ft	deg
0.00	0.00	0.00	345.00

Survey Program for Definitive Wellpath					
Date: 07/21/2010		Validated: Yes		Version: 5	
Actual From	To	Survey	Toolcode	Tool Name	
ft	ft				
0.00	1865.00	Survey #1 (0.00-1865.00)	NS-GYRO-MS	North sensing gyrocompassing m	
1996.00	6515.00	Survey #2 (1996.00-6515.00)	MWD	MWD	
6515.00	10990.00	Survey #3 (6515.00-10990.00)	MWD	MWD - SDI	

MD	Incl	Azim	TVD	+N/-S	+E/-W	VS	DLS	Build	Turn	Tool/Comment
ft	deg	deg	ft	ft	ft	ft	deg/100ft	deg/100ft	deg/100ft	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIE LINE
100.00	0.11	129.90	100.00	-0.06	0.07	-0.08	0.11	0.11	0.00	NS-GYRO-MS
200.00	0.31	119.90	200.00	-0.26	0.38	-0.35	0.20	0.20	-10.00	NS-GYRO-MS
300.00	0.37	129.90	300.00	-0.60	0.86	-0.80	0.08	0.06	10.00	NS-GYRO-MS
400.00	0.35	125.80	400.00	-0.99	1.36	-1.30	0.03	-0.02	-4.10	NS-GYRO-MS
500.00	0.31	109.60	499.99	-1.26	1.86	-1.69	0.10	-0.04	-16.20	NS-GYRO-MS
600.00	0.44	95.50	599.99	-1.38	2.50	-1.98	0.16	0.13	-14.10	NS-GYRO-MS
700.00	0.38	100.00	699.99	-1.48	3.21	-2.26	0.07	-0.06	4.50	NS-GYRO-MS
800.00	0.55	109.10	799.99	-1.69	3.99	-2.67	0.18	0.17	9.10	NS-GYRO-MS
900.00	0.72	112.40	899.98	-2.09	5.02	-3.32	0.17	0.17	3.30	NS-GYRO-MS
1000.00	0.88	118.20	999.97	-2.69	6.28	-4.22	0.18	0.16	5.80	NS-GYRO-MS
1100.00	0.83	116.30	1099.96	-3.37	7.61	-5.23	0.06	-0.05	-1.90	NS-GYRO-MS
1200.00	0.71	121.40	1199.95	-4.02	8.78	-6.15	0.14	-0.12	5.10	NS-GYRO-MS
1300.00	0.35	103.10	1299.95	-4.41	9.61	-6.75	0.39	-0.36	-18.30	NS-GYRO-MS
1400.00	0.25	91.80	1399.94	-4.49	10.13	-6.95	0.12	-0.10	-11.30	NS-GYRO-MS
1500.00	0.02	112.00	1499.94	-4.50	10.36	-7.03	0.23	-0.23	20.20	NS-GYRO-MS
1600.00	0.28	170.00	1599.94	-4.75	10.42	-7.28	0.27	0.26	58.00	NS-GYRO-MS
1700.00	0.19	82.30	1699.94	-4.97	10.63	-7.55	0.33	-0.09	-87.70	NS-GYRO-MS
1800.00	0.16	148.00	1799.94	-5.06	10.86	-7.70	0.19	-0.03	65.70	NS-GYRO-MS
1865.00	0.25	137.70	1864.94	-5.24	11.01	-7.91	0.15	0.14	-15.85	NS-GYRO-MS
1996.00	0.37	116.00	1995.94	-5.64	11.58	-8.44	0.13	0.09	-16.56	MWD

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SDI Survey Report

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Company: CHESAPEAKE OPERATING, INC.	Date: 07/21/2010	Time: 09:54:06	Page: 2
Field: Upshur, WV	Co-ordinate(NE) Reference: Well: 2H, Grid North		
Site: Arthur Chidester	Vertical (TVD) Reference: GL1900+RKB 19 1919.0		
Well: 2H	Section (VS) Reference: Well (0.00N,0.00E,345.00Azi)		
Wellpath: OH	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
2028.00	0.42	147.10	2027.94	-5.78	11.74	-8.62	0.68	0.16	97.19	MWD
2060.00	0.44	143.10	2059.94	-5.98	11.87	-8.85	0.11	0.06	-12.50	MWD
2091.00	0.46	126.70	2090.94	-6.15	12.05	-9.06	0.42	0.06	-52.90	MWD
2123.00	0.80	143.70	2122.94	-6.41	12.28	-9.37	1.20	1.06	53.12	MWD
2155.00	1.51	219.40	2154.93	-6.91	12.15	-9.82	4.76	2.22	236.56	MWD
2199.00	1.95	125.10	2198.92	-7.79	12.39	-10.73	5.80	1.00	-214.32	MWD
2231.00	2.58	130.30	2230.89	-8.57	13.38	-11.74	2.07	1.97	16.25	MWD
2263.00	2.96	134.60	2262.85	-9.62	14.52	-13.05	1.35	1.19	13.44	MWD
2294.00	3.95	132.40	2293.80	-10.90	15.88	-14.64	3.22	3.19	-7.10	MWD
2326.00	4.48	131.20	2325.71	-12.46	17.63	-16.60	1.68	1.66	-3.75	MWD
2358.00	5.29	130.00	2357.59	-14.24	19.71	-18.85	2.55	2.53	-3.75	MWD
2390.00	6.26	130.70	2389.43	-16.32	22.16	-21.50	3.04	3.03	2.19	MWD
2422.00	6.46	121.20	2421.24	-18.39	25.02	-24.24	3.34	0.62	-29.69	MWD
2453.00	7.28	120.70	2452.01	-20.30	28.20	-26.91	2.65	2.65	-1.61	MWD
2485.00	7.89	118.20	2483.73	-22.37	31.88	-29.86	2.17	1.91	-7.81	MWD
2517.00	8.51	121.00	2515.41	-24.63	35.85	-33.07	2.30	1.94	8.75	MWD
2549.00	9.15	111.10	2547.03	-26.76	40.25	-36.27	5.14	2.00	-30.94	MWD
2581.00	10.26	113.40	2578.57	-28.81	45.24	-39.54	3.67	3.47	7.19	MWD
2613.00	10.80	109.90	2610.03	-30.96	50.67	-43.02	2.62	1.69	-10.94	MWD
2688.00	13.60	113.00	2683.33	-36.80	65.40	-52.48	3.83	3.73	4.13	MWD
2704.00	14.10	111.90	2698.87	-38.26	68.94	-54.80	3.53	3.12	-6.87	MWD
2736.00	14.60	112.30	2729.87	-41.25	76.29	-59.59	1.59	1.56	1.25	MWD
2767.00	14.40	116.40	2759.88	-44.45	83.36	-64.51	3.37	-0.65	13.23	MWD
2799.00	14.10	120.60	2790.90	-48.20	90.28	-69.92	3.36	-0.94	13.12	MWD
2831.00	13.70	126.20	2821.96	-52.42	96.69	-75.66	4.38	-1.25	17.50	MWD
2863.00	14.60	127.50	2852.99	-57.12	102.95	-81.81	2.98	2.81	4.06	MWD
2895.00	15.20	126.20	2883.91	-62.05	109.53	-88.28	2.15	1.87	-4.06	MWD
2957.00	15.40	127.40	2943.72	-71.85	122.63	-101.14	0.60	0.32	1.94	MWD
2988.00	15.10	127.70	2973.62	-76.82	129.09	-107.61	1.00	-0.97	0.97	MWD
3020.00	15.80	127.10	3004.47	-81.99	135.87	-114.37	2.24	2.19	-1.87	MWD
3052.00	15.80	128.30	3035.26	-87.32	142.76	-121.30	1.02	0.00	3.75	MWD
3084.00	16.50	128.60	3066.00	-92.86	149.73	-128.45	2.20	2.19	0.94	MWD
3116.00	16.50	125.80	3096.68	-98.35	156.97	-135.63	2.48	0.00	-8.75	MWD
3148.00	16.40	121.90	3127.37	-103.40	164.49	-142.45	3.46	-0.31	-12.19	MWD
3179.00	16.10	121.00	3157.13	-107.92	171.89	-148.73	1.26	-0.97	-2.90	MWD
3211.00	15.90	121.20	3187.89	-112.48	179.44	-155.09	0.65	-0.62	0.62	MWD
3243.00	15.40	122.20	3218.71	-117.01	186.79	-161.37	1.78	-1.56	3.12	MWD
3275.00	15.40	120.80	3249.56	-121.45	194.03	-167.53	1.16	0.00	-4.37	MWD
3307.00	15.60	121.20	3280.39	-125.86	201.36	-173.69	0.71	0.62	1.25	MWD
3339.00	15.20	119.90	3311.24	-130.18	208.68	-179.75	1.65	-1.25	-4.06	MWD
3370.00	15.40	117.80	3341.15	-134.12	215.84	-185.42	1.90	0.65	-6.77	MWD
3401.00	15.10	119.30	3371.05	-138.02	223.01	-191.03	1.60	-0.97	4.84	MWD
3433.00	14.90	118.20	3401.96	-142.00	230.27	-196.76	1.09	-0.62	-3.44	MWD
3464.00	14.60	117.90	3431.94	-145.72	237.23	-202.15	1.00	-0.97	-0.97	MWD
3496.00	14.30	120.60	3462.93	-149.61	244.20	-207.72	2.30	-0.94	8.44	MWD
3528.00	14.20	119.30	3493.95	-153.55	251.02	-213.28	1.05	-0.31	-4.06	MWD
3560.00	14.30	120.90	3524.96	-157.50	257.84	-218.86	1.27	0.31	5.00	MWD
3592.00	13.80	120.90	3556.00	-161.49	264.50	-224.44	1.56	-1.56	0.00	MWD
3623.00	13.70	123.30	3586.12	-165.40	270.74	-229.84	1.87	-0.32	7.74	MWD
3687.00	13.10	122.90	3648.37	-173.50	283.17	-240.88	0.95	-0.94	-0.62	MWD
3719.00	13.40	119.30	3679.52	-177.29	289.45	-246.16	2.74	0.94	-11.25	MWD
3751.00	13.90	117.20	3710.62	-180.86	296.10	-251.33	2.20	1.56	-6.56	MWD
3782.00	14.00	115.80	3740.70	-184.19	302.79	-256.28	1.14	0.32	-4.52	MWD
3814.00	13.80	113.00	3771.77	-187.37	309.78	-261.16	2.19	-0.62	-8.75	MWD

