



Weatherford Survey Report



9.00113

Company: CHESAPEAKE		Date: 4/10/2014	Time: 10:44:52	Page: 1						
Field: BROOKE COUNTY, WV (NAD 27)		Co-ordinate(NE) Reference: Well: 8H, Grid North								
Site: JOHN GOOD JR BRK		Vertical (TVD) Reference: SITE 1161.0								
Well: 8H		Section (VS) Reference: Well (0.00N,0.00E,161.00Azi)								
Wellpath: HORIZONTAL		Survey Calculation Method: Minimum Curvature	Db: Sybase							
Survey: ALL SURVEYS (GYROS AND MWD)		Start Date: 6/12/2012								
Company: Weatherford International, Inc		Engineer: Eric Maynard								
Tool: NS-GYRO-MS;North sensing gyrocompassing m		Tied-to: From Surface								
Field: BROOKE COUNTY, WV (NAD 27)										
Map System: US State Plane Coordinate System 1927		Map Zone: West Virginia, Northern Zone								
Geo Datum: NAD27 (Clarke 1866)		Coordinate System: Well Centre								
Sys Datum: Mean Sea Level		Geomagnetic Model: IGRF2010								
Site: JOHN GOOD JR BRK										
Site Position:	From: Map	Northing: 629710.90 ft	Latitude: 40 13 25.943 N							
Position Uncertainty: 0.00 ft		Easting: 1698153.10 ft	Longitude: 80 34 51.379 W							
Ground Level: 1145.00 ft		North Reference: Grid	Grid Convergence: -0.69 deg							
Well: 8H										
Slot Name:										
Well Position: +N/-S -13.60 ft	Northing: 629697.30 ft	Latitude: 40 13 25.809 N								
+E/-W 3.60 ft	Easting: 1698156.70 ft	Longitude: 80 34 51.330 W								
Position Uncertainty: 0.00 ft										
Wellpath: HORIZONTAL										
Current Datum: SITE	Height 1161.00 ft	Drilled From: Surface								
Magnetic Data: 6/10/2012		Tie-on Depth: 0.00 ft								
Field Strength: 52996 nT		Above System Datum: Mean Sea Level								
Vertical Section: Depth From (TVD)	+N/-S	Mag Dip Angle: 67.70 deg								
ft	ft	+E/-W	Direction							
		ft	deg							
0.00	0.00	0.00	161.00							
Survey										
MD	Incl	Azim	TVD	N/S	E/W	VS	DLS	MapN	MapE	Comment
ft	deg	deg	ft	ft	ft	ft	deg/100ft	ft	ft	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	629697.30	1698156.70	
51.00	0.79	5.83	51.00	0.35	0.04	-0.32	1.55	629697.65	1698156.74	
101.00	1.28	9.85	100.99	1.24	0.17	-1.12	0.99	629698.54	1698156.87	
151.00	0.86	20.45	150.98	2.14	0.39	-1.90	0.93	629699.44	1698157.09	
201.00	1.01	18.32	200.97	2.91	0.66	-2.54	0.31	629700.21	1698157.36	
251.00	1.21	17.51	250.97	3.84	0.96	-3.31	0.40	629701.14	1698157.66	
301.00	0.45	18.49	300.96	4.53	1.18	-3.90	1.52	629701.83	1698157.88	
351.00	1.08	355.73	350.95	5.18	1.21	-4.51	1.37	629702.48	1698157.91	
401.00	0.46	37.11	400.95	5.81	1.29	-5.07	1.59	629703.11	1698157.99	
451.00	0.84	343.65	450.95	6.32	1.31	-5.55	1.35	629703.62	1698158.01	
501.00	0.51	56.82	500.94	6.80	1.40	-5.97	1.69	629704.10	1698158.10	
551.00	0.58	335.69	550.94	7.15	1.48	-6.28	1.42	629704.45	1698158.18	
601.00	0.12	140.44	600.94	7.34	1.41	-6.48	1.39	629704.64	1698158.11	
651.00	0.51	44.76	650.94	7.46	1.60	-6.53	1.07	629704.76	1698158.80	
701.00	0.65	334.89	700.94	7.87	1.63	-6.91	1.35	629705.17	1698158.33	
751.00	0.51	290.14	750.94	8.21	1.30	-7.33	0.92	629705.51	1698158.00	
801.00	0.10	117.07	800.94	8.26	1.13	-7.44	1.22	629705.56	1698157.83	
851.00	0.51	22.08	850.94	8.45	1.26	-7.58	1.06	629705.75	1698157.96	
901.00	0.61	324.69	900.93	8.87	1.19	-8.00	1.09	629706.17	1698157.89	
951.00	0.45	274.23	950.93	9.10	0.84	-8.34	0.95	629706.40	1698157.54	
1001.00	0.33	330.90	1000.93	9.24	0.57	-8.56	0.77	629706.54	1698157.27	
1051.00	0.70	329.39	1050.93	9.63	0.34	-9.00	0.74	629706.93	1698157.04	
1101.00	0.87	274.01	1100.93	9.92	-0.19	-9.44	1.49	629707.22	1698156.51	
1151.00	0.26	254.60	1150.92	9.92	-0.68	-9.60	1.26	629707.22	1698156.02	



