



Company: CHESAPEAKE  
 Lease/Well: DEBORAH CRAIG/3H  
 Location:  
 Rig Name: NOMAC #237  
 State/County: WEST VIRGINIA/OHIO  
 Latitude: 40.05, Longitude: -80.58  
 GRID North is 0.69 Degrees West of True North  
 VS-Azi: 0.00 Degrees



FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB=15'

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: deborahcraigohi#3h\_ed.ut

Minimum Curvature Method

Report Date/Time: 4/2/2012 / 21:32

Vaughn Energy Services  
 Morgantown, West Virginia  
 304-777-2189  
 Michael Komarek

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.96	53.87	100.00	0.49	0.68	0.49	0.84	53.87	0.96
200.00	0.74	57.59	199.98	1.34	1.90	1.34	2.32	54.90	0.23
300.00	0.53	59.56	299.98	1.92	2.85	1.92	3.43	56.04	0.21
400.00	0.27	51.01	399.98	2.30	3.43	2.30	4.13	56.15	0.27
500.00	0.42	49.96	499.97	2.68	3.89	2.68	4.73	55.41	0.16
600.00	0.20	350.61	599.97	3.09	4.14	3.09	5.17	53.31	0.36
700.00	0.24	94.89	699.97	3.24	4.33	3.24	5.40	53.16	0.35
800.00	0.31	3.69	799.97	3.49	4.55	3.49	5.74	52.51	0.39
900.00	0.06	140.82	899.97	3.72	4.60	3.72	5.92	51.08	0.36
1000.00	0.15	4.74	999.97	3.80	4.65	3.80	6.00	50.73	0.20
1100.00	0.25	36.11	1099.97	4.10	4.79	4.10	6.30	49.40	0.14
1200.00	0.38	78.08	1199.97	4.34	5.24	4.34	6.81	50.33	0.26
1300.00	0.43	72.50	1299.97	4.53	5.93	4.53	7.46	52.62	0.07
1400.00	0.51	71.14	1399.96	4.79	6.71	4.79	8.24	54.50	0.08
1500.00	0.55	70.95	1499.96	5.09	7.58	5.09	9.13	56.15	0.03
1600.00	0.61	71.12	1599.95	5.41	8.54	5.41	10.11	57.63	0.07
1700.00	0.56	73.14	1699.95	5.73	9.51	5.73	11.10	58.94	0.06
1800.00	0.46	68.98	1799.94	6.01	10.35	6.01	11.97	59.84	0.10
1900.00	0.40	68.43	1899.94	6.29	11.05	6.29	12.71	60.37	0.06
2000.00	0.31	71.36	1999.94	6.50	11.63	6.50	13.33	60.80	0.09
2100.00	0.19	28.38	2099.94	6.74	11.97	6.74	13.73	60.63	0.21
2200.00	0.26	17.96	2199.94	7.10	12.12	7.10	14.05	59.63	0.08
2300.00	0.30	31.18	2299.94	7.54	12.32	7.54	14.45	58.54	0.07
2400.00	0.27	16.87	2399.94	7.99	12.53	7.99	14.85	57.48	0.08
2500.00	0.31	337.97	2499.93	8.46	12.49	8.46	15.09	55.90	0.20
2600.00	0.28	337.66	2599.93	8.93	12.30	8.93	15.20	54.00	0.03
2700.00	0.39	331.35	2699.93	9.46	12.04	9.46	15.31	51.85	0.11
2800.00	0.42	324.85	2799.93	10.06	11.67	10.06	15.40	49.25	0.05
2900.00	0.58	299.82	2899.92	10.60	11.02	10.60	15.29	46.10	0.27
3000.00	0.50	314.56	2999.92	11.16	10.27	11.16	15.17	42.61	0.16
3100.00	0.63	314.16	3099.92	11.85	9.56	11.85	15.23	38.90	0.13
3200.00	0.63	310.37	3199.91	12.59	8.76	12.59	15.33	34.82	0.04
3300.00	0.61	313.30	3299.90	13.31	7.95	13.31	15.50	30.86	0.03
3400.00	0.53	316.55	3399.90	14.01	7.25	14.01	15.77	27.35	0.09

