



Weatherford International Ltd.

DIRECTIONAL REPORT



Company: CHESAPEAKE Field: MARSHALL COUNTY (NAD 27) Site: FORK RIDGE PAD Well: 1H Wellpath: HORIZONTAL	Date: 3/14/2013 Time: 10:38:56 Page: 1 Co-ordinate(NE) Reference: Well: 1H, Grid North Vertical (TVD) Reference: SITE 1413.0 Section (VS) Reference: Well (0.00N,0.00E,339.97Azi) Survey Calculation Method: Minimum Curvature Db: Sybase
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Plan:	Date Composed:
Principal:	Version:
	Tied-to:

Field: MARSHALL COUNTY (NAD 27)	
Map System: US State Plane Coordinate System 1927 Geo Datum: NAD27 (Clarke 1866) Sys Datum: Mean Sea Level	Map Zone: West Virginia, Northern Zone Coordinate System: Well Centre Geomagnetic Model: IGRF2010

Site: FORK RIDGE PAD	
Site Position: From: Map Position Uncertainty: 0.00 ft Ground Level: 1391.00 ft	Northing: 501556.11 ft Latitude: 39 52 17.357 N Easting: 1680438.31 ft Longitude: 80 38 18.794 W North Reference: Grid Grid Convergence: -0.73 deg

Well: 1H	Slot Name:
Well Position: +N/-S -8.11 ft Northing: 501548.00 ft Latitude: 39 52 17.275 N +E/-W -11.51 ft Easting: 1680426.80 ft Longitude: 80 38 18.941 W Position Uncertainty: 0.00 ft	

Wellpath: HORIZONTAL Current Datum: SITE Magnetic Data: 1/23/2013 Field Strength: 52752 nT Vertical Section: Depth From (TVD)	Drilled From: Surface Tie-on Depth: 0.00 ft Above System Datum: Mean Sea Level Declination: -8.66 deg Mag Dip Angle: 67.38 deg +E/-W Direction deg
0.00 0.00 0.00 339.97	

Plan Section Information										
MD	Incl	Azim	TVD	+N/-S	+E/-W	DLS	Build	Turn	TFO	Target

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	501548.00	1680426.80	
100.00	0.10	49.75	100.00	0.06	0.07	0.03	0.10	501548.06	1680426.87	
200.00	0.11	75.29	200.00	0.14	0.23	0.05	0.05	501548.14	1680427.03	
300.00	0.14	46.37	300.00	0.25	0.41	0.09	0.07	501548.25	1680427.21	
400.00	0.15	42.91	400.00	0.43	0.58	0.20	0.01	501548.43	1680427.38	
500.00	0.24	49.71	500.00	0.66	0.83	0.33	0.09	501548.66	1680427.63	
600.00	0.31	33.88	600.00	1.02	1.14	0.56	0.10	501549.02	1680427.94	
700.00	0.37	49.02	700.00	1.45	1.54	0.84	0.11	501549.45	1680428.34	
760.00	0.32	52.95	759.99	1.68	1.82	0.96	0.09	501549.68	1680428.62	
836.00	0.39	41.16	835.99	2.00	2.16	1.14	0.13	501550.00	1680428.96	FIRST MWD SVY
867.00	1.01	352.18	866.99	2.35	2.19	1.46	2.61	501550.35	1680428.99	
899.00	1.98	329.02	898.98	3.11	1.87	2.28	3.51	501551.11	1680428.67	
930.00	3.32	328.76	929.95	4.33	1.13	3.69	4.32	501552.33	1680427.93	
962.00	4.52	324.86	961.87	6.16	-0.08	5.81	3.84	501554.16	1680426.72	
993.00	4.83	312.01	992.77	8.03	-1.75	8.14	3.51	501556.03	1680425.05	
1025.00	5.07	306.23	1024.65	9.77	-3.89	10.51	1.73	501557.77	1680422.91	
1056.00	5.30	303.71	1055.52	11.37	-6.19	12.80	1.04	501559.37	1680420.61	
1088.00	6.01	300.97	1087.37	13.05	-8.86	15.30	2.37	501561.05	1680417.94	
1119.00	6.60	298.63	1118.18	14.74	-11.81	17.90	2.08	501562.74	1680414.99	
1151.00	6.71	299.64	1149.96	16.55	-15.05	20.70	0.50	501564.55	1680411.75	



Weatherford International Ltd.

