

SDI Survey Report

97-3502

Company: CHESAPEAKE OPERATING, INC.	Date: 2009/12/01	Time: 13:21:43	Page: 1
Field: Upshur, WV	Co-ordinate(NE) Reference: Well: 1H (826742), Grid North		
Site: Ralph H Harper Lumber Co	Vertical (TVD) Reference: GL 1672+15 1687.0		
Well: 1H (826742)	Section (VS) Reference: Well (0.00N,0.00E,165.00Azi)		
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: Igrf2005

Site: Ralph H Harper Lumber Co			
Site Position:	Northing: 672525.80 ft	Latitude: 38 50 42.536 N	
From: Map	Easting: 2182682.17 ft	Longitude: 80 21 31.042 W	
Position Uncertainty: 0.00 ft		North Reference: Grid	
Ground Level: 1672.00 ft		Grid Convergence: 0.40 deg	

Well: 1H (826742)	Slot Name:
Well Position: +N/-S 0.00 ft	Northing: 672525.80 ft
+E/-W 0.00 ft	Easting: 2182682.17 ft
Position Uncertainty: 0.00 ft	Latitude: 38 50 42.536 N
	Longitude: 80 21 31.042 W

Wellpath: OH	Drilled From: Surface
Current Datum: GL 1672+15	Tie-on Depth: 0.00 ft
Magnetic Data: 2009/10/07	Above System Datum: Mean Sea Level
Field Strength: 52573 nT	Declination: -8.43 deg
Vertical Section: Depth From (TVD) ft	Mag Dip Angle: 66.89 deg
	+N/-S ft
	+E/-W ft
	Direction deg
0.00	0.00
	0.00
	165.00

Survey Program for Definitive Wellpath			
Date: 2009/12/01	Validated: No	Version: 8	
Actual From ft	To Survey	Toolcode	Tool Name
0.00	1778.00	GYRO	
1778.00	12449.00	MWD-SDI-SYS	Scientific MWD Systematic
		Survey #1 (0.00-1778.00)	
		Survey #2 (1778.00-12449.00)	

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	TIE LINE
100.00	0.33	131.87	100.00	-0.19	0.21	0.24	0.330	0.330	0.000	GYRO
200.00	0.39	148.11	200.00	-0.67	0.61	0.81	0.118	0.060	16.240	GYRO
300.00	0.21	147.49	300.00	-1.12	0.89	1.31	0.180	-0.180	-0.620	GYRO
400.00	0.28	156.84	400.00	-1.50	1.08	1.73	0.080	0.070	9.350	GYRO
500.00	0.25	144.41	499.99	-1.90	1.30	2.17	0.065	-0.030	-12.430	GYRO
600.00	0.31	150.76	599.99	-2.31	1.56	2.64	0.067	0.060	6.350	GYRO
700.00	0.35	162.25	699.99	-2.84	1.79	3.20	0.077	0.040	11.490	GYRO
800.00	0.41	166.16	799.99	-3.48	1.97	3.87	0.065	0.060	3.910	GYRO
900.00	0.41	153.33	899.99	-4.14	2.21	4.58	0.092	0.000	-12.830	GYRO
1000.00	0.48	175.62	999.98	-4.88	2.41	5.34	0.185	0.070	22.290	GYRO
1100.00	0.58	166.41	1099.98	-5.79	2.56	6.26	0.131	0.100	-9.210	GYRO
1200.00	0.56	179.06	1199.97	-6.77	2.68	7.24	0.127	-0.020	12.650	GYRO
1300.00	0.58	157.15	1299.97	-7.73	2.89	8.21	0.218	0.020	-21.910	GYRO
1400.00	0.47	101.29	1399.97	-8.27	3.49	8.89	0.501	-0.110	-55.860	GYRO
1500.00	0.58	133.22	1499.96	-8.70	4.26	9.51	0.308	0.110	31.930	GYRO
1600.00	0.39	57.43	1599.96	-8.86	4.91	9.83	0.614	-0.190	-75.790	GYRO
1700.00	0.47	62.77	1699.96	-8.49	5.57	9.64	0.089	0.080	5.340	GYRO
1778.00	0.50	72.30	1777.95	-8.24	6.17	9.56	0.110	0.038	12.218	GYRO
1837.00	0.37	143.96	1836.95	-8.32	6.53	9.73	0.881	-0.220	121.458	MWD-SDI-SYS
1869.00	0.24	187.39	1868.95	-8.47	6.58	9.88	0.800	-0.406	135.719	MWD-SDI-SYS
1932.00	1.81	42.70	1931.94	-7.87	7.24	9.47	3.191	2.492	-229.667	MWD-SDI-SYS