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Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
3500.00	0.66	312.82	3499.89	14.73	6.51	14.73	16.11	23.82	0.14
3600.00	0.72	310.96	3599.89	15.54	5.61	15.54	16.52	19.84	0.06
3700.00	0.65	303.88	3699.88	16.27	4.66	16.27	16.92	15.98	0.11
3800.00	0.61	299.15	3799.87	16.84	3.72	16.84	17.25	12.46	0.06
3900.00	0.66	296.64	3899.87	17.36	2.74	17.36	17.58	8.98	0.05
4000.00	0.69	295.81	3999.86	17.88	1.68	17.88	17.96	5.38	0.04
4100.00	0.59	292.01	4099.85	18.34	0.66	18.34	18.35	2.06	0.11
4200.00	0.66	294.37	4199.85	18.77	-0.34	18.77	18.77	358.97	0.07
4300.00	0.62	290.61	4299.84	19.20	-1.37	19.20	19.25	355.92	0.05
4400.00	0.50	295.90	4399.84	19.58	-2.27	19.58	19.71	353.38	0.13
4500.00	0.57	294.05	4499.83	19.98	-3.12	19.98	20.22	351.12	0.07
4600.00	0.56	298.25	4599.83	20.41	-4.01	20.41	20.80	348.90	0.04
4700.00	0.53	304.63	4699.82	20.90	-4.82	20.90	21.45	347.02	0.07
4800.00	0.43	301.06	4799.82	21.36	-5.52	21.36	22.06	345.52	0.11
4900.00	0.29	283.47	4899.82	21.61	-6.09	21.61	22.45	344.27	0.17
5000.00	0.15	255.93	4999.82	21.64	-6.47	21.64	22.58	343.36	0.17
5100.00	0.24	290.66	5099.82	21.68	-6.79	21.68	22.72	342.61	0.14
5200.00	0.18	294.59	5199.82	21.82	-7.12	21.82	22.95	341.92	0.06
5300.00	0.17	245.27	5299.81	21.82	-7.40	21.82	23.04	341.26	0.15
5400.00	0.17	227.55	5399.81	21.66	-7.64	21.66	22.97	340.56	0.05
5500.00	0.28	265.45	5499.81	21.54	-8.00	21.54	22.98	339.63	0.18
5600.00	0.27	262.07	5599.81	21.49	-8.48	21.49	23.10	338.45	0.02
5700.00	0.20	265.40	5699.81	21.44	-8.89	21.44	23.21	337.47	0.07
5800.00	0.21	287.53	5799.81	21.48	-9.24	21.48	23.39	336.72	0.08
5900.00	0.26	271.06	5899.81	21.54	-9.65	21.54	23.60	335.87	0.08

HORIZONTAL DISPLACEMENT IS  
23.60 FEET AT 335.87 DEGREES

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MORGANTOWN, WV



# Weatherford®

## SURVEY REPORT

Report Date: 5/4/2012  
 Customer: Chesapeake  
 Job Name: 4026127  
 Well Name: Deborah Craig OHI 3H ST

Field: Ohio County  
 Rig: Nomac 37  
 Rig Loc: Ohio County

Survey Calculation Method: <b>Minimum Curvature</b>						
Magnetic Reference	Target Direction	Total Magnetic Field	Magnetic Dip Angle	Magnetic Declination	Grid Convergence	Total Correction
<b>Grid North</b>	<b>331.02 deg</b>	<b>53578 nT</b>	<b>67.87 deg</b>	<b>-8.71 deg</b>	<b>-0.69 deg</b>	<b>-8.02 deg</b>
<b>Survey Tie-On</b>	Depth	INC	AZ	TVD	NS	EW
	<b>5601.00 ft</b>	<b>0.27 deg</b>	<b>262.07 deg</b>	<b>5600.81 ft</b>	<b>21.52 ft</b>	<b>-8.47 ft</b>

Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head			Dogleg (deg/100ft)
				NS (ft)	EW (ft)	Vsect (ft)	
5692.00	0.22	282.12	5691.81	21.53	-8.85	23.12	0.11
5724.00	0.29	314.32	5723.81	21.60	-8.97	23.24	0.49
5756.00	2.32	17.48	5755.80	22.27	-8.83	23.76	6.89
5788.00	6.27	22.37	5787.70	24.51	-7.97	25.30	12.39
5819.00	10.48	21.89	5818.37	28.69	-6.28	28.14	13.58
5851.00	14.89	22.80	5849.58	35.18	-3.60	32.52	13.79
5883.00	16.55	19.12	5880.38	43.28	-0.51	38.11	6.05
5914.00	18.34	9.60	5909.96	52.26	1.75	44.87	10.85
5944.00	20.58	1.76	5938.25	62.19	2.70	53.10	11.45
5976.00	23.41	356.35	5967.92	74.16	2.47	63.68	10.87
6007.00	25.45	354.09	5996.14	86.93	1.39	75.38	7.24
6039.00	27.61	351.39	6024.77	101.10	-0.43	88.65	7.73
6071.00	29.95	349.50	6052.82	116.29	-3.00	103.18	7.85
6102.00	31.31	349.04	6079.49	131.81	-5.94	118.18	4.45
6134.00	32.42	348.72	6106.67	148.39	-9.20	134.26	3.51
6166.00	34.80	348.10	6133.32	165.74	-12.76	151.17	7.51
6198.00	37.48	347.93	6159.16	184.20	-16.68	169.21	8.38
6229.00	38.48	348.12	6183.59	202.86	-20.64	187.46	3.25
6261.00	39.22	347.40	6208.51	222.47	-24.89	206.68	2.71
6293.00	39.64	347.40	6233.23	242.31	-29.33	226.18	1.31
6325.00	41.49	346.00	6257.54	262.56	-34.12	246.21	6.44
6356.00	42.98	345.07	6280.49	282.73	-39.33	266.38	5.21
6387.00	44.45	344.06	6302.90	303.38	-45.03	287.21	5.25
6419.00	45.84	343.25	6325.47	325.15	-51.41	309.35	4.70
6450.00	47.30	342.69	6346.78	346.67	-58.01	331.37	4.89
6482.00	49.55	341.48	6368.01	369.45	-65.38	354.86	7.58
6514.00	52.46	340.24	6388.15	392.94	-73.53	379.36	9.58
6546.00	54.92	340.06	6407.09	417.19	-82.29	404.82	7.70
6577.00	56.94	339.57	6424.46	441.29	-91.15	430.20	6.65
6609.00	59.32	339.29	6441.35	466.73	-100.70	457.08	7.47
6641.00	62.14	338.98	6457.00	492.81	-110.64	484.71	8.85
6673.00	64.96	338.53	6471.25	519.51	-121.02	513.10	8.90
6705.00	68.22	338.20	6483.96	546.80	-131.85	542.22	10.23
6735.00	70.93	336.92	6494.43	572.78	-142.58	570.15	9.88
6767.00	73.57	335.63	6504.19	600.68	-154.85	600.49	9.10