SDI

Survey Report

DEC 2 2011

 WV GEOLOGICAL SURVEY
 MORGANTOWN, WV

Company: CHESAPEAKE OPERATING, INC.
Field: Upshur, WV
Site: Arthur Chidester
Well: 2H
Wellpath: OH

Date: 07/21/2010 **Time:** 09:54:06 **Page:** 3
Co-ordinate(NE) Reference: Well: 2H, Grid North
Vertical (TVD) Reference: GL1900+RKB 19 1919.0
Section (VS) Reference: Well (0.00N,0.00E,345.00Azi)
Survey Calculation Method: Minimum Curvature **Db:** Sybase

- Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
3845.00	14.30	112.80	3801.84	-190.30	316.72	-265.78	1.62	1.61	-0.65	MWD
3877.00	14.20	112.70	3832.85	-193.34	323.98	-270.61	0.32	-0.31	-0.31	MWD
3909.00	14.20	115.20	3863.88	-196.53	331.15	-275.54	1.92	0.00	7.81	MWD
3941.00	14.40	116.60	3894.89	-199.98	338.26	-280.71	1.25	0.62	4.37	MWD
3973.00	14.70	119.00	3925.86	-203.73	345.37	-286.18	2.10	0.94	7.50	MWD
4005.00	14.60	117.00	3956.82	-207.53	352.52	-291.70	1.61	-0.31	-6.25	MWD
4036.00	14.50	114.50	3986.83	-210.91	359.53	-296.78	2.05	-0.32	-8.06	MWD
4068.00	14.60	115.00	4017.80	-214.28	366.83	-301.92	0.50	0.31	1.56	MWD
4100.00	14.80	113.40	4048.75	-217.61	374.24	-307.05	1.41	0.62	-5.00	MWD
4132.00	14.90	113.10	4079.68	-220.84	381.77	-312.13	0.39	0.31	-0.94	MWD
4164.00	15.20	111.60	4110.59	-224.00	389.46	-317.17	1.54	0.94	-4.69	MWD
4195.00	15.60	111.10	4140.47	-227.00	397.12	-322.05	1.36	1.29	-1.61	MWD
4227.00	15.20	117.00	4171.33	-230.45	404.88	-327.39	5.05	-1.25	18.44	MWD
4259.00	16.00	119.90	4202.15	-234.56	412.44	-333.31	3.49	2.50	9.06	MWD
4291.00	16.30	120.00	4232.88	-239.00	420.15	-339.60	0.94	0.94	0.31	MWD
4323.00	16.10	123.20	4263.61	-243.67	427.75	-346.08	2.86	-0.62	10.00	MWD
4354.00	16.10	125.20	4293.40	-248.51	434.86	-352.59	1.79	0.00	6.45	MWD
4386.00	16.00	125.40	4324.15	-253.62	442.08	-359.39	0.36	-0.31	0.62	MWD
4417.00	15.20	125.90	4354.01	-258.48	448.85	-365.84	2.62	-2.58	1.61	MWD
4449.00	14.90	123.30	4384.91	-263.19	455.69	-372.17	2.31	-0.94	-8.12	MWD
4481.00	14.60	122.00	4415.86	-267.59	462.55	-378.19	1.40	-0.94	-4.06	MWD
4513.00	14.70	121.50	4446.82	-271.85	469.43	-384.08	0.50	0.31	-1.56	MWD
4545.00	14.90	121.80	4477.76	-276.14	476.39	-390.03	0.67	0.62	0.94	MWD
4577.00	14.60	120.40	4508.70	-280.35	483.37	-395.90	1.46	-0.94	-4.37	MWD
4608.00	14.40	121.30	4538.71	-284.33	490.03	-401.47	0.97	-0.65	2.90	MWD
4640.00	14.70	119.40	4569.69	-288.39	496.97	-407.19	1.76	0.94	-5.94	MWD
4672.00	14.50	119.00	4600.65	-292.32	504.01	-412.81	0.70	-0.62	-1.25	MWD
4704.00	14.20	119.90	4631.66	-296.22	510.91	-418.36	1.17	-0.94	2.81	MWD
4736.00	14.40	116.20	4662.66	-299.93	517.89	-423.75	2.92	0.62	-11.56	MWD
4768.00	14.20	115.00	4693.67	-303.35	525.01	-428.90	1.12	-0.62	-3.75	MWD
4799.00	15.10	116.10	4723.67	-306.73	532.09	-434.00	3.04	2.90	3.55	MWD
4831.00	15.00	117.00	4754.57	-310.45	539.52	-439.51	0.79	-0.31	2.81	MWD
4862.00	14.50	115.70	4784.55	-313.95	546.59	-444.72	1.93	-1.61	-4.19	MWD
4893.00	14.50	115.70	4814.56	-317.32	553.59	-449.78	0.00	0.00	0.00	MWD
4925.00	14.60	114.30	4845.53	-320.71	560.87	-454.95	1.14	0.31	-4.37	MWD
4989.00	13.00	121.50	4907.69	-327.80	574.36	-465.28	3.66	-2.50	11.25	MWD
5021.00	12.40	128.10	4938.91	-331.80	580.14	-470.64	4.90	-1.87	20.62	MWD
5052.00	12.30	130.00	4969.19	-335.97	585.28	-476.01	1.35	-0.32	6.13	MWD
5084.00	12.30	131.50	5000.45	-340.42	590.45	-481.64	1.00	0.00	4.69	MWD
5116.00	12.50	131.30	5031.71	-344.97	595.60	-487.37	0.64	0.62	-0.62	MWD
5148.00	12.40	128.60	5062.96	-349.40	600.89	-493.01	1.85	-0.31	-8.44	MWD
5180.00	12.30	127.20	5094.22	-353.60	606.29	-498.47	0.99	-0.31	-4.37	MWD
5211.00	12.60	125.50	5124.49	-357.56	611.67	-503.69	1.53	0.97	-5.48	MWD
5243.00	12.50	125.30	5155.72	-361.59	617.34	-509.05	0.34	-0.31	-0.62	MWD
5275.00	13.00	122.20	5186.93	-365.51	623.21	-514.35	2.65	1.56	-9.69	MWD
5307.00	13.20	118.20	5218.10	-369.15	629.48	-519.49	2.90	0.62	-12.50	MWD
5334.00	13.00	114.10	5244.40	-371.85	634.97	-523.52	3.52	-0.74	-15.19	MWD
5370.00	13.40	113.80	5279.45	-375.19	642.48	-528.69	1.13	1.11	-0.83	MWD
5402.00	14.10	117.70	5310.53	-378.49	649.32	-533.65	3.63	2.19	12.19	MWD
5434.00	15.20	123.10	5341.49	-382.60	656.29	-539.42	5.48	3.44	16.87	MWD
5466.00	16.00	123.80	5372.31	-387.34	663.47	-545.86	2.57	2.50	2.19	MWD
5497.00	16.10	125.50	5402.10	-392.21	670.52	-552.39	1.55	0.32	5.48	MWD
5529.00	16.00	124.50	5432.86	-397.29	677.77	-559.17	0.92	-0.31	-3.12	MWD