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Site: Ralph H Harper Lumber Co	Vertical (TVD) Reference: GL 1672+15 1687.0		
Well: 1H (626742)	Section (VS) Reference: Well (0.00N,0.00E,165.00Azi)		
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
1995.00	3.09	45.73	1994.88	-5.95	9.13	8.11	2.041	2.032	4.810	MWD-SDI-SYS
2058.00	3.90	38.53	2057.77	-3.09	11.68	6.01	1.460	1.286	-11.429	MWD-SDI-SYS
2121.00	5.03	47.30	2120.57	0.46	15.05	3.45	2.091	1.794	13.921	MWD-SDI-SYS
2184.00	5.71	50.24	2183.30	4.34	19.49	0.85	1.164	1.079	4.867	MWD-SDI-SYS
2247.00	6.20	51.79	2245.96	8.45	24.57	-1.80	0.819	0.778	2.460	MWD-SDI-SYS
2310.00	7.23	50.60	2308.52	13.07	30.31	-4.78	1.850	1.635	-1.889	MWD-SDI-SYS
2373.00	8.25	48.80	2370.95	18.56	36.77	-8.41	1.864	1.619	-2.857	MWD-SDI-SYS
2438.00	8.58	50.56	2435.25	24.71	44.02	-12.48	0.644	0.508	2.708	MWD-SDI-SYS
2501.00	10.92	55.76	2497.34	31.06	52.59	-16.39	3.965	3.714	8.254	MWD-SDI-SYS
2564.00	11.44	59.99	2559.14	37.54	62.93	-19.97	1.541	0.825	6.714	MWD-SDI-SYS
2627.00	11.49	62.70	2620.89	43.54	73.92	-22.93	0.859	0.079	4.302	MWD-SDI-SYS
2689.00	11.02	62.55	2681.69	49.10	84.66	-25.52	0.760	0.758	-0.242	MWD-SDI-SYS
2749.00	11.31	62.36	2740.56	54.48	94.96	-28.04	0.487	0.483	-0.317	MWD-SDI-SYS
2812.00	11.66	61.91	2802.30	60.34	106.05	-30.84	0.573	0.556	-0.714	MWD-SDI-SYS
2875.00	12.56	63.02	2863.89	66.45	117.77	-33.70	1.476	1.429	1.762	MWD-SDI-SYS
2938.00	12.11	64.30	2925.44	72.42	129.83	-36.35	0.836	-0.714	2.032	MWD-SDI-SYS
3001.00	11.63	61.47	2987.09	78.32	141.37	-38.06	1.197	-0.762	-4.492	MWD-SDI-SYS
3064.00	11.62	65.11	3048.80	84.02	152.70	-41.64	1.164	-0.016	5.778	MWD-SDI-SYS
3127.00	11.89	68.50	3110.48	89.07	164.50	-43.46	1.177	0.429	5.381	MWD-SDI-SYS
3190.00	11.41	65.40	3172.18	94.04	176.20	-45.24	1.252	-0.762	-4.921	MWD-SDI-SYS
3253.00	11.81	64.76	3233.89	99.39	187.70	-47.42	0.667	0.635	-1.016	MWD-SDI-SYS
3316.00	11.79	65.61	3295.56	104.79	199.39	-49.62	0.276	-0.032	1.349	MWD-SDI-SYS
3379.00	11.37	62.99	3357.28	110.27	210.79	-51.96	1.068	-0.667	-4.159	MWD-SDI-SYS
3442.00	11.72	65.07	3419.01	115.79	222.12	-54.36	0.863	0.556	3.302	MWD-SDI-SYS
3504.00	11.62	66.79	3479.72	120.90	233.57	-56.33	0.584	-0.161	2.774	MWD-SDI-SYS