DIRECTIONAL REPORT



Company: CHESAPEAKE	Date: 3/14/2013	Time: 10:38:56	Page: 2
Field: MARSHALL COUNTY (NAD 27)	Co-ordinate(NE) Reference: Well: 1H, Grid North		
Site: FORK RIDGE PAD	Vertical (TVD) Reference: SITE 1413.0		
Well: 1H	Section (VS) Reference: Well (0.00N,0.00E,339.97Azi)		
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
1245.00	7.90	306.16	1243.20	23.08	-25.04	30.26	1.54	501571.08	1680401.76	
1339.00	8.49	298.17	1336.24	30.16	-36.37	40.80	1.36	501578.16	1680390.43	
1432.00	7.63	296.62	1428.32	36.17	-47.94	50.41	0.95	501584.17	1680378.86	
1526.00	7.25	294.61	1521.53	41.44	-58.92	59.11	0.49	501589.44	1680367.88	
1621.00	6.82	294.02	1615.82	46.23	-69.52	67.24	0.46	501594.23	1680357.28	
1716.00	6.35	300.89	1710.19	51.22	-79.18	75.24	0.96	501599.22	1680347.62	
1811.00	6.34	306.50	1804.61	57.04	-87.90	83.70	0.65	501605.04	1680338.90	
1903.00	6.55	309.52	1896.03	63.40	-96.03	92.46	0.43	501611.40	1680330.77	
1998.00	6.54	303.64	1990.41	69.85	-104.72	101.49	0.71	501617.85	1680322.08	
2092.00	7.35	299.07	2083.72	75.73	-114.43	110.35	1.04	501623.73	1680312.37	
2186.00	7.40	294.95	2176.94	81.21	-125.17	119.17	0.56	501629.21	1680301.63	
2279.00	6.60	288.04	2269.25	85.39	-135.69	126.70	1.25	501633.39	1680291.11	
2374.00	3.39	280.37	2363.88	87.59	-143.64	131.49	3.44	501635.59	1680283.16	
2395.00	2.50	276.00	2384.85	87.75	-144.71	132.00	4.37	501635.75	1680282.09	
2500.00	1.19	273.37	2489.80	88.05	-148.08	133.44	1.25	501636.05	1680278.72	
2600.00	0.75	274.07	2589.78	88.16	-149.77	134.12	0.44	501636.16	1680277.03	
2700.00	0.71	277.23	2689.77	88.28	-151.03	134.67	0.06	501636.28	1680275.77	
2800.00	0.51	291.12	2789.77	88.52	-152.06	135.25	0.25	501636.52	1680274.74	
2900.00	0.41	282.35	2889.76	88.76	-152.83	135.73	0.12	501636.76	1680273.97	
3000.00	0.31	296.54	2989.76	88.95	-153.42	136.12	0.13	501636.95	1680273.38	
3100.00	0.36	294.92	3089.76	89.21	-153.95	136.54	0.05	501637.21	1680272.85	
3200.00	0.44	248.97	3189.76	89.20	-154.59	136.76	0.32	501637.20	1680272.21	
3300.00	0.49	318.21	3289.76	89.38	-155.23	137.15	0.53	501637.38	1680271.57	
3400.00	0.72	280.03	3389.75	89.81	-156.14	137.86	0.45	501637.81	1680270.66	
3500.00	0.66	277.00	3489.74	89.99	-157.33	138.43	0.07	501637.99	1680269.47	
3600.00	0.20	347.22	3589.74	90.23	-157.94	138.87	0.62	501638.23	1680268.86	
3700.00	0.33	352.51	3689.74	90.69	-158.01	139.32	0.13	501638.69	1680268.79	
3800.00	0.49	334.03	3789.74	91.36	-158.24	140.03	0.21	501639.36	1680268.56	
3900.00	0.37	330.10	3889.73	92.02	-158.59	140.77	0.12	501640.02	1680268.21	
4000.00	0.43	327.37	3989.73	92.62	-158.95	141.46	0.06	501640.62	1680267.85	
4100.00	0.43	314.56	4089.73	93.20	-159.42	142.16	0.10	501641.20	1680267.38	
4200.00	0.43	291.92	4189.73	93.60	-160.03	142.75	0.17	501641.60	1680266.77	
4300.00	0.51	221.25	4289.72	93.41	-160.68	142.79	0.55	501641.41	1680266.12	
4400.00	0.22	163.32	4389.72	92.89	-160.91	142.38	0.44	501640.89	1680265.89	
4500.00	0.36	281.34	4489.72	92.77	-161.17	142.36	0.50	501640.77	1680265.63	
4600.00	0.46	219.43	4589.72	92.52	-161.73	142.32	0.43	501640.52	1680265.07	
4700.00	0.20	58.34	4689.72	92.30	-161.84	142.15	0.65	501640.30	1680264.96	
4800.00	0.14	19.90	4789.72	92.50	-161.65	142.28	0.13	501640.50	1680265.15	
4900.00	0.49	196.56	4889.72	92.21	-161.73	142.03	0.63	501640.21	1680265.07	
5000.00	0.82	142.44	4989.71	91.23	-161.41	141.00	0.66	501639.23	1680265.39	
5100.00	1.04	136.09	5089.70	90.01	-160.35	139.49	0.24	501638.01	1680266.45	
5200.00	0.87	176.71	5189.68	88.60	-159.67	137.93	0.68	501636.60	1680267.13	
5300.00	0.57	182.92	5289.68	87.35	-159.66	136.75	0.31	501635.35	1680267.14	
5400.00	1.06	184.58	5389.67	85.93	-159.75	135.45	0.49	501633.93	1680267.05	
5500.00	0.69	195.85	5489.65	84.43	-159.99	134.12	0.41	501632.43	1680266.81	
5600.00	0.29	191.42	5589.65	83.60	-160.21	133.41	0.40	501631.60	1680266.59	
5700.00	0.67	181.92	5689.65	82.77	-160.28	132.66	0.39	501630.77	1680266.52	
5800.00	0.72	207.71	5789.64	81.63	-160.59	131.69	0.31	501629.63	1680266.21	
5900.00	0.84	232.94	5889.63	80.63	-161.47	131.05	0.36	501628.63	1680265.33	
5935.00	0.77	233.80	5924.63	80.33	-161.86	130.91	0.20	501628.33	1680264.94	
6036.00	0.36	263.76	6025.62	79.90	-162.72	130.80	0.49	501627.90	1680264.08	
6068.00	0.42	239.60	6057.62	79.83	-162.92	130.80	0.54	501627.83	1680263.88	