SDI Survey Report

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Company: CHESAPEAKE OPERATING, INC.	Date: 07/21/2010	Time: 09:54:06	Page: 4
Field: Upshur, WV	Co-ordinate(NE) Reference: Well: 2H, Grid North		
Site: Arthur Chidester	Vertical (TVD) Reference: GL1900+RKB 19 1919.0		
Well: 2H	Section (VS) Reference: Well (0.00N,0.00E,345.00Azi)		
Wellpath: OH	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
5625.00	17.60	124.20	5524.76	-412.94	700.67	-580.22	1.67	1.67	-0.31	MWD
5656.00	17.80	128.20	5554.29	-418.51	708.27	-587.56	3.97	0.65	12.90	MWD
5752.00	17.80	124.70	5645.70	-435.93	731.87	-610.50	1.11	0.00	-3.65	MWD
5784.00	17.40	125.40	5676.20	-441.49	739.79	-617.92	1.41	-1.25	2.19	MWD
5815.00	18.10	125.20	5705.72	-446.95	747.50	-625.19	2.27	2.26	-0.65	MWD
5847.00	17.10	121.10	5736.23	-452.25	755.60	-632.40	4.98	-3.12	-12.81	MWD
5879.00	17.00	120.50	5766.82	-457.05	763.65	-639.13	0.63	-0.31	-1.87	MWD
5911.00	16.60	118.50	5797.45	-461.61	771.70	-645.61	2.20	-1.25	-6.25	MWD
5943.00	16.00	117.10	5828.17	-465.80	779.65	-651.71	2.24	-1.87	-4.37	MWD
5974.00	16.00	119.40	5857.97	-469.84	787.17	-657.57	2.04	0.00	7.42	MWD
6006.00	16.80	117.70	5888.67	-474.16	795.11	-663.79	2.92	2.50	-5.31	MWD
6038.00	16.70	117.30	5919.31	-478.41	803.29	-670.02	0.48	-0.31	-1.25	MWD
6070.00	15.90	117.90	5950.02	-482.57	811.25	-676.10	2.55	-2.50	1.87	MWD
6102.00	16.30	117.80	5980.77	-486.72	819.09	-682.13	1.25	1.25	-0.31	MWD
6134.00	16.50	117.80	6011.46	-490.93	827.09	-688.27	0.62	0.62	0.00	MWD
6165.00	15.60	116.60	6041.26	-494.85	834.71	-694.03	3.09	-2.90	-3.87	MWD
6197.00	15.50	116.80	6072.08	-498.71	842.37	-699.74	0.35	-0.31	0.62	MWD
6229.00	15.50	121.00	6102.92	-502.84	849.85	-705.66	3.51	0.00	13.12	MWD
6261.00	15.90	121.50	6133.73	-507.33	857.26	-711.92	1.32	1.25	1.56	MWD
6293.00	16.00	120.40	6164.50	-511.85	864.80	-718.24	0.99	0.31	-3.44	MWD
6325.00	15.80	118.10	6195.27	-516.14	872.44	-724.35	2.07	-0.62	-7.19	MWD
6388.00	16.80	120.00	6255.74	-524.73	887.90	-736.65	1.80	1.59	3.02	MWD
6420.00	16.40	118.50	6286.41	-529.20	895.87	-743.03	1.83	-1.25	-4.69	MWD
6452.00	15.60	116.60	6317.17	-533.28	903.69	-749.00	2.99	-2.50	-5.94	MWD
6483.00	16.10	116.30	6346.99	-537.05	911.27	-754.60	1.63	1.61	-0.97	MWD
6515.00	16.30	116.60	6377.72	-541.03	919.26	-760.51	0.68	0.62	0.94	MWD
6533.00	16.64	117.76	6394.98	-543.36	923.80	-763.94	2.63	1.89	6.44	MWD
6564.00	17.20	118.64	6424.64	-547.62	931.75	-770.12	1.99	1.81	2.84	MWD
6596.00	17.05	115.96	6455.22	-551.94	940.12	-776.46	2.51	-0.47	-8.37	MWD
6628.00	16.46	100.81	6485.87	-554.85	948.80	-781.51	13.73	-1.84	-47.34	MWD
6660.00	16.33	85.00	6516.59	-555.31	957.74	-784.27	13.91	-0.41	-49.41	MWD
6692.00	16.31	68.45	6547.32	-553.26	966.40	-784.53	14.49	-0.06	-51.72	MWD
6722.00	16.00	52.06	6576.15	-549.17	973.58	-782.44	15.19	-1.03	-54.63	MWD
6754.00	16.12	35.58	6606.91	-542.84	979.65	-777.90	14.21	0.37	-51.50	MWD
6786.00	18.59	25.51	6637.46	-534.62	984.43	-771.20	12.13	7.72	-31.47	MWD
6818.00	21.53	19.32	6667.52	-524.48	988.57	-762.47	11.32	9.19	-19.34	MWD
6849.00	24.53	14.04	6696.05	-512.86	992.02	-752.14	11.74	9.68	-17.03	MWD
6881.00	27.43	9.16	6724.82	-499.14	994.80	-739.60	11.25	9.06	-15.25	MWD
6912.00	30.22	5.48	6751.97	-484.32	996.69	-725.78	10.66	9.00	-11.87	MWD
6943.00	33.25	2.50	6778.34	-468.06	997.80	-710.36	11.00	9.77	-9.61	MWD
6975.00	36.19	0.01	6804.64	-449.84	998.19	-692.86	10.20	9.19	-7.78	MWD
7007.00	39.18	358.03	6829.96	-430.28	997.84	-673.88	10.08	9.34	-6.19	MWD
7039.00	42.34	355.99	6854.20	-409.43	996.74	-653.45	10.72	9.87	-6.37	MWD
7071.00	45.38	354.11	6877.27	-387.34	994.82	-631.62	10.33	9.50	-5.87	MWD
7102.00	47.95	352.34	6898.54	-364.95	992.15	-609.31	9.27	8.29	-5.71	MWD
7133.00	50.27	350.64	6918.83	-341.78	988.68	-586.02	8.55	7.48	-5.48	MWD
7165.00	52.43	349.44	6938.82	-317.17	984.35	-561.13	7.36	6.75	-3.75	MWD
7196.00	55.09	349.15	6957.14	-292.60	979.71	-536.20	8.61	8.58	-0.94	MWD
7228.00	57.38	349.64	6974.93	-266.46	974.81	-509.68	7.27	7.16	1.53	MWD
7260.00	58.70	348.84	6991.87	-239.79	969.74	-482.60	4.64	4.12	-2.50	MWD
7288.00	61.39	349.30	7005.85	-215.97	965.14	-458.41	9.71	9.61	1.64	MWD
7320.00	63.85	349.12	7020.56	-188.06	959.82	-430.07	7.70	7.69	-0.56	MWD
7353.00	65.54	348.72	7034.67	-158.78	954.09	-400.31	5.24	5.12	-1.21	MWD

SDI Survey Report

DEC 2 2011

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Company: CHESAPEAKE OPERATING, INC.	Date: 07/21/2010	Time: 09:54:06	Page: 5
Field: Upshur, WV	Co-ordinate(NE) Reference: Well: 2H, Grid North		
Site: Arthur Chidester	Vertical (TVD) Reference: GL1900+RKB 19 1919.0		
Well: 2H	Section (VS) Reference: Well (0.00N,0.00E,345.00Azi)		
Wellpath: OH	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
7384.00	67.82	347.69	7046.94	-130.92	948.27	-371.89	7.96	7.35	-3.32	MWD
7415.00	71.61	348.10	7057.68	-102.49	942.17	-342.85	12.29	12.23	1.32	MWD
7446.00	74.68	347.94	7066.67	-73.47	936.02	-313.23	9.92	9.90	-0.52	MWD
7478.00	77.95	348.56	7074.24	-43.04	929.69	-282.19	10.39	10.22	1.94	MWD
7510.00	80.88	348.82	7080.12	-12.20	923.52	-250.81	9.19	9.16	0.81	MWD
7542.00	81.98	348.86	7084.89	18.85	917.39	-219.24	3.44	3.44	0.12	MWD
7570.00	82.66	348.84	7088.63	46.07	912.03	-191.55	2.44	2.44	-0.06	7"
7574.00	82.76	348.84	7089.14	49.96	911.26	-187.59	2.44	2.44	-0.06	MWD
7605.00	82.86	348.59	7093.02	80.13	905.24	-156.90	0.86	0.32	-0.81	MWD
7623.00	81.21	348.41	7095.51	97.59	901.69	-139.11	9.22	-9.17	-1.00	MWD
7653.00	82.33	347.75	7099.80	126.64	895.56	-109.46	4.32	3.73	-2.20	MWD
7684.00	82.52	347.26	7103.89	156.65	888.91	-78.76	1.68	0.61	-1.58	MWD
7716.00	83.68	346.59	7107.74	187.59	881.72	-47.01	4.18	3.62	-2.09	MWD
7748.00	84.89	346.41	7110.92	218.55	874.29	-15.18	3.82	3.78	-0.56	MWD
7780.00	85.77	346.40	7113.53	249.55	866.79	16.70	2.75	2.75	-0.03	MWD
7812.00	88.05	346.36	7115.25	280.60	859.27	48.65	7.13	7.12	-0.12	MWD
7843.00	90.97	346.81	7115.52	310.75	852.08	79.63	9.53	9.42	1.45	MWD
7907.00	91.58	346.53	7114.09	373.01	837.32	143.59	1.05	0.95	-0.44	MWD
7970.00	91.34	346.67	7112.49	434.28	822.73	206.54	0.44	-0.38	0.22	MWD
8033.00	90.03	346.68	7111.73	495.58	808.21	269.51	2.08	-2.08	0.02	MWD
8096.00	90.00	346.20	7111.72	556.82	793.44	332.49	0.76	-0.05	-0.76	MWD
8160.00	90.50	346.32	7111.44	618.99	778.24	396.47	0.80	0.78	0.19	MWD
8224.00	89.70	346.53	7111.33	681.20	763.22	460.45	1.29	-1.25	0.33	MWD
8287.00	90.17	346.28	7111.40	742.43	748.41	523.43	0.85	0.75	-0.40	MWD
8351.00	90.17	347.37	7111.21	804.75	733.82	587.40	1.70	0.00	1.70	MWD
8414.00	89.50	347.15	7111.39	866.20	719.93	650.35	1.12	-1.06	-0.35	MWD
8477.00	90.30	348.11	7111.50	927.73	706.43	713.28	1.98	1.27	1.52	MWD
8540.00	90.13	349.50	7111.26	989.53	694.20	776.14	2.22	-0.27	2.21	MWD
8604.00	90.40	348.91	7110.97	1052.40	682.21	839.97	1.01	0.42	-0.92	MWD
8667.00	89.26	348.75	7111.15	1114.20	670.01	902.83	1.83	-1.81	-0.25	MWD
8730.00	90.00	349.03	7111.56	1176.02	657.87	965.68	1.26	1.17	0.44	MWD
8794.00	88.66	348.90	7112.31	1238.83	645.62	1029.52	2.10	-2.09	-0.20	MWD
8857.00	88.25	348.09	7114.01	1300.54	633.06	1092.38	1.44	-0.65	-1.29	MWD
8921.00	87.92	346.10	7116.15	1362.89	618.78	1156.30	3.15	-0.52	-3.11	MWD
8984.00	88.15	346.00	7118.31	1423.99	603.60	1219.25	0.40	0.37	-0.16	MWD
9048.00	87.75	345.61	7120.60	1486.00	587.91	1283.20	0.87	-0.62	-0.61	MWD
9111.00	89.30	345.75	7122.22	1547.02	572.34	1346.17	2.47	2.46	0.22	MWD
9175.00	91.61	346.73	7121.71	1609.18	557.12	1410.15	3.92	3.61	1.53	MWD
9238.00	90.64	346.89	7120.47	1670.50	542.74	1473.11	1.56	-1.54	0.25	MWD
9301.00	90.71	347.36	7119.73	1731.91	528.71	1536.06	0.75	0.11	0.75	MWD
9365.00	88.02	347.22	7120.44	1794.33	514.63	1600.00	4.21	-4.20	-0.22	MWD
9430.00	88.52	347.72	7122.40	1857.76	500.53	1664.91	1.09	0.77	0.77	MWD
9494.00	89.46	348.34	7123.53	1920.36	487.26	1728.81	1.76	1.47	0.97	MWD
9557.00	88.66	347.03	7124.56	1981.90	473.83	1791.73	2.44	-1.27	-2.08	MWD
9620.00	89.73	347.33	7125.45	2043.32	459.85	1854.68	1.76	1.70	0.48	MWD
9684.00	89.43	346.85	7125.92	2105.70	445.55	1918.63	0.88	-0.47	-0.75	MWD
9747.00	90.20	347.08	7126.12	2167.07	431.34	1981.59	1.28	1.22	0.37	MWD
9810.00	89.90	347.20	7126.07	2228.49	417.32	2044.55	0.51	-0.48	0.19	MWD
9874.00	90.27	347.42	7125.97	2290.93	403.26	2108.50	0.67	0.58	0.34	MWD
9937.00	88.59	345.48	7126.60	2352.17	388.50	2171.47	4.07	-2.67	-3.08	MWD
10001.00	87.85	345.01	7128.59	2414.03	372.21	2235.44	1.37	-1.16	-0.73	MWD
10064.00	87.51	344.53	7131.14	2474.76	355.67	2298.38	0.93	-0.54	-0.76	MWD
10126.00	88.25	344.04	7133.43	2534.41	338.89	2360.34	1.43	1.19	-0.79	MWD
10190.00	90.20	345.20	7134.30	2596.10	321.92	2424.32	3.55	3.05	1.81	MWD