3567.00	11.52	64.28	3541.44	126.14	245.07	-58.41	0.815	-0.159	-3.984	MWD-SDI-SYS
3630.00	11.70	64.84	3603.16	131.58	256.52	-60.71	0.337	0.286	0.889	MWD-SDI-SYS
3692.00	11.62	68.01	3663.88	136.59	268.00	-62.57	1.041	-0.129	5.113	MWD-SDI-SYS
3755.00	11.25	65.49	3725.63	141.52	279.47	-64.36	0.987	-0.587	-4.000	MWD-SDI-SYS
3818.00	11.40	68.60	3787.40	146.34	290.86	-66.07	0.998	0.238	4.937	MWD-SDI-SYS
3881.00	11.35	71.15	3849.16	150.61	302.53	-67.18	0.802	-0.079	4.048	MWD-SDI-SYS
3944.00	11.79	68.96	3910.88	154.93	314.40	-68.28	0.987	0.698	-3.476	MWD-SDI-SYS
4006.00	12.46	67.89	3971.56	159.72	326.51	-69.77	1.140	1.081	-1.726	MWD-SDI-SYS
4069.00	11.52	66.87	4033.13	164.75	338.59	-71.50	1.529	-1.492	-1.619	MWD-SDI-SYS
4132.00	12.32	63.80	4094.77	170.21	350.40	-73.72	1.661	1.270	-5.190	MWD-SDI-SYS
4195.00	12.88	62.04	4156.25	176.49	362.62	-76.62	1.040	0.889	-2.476	MWD-SDI-SYS
4258.00	12.72	62.25	4217.68	183.01	374.96	-79.73	0.264	-0.254	0.333	MWD-SDI-SYS
4322.00	12.43	61.11	4280.15	189.62	387.23	-82.94	0.596	-0.453	-1.781	MWD-SDI-SYS
4385.00	12.30	60.54	4341.69	196.19	399.00	-86.24	0.283	-0.206	-0.905	MWD-SDI-SYS
4448.00	12.00	61.56	4403.28	202.61	410.61	-88.44	0.586	-0.476	1.619	MWD-SDI-SYS
4511.00	11.68	61.46	4464.94	208.78	421.97	-92.45	0.509	-0.508	-0.127	MWD-SDI-SYS
4574.00	12.54	62.26	4526.53	215.01	433.62	-95.45	1.390	1.365	1.238	MWD-SDI-SYS
4637.00	12.64	61.63	4588.02	221.46	445.74	-98.55	0.270	0.159	-1.000	MWD-SDI-SYS
4699.00	12.54	62.59	4648.53	227.79	457.69	-101.57	0.374	-0.161	1.548	MWD-SDI-SYS
4762.00	12.58	63.20	4710.02	234.03	469.88	-104.44	0.220	0.063	0.968	MWD-SDI-SYS
4825.00	12.08	62.37	4771.57	240.18	481.85	-107.28	0.842	-0.794	-1.317	MWD-SDI-SYS
4888.00	12.20	62.03	4833.16	246.36	493.57	-110.22	0.222	0.190	-0.540	MWD-SDI-SYS
4951.00	12.36	61.75	4894.72	252.67	505.39	-113.26	0.271	0.254	-0.444	MWD-SDI-SYS
5014.00	12.29	60.40	4956.26	259.18	517.15	-116.49	0.471	-0.111	-2.143	MWD-SDI-SYS
5077.00	12.99	58.79	5017.74	266.16	529.04	-120.16	1.244	1.111	-2.556	MWD-SDI-SYS
5140.00	13.40	58.64	5079.07	273.62	541.33	-124.19	0.653	0.651	-0.238	MWD-SDI-SYS
5203.00	12.33	61.33	5140.49	280.65	553.47	-127.84	1.946	-1.698	4.270	MWD-SDI-SYS
5266.00	12.42	61.18	5202.03	287.14	565.30	-131.05	0.152	0.143	-0.238	MWD-SDI-SYS