Weatherford Survey Report



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Company: CHESAPEAKE	Date: 4/10/2014	Time: 10:44:52	Page: 2
Field: BROOKE COUNTY, WV (NAD 27)	Co-ordinate(NE) Reference: Well: 8H, Grid North		
Site: JOHN GOOD JR BRK	Vertical (TVD) Reference: SITE 1161.0		
Well: 8H	Section (VS) Reference: Well (0.00N,0.00E,161.00Azi)		
Wellpath: HORIZONTAL	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	MapN ft	MapE ft	Comment
1201.00	0.64	324.29	1200.92	10.12	-0.95	-9.87	1.20	629707.42	1698155.75	
1251.00	0.96	296.98	1250.92	10.53	-1.49	-10.44	0.98	629707.83	1698155.21	
1301.00	0.63	259.11	1300.91	10.67	-2.13	-10.78	1.21	629707.97	1698154.57	
1351.00	0.37	332.33	1350.91	10.76	-2.47	-10.98	1.26	629708.06	1698154.23	
1401.00	0.89	305.68	1400.91	11.13	-2.86	-11.46	1.17	629708.43	1698153.84	
1451.00	0.49	258.01	1450.90	11.31	-3.39	-11.80	1.33	629708.61	1698153.31	
1501.00	0.36	1.17	1500.90	11.43	-3.60	-11.97	1.34	629708.73	1698153.10	
1551.00	0.90	307.00	1550.90	11.82	-3.91	-12.45	1.50	629709.12	1698152.79	
1601.00	0.48	305.36	1600.90	12.18	-4.39	-12.94	0.84	629709.48	1698152.31	
1626.00	0.94	303.80	1625.89	12.35	-4.65	-13.19	1.84	629709.65	1698152.05	
1651.00	0.77	305.02	1650.89	12.56	-4.95	-13.49	0.68	629709.86	1698151.75	
1676.00	0.38	303.34	1675.89	12.70	-5.16	-13.69	1.56	629710.00	1698151.54	
1701.00	0.99	297.41	1700.89	12.85	-5.42	-13.91	2.45	629710.15	1698151.28	
1726.00	1.01	306.43	1725.88	13.08	-5.79	-14.25	0.63	629710.38	1698150.91	
1751.00	0.69	303.57	1750.88	13.29	-6.09	-14.55	1.29	629710.59	1698150.61	
1776.00	1.08	302.52	1775.88	13.50	-6.42	-14.86	1.56	629710.80	1698150.28	
1801.00	1.69	299.69	1800.87	13.81	-6.94	-15.32	2.45	629711.11	1698149.76	
1826.00	1.31	289.73	1825.86	14.09	-7.53	-15.77	1.84	629711.39	1698149.17	
1851.00	1.59	268.91	1850.85	14.18	-8.14	-16.06	2.37	629711.48	1698148.56	
1876.00	2.49	245.10	1875.84	13.95	-8.98	-16.11	4.87	629711.25	1698147.72	
1901.00	3.27	239.76	1900.81	13.36	-10.09	-15.92	3.30	629710.66	1698146.61	
1926.00	4.57	264.13	1925.75	12.90	-11.70	-16.00	8.34	629710.20	1698145.00	
1951.00	7.02	268.42	1950.62	12.75	-14.21	-16.69	9.95	629710.05	1698142.49	