SDI Survey Report

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WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Company: CHESAPEAKE OPERATING, INC.	Date: 07/21/2010	Time: 09:54:06	Page: 6
Field: Upshur, WV	Co-ordinate(NE) Reference: Well: 2H, Grid North		
Site: Arthur Chidester	Vertical (TVD) Reference: GL1900+RKB 19 1919.0		
Well: 2H	Section (VS) Reference: Well (0.00N,0.00E,345.00Azi)		
Wellpath: OH	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Survey										
MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
10253.00	91.38	346.65	7133.43	2657.20	306.60	2487.31	2.97	1.87	2.30	MWD
10317.00	91.74	345.54	7131.69	2719.30	291.23	2551.27	1.82	0.56	-1.73	MWD
10381.00	88.46	344.49	7131.57	2781.12	274.68	2615.26	5.38	-5.12	-1.64	MWD
10444.00	88.52	344.76	7133.23	2841.84	257.98	2678.24	0.44	0.10	0.43	MWD
10508.00	89.40	345.27	7134.40	2903.66	241.44	2742.23	1.59	1.37	0.80	MWD
10571.00	90.60	346.71	7134.40	2964.78	226.19	2805.21	2.98	1.90	2.29	MWD
10635.00	90.37	345.77	7133.85	3026.94	210.97	2869.20	1.51	-0.36	-1.47	MWD
10698.00	89.36	345.01	7134.00	3087.90	195.08	2932.19	2.01	-1.60	-1.21	MWD
10762.00	88.35	345.12	7135.28	3149.73	178.58	2996.18	1.59	-1.58	0.17	MWD
10825.00	90.17	345.85	7136.09	3210.71	162.80	3059.17	3.11	2.89	1.16	MWD
10889.00	89.83	344.66	7136.09	3272.60	146.51	3123.17	1.93	-0.53	-1.86	MWD
10942.00	89.36	344.51	7136.47	3323.69	132.42	3176.16	0.93	-0.89	-0.28	MWD
10990.00	89.36	344.51	7137.01	3369.94	119.60	3224.16	0.00	0.00	0.00	Projection to TD

Casing Points				
MD ft	TVD ft	Diameter in	Hole Size in	Name
7570.00	7088.63	7.000	8.500	7"

Annotation		
MD ft	TVD ft	
10990.00	7137.01	Projection to TD

SDI Survey Report - Geographic

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Company: CHESAPEAKE OPERATING, INC.	Date: 07/21/2010	Time: 09:53:37	Page: 1
Field: Upshur, WV	Co-ordinate(NE) Reference: Well: 2H, Grid North		
Site: Arthur Chidester	Vertical (TVD) Reference: GL1900+RKB 19 1919.0		
Well: 2H	Section (VS) Reference: Well (0.00N,0.00E,345.00Azi)		
Wellpath: OH	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Field: Upshur, WV

Map System: US State Plane Coordinate System 1927	Map Zone: West Virginia, Southern Zone
Geo Datum: NAD27 (Clarke 1866)	Coordinate System: Well Centre
Sys Datum: Mean Sea Level	Geomagnetic Model: IGRF2010

Site: Arthur Chidester

Site Position:	Northing: 665021.00 ft	Latitude: 38 49 27.825 N
From: Map	Easting: 2190286.00 ft	Longitude: 80 19 55.623 W
Position Uncertainty: 0.00 ft		North Reference: Grid
Ground Level: 1900.00 ft		Grid Convergence: 0.41 deg

Well: 2H **Slot Name:**

Well Position: +N/-S -4.00 ft	Northing: 665017.00 ft	Latitude: 38 49 27.786 N
+E/-W -13.80 ft	Easting: 2190272.20 ft	Longitude: 80 19 55.797 W
Position Uncertainty: 0.00 ft		

Wellpath: OH

Current Datum: GL1900+RKB 19	Height: 1919.00 ft	Drilled From: Surface
Magnetic Data: 06/28/2010		Tie-on Depth: 0.00 ft
Field Strength: 52498 nT		Above System Datum: Mean Sea Level
Vertical Section: Depth From (TVD)	+N/-S	Declination: -8.52 deg
ft	ft	Mag Dip Angle: 66.77 deg
		Direction: deg
0.00	0.00	0.00
		345.00

Survey Program for Definitive Wellpath

Date: 07/21/2010	Validated: Yes	Version: 5
Actual From To	Survey	Toolcode Tool Name
ft ft		
0.00 1865.00	Survey #1 (0.00-1865.00)	NS-GYRO-MS North sensing gyrocompassing m
1996.00 6515.00	Survey #2 (1996.00-6515.00)	MWD MWD
6515.00 10990.00	Survey #3 (6515.00-10990.00)	MWD MWD - SDI