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Company: CHESAPEAKE OPERATING, INC.	Date: 2008/12/01	Time: 13:21:43	Page: 3
Field: Upshur, WV	Co-ordinate(N/E) Reference: Well: 1H (626742), Grid North		
Site: Ralph H Harper Lumber Co	Vertical (TVD) Reference: GL 1672+15 1687.0		
Well: 1H (626742)	Section (VS) Reference: Well (0.00N,0.00E,165.00Azi)		
Wellpath: OH	Survey Calculation Method: Minimum Curvature	Db: Sybase	

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
5329.00	11.40	61.17	5263.67	293.41	576.69	-134.15	1.619	-1.619	-0.016	MWD-SDI-SYS
5392.00	10.89	60.38	5325.48	299.36	587.32	-137.15	0.845	-0.810	-1.254	MWD-SDI-SYS
5455.00	11.26	59.37	5387.31	305.43	597.79	-140.30	0.663	0.587	-1.603	MWD-SDI-SYS
5518.00	11.89	57.98	5449.03	312.01	608.58	-143.86	1.094	1.000	-2.206	MWD-SDI-SYS
5580.00	11.95	60.77	5509.69	318.53	619.60	-147.31	0.934	0.097	4.500	MWD-SDI-SYS
5643.00	11.87	63.29	5571.34	324.62	631.08	-150.23	0.835	-0.127	4.000	MWD-SDI-SYS
5706.00	12.39	64.05	5632.93	330.49	642.95	-152.83	0.863	0.825	1.206	MWD-SDI-SYS
5769.00	12.35	61.08	5694.47	336.71	654.92	-155.73	1.012	-0.063	-4.714	MWD-SDI-SYS
5832.00	12.81	56.62	5755.96	343.81	666.65	-159.55	1.705	0.730	-7.079	MWD-SDI-SYS
5895.00	11.67	60.27	5817.52	350.81	678.02	-163.38	2.186	-1.810	5.794	MWD-SDI-SYS
5958.00	11.78	60.46	5879.21	357.14	689.14	-166.61	0.185	0.175	0.302	MWD-SDI-SYS
6021.00	11.23	61.37	5940.94	363.25	700.12	-169.67	0.919	-0.873	1.444	MWD-SDI-SYS
6084.00	10.89	58.54	6002.77	369.30	710.58	-172.80	1.017	-0.540	-4.492	MWD-SDI-SYS
6145.00	9.23	69.22	6062.84	374.04	720.07	-174.93	4.083	-2.721	17.508	MWD-SDI-SYS
6208.00	7.65	73.84	6125.16	377.00	728.83	-175.52	2.727	-2.508	7.333	MWD-SDI-SYS
6277.00	6.55	74.74	6193.63	379.32	737.03	-175.63	1.602	-1.594	1.304	MWD-SDI-SYS
6340.00	6.68	67.05	6256.21	381.69	743.88	-176.16	1.420	0.206	-12.206	MWD-SDI-SYS
6403.00	7.52	62.08	6318.72	385.05	750.89	-177.59	1.651	1.333	-7.889	MWD-SDI-SYS
6466.00	8.81	66.00	6381.09	388.94	758.94	-179.26	2.229	2.048	6.222	MWD-SDI-SYS
6529.00	10.79	64.43	6443.16	393.45	768.67	-181.10	3.171	3.143	-2.492	MWD-SDI-SYS
6592.00	11.71	65.46	6504.95	398.65	779.81	-183.24	1.495	1.480	1.635	MWD-SDI-SYS
6623.00	12.00	79.32	6535.30	400.56	785.84	-183.52	9.210	0.935	44.710	MWD-SDI-SYS
6654.00	12.35	89.05	6565.60	401.21	792.32	-182.47	6.707	1.129	31.387	MWD-SDI-SYS
6686.00	12.95	102.21	6596.83	400.51	799.25	-180.00	9.178	1.875	41.125	MWD-SDI-SYS