1976.00	8.73	255.94	1975.39	12.25	-17.58	-17.31	9.64	629709.55	1698139.12	
2001.00	9.60	252.11	2000.07	11.15	-21.41	-17.51	4.25	629708.45	1698135.29	
2026.00	10.09	249.22	2024.70	9.73	-25.44	-17.48	2.78	629707.03	1698131.26	
2051.00	9.93	251.23	2049.32	8.26	-29.53	-17.42	1.54	629705.56	1698127.17	
2076.00	8.45	263.26	2074.00	7.35	-33.39	-17.82	9.67	629704.65	1698123.31	
2101.00	8.19	268.32	2098.74	7.08	-37.00	-18.74	3.11	629704.38	1698119.70	
2126.00	7.65	257.04	2123.50	6.66	-40.40	-19.45	6.57	629703.96	1698116.30	
2151.00	7.74	242.07	2148.28	5.50	-43.51	-19.36	8.00	629702.80	1698113.19	
2176.00	8.09	237.03	2173.04	3.75	-46.47	-18.68	3.11	629701.05	1698110.23	
2201.00	7.58	214.51	2197.81	1.43	-48.88	-17.27	12.37	629698.73	1698107.82	
2226.00	6.33	205.35	2222.63	-1.17	-50.41	-15.30	6.67	629696.13	1698106.29	
2251.00	4.77	188.44	2247.51	-3.44	-51.15	-13.40	8.98	629693.86	1698105.55	
2276.00	4.38	169.80	2272.43	-5.41	-51.13	-11.53	6.12	629691.89	1698105.57	
2301.00	4.65	161.95	2297.36	-7.32	-50.65	-9.57	2.69	629689.98	1698106.05	
2326.00	4.73	134.74	2322.27	-9.00	-49.60	-7.64	8.82	629688.30	1698107.10	
2351.00	5.20	126.87	2347.18	-10.41	-47.96	-5.77	3.31	629686.89	1698108.74	
2376.00	5.75	105.64	2372.07	-11.43	-45.85	-4.12	8.34	629685.87	1698110.85	
2401.00	6.56	91.39	2396.93	-11.80	-43.22	-2.91	6.89	629685.50	1698113.48	
2426.00	6.86	89.07	2421.76	-11.81	-40.30	-1.95	1.62	629685.49	1698116.40	
2441.00	6.97	80.28	2436.65	-11.64	-38.50	-1.53	7.09	629685.66	1698118.20	
2501.00	7.89	74.47	2496.14	-9.92	-30.95	-0.69	1.98	629687.38	1698125.75	
2601.00	4.89	69.10	2595.51	-6.57	-20.35	-0.42	3.06	629690.73	1698136.35	
2701.00	3.35	54.27	2695.25	-3.34	-14.00	-1.40	1.86	629693.96	1698142.70	
2801.00	2.13	49.43	2795.14	-0.42	-10.21	-2.92	1.24	629696.88	1698146.49	
2901.00	1.79	47.31	2895.08	1.84	-7.65	-4.24	0.35	629699.14	1698149.05	
3001.00	1.14	29.30	2995.05	3.77	-6.02	-5.52	0.79	629701.07	1698150.68	
3101.00	1.17	0.16	3095.03	5.66	-5.53	-7.15	0.58	629702.96	1698151.17	
3201.00	1.14	335.58	3195.01	7.59	-5.94	-9.11	0.49	629704.89	1698150.76	
3301.00	1.06	319.60	3294.99	9.20	-6.95	-10.96	0.32	629706.50	1698149.75	