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	Latitude		Longitude	
								Deg	Min Sec	Deg	Min Sec
0.00	0.00	0.00	0.00	0.00	0.00	665017.00	2190272.20	38 49	27.786 N	80 19	55.797 W
100.00	0.11	129.90	100.00	-0.06	0.07	665016.94	2190272.27	38 49	27.786 N	80 19	55.796 W
200.00	0.31	119.90	200.00	-0.26	0.38	665016.74	2190272.58	38 49	27.784 N	80 19	55.792 W
300.00	0.37	129.90	300.00	-0.60	0.86	665016.40	2190273.06	38 49	27.780 N	80 19	55.786 W
400.00	0.35	125.80	400.00	-0.99	1.36	665016.01	2190273.56	38 49	27.776 N	80 19	55.780 W
500.00	0.31	109.60	499.99	-1.26	1.86	665015.74	2190274.06	38 49	27.774 N	80 19	55.774 W
600.00	0.44	95.50	599.99	-1.38	2.50	665015.62	2190274.70	38 49	27.772 N	80 19	55.766 W
700.00	0.38	100.00	699.99	-1.48	3.21	665015.52	2190275.41	38 49	27.771 N	80 19	55.757 W
800.00	0.55	109.10	799.99	-1.69	3.99	665015.31	2190276.19	38 49	27.769 N	80 19	55.747 W
900.00	0.72	112.40	899.98	-2.09	5.02	665014.91	2190277.22	38 49	27.765 N	80 19	55.734 W
1000.00	0.88	118.20	999.97	-2.69	6.28	665014.31	2190278.48	38 49	27.759 N	80 19	55.718 W
1100.00	0.83	116.30	1099.96	-3.37	7.61	665013.63	2190279.81	38 49	27.752 N	80 19	55.701 W
1200.00	0.71	121.40	1199.95	-4.02	8.78	665012.98	2190280.98	38 49	27.746 N	80 19	55.687 W
1300.00	0.35	103.10	1299.95	-4.41	9.61	665012.59	2190281.81	38 49	27.742 N	80 19	55.676 W
1400.00	0.25	91.80	1399.94	-4.49	10.13	665012.51	2190282.33	38 49	27.741 N	80 19	55.670 W
1500.00	0.02	112.00	1499.94	-4.50	10.36	665012.50	2190282.56	38 49	27.741 N	80 19	55.667 W
1600.00	0.28	170.00	1599.94	-4.75	10.42	665012.25	2190282.62	38 49	27.739 N	80 19	55.666 W
1700.00	0.19	82.30	1699.94	-4.97	10.63	665012.03	2190282.83	38 49	27.736 N	80 19	55.663 W
1800.00	0.16	148.00	1799.94	-5.06	10.86	665011.94	2190283.06	38 49	27.735 N	80 19	55.660 W
1865.00	0.25	137.70	1864.94	-5.24	11.01	665011.76	2190283.21	38 49	27.734 N	80 19	55.659 W

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SDI Survey Report - Geographic

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Company: CHESAPEAKE OPERATING, INC.	Date: 07/21/2010	Time: 09:53:37	Page: 2
Field: Upshur, WV	Co-ordinate(N/E) Reference:	Well: 2H, Grid North	
Site: Arthur Chidester	Vertical (TVD) Reference:	GL1900+RKB 19 1919.0	
Well: 2H	Section (VS) Reference:	Well (0.00N,0.00E,345.00Azi)	
Wellpath: OH	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<--- Latitude --->			<--- Longitude --->				
								Deg	Min	Sec	Deg	Min	Sec		
1996.00	0.37	116.00	1995.94	-5.64	11.58	665011.36	2190283.78	38	49	27.730	N	80	19	55.651	W
2028.00	0.42	147.10	2027.94	-5.78	11.74	665011.22	2190283.94	38	49	27.728	N	80	19	55.649	W
2060.00	0.44	143.10	2059.94	-5.98	11.87	665011.02	2190284.07	38	49	27.726	N	80	19	55.648	W
2091.00	0.46	126.70	2090.94	-6.15	12.05	665010.85	2190284.25	38	49	27.725	N	80	19	55.646	W
2123.00	0.80	143.70	2122.94	-6.41	12.28	665010.59	2190284.48	38	49	27.722	N	80	19	55.643	W
2155.00	1.51	219.40	2154.93	-6.91	12.15	665010.09	2190284.35	38	49	27.717	N	80	19	55.644	W
2199.00	1.95	125.10	2198.92	-7.79	12.39	665009.21	2190284.59	38	49	27.708	N	80	19	55.641	W
2231.00	2.58	130.30	2230.89	-8.57	13.38	665008.43	2190285.58	38	49	27.701	N	80	19	55.629	W
2263.00	2.96	134.60	2262.85	-9.62	14.52	665007.38	2190286.72	38	49	27.690	N	80	19	55.615	W
2294.00	3.95	132.40	2293.80	-10.90	15.88	665006.10	2190288.08	38	49	27.677	N	80	19	55.598	W
2326.00	4.48	131.20	2325.71	-12.46	17.63	665004.54	2190289.83	38	49	27.662	N	80	19	55.576	W
2358.00	5.29	130.00	2357.59	-14.24	19.71	665002.76	2190291.91	38	49	27.644	N	80	19	55.550	W
2390.00	6.26	130.70	2389.43	-16.32	22.16	665000.68	2190294.36	38	49	27.623	N	80	19	55.519	W
2422.00	6.46	121.20	2421.24	-18.39	25.02	664998.61	2190297.22	38	49	27.603	N	80	19	55.483	W
2453.00	7.28	120.70	2452.01	-20.30	28.20	664996.70	2190300.40	38	49	27.584	N	80	19	55.443	W
2485.00	7.89	118.20	2483.73	-22.37	31.88	664994.63	2190304.08	38	49	27.563	N	80	19	55.396	W
2517.00	8.51	121.00	2515.41	-24.63	35.85	664992.37	2190308.05	38	49	27.540	N	80	19	55.347	W
2549.00	9.15	111.10	2547.03	-26.76	40.25	664990.24	2190312.45	38	49	27.519	N	80	19	55.291	W
2581.00	10.26	113.40	2578.57	-28.81	45.24	664988.19	2190317.44	38	49	27.498	N	80	19	55.228	W
2613.00	10.80	109.90	2610.03	-30.96	50.67	664986.04	2190322.87	38	49	27.477	N	80	19	55.160	W
2688.00	13.60	113.00	2683.33	-36.80	65.40	664980.20	2190337.60	38	49	27.418	N	80	19	54.974	W
2704.00	14.10	111.90	2698.87	-38.26	68.94	664978.74	2190341.14	38	49	27.403	N	80	19	54.930	W
2736.00	14.60	112.30	2729.87	-41.25	76.29	664975.75	2190348.49	38	49	27.373	N	80	19	54.837	W
2767.00	14.40	116.40	2759.88	-44.45	83.36	664972.55	2190355.56	38	49	27.341	N	80	19	54.748	W
2799.00	14.10	120.60	2790.90	-48.20	90.28	664968.80	2190362.48	38	49	27.303	N	80	19	54.661	W
2831.00	13.70	126.20	2821.96	-52.42	96.69	664964.58	2190368.89	38	49	27.261	N	80	19	54.580	W
2863.00	14.60	127.50	2852.99	-57.12	102.95	664959.88	2190375.15	38	49	27.214	N	80	19	54.502	W
2895.00	15.20	126.20	2883.91	-62.05	109.53	664954.95	2190381.73	38	49	27.165	N	80	19	54.419	W
2957.00	15.40	127.40	2943.72	-71.85	122.63	664945.15	2190394.83	38	49	27.067	N	80	19	54.254	W
2988.00	15.10	127.70	2973.62	-76.82	129.09	664940.18	2190401.29	38	49	27.018	N	80	19	54.173	W
3020.00	15.80	127.10	3004.47	-81.99	135.87	664935.01	2190408.07	38	49	26.966	N	80	19	54.088	W
3052.00	15.80	128.30	3035.26	-87.32	142.76	664929.68	2190414.96	38	49	26.913	N	80	19	54.001	W
3084.00	16.50	128.60	3066.00	-92.86	149.73	664924.14	2190421.93	38	49	26.858	N	80	19	53.914	W
3116.00	16.50	125.80	3096.68	-98.35	156.97	664918.65	2190429.17	38	49	26.803	N	80	19	53.823	W
3148.00	16.40	121.90	3127.37	-103.40	164.49	664913.60	2190436.69	38	49	26.752	N	80	19	53.728	W
3179.00	16.10	121.00	3157.13	-107.92	171.89	664909.08	2190444.09	38	49	26.707	N	80	19	53.635	W
3211.00	15.90	121.20	3187.89	-112.48	179.44	664904.52	2190451.64	38	49	26.662	N	80	19	53.540	W
3243.00	15.40	122.20	3218.71	-117.01	186.79	664899.99	2190458.99	38	49	26.616	N	80	19	53.448	W
3275.00	15.40	120.80	3249.56	-121.45	194.03	664895.55	2190466.23	38	49	26.572	N	80	19	53.357	W
3307.00	15.60	121.20	3280.39	-125.86	201.36	664891.14	2190473.56	38	49	26.528	N	80	19	53.264	W
3339.00	15.20	119.90	3311.24	-130.18	208.68	664886.82	2190480.88	38	49	26.485	N	80	19	53.172	W
3370.00	15.40	117.80	3341.15	-134.12	215.84	664882.88	2190488.04	38	49	26.445	N	80	19	53.082	W
3401.00	15.10	119.30	3371.05	-138.02	223.01	664878.98	2190495.21	38	49	26.406	N	80	19	52.992	W
3433.00	14.90	118.20	3401.96	-142.00	230.27	664875.00	2190502.47	38	49	26.366	N	80	19	52.901	W
3464.00	14.60	117.90	3431.94	-145.72	237.23	664871.28	2190509.43	38	49	26.329	N	80	19	52.813	W
3496.00	14.30	120.60	3462.93	-149.61	244.20	664867.39	2190516.40	38	49	26.290	N	80	19	52.725	W
3528.00	14.20	119.30	3493.95	-153.55	251.02	664863.45	2190523.22	38	49	26.251	N	80	19	52.640	W
3560.00	14.30	120.90	3524.96	-157.50	257.84	664859.50	2190530.04	38	49	26.211	N	80	19	52.554	W
3592.00	13.80	120.90	3556.00	-161.49	264.50	664855.51	2190536.70	38	49	26.171	N	80	19	52.470	W
3623.00	13.70	123.30	3586.12	-165.40	270.74	664851.60	2190542.94	38	49	26.132	N	80	19	52.391	W
3687.00	13.10	122.90	3648.37	-173.50	283.17	664843.50	2190555.37	38	49	26.051	N	80	19	52.235	W
3719.00	13.40	119.30	3679.52	-177.29	289.45	664839.71	2190561.65	38	49	26.013	N	80	19	52.156	W
3751.00	13.90	117.20	3710.62	-180.86	296.10	664836.14	2190568.30	38	49	25.977	N	80	19	52.073	W