6717.00	14.77	114.45	6626.93	398.14	806.24	-175.90	11.101	5.871	39.484	MWD-SDI-SYS
6748.00	16.14	119.57	6656.81	394.37	813.59	-170.36	6.233	4.419	16.516	MWD-SDI-SYS
6780.00	17.04	126.47	6687.49	389.39	821.23	-163.57	6.763	2.812	21.562	MWD-SDI-SYS
6811.00	18.39	134.46	6717.02	383.27	828.37	-155.81	8.961	4.355	25.774	MWD-SDI-SYS
6843.00	20.32	140.02	6747.21	375.47	835.54	-146.42	8.333	6.031	17.375	MWD-SDI-SYS
6874.00	22.90	142.95	6776.03	366.53	842.64	-135.95	9.019	8.323	9.452	MWD-SDI-SYS
6906.00	25.98	142.75	6805.16	355.98	850.63	-123.69	9.628	9.625	-0.625	MWD-SDI-SYS
6937.00	29.49	142.75	6832.59	344.50	859.36	-110.34	11.323	11.323	0.000	MWD-SDI-SYS
6969.00	31.99	146.12	6860.10	331.19	868.86	-95.03	9.485	7.812	10.531	MWD-SDI-SYS
7001.00	35.20	146.08	6886.75	316.49	878.73	-78.28	10.031	10.031	-0.125	MWD-SDI-SYS
7032.00	39.25	146.57	6911.43	300.89	889.13	-60.51	13.099	13.065	1.581	MWD-SDI-SYS
7063.00	43.64	147.07	6934.66	283.72	900.35	-41.02	14.201	14.161	1.613	MWD-SDI-SYS
7095.00	47.36	147.16	6957.09	264.55	912.74	-19.30	11.627	11.625	0.281	MWD-SDI-SYS
7126.00	51.42	148.38	6977.26	244.65	925.28	3.17	13.433	13.097	3.935	MWD-SDI-SYS
7158.00	54.95	150.99	6996.43	222.53	938.20	27.87	12.817	11.031	8.156	MWD-SDI-SYS
7189.00	59.35	150.90	7013.25	199.77	950.84	53.13	14.196	14.194	-0.290	MWD-SDI-SYS
7221.00	64.31	151.37	7028.35	175.07	964.45	80.51	15.554	15.500	1.469	MWD-SDI-SYS
7252.00	69.60	151.53	7040.48	150.02	978.08	108.23	17.071	17.065	0.516	MWD-SDI-SYS
7284.00	74.37	151.83	7050.37	123.24	992.51	137.84	14.933	14.906	0.937	MWD-SDI-SYS
7316.00	79.47	152.15	7057.61	95.73	1007.15	168.20	15.967	15.937	1.000	MWD-SDI-SYS
7347.00	84.89	153.06	7061.83	68.48	1021.27	198.18	17.724	17.484	2.935	MWD-SDI-SYS
7410.00	93.22	154.30	7062.87	12.06	1049.17	259.89	13.368	13.222	1.968	MWD-SDI-SYS
7474.00	92.22	153.16	7059.83	-45.26	1077.47	322.59	2.368	-1.562	-1.781	MWD-SDI-SYS
7537.00	94.61	153.52	7056.08	-101.46	1105.68	384.17	3.836	3.794	0.571	MWD-SDI-SYS
7600.00	93.33	153.60	7051.72	-157.73	1133.67	445.77	2.036	-2.032	0.127	MWD-SDI-SYS
7663.00	90.87	154.33	7049.41	-214.30	1161.30	507.56	4.073	-3.905	1.159	MWD-SDI-SYS
7726.00	92.35	156.34	7047.64	-271.52	1187.58	569.64	3.961	2.349	3.190	MWD-SDI-SYS
7789.00	93.43	157.03	7044.46	-329.30	1212.48	631.89	2.034	1.714	1.095	MWD-SDI-SYS
7853.00	91.45	157.81	7041.74	-388.34	1237.03	695.27	3.325	-3.094	1.219	MWD-SDI-SYS
7916.00	91.61	159.84	7040.05	-447.06	1259.78	757.88	3.231	0.254	3.222	MWD-SDI-SYS