Environmental Protection



Weatherford Survey Report



9-2013

Company: CHESAPEAKE	Date: 4/10/2014	Time: 10:44:52	Page: 3
Field: BROOKE COUNTY, WV (NAD 27)	Co-ordinate(NE) Reference: Well: 8H, Grid North		
Site: JOHN GOOD JR BRK	Vertical (TVD) Reference: SITE 1161.0		
Well: 8H	Section (VS) Reference: Well (0.00N,0.00E,161.00Azi)		
Wellpath: HORIZONTAL	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	MapN ft	MapE ft	Comment
3401.00	0.66	299.51	3394.98	10.18	-8.05	-12.25	0.50	629707.48	1698148.65	
3501.00	0.71	305.76	3494.97	10.83	-9.05	-13.19	0.09	629708.13	1698147.65	
3601.00	0.80	311.31	3594.96	11.65	-10.08	-14.30	0.12	629708.95	1698146.62	
3701.00	0.37	320.77	3694.96	12.36	-10.81	-15.21	0.44	629709.66	1698145.89	
3801.00	0.95	357.93	3794.95	13.44	-11.04	-16.31	0.69	629710.74	1698145.66	
3901.00	0.68	331.64	3894.94	14.79	-11.35	-17.68	0.45	629712.09	1698145.35	
4001.00	0.38	12.13	3994.93	15.64	-11.57	-18.55	0.46	629712.94	1698145.13	
4101.00	0.72	38.95	4094.93	16.45	-11.10	-19.17	0.42	629713.75	1698145.60	
4201.00	0.87	38.02	4194.92	17.54	-10.24	-19.92	0.15	629714.84	1698146.46	
4301.00	1.09	27.61	4294.91	18.98	-9.33	-20.98	0.28	629716.28	1698147.37	
4401.00	1.09	1.87	4394.89	20.77	-8.86	-22.53	0.49	629718.07	1698147.84	
4501.00	0.84	343.34	4494.87	22.43	-9.04	-24.15	0.40	629719.73	1698147.66	
4601.00	0.43	326.98	4594.87	23.44	-9.45	-25.24	0.44	629720.74	1698147.25	
4701.00	0.29	23.23	4694.87	23.99	-9.56	-25.79	0.36	629721.29	1698147.14	
4801.00	0.77	48.67	4794.86	24.67	-8.95	-26.24	0.52	629721.97	1698147.75	
4901.00	0.59	10.28	4894.86	25.62	-8.36	-26.94	0.48	629722.92	1698148.34	
5001.00	0.88	82.58	4994.85	26.22	-7.50	-27.24	0.90	629723.52	1698149.20	
5101.00	0.59	8.36	5094.84	26.83	-6.67	-27.54	0.92	629724.13	1698150.03	
5201.00	0.76	12.00	5194.84	27.99	-6.45	-28.57	0.18	629725.29	1698150.25	
5251.00	0.63	357.33	5244.83	28.59	-6.40	-29.11	0.44	629725.89	1698150.30	GYRO TIE IN
5288.00	0.49	24.68	5281.83	28.94	-6.34	-29.42	0.80	629726.24	1698150.36	FIRST WFT SVY
5320.00	2.04	126.72	5313.82	28.72	-5.83	-29.05	6.86	629726.02	1698150.87	
5352.00	5.36	145.68	5345.75	27.14	-4.53	-27.14	10.92	629724.44	1698152.17	
5383.00	8.78	153.80	5376.51	23.82	-2.67	-23.39	11.47	629721.12	1698154.03	