SDI

Survey Report - Geographic

Company: CHESAPEAKE OPERATING, INC.	Date: 07/21/2010	Time: 09:53:37	Page: 3
Field: Upshur, WV	Co-ordinate(NE) Reference:	Well: 2H, Grid North	
Site: Arthur Chidester	Vertical (TVD) Reference:	GL1900+RKB 19 1919.0	
Well: 2H	Section (VS) Reference:	Well (0.00N,0.00E,345.00Azi)	
Wellpath: OH	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	←← Latitude →→			←← Longitude →→				
								Deg	Min	Sec	Deg	Min	Sec		
3782.00	14.00	115.80	3740.70	-184.19	302.79	664832.81	2190574.99	38	49	25.944	N	80	19	51.988	W
3814.00	13.80	113.00	3771.77	-187.37	309.78	664829.63	2190581.98	38	49	25.912	N	80	19	51.900	W
3845.00	14.30	112.80	3801.84	-190.30	316.72	664826.70	2190588.92	38	49	25.883	N	80	19	51.813	W
3877.00	14.20	112.70	3832.85	-193.34	323.98	664823.66	2190596.18	38	49	25.852	N	80	19	51.721	W
3909.00	14.20	115.20	3863.88	-196.53	331.15	664820.47	2190603.35	38	49	25.820	N	80	19	51.631	W
3941.00	14.40	116.60	3894.89	-199.98	338.26	664817.02	2190610.46	38	49	25.785	N	80	19	51.541	W
3973.00	14.70	119.00	3925.86	-203.73	345.37	664813.27	2190617.57	38	49	25.748	N	80	19	51.452	W
4005.00	14.60	117.00	3956.82	-207.53	352.52	664809.47	2190624.72	38	49	25.710	N	80	19	51.362	W
4036.00	14.50	114.50	3986.83	-210.91	359.53	664806.09	2190631.73	38	49	25.676	N	80	19	51.274	W
4068.00	14.60	115.00	4017.80	-214.28	366.83	664802.72	2190639.03	38	49	25.642	N	80	19	51.182	W
4100.00	14.80	113.40	4048.75	-217.61	374.24	664799.39	2190646.44	38	49	25.609	N	80	19	51.089	W
4132.00	14.90	113.10	4079.68	-220.84	381.77	664796.16	2190653.97	38	49	25.576	N	80	19	50.994	W
4164.00	15.20	111.60	4110.59	-224.00	389.46	664793.00	2190661.66	38	49	25.544	N	80	19	50.897	W
4195.00	15.60	111.10	4140.47	-227.00	397.12	664790.00	2190669.32	38	49	25.514	N	80	19	50.800	W
4227.00	15.20	117.00	4171.33	-230.45	404.88	664786.55	2190677.08	38	49	25.479	N	80	19	50.703	W
4259.00	16.00	119.90	4202.15	-234.56	412.44	664782.44	2190684.64	38	49	25.438	N	80	19	50.607	W
4291.00	16.30	120.00	4232.88	-239.00	420.15	664778.00	2190692.35	38	49	25.394	N	80	19	50.510	W
4323.00	16.10	123.20	4263.61	-243.67	427.75	664773.33	2190699.95	38	49	25.347	N	80	19	50.415	W
4354.00	16.10	125.20	4293.40	-248.51	434.86	664768.49	2190707.06	38	49	25.299	N	80	19	50.325	W
4386.00	16.00	125.40	4324.15	-253.62	442.08	664763.38	2190714.28	38	49	25.248	N	80	19	50.235	W
4417.00	15.20	125.90	4354.01	-258.48	448.85	664758.52	2190721.05	38	49	25.199	N	80	19	50.149	W
4449.00	14.90	123.30	4384.91	-263.19	455.69	664753.81	2190727.89	38	49	25.152	N	80	19	50.064	W
4481.00	14.60	122.00	4415.86	-267.59	462.55	664749.41	2190734.75	38	49	25.108	N	80	19	49.977	W
4513.00	14.70	121.50	4446.82	-271.85	469.43	664745.15	2190741.63	38	49	25.066	N	80	19	49.891	W
4545.00	14.90	121.80	4477.76	-276.14	476.39	664740.86	2190748.59	38	49	25.023	N	80	19	49.803	W
4577.00	14.60	120.40	4508.70	-280.35	483.37	664736.65	2190755.57	38	49	24.981	N	80	19	49.715	W
4608.00	14.40	121.30	4538.71	-284.33	490.03	664732.67	2190762.23	38	49	24.941	N	80	19	49.632	W
4640.00	14.70	119.40	4569.69	-288.39	496.97	664728.61	2190769.17	38	49	24.900	N	80	19	49.544	W
4672.00	14.50	119.00	4600.65	-292.32	504.01	664724.68	2190776.21	38	49	24.861	N	80	19	49.456	W
4704.00	14.20	119.90	4631.66	-296.22	510.91	664720.78	2190783.11	38	49	24.822	N	80	19	49.369	W
4736.00	14.40	116.20	4662.66	-299.93	517.89	664717.07	2190790.09	38	49	24.785	N	80	19	49.281	W
4768.00	14.20	115.00	4693.67	-303.35	525.01	664713.65	2190797.21	38	49	24.750	N	80	19	49.191	W
4799.00	15.10	116.10	4723.67	-306.73	532.09	664710.27	2190804.29	38	49	24.716	N	80	19	49.102	W
4831.00	15.00	117.00	4754.57	-310.45	539.52	664706.55	2190811.72	38	49	24.679	N	80	19	49.009	W
4862.00	14.50	115.70	4784.55	-313.95	546.59	664703.05	2190818.79	38	49	24.644	N	80	19	48.920	W
4893.00	14.50	115.70	4814.56	-317.32	553.59	664699.68	2190825.79	38	49	24.610	N	80	19	48.832	W
4925.00	14.60	114.30	4845.53	-320.71	560.87	664696.29	2190833.07	38	49	24.576	N	80	19	48.740	W
4989.00	13.00	121.50	4907.69	-327.80	574.36	664689.20	2190846.56	38	49	24.505	N	80	19	48.570	W
5021.00	12.40	128.10	4938.91	-331.80	580.14	664685.20	2190852.34	38	49	24.465	N	80	19	48.497	W
5052.00	12.30	130.00	4969.19	-335.97	585.28	664681.03	2190857.48	38	49	24.424	N	80	19	48.433	W
5084.00	12.30	131.50	5000.45	-340.42	590.45	664676.58	2190862.65	38	49	24.379	N	80	19	48.368	W
5116.00	12.50	131.30	5031.71	-344.97	595.60	664672.03	2190867.80	38	49	24.334	N	80	19	48.303	W
5148.00	12.40	128.60	5062.96	-349.40	600.89	664667.60	2190873.09	38	49	24.290	N	80	19	48.237	W
5180.00	12.30	127.20	5094.22	-353.60	606.29	664663.40	2190878.49	38	49	24.248	N	80	19	48.169	W
5211.00	12.60	125.50	5124.49	-357.56	611.67	664659.44	2190883.87	38	49	24.208	N	80	19	48.101	W
5243.00	12.50	125.30	5155.72	-361.59	617.34	664655.41	2190889.54	38	49	24.168	N	80	19	48.030	W
5275.00	13.00	122.20	5186.93	-365.51	623.21	664651.49	2190895.41	38	49	24.129	N	80	19	47.956	W
5307.00	13.20	118.20	5218.10	-369.15	629.48	664647.85	2190901.68	38	49	24.092	N	80	19	47.877	W
5334.00	13.00	114.10	5244.40	-371.85	634.97	664645.15	2190907.17	38	49	24.065	N	80	19	47.808	W
5370.00	13.40	113.80	5279.45	-375.19	642.48	664641.81	2190914.68	38	49	24.032	N	80	19	47.714	W
5402.00	14.10	117.70	5310.53	-378.49	649.32	664638.51	2190921.52	38	49	23.999	N	80	19	47.628	W
5434.00	15.20	123.10	5341.49	-382.60	656.29	664634.40	2190928.49	38	49	23.958	N	80	19	47.540	W

SDI

Survey Report - Geographic

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 WV GEOLOGICAL SURVEY
 MORGANTOWN, WV

DEC 11

 Company: CHESAPEAKE OPERATING, INC.
 Field: Upshur, WV
 Site: Arthur Chidester
 Well: 2H
 Wellpath: OH