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Site: Ralph H Harper Lumber Co	Vertical (TVD) Reference:	GL 1672+15 1687.0	
Well: 1H (626742)	Section (VS) Reference:	Well (0.00N,0.00E,165.00Azi)	
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	DIS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
7979.00	93.43	161.60	7037.28	-506.46	1280.56	820.64	4.017	2.889	2.794	MWD-SDI-SYS
8042.00	92.55	162.01	7034.00	-566.23	1300.20	883.46	1.541	-1.397	0.651	MWD-SDI-SYS
8104.00	90.74	162.21	7032.22	-625.21	1319.24	945.35	2.937	-2.919	0.323	MWD-SDI-SYS
8167.00	91.51	163.17	7030.98	-685.34	1337.98	1008.26	1.953	1.222	1.524	MWD-SDI-SYS
8230.00	92.32	164.23	7028.88	-745.77	1355.65	1071.23	2.117	1.286	1.683	MWD-SDI-SYS
8294.00	93.06	164.80	7025.87	-807.38	1372.72	1135.16	1.459	1.156	0.891	MWD-SDI-SYS
8358.00	93.16	163.93	7022.40	-868.92	1389.94	1199.06	1.366	0.156	-1.359	MWD-SDI-SYS
8421.00	92.89	163.64	7019.07	-929.33	1407.51	1261.96	0.628	-0.429	-0.460	MWD-SDI-SYS
8485.00	93.43	165.10	7015.55	-990.87	1424.73	1325.85	2.429	0.844	2.281	MWD-SDI-SYS
8548.00	92.39	166.01	7012.35	-1051.80	1440.42	1388.77	2.192	-1.651	1.444	MWD-SDI-SYS
8612.00	92.15	167.10	7009.81	-1113.99	1455.29	1452.69	1.743	-0.375	1.703	MWD-SDI-SYS
8675.00	91.38	168.03	7007.87	-1175.49	1468.85	1515.60	1.916	-1.222	1.476	MWD-SDI-SYS
8738.00	91.24	169.08	7006.43	-1237.22	1481.35	1578.46	1.681	-0.222	1.697	MWD-SDI-SYS
8802.00	91.11	168.96	7005.12	-1300.03	1493.53	1642.29	0.276	-0.203	-0.187	MWD-SDI-SYS
8866.00	91.34	168.20	7003.75	-1362.75	1506.20	1706.15	1.240	0.359	-1.187	MWD-SDI-SYS
8929.00	91.54	167.79	7002.17	-1424.35	1519.30	1769.04	0.724	0.317	-0.651	MWD-SDI-SYS
8991.00	92.39	168.23	7000.04	-1484.96	1532.17	1830.92	1.544	1.371	0.710	MWD-SDI-SYS
9054.00	92.45	168.93	6997.38	-1546.66	1544.64	1893.74	1.114	0.095	1.111	MWD-SDI-SYS
9117.00	92.42	168.83	6994.71	-1608.42	1556.78	1956.54	0.168	-0.048	-0.159	MWD-SDI-SYS
9180.00	92.62	169.22	6991.94	-1670.21	1568.76	2019.32	0.695	0.317	0.619	MWD-SDI-SYS
9243.00	92.38	168.22	6989.19	-1731.93	1581.07	2082.13	1.631	-0.381	-1.587	MWD-SDI-SYS
9305.00	92.18	168.78	6986.72	-1792.64	1593.42	2143.97	0.958	-0.323	0.803	MWD-SDI-SYS
9368.00	91.54	168.94	6984.66	-1854.42	1605.59	2206.79	1.047	-1.016	0.254	MWD-SDI-SYS
9431.00	91.38	168.34	6983.07	-1916.17	1617.99	2269.64	0.985	-0.254	-0.952	MWD-SDI-SYS
9494.00	90.44	168.22	6982.07	-1977.84	1630.79	2332.53	1.504	-1.492	-0.190	MWD-SDI-SYS