5415.00	11.60	157.37	5408.01	18.66	-0.35	-17.76	9.03	629715.96	1698156.35	
5447.00	14.70	155.91	5439.16	11.98	2.55	-10.50	9.74	629709.28	1698159.25	
5479.00	17.55	156.78	5469.90	3.84	6.11	-1.64	8.94	629701.14	1698162.81	
5510.00	20.85	157.88	5499.17	-5.57	10.03	8.53	10.71	629691.73	1698166.73	
5542.00	22.42	163.86	5528.92	-16.71	13.87	20.31	8.45	629680.59	1698170.57	
5574.00	24.15	169.94	5558.32	-29.02	16.71	32.87	9.25	629668.28	1698173.41	
5606.00	26.96	167.66	5587.19	-42.55	19.40	46.55	9.30	629654.75	1698176.10	
5638.00	30.61	165.40	5615.23	-57.53	23.01	61.88	11.90	629639.77	1698179.71	
5670.00	32.73	161.34	5642.46	-73.61	27.83	78.66	9.39	629623.69	1698184.53	
5701.00	35.84	159.87	5668.07	-90.08	33.64	96.12	10.38	629607.22	1698190.34	
5732.00	39.08	158.77	5692.68	-107.71	40.30	114.96	10.67	629589.59	1698197.00	
5764.00	42.99	157.90	5716.81	-127.23	48.06	135.94	12.35	629570.07	1698204.76	
5796.00	46.83	157.79	5739.47	-148.15	56.58	158.50	12.00	629549.15	1698213.28	
5827.00	51.28	158.03	5759.78	-169.84	65.38	181.87	14.37	629527.46	1698222.08	
5859.00	54.52	159.10	5779.08	-193.59	74.70	207.37	10.47	629503.71	1698231.40	
5891.00	57.54	160.41	5796.96	-218.49	83.88	233.90	10.03	629478.81	1698240.58	
5923.00	60.40	160.49	5813.45	-244.33	93.05	261.31	8.94	629452.97	1698249.75	
5954.00	63.25	160.50	5828.09	-270.09	102.18	288.64	9.19	629427.21	1698258.88	
5986.00	66.73	159.92	5841.62	-297.37	112.00	317.63	11.00	629399.93	1698268.70	
6017.00	68.82	159.51	5853.34	-324.28	121.95	346.32	6.85	629373.02	1698278.65	
6049.00	71.22	160.01	5864.27	-352.50	132.35	376.38	7.64	629344.80	1698289.05	
6080.00	74.58	160.43	5873.39	-380.38	142.37	406.00	10.92	629316.92	1698299.07	
6112.00	76.96	160.02	5881.25	-409.56	152.87	437.02	7.54	629287.74	1698309.57	PLAN 5 TIE IN
6143.00	79.82	160.10	5887.49	-438.10	163.22	467.38	9.23	629259.20	1698319.92	
6175.00	81.08	159.86	5892.80	-467.75	174.02	498.93	4.01	629229.55	1698330.72	
6207.00	83.49	160.03	5897.10	-497.54	184.90	530.63	7.55	629199.76	1698341.60	
6239.00	86.85	160.34	5899.79	-527.53	195.70	562.51	10.54	629169.77	1698352.40	
6302.00	90.42	162.39	5901.29	-587.20	215.82	625.47	6.53	629110.10	1698372.52	
6429.00	89.44	162.50	5901.45	-708.28	254.13	752.43	0.78	628989.02	1698410.83	