 Date: 07/21/2010 Time: 09:53:37 Page: 4
 Co-ordinate(NE) Reference: Well: 2H, Grid North
 Vertical (TVD) Reference: GL1900+RKB 19 1919.0
 Section (VS) Reference: Well (0.00N,0.00E,345.00Azi)
 Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	Latitude		Longitude					
								Deg	Min Sec	Deg	Min Sec				
5466.00	16.00	123.80	5372.31	-387.34	663.47	664629.66	2190935.67	38	49	23.910	N	80	19	47.450	W
5497.00	16.10	125.50	5402.10	-392.21	670.52	664624.79	2190942.72	38	49	23.862	N	80	19	47.361	W
5529.00	16.00	124.50	5432.86	-397.29	677.77	664619.71	2190949.97	38	49	23.811	N	80	19	47.270	W
5625.00	17.60	124.20	5524.76	-412.94	700.67	664604.06	2190972.87	38	49	23.655	N	80	19	46.982	W
5656.00	17.80	128.20	5554.29	-418.51	708.27	664598.49	2190980.47	38	49	23.599	N	80	19	46.886	W
5752.00	17.80	124.70	5645.70	-435.93	731.87	664581.07	2191004.07	38	49	23.425	N	80	19	46.590	W
5784.00	17.40	125.40	5676.20	-441.49	739.79	664575.51	2191011.99	38	49	23.370	N	80	19	46.490	W
5815.00	18.10	125.20	5705.72	-446.95	747.50	664570.05	2191019.70	38	49	23.315	N	80	19	46.393	W
5847.00	17.10	121.10	5736.23	-452.25	755.60	664564.75	2191027.80	38	49	23.262	N	80	19	46.292	W
5879.00	17.00	120.50	5766.82	-457.05	763.65	664559.95	2191035.85	38	49	23.214	N	80	19	46.190	W
5911.00	16.60	118.50	5797.45	-461.61	771.70	664555.39	2191043.90	38	49	23.168	N	80	19	46.089	W
5943.00	16.00	117.10	5828.17	-465.80	779.65	664551.20	2191051.85	38	49	23.126	N	80	19	45.989	W
5974.00	16.00	119.40	5857.97	-469.84	787.17	664547.16	2191059.37	38	49	23.086	N	80	19	45.894	W
6006.00	16.80	117.70	5888.67	-474.16	795.11	664542.84	2191067.31	38	49	23.043	N	80	19	45.794	W
6038.00	16.70	117.30	5919.31	-478.41	803.29	664538.59	2191075.49	38	49	23.000	N	80	19	45.691	W
6070.00	15.90	117.90	5950.02	-482.57	811.25	664534.43	2191083.45	38	49	22.958	N	80	19	45.591	W
6102.00	16.30	117.80	5980.77	-486.72	819.09	664530.28	2191091.29	38	49	22.917	N	80	19	45.492	W
6134.00	16.50	117.80	6011.46	-490.93	827.09	664526.07	2191099.29	38	49	22.875	N	80	19	45.392	W
6165.00	15.60	116.60	6041.26	-494.85	834.71	664522.15	2191106.91	38	49	22.835	N	80	19	45.296	W
6197.00	15.50	116.80	6072.08	-498.71	842.37	664518.29	2191114.57	38	49	22.797	N	80	19	45.199	W
6229.00	15.50	121.00	6102.92	-502.84	849.85	664514.16	2191122.05	38	49	22.755	N	80	19	45.105	W
6261.00	15.90	121.50	6133.73	-507.33	857.26	664509.67	2191129.46	38	49	22.710	N	80	19	45.012	W
6293.00	16.00	120.40	6164.50	-511.85	864.80	664505.15	2191137.00	38	49	22.665	N	80	19	44.917	W
6325.00	15.80	118.10	6195.27	-516.14	872.44	664500.86	2191144.64	38	49	22.622	N	80	19	44.821	W
6388.00	16.80	120.00	6255.74	-524.73	887.90	664492.27	2191160.10	38	49	22.536	N	80	19	44.627	W
6420.00	16.40	118.50	6286.41	-529.20	895.87	664487.80	2191168.07	38	49	22.491	N	80	19	44.526	W
6452.00	15.60	116.60	6317.17	-533.28	903.69	664483.72	2191175.89	38	49	22.451	N	80	19	44.428	W
6483.00	16.10	116.30	6346.99	-537.05	911.27	664479.95	2191183.47	38	49	22.413	N	80	19	44.332	W
6515.00	16.30	116.60	6377.72	-541.03	919.26	664475.97	2191191.46	38	49	22.373	N	80	19	44.232	W
6533.00	16.64	117.76	6394.98	-543.36	923.80	664473.64	2191196.00	38	49	22.350	N	80	19	44.175	W
6564.00	17.20	118.64	6424.64	-547.62	931.75	664469.38	2191203.95	38	49	22.307	N	80	19	44.075	W
6596.00	17.05	115.96	6455.22	-551.94	940.12	664465.06	2191212.32	38	49	22.263	N	80	19	43.969	W
6628.00	16.46	100.81	6485.87	-554.85	948.80	664462.15	2191221.00	38	49	22.234	N	80	19	43.860	W
6660.00	16.33	85.00	6516.59	-555.31	957.74	664461.69	2191229.94	38	49	22.229	N	80	19	43.747	W
6692.00	16.31	68.45	6547.32	-553.26	966.40	664463.74	2191238.60	38	49	22.249	N	80	19	43.637	W
6722.00	16.00	52.06	6576.15	-549.17	973.58	664467.83	2191245.78	38	49	22.288	N	80	19	43.546	W
6754.00	16.12	35.58	6606.91	-542.84	979.65	664474.16	2191251.85	38	49	22.351	N	80	19	43.469	W
6786.00	18.59	25.51	6637.46	-534.62	984.43	664482.38	2191256.63	38	49	22.431	N	80	19	43.408	W
6818.00	21.53	19.32	6667.52	-524.48	988.57	664492.52	2191260.77	38	49	22.532	N	80	19	43.354	W
6849.00	24.53	14.04	6696.05	-512.86	992.02	664504.14	2191264.22	38	49	22.646	N	80	19	43.310	W
6881.00	27.43	9.16	6724.82	-499.14	994.80	664517.86	2191267.00	38	49	22.782	N	80	19	43.273	W
6912.00	30.22	5.48	6751.97	-484.32	996.69	664532.68	2191268.89	38	49	22.928	N	80	19	43.248	W
6943.00	33.25	2.50	6778.34	-468.06	997.80	664548.94	2191270.00	38	49	23.089	N	80	19	43.233	W
6975.00	36.19	0.01	6804.64	-449.84	998.19	664567.16	2191270.39	38	49	23.269	N	80	19	43.226	W
7007.00	39.18	358.03	6829.96	-430.28	997.84	664586.72	2191270.04	38	49	23.462	N	80	19	43.229	W
7039.00	42.34	355.99	6854.20	-409.43	996.74	664607.57	2191268.94	38	49	23.668	N	80	19	43.241	W
7071.00	45.38	354.11	6877.27	-387.34	994.82	664629.66	2191267.02	38	49	23.887	N	80	19	43.263	W
7102.00	47.95	352.34	6898.54	-364.95	992.15	664652.05	2191264.35	38	49	24.108	N	80	19	43.295	W
7133.00	50.27	350.64	6918.83	-341.78	988.68	664675.22	2191260.88	38	49	24.337	N	80	19	43.336	W
7165.00	52.43	349.44	6938.82	-317.17	984.35	664699.83	2191256.55	38	49	24.581	N	80	19	43.389	W
7196.00	55.09	349.15	6957.14	-292.60	979.71	664724.40	2191251.91	38	49	24.824	N	80	19	43.445	W
7228.00	57.38	349.64	6974.93	-266.46	974.81	664750.54	2191247.01	38	49	25.083	N	80	19	43.505	W
7260.00	58.70	348.84	6991.87	-239.79	969.74	664777.21	2191241.94	38	49	25.347	N	80	19	43.566	W