9557.00	89.53	168.85	6982.09	-2039.59	1643.31	2395.41	1.757	-1.444	1.000	MWD-SDI-SYS
9620.00	92.15	169.80	6981.16	-2101.48	1654.98	2458.22	4.424	4.159	1.508	MWD-SDI-SYS
9683.00	93.39	169.77	6978.12	-2163.41	1666.14	2520.92	1.969	1.968	-0.048	MWD-SDI-SYS
9746.00	93.76	169.24	6974.19	-2225.24	1677.59	2583.60	1.025	0.587	-0.841	MWD-SDI-SYS
9809.00	92.83	169.53	6970.57	-2287.05	1689.18	2646.32	1.546	-1.476	0.460	MWD-SDI-SYS
9872.00	92.15	168.57	6967.83	-2348.85	1701.13	2709.10	1.866	-1.079	-1.524	MWD-SDI-SYS
9935.00	91.82	167.99	6965.65	-2410.50	1713.92	2771.96	1.059	-0.524	-0.921	MWD-SDI-SYS
9998.00	91.92	167.18	6963.59	-2471.99	1727.46	2834.88	1.295	0.159	-1.286	MWD-SDI-SYS
10061.00	91.55	166.79	6961.69	-2533.34	1741.64	2897.79	0.853	-0.587	-0.619	MWD-SDI-SYS
10124.00	91.21	166.45	6960.17	-2594.62	1756.21	2960.75	0.763	-0.540	-0.540	MWD-SDI-SYS
10187.00	91.58	166.07	6958.64	-2655.79	1771.17	3023.71	0.842	0.587	-0.603	MWD-SDI-SYS
10250.00	90.60	165.05	6957.44	-2716.79	1786.88	3086.70	2.245	-1.556	-1.619	MWD-SDI-SYS
10313.00	91.44	165.58	6956.32	-2777.72	1802.85	3149.69	1.576	1.333	0.841	MWD-SDI-SYS
10376.00	91.18	165.82	6954.88	-2838.76	1818.40	3212.66	0.562	-0.413	0.381	MWD-SDI-SYS
10439.00	91.01	164.73	6953.67	-2899.67	1834.41	3275.65	1.751	-0.270	-1.730	MWD-SDI-SYS
10501.00	91.34	164.27	6952.40	-2959.41	1850.98	3337.64	0.913	0.532	-0.742	MWD-SDI-SYS
10564.00	90.17	162.79	6951.57	-3019.81	1868.84	3400.61	2.994	-1.857	-2.349	MWD-SDI-SYS
10627.00	90.57	162.43	6951.16	-3079.93	1887.67	3463.55	0.854	0.635	-0.571	MWD-SDI-SYS
10690.00	90.20	160.29	6950.74	-3139.62	1907.80	3526.42	3.447	-0.587	-3.397	MWD-SDI-SYS
10753.00	90.57	160.57	6950.22	-3213.11	1933.93	3604.17	0.595	0.474	0.359	MWD-SDI-SYS
10816.00	91.08	162.64	6949.32	-3271.94	1953.49	3666.05	3.438	0.823	3.339	MWD-SDI-SYS
10879.00	91.14	165.46	6948.10	-3332.49	1970.80	3729.02	4.476	0.095	4.476	MWD-SDI-SYS
10942.00	92.29	167.20	6946.22	-3393.68	1985.68	3791.97	3.310	1.825	2.762	MWD-SDI-SYS
11005.00	92.59	167.20	6943.54	-3455.06	1999.62	3854.87	0.476	0.476	0.000	MWD-SDI-SYS
11068.00	92.05	166.01	6940.98	-3516.29	2014.21	3917.79	2.073	-0.857	-1.889	MWD-SDI-SYS
11131.00	89.73	164.11	6940.02	-3576.18	2030.19	3979.78	4.836	-3.742	-3.065	MWD-SDI-SYS
11194.00	90.17	166.23	6940.08	-3636.11	2046.06	4041.77	3.492	0.710	3.419	MWD-SDI-SYS
11257.00	91.08	167.82	6939.41	-3695.55	2059.75	4102.73	3.003	1.492	2.607	MWD-SDI-SYS