Weatherford Survey Report



Company: CHESAPEAKE	Date: 4/10/2014	Time: 10:44:52	Page: 4
Field: BROOKE COUNTY, WV (NAD 27)	Co-ordinate(NE) Reference: Well: 8H, Grid North		
Site: JOHN GOOD JR BRK	Vertical (TVD) Reference: SITE 1161.0		
Well: 8H	Section (VS) Reference: Well (0.00N,0.00E,161.00Azi)		
Wellpath: HORIZONTAL	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	MapN ft	MapE ft	Comment
6556.00	89.79	165.61	5902.30	-830.38	289.01	879.23	2.46	628866.92	1698445.71	
6683.00	88.39	162.91	5904.32	-952.59	323.46	1006.00	2.39	628744.71	1698480.16	
6809.00	88.88	164.11	5907.32	-1073.37	359.21	1131.84	1.03	628623.93	1698515.91	
6936.00	87.83	159.23	5910.97	-1193.84	399.12	1258.74	3.93	628503.46	1698555.82	
7062.00	88.67	158.19	5914.81	-1311.18	444.85	1384.57	1.06	628386.12	1698601.55	
7189.00	89.23	158.46	5917.14	-1429.18	491.74	1511.41	0.49	628268.12	1698648.44	
7316.00	89.37	158.98	5918.69	-1547.51	537.83	1638.30	0.42	628149.79	1698694.53	
7443.00	89.93	161.54	5919.47	-1667.04	580.72	1765.28	2.06	628030.26	1698737.42	
7570.00	90.49	160.51	5919.00	-1787.13	622.02	1892.28	0.92	627910.17	1698778.72	
7697.00	88.25	159.73	5920.40	-1906.55	665.20	2019.24	1.87	627790.75	1698821.90	
7824.00	88.67	160.87	5923.81	-2026.07	707.99	2146.19	0.96	627671.23	1698864.69	
7951.00	89.09	160.89	5926.30	-2146.04	749.58	2273.16	0.33	627551.26	1698906.28	
8078.00	89.02	158.60	5928.39	-2265.16	793.54	2400.11	1.80	627432.14	1698950.24	
8205.00	90.63	161.61	5928.78	-2384.57	836.75	2527.07	2.69	627312.73	1698993.45	
8331.00	91.33	162.14	5926.62	-2504.29	875.94	2653.04	0.70	627193.01	1699032.64	
8457.00	89.72	162.48	5925.47	-2624.33	914.23	2778.99	1.31	627072.97	1699070.93	
8585.00	88.32	162.49	5927.66	-2746.37	952.74	2906.93	1.09	626950.93	1699109.44	
8712.00	89.44	163.03	5930.14	-2867.64	990.37	3033.84	0.98	626829.66	1699147.07	
8839.00	89.44	161.00	5931.38	-2988.42	1029.58	3160.81	1.60	626708.88	1699186.28	
8965.00	89.09	158.90	5933.00	-3106.77	1072.78	3286.77	1.69	626590.53	1699229.48	
9090.00	88.88	156.43	5935.21	-3222.37	1120.27	3411.53	1.98	626474.93	1699276.97	
9217.00	90.28	160.84	5936.14	-3340.60	1166.52	3538.38	3.64	626356.70	1699323.22	
9342.00	89.23	162.27	5936.68	-3459.18	1206.07	3663.37	1.42	626238.12	1699362.77	
9469.00	90.56	163.26	5936.91	-3580.47	1243.70	3790.31	1.31	626116.83	1699400.40	
9594.00	88.67	161.83	5937.75	-3699.70	1281.19	3915.25	1.90	625997.60	1699437.89	
9720.00	90.21	162.14	5938.98	-3819.51	1320.15	4041.22	1.25	625877.79	1699476.85	
9741.00	90.49	162.69	5938.86	-3839.53	1326.50	4062.21	2.94	625857.77	1699483.20	LAST WFT SVY
9800.00	90.49	162.69	5938.35	-3895.86	1344.05	4121.19	0.00	625801.44	1699500.75	PROJ TO BIT

Annotation

MD ft	TVD ft	
6112.00	5881.25	PLAN 5 TIE IN
5251.00	5244.83	GYRO TIE IN
5288.00	5281.83	FIRST WFT SVY
9741.00	5938.86	LAST WFT SVY
9800.00	5938.35	PROJ TO BIT