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Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		Vsect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
6799.00	75.73	335.52	6512.66	628.78	-167.61	631.25	6.76
6831.00	78.04	335.02	6519.92	657.08	-180.64	662.33	7.38
6863.00	79.31	336.11	6526.20	685.65	-193.62	693.61	5.19
6895.00	81.79	334.81	6531.46	714.36	-206.73	725.07	8.72
6926.00	84.54	333.29	6535.14	742.03	-220.20	755.81	10.12
6958.00	88.32	332.97	6537.14	770.51	-234.63	787.72	11.85
6990.00	91.33	333.86	6537.23	799.13	-248.95	819.69	9.81
7023.00	91.96	333.50	6536.29	828.69	-263.58	852.64	2.20
7085.00	92.80	333.34	6533.71	884.09	-291.29	914.53	1.38
7147.00	91.68	333.31	6531.29	939.45	-319.11	976.43	1.81
7211.00	90.84	332.85	6529.88	996.50	-348.07	1040.37	1.50
7275.00	90.35	333.63	6529.22	1053.64	-376.89	1104.32	1.44
7337.00	90.91	335.26	6528.54	1109.57	-403.63	1166.20	2.78
7401.00	91.19	336.24	6527.36	1167.91	-429.91	1229.97	1.59
7463.00	90.00	335.03	6526.72	1224.39	-455.49	1291.77	2.74
7527.00	89.86	334.85	6526.80	1282.36	-482.60	1355.62	0.36
7654.00	89.30	332.64	6527.73	1396.25	-538.77	1482.46	1.80
7781.00	92.45	332.43	6525.79	1508.91	-597.33	1609.39	2.49
7908.00	91.61	333.41	6521.29	1621.91	-655.11	1736.23	1.02
8034.00	89.72	333.20	6519.83	1734.47	-711.71	1862.12	1.51
8161.00	89.09	331.61	6521.15	1847.01	-770.53	1989.07	1.35
8289.00	88.95	331.16	6523.34	1959.36	-831.82	2117.05	0.37
8415.00	92.59	335.13	6521.64	2071.72	-888.72	2242.91	4.27
8541.00	92.31	334.38	6516.26	2185.58	-942.40	2368.52	0.63
8668.00	90.63	332.93	6513.00	2299.35	-998.74	2495.34	1.75
8795.00	90.42	331.73	6511.83	2411.82	-1057.72	2622.30	0.96
8921.00	90.35	330.98	6510.99	2522.39	-1118.12	2748.29	0.60
9047.00	90.98	330.19	6509.53	2632.14	-1179.99	2874.28	0.80
9174.00	90.91	329.78	6507.43	2742.09	-1243.51	3001.24	0.33
9301.00	91.12	330.23	6505.18	2852.06	-1306.99	3128.20	0.39
9427.00	91.75	331.17	6502.03	2961.91	-1368.64	3254.16	0.90
9554.00	91.75	330.96	6498.15	3073.00	-1430.05	3381.10	0.17
9678.00	89.44	329.14	6496.86	3180.43	-1491.95	3505.06	2.37
9803.00	88.95	327.72	6498.62	3286.91	-1557.38	3629.91	1.20
9929.00	90.07	327.03	6499.69	3393.03	-1625.31	3755.65	1.04
10053.00	90.98	326.64	6498.56	3496.82	-1693.14	3879.31	0.80
10178.00	91.05	326.87	6496.34	3601.35	-1761.66	4003.95	0.19
10302.00	90.28	325.85	6494.90	3704.57	-1830.34	4127.53	1.03
10427.00	91.12	327.15	6493.38	3808.80	-1899.33	4252.13	1.24
10551.00	90.63	326.08	6491.48	3912.32	-1967.55	4375.74	0.95
10676.00	93.15	327.26	6487.36	4016.69	-2036.19	4500.30	2.23
10801.00	93.29	329.74	6480.34	4123.10	-2101.40	4624.97	1.98
10925.00	92.86	331.86	6473.69	4231.18	-2161.80	4748.79	1.74
11050.00	89.93	329.50	6470.64	4340.11	-2222.98	4873.73	3.01
11174.00	90.35	329.39	6470.34	4446.89	-2286.02	4997.68	0.35
11298.00	88.53	327.59	6471.55	4552.60	-2350.82	5121.54	2.06
11424.00	89.23	327.17	6474.01	4658.70	-2418.73	5247.26	0.65
11550.00	89.16	326.58	6475.78	4764.21	-2487.57	5372.92	0.47
11675.00	91.40	329.25	6475.17	4870.10	-2553.96	5497.72	2.79
11800.00	91.19	329.15	6472.35	4977.44	-2617.95	5622.62	0.19

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Depth (ft)	Inc (deg)	Azm (deg)	TVD (ft)	Well Head		VSect (ft)	Dogleg (deg/100ft)
				NS (ft)	EW (ft)		
11924.00	90.98	328.04	6470.00	5083.26	-2682.55	5746.49	0.91
12049.00	91.19	328.02	6467.63	5189.28	-2748.72	5871.29	0.17
12176.00	91.47	327.49	6464.69	5296.66	-2816.47	5998.05	0.47
12301.00	90.07	328.60	6463.01	5402.71	-2882.61	6122.87	1.43
12427.00	89.58	328.63	6463.39	5510.27	-2948.23	6248.75	0.39
12551.00	90.63	327.64	6463.16	5615.58	-3013.69	6372.59	1.16
12677.00	91.05	328.76	6461.32	5722.65	-3080.08	6498.43	0.95
12801.00	90.63	328.16	6459.50	5828.32	-3144.94	6622.29	0.59
12927.00	89.79	327.36	6459.04	5934.89	-3212.15	6748.08	0.92
13052.00	89.51	327.27	6459.80	6040.10	-3279.65	6872.82	0.24
13177.00	90.84	326.42	6459.42	6144.74	-3348.01	6997.48	1.26
13303.00	90.70	326.52	6457.73	6249.77	-3417.61	7123.07	0.14
13427.00	90.21	326.26	6456.74	6353.03	-3486.24	7246.66	0.45
13552.00	91.82	327.68	6454.53	6457.81	-3554.36	7371.32	1.72
13677.00	91.82	327.45	6450.56	6563.26	-3621.37	7496.03	0.18
13803.00	91.68	327.40	6446.71	6669.39	-3689.18	7621.73	0.12
13887.00	91.26	327.31	6444.55	6740.09	-3734.48	7705.53	0.51

Vertical Section is 7768.38 ft along the target direction of 331.02 deg at a measured depth of 13950.00 ft.  
Horizontal Displacement is 7768.38 ft along the well bore azimuth of 330.98 deg.  
The total correction is -8.02 deg relative to Grid North.

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