SDI Survey Report

97-3502

Company: CHESAPEAKE OPERATING, INC.	Date: 2009/12/01	Time: 13:21:43	Page: 5
Field: Upshur, WV	Co-ordinate(NE) Reference:	Well: 1H (626742), Grid North	
Site: Ralph H Harper Lumber Co	Vertical (TVD) Reference:	GL 1672+15 1687.0	
Well: 1H (626742)	Section (VS) Reference:	Well (0.00N,0.00E,165.00Azi)	
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
11329.00	90.64	167.08	6938.48	-3756.06	2073.22	4164.67	1.388	-0.710	-1.194	MWD-SDI-SYS
11391.00	92.28	167.87	6936.90	-3816.56	2086.66	4226.58	2.936	2.645	1.274	MWD-SDI-SYS
11452.00	92.56	166.97	6934.32	-3876.05	2099.94	4287.48	1.544	0.459	-1.475	MWD-SDI-SYS
11514.00	93.30	167.43	6931.16	-3936.42	2113.65	4349.35	1.405	1.194	0.742	MWD-SDI-SYS
11576.00	93.40	166.48	6927.53	-3996.72	2127.62	4411.21	1.538	0.161	-1.532	MWD-SDI-SYS
11638.00	92.32	166.53	6924.44	-4056.93	2142.07	4473.11	1.744	-1.742	0.081	MWD-SDI-SYS
11700.00	92.15	167.20	6922.02	-4117.26	2156.15	4535.03	1.114	-0.274	1.081	MWD-SDI-SYS
11762.00	92.38	166.75	6919.57	-4177.62	2170.11	4596.94	0.815	0.371	-0.726	MWD-SDI-SYS
11824.00	92.99	166.76	6916.67	-4237.91	2184.30	4658.84	0.984	0.984	0.016	MWD-SDI-SYS
11886.00	90.24	165.75	6914.92	-4298.10	2199.03	4720.80	4.725	-4.435	-1.629	MWD-SDI-SYS
11948.00	90.50	165.83	6914.52	-4358.20	2214.25	4782.79	0.439	0.419	0.129	MWD-SDI-SYS
12010.00	90.87	165.85	6913.78	-4418.31	2229.41	4844.78	0.598	0.587	0.032	MWD-SDI-SYS
12071.00	92.05	166.17	6912.22	-4477.48	2244.16	4905.75	2.004	1.934	0.525	MWD-SDI-SYS
12133.00	91.14	166.76	6910.50	-4537.74	2258.68	4967.70	1.749	-1.468	0.952	MWD-SDI-SYS
12195.00	90.74	167.33	6909.48	-4598.15	2272.56	5029.65	1.123	-0.645	0.919	MWD-SDI-SYS
12258.00	90.77	167.75	6908.65	-4659.66	2286.15	5092.59	0.668	0.048	0.667	MWD-SDI-SYS
12320.00	90.61	168.35	6907.90	-4720.31	2298.99	5154.49	1.001	-0.258	0.968	MWD-SDI-SYS
12382.00	91.01	167.99	6907.03	-4780.99	2311.69	5216.39	0.868	0.645	-0.581	MWD-SDI-SYS
12397.00	90.81	167.68	6906.79	-4795.65	2314.86	5231.37	2.459	-1.333	-2.067	MWD-SDI-SYS
12449.00	90.81	167.68	6906.05	-4846.45	2325.95	5283.31	0.000	0.000	0.000	MWD-SDI-SYS