DEC 2 2011

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

SDI

Survey Report - Geographic

Company: CHESAPEAKE OPERATING, INC.	Date: 07/21/2010	Time: 09:53:37	Page: 5
Field: Upshur, WV	Co-ordinate(N/E) Reference: Well: 2H, Grid North		
Site: Arthur Chidester	Vertical (TVD) Reference: GL1900+RKB 19 1919.0		
Well: 2H	Section (VS) Reference: Well (0.00N,0.00E,345.00Azi)		
Wellpath: OH	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	Latitude		Longitude	
								Deg	Min Sec	Deg	Min Sec
7288.00	61.39	349.30	7005.85	-215.97	965.14	664801.03	2191237.34	38 49	25.583 N	80 19	43.622 W
7320.00	63.85	349.12	7020.56	-188.06	959.82	664828.94	2191232.02	38 49	25.859 N	80 19	43.687 W
7353.00	65.54	348.72	7034.67	-158.78	954.09	664858.22	2191226.29	38 49	26.149 N	80 19	43.757 W
7384.00	67.82	347.69	7046.94	-130.92	948.27	664886.08	2191220.47	38 49	26.424 N	80 19	43.828 W
7415.00	71.61	348.10	7057.68	-102.49	942.17	664914.51	2191214.37	38 49	26.706 N	80 19	43.902 W
7446.00	74.68	347.94	7066.67	-73.47	936.02	664943.53	2191208.22	38 49	26.993 N	80 19	43.977 W
7478.00	77.95	348.56	7074.24	-43.04	929.69	664973.96	2191201.89	38 49	27.294 N	80 19	44.054 W
7510.00	80.88	348.82	7080.12	-12.20	923.52	665004.80	2191195.72	38 49	27.600 N	80 19	44.130 W
7542.00	81.98	348.86	7084.89	18.85	917.39	665035.85	2191189.59	38 49	27.907 N	80 19	44.204 W
7570.00	82.66	348.84	7088.63	46.07	912.03	665063.07	2191184.23	38 49	28.176 N	80 19	44.269 W
7574.00	82.76	348.84	7089.14	49.96	911.26	665066.96	2191183.46	38 49	28.215 N	80 19	44.279 W
7605.00	82.86	348.59	7093.02	80.13	905.24	665097.13	2191177.44	38 49	28.514 N	80 19	44.352 W
7623.00	81.21	348.41	7095.51	97.59	901.69	665114.59	2191173.89	38 49	28.687 N	80 19	44.395 W
7653.00	82.33	347.75	7099.80	126.64	895.56	665143.64	2191167.76	38 49	28.974 N	80 19	44.470 W
7684.00	82.52	347.26	7103.89	156.65	888.91	665173.65	2191161.11	38 49	29.271 N	80 19	44.551 W
7716.00	83.68	346.59	7107.74	187.59	881.72	665204.59	2191153.92	38 49	29.577 N	80 19	44.639 W
7748.00	84.89	346.41	7110.92	218.55	874.29	665235.55	2191146.49	38 49	29.884 N	80 19	44.730 W
7780.00	85.77	346.40	7113.53	249.55	866.79	665266.55	2191138.99	38 49	30.191 N	80 19	44.822 W
7812.00	88.05	346.36	7115.25	280.60	859.27	665297.60	2191131.47	38 49	30.498 N	80 19	44.915 W
7843.00	90.97	346.81	7115.52	310.75	852.08	665327.75	2191124.28	38 49	30.797 N	80 19	45.003 W
7907.00	91.58	346.53	7114.09	373.01	837.32	665390.01	2191109.52	38 49	31.413 N	80 19	45.183 W
7970.00	91.34	346.67	7112.49	434.28	822.73	665451.28	2191094.93	38 49	32.020 N	80 19	45.362 W
8033.00	90.03	346.68	7111.73	495.58	808.21	665512.58	2191080.41	38 49	32.627 N	80 19	45.540 W
8096.00	90.00	346.20	7111.72	556.82	793.44	665573.82	2191065.64	38 49	33.233 N	80 19	45.721 W
8160.00	90.50	346.32	7111.44	618.99	778.24	665635.99	2191050.44	38 49	33.849 N	80 19	45.908 W
8224.00	89.70	346.53	7111.33	681.20	763.22	665698.20	2191035.42	38 49	34.465 N	80 19	46.092 W
8287.00	90.17	346.28	7111.40	742.43	748.41	665759.43	2191020.61	38 49	35.071 N	80 19	46.273 W
8351.00	90.17	347.37	7111.21	804.75	733.82	665821.75	2191006.02	38 49	35.688 N	80 19	46.452 W
8414.00	89.50	347.15	7111.39	866.20	719.93	665883.20	2190992.13	38 49	36.297 N	80 19	46.622 W
8477.00	90.30	348.11	7111.50	927.73	706.43	665944.73	2190978.63	38 49	36.906 N	80 19	46.787 W
8540.00	90.13	349.50	7111.26	989.53	694.20	666006.53	2190966.40	38 49	37.518 N	80 19	46.935 W
8604.00	90.40	348.91	7110.97	1052.40	682.21	666069.40	2190954.41	38 49	38.140 N	80 19	47.081 W
8667.00	89.26	348.75	7111.15	1114.20	670.01	666131.20	2190942.21	38 49	38.752 N	80 19	47.230 W
8730.00	90.00	349.03	7111.56	1176.02	657.87	666193.02	2190930.07	38 49	39.364 N	80 19	47.378 W
8794.00	88.66	348.90	7112.31	1238.83	645.62	666255.83	2190917.82	38 49	39.985 N	80 19	47.527 W
8857.00	88.25	348.09	7114.01	1300.54	633.06	666317.54	2190905.26	38 49	40.596 N	80 19	47.680 W
8921.00	87.92	346.10	7116.15	1362.89	618.78	666379.89	2190890.98	38 49	41.213 N	80 19	47.854 W
8984.00	88.15	346.00	7118.31	1423.99	603.60	666440.99	2190875.80	38 49	41.818 N	80 19	48.041 W
9048.00	87.75	345.61	7120.60	1486.00	587.91	666503.00	2190860.11	38 49	42.432 N	80 19	48.233 W
9111.00	89.30	345.75	7122.22	1547.02	572.34	666564.02	2190844.54	38 49	43.037 N	80 19	48.424 W
9175.00	91.61	346.73	7121.71	1609.18	557.12	666626.18	2190829.32	38 49	43.652 N	80 19	48.611 W
9238.00	90.64	346.89	7120.47	1670.50	542.74	666687.50	2190814.94	38 49	44.259 N	80 19	48.787 W
9301.00	90.71	347.36	7119.73	1731.91	528.71	666748.91	2190800.91	38 49	44.867 N	80 19	48.959 W
9365.00	88.02	347.22	7120.44	1794.33	514.63	666811.33	2190786.83	38 49	45.485 N	80 19	49.131 W
9430.00	88.52	347.72	7122.40	1857.76	500.53	666874.76	2190772.73	38 49	46.113 N	80 19	49.303 W
9494.00	89.46	348.34	7123.53	1920.36	487.26	666937.36	2190759.46	38 49	46.733 N	80 19	49.465 W
9557.00	88.66	347.03	7124.56	1981.90	473.83	666998.90	2190746.03	38 49	47.342 N	80 19	49.629 W
9620.00	89.73	347.33	7125.45	2043.32	459.85	667060.32	2190732.05	38 49	47.950 N	80 19	49.800 W
9684.00	89.43	346.85	7125.92	2105.70	445.55	667122.70	2190717.75	38 49	48.568 N	80 19	49.975 W
9747.00	90.20	347.08	7126.12	2167.07	431.34	667184.07	2190703.54	38 49	49.176 N	80 19	50.149 W
9810.00	89.90	347.20	7126.07	2228.49	417.32	667245.49	2190689.52	38 49	49.784 N	80 19	50.321 W
9874.00	90.27	347.42	7125.97	2290.93	403.26	667307.93	2190675.46	38 49	50.402 N	80 19	50.493 W

SDI

Survey Report - Geographic

DEC 2 2011

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

Company: CHESAPEAKE OPERATING, INC. Field: Upshur, WV Site: Arthur Chidester Well: 2H Wellpath: OH	Date: 07/21/2010 Co-ordinate(NE) Reference: Vertical (TVD) Reference: Section (VS) Reference: Survey Calculation Method:	Time: 09:53:37 Well: 2H, Grid North GL1900+RKB 19 1919.0 Well (0.00N,0.00E,345.00Azi) Minimum Curvature	Page: 6 Db: Sybase
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Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	Latitude			Longitude				
								Deg	Min	Sec	Deg	Min	Sec		
9937.00	88.59	345.48	7126.60	2352.17	388.50	667369.17	2190660.70	38	49	51.008	N	80	19	50.674	W
10001.00	87.85	345.01	7128.59	2414.03	372.21	667431.03	2190644.41	38	49	51.621	N	80	19	50.874	W
10064.00	87.51	344.53	7131.14	2474.76	355.67	667491.76	2190627.87	38	49	52.222	N	80	19	51.078	W
10126.00	88.25	344.04	7133.43	2534.41	338.89	667551.41	2190611.09	38	49	52.813	N	80	19	51.284	W
10190.00	90.20	345.20	7134.30	2596.10	321.92	667613.10	2190594.12	38	49	53.424	N	80	19	51.493	W
10253.00	91.38	346.65	7133.43	2657.20	306.60	667674.20	2190578.80	38	49	54.029	N	80	19	51.681	W
10317.00	91.74	345.54	7131.69	2719.30	291.23	667736.30	2190563.43	38	49	54.644	N	80	19	51.870	W
10381.00	88.46	344.49	7131.57	2781.12	274.68	667798.12	2190546.88	38	49	55.256	N	80	19	52.073	W
10444.00	88.52	344.76	7133.23	2841.84	257.98	667858.84	2190530.18	38	49	55.858	N	80	19	52.278	W
10508.00	89.40	345.27	7134.40	2903.66	241.44	667920.66	2190513.64	38	49	56.470	N	80	19	52.482	W
10571.00	90.60	346.71	7134.40	2964.78	226.19	667981.78	2190498.39	38	49	57.075	N	80	19	52.669	W
10635.00	90.37	345.77	7133.85	3026.94	210.97	668043.94	2190483.17	38	49	57.691	N	80	19	52.856	W
10698.00	89.36	345.01	7134.00	3087.90	195.08	668104.90	2190467.28	38	49	58.294	N	80	19	53.051	W
10762.00	88.35	345.12	7135.28	3149.73	178.58	668166.73	2190450.78	38	49	58.907	N	80	19	53.254	W
10825.00	90.17	345.85	7136.09	3210.71	162.80	668227.71	2190435.00	38	49	59.510	N	80	19	53.448	W
10889.00	89.83	344.66	7136.09	3272.60	146.51	668289.60	2190418.71	38	50	0.123	N	80	19	53.648	W
10942.00	89.36	344.51	7136.47	3323.69	132.42	668340.69	2190404.62	38	50	0.629	N	80	19	53.821	W
10990.00	89.36	344.51	7137.01	3369.94	119.60	668386.94	2190391.80	38	50	1.088	N	80	19	53.979	W

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
7570.00	7088.63	7.000	8.500	7"

Annotation

MD ft	TVD ft	Description
10990.00	7137.01	Projection to TD