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Company: CHESAPEAKE Field: MARSHALL COUNTY (NAD 27) Site: FORK RIDGE PAD Well: 1H Wellpath: HORIZONTAL	Date: 3/14/2013 Time: 10:38:56 Page: 3 Co-ordinate(NE) Reference: Well: 1H, Grid North Vertical (TVD) Reference: SITE 1413.0 Section (VS) Reference: Well (0.00N,0.00E,339.97Azi) Survey Calculation Method: Minimum Curvature Db: Sybase
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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
6099.00	0.51	244.48	6088.62	79.71	-163.15	130.77	0.32	501627.71	1680263.65	
6131.00	1.50	268.93	6120.61	79.64	-163.69	130.89	3.30	501627.64	1680263.11	
6162.00	4.21	275.31	6151.57	79.74	-165.23	131.51	8.79	501627.74	1680261.57	
6193.00	6.11	279.73	6182.45	80.12	-167.99	132.82	6.26	501628.12	1680258.81	
6225.00	8.35	287.63	6214.19	81.12	-171.89	135.08	7.64	501629.12	1680254.91	
6256.00	10.71	292.73	6244.76	82.91	-176.69	138.41	8.08	501630.91	1680250.11	
6288.00	12.63	291.72	6276.10	85.35	-182.68	142.76	6.03	501633.35	1680244.12	
6319.00	15.32	290.14	6306.18	88.02	-189.68	147.66	8.76	501636.02	1680237.12	
6351.00	18.25	287.50	6336.81	90.98	-198.43	153.44	9.46	501638.98	1680228.37	
6382.00	21.07	285.15	6366.00	93.90	-208.44	159.61	9.45	501641.90	1680218.36	
6414.00	23.37	283.81	6395.62	96.92	-220.15	166.46	7.36	501644.92	1680206.65	
6445.00	24.84	283.23	6423.92	99.88	-232.46	173.46	4.80	501647.88	1680194.34	
6463.00	26.97	282.58	6440.11	101.63	-240.13	177.73	11.94	501649.63	1680186.67	
6494.00	29.85	281.87	6467.37	104.75	-254.54	185.60	9.35	501652.75	1680172.26	
6525.00	32.14	284.91	6493.95	108.46	-270.06	194.40	8.95	501656.46	1680156.74	
6557.00	34.99	290.86	6520.62	113.92	-286.87	205.28	13.59	501661.92	1680139.93	
6588.00	37.98	295.58	6545.54	121.20	-303.79	217.92	13.22	501669.20	1680123.01	
6620.00	40.55	300.92	6570.32	130.80	-321.60	233.04	13.26	501678.80	1680105.20	
6651.00	43.00	305.99	6593.45	142.20	-338.80	249.64	13.46	501690.20	1680088.00	
6683.00	44.58	308.89	6616.55	155.66	-356.38	268.31	7.98	501703.66	1680070.42	
6714.00	46.67	311.94	6638.23	170.03	-373.24	287.59	9.74	501718.03	1680053.56	
6746.00	49.78	312.87	6659.55	186.13	-390.85	308.74	9.96	501734.13	1680035.95	
6777.00	53.82	314.30	6678.71	202.93	-408.49	330.56	13.53	501750.93	1680018.31	
6809.00	58.21	316.26	6696.60	221.78	-427.14	354.67	14.63	501769.78	1679999.66	
6840.00	61.31	317.37	6712.21	241.31	-445.47	379.29	10.47	501789.31	1679981.33	
6872.00	64.59	318.61	6726.76	262.49	-464.53	405.72	10.82	501810.49	1679962.27	
6903.00	67.42	319.61	6739.37	283.89	-483.07	432.18	9.59	501831.89	1679943.73	
6935.00	68.79	320.02	6751.30	306.58	-502.23	460.05	4.44	501854.58	1679924.57	
6966.00	70.93	320.40	6761.97	328.94	-520.85	487.44	7.00	501876.94	1679905.95	
6998.00	73.25	322.40	6771.81	352.74	-539.84	516.30	9.38	501900.74	1679886.96	
7029.00	75.28	324.19	6780.22	376.66	-557.67	544.88	8.59	501924.66	1679869.13	
7060.00	76.72	324.97	6787.72	401.17	-575.11	573.88	5.25	501949.17	1679851.69	
7092.00	79.04	324.93	6794.44	426.78	-593.07	604.10	7.25	501974.78	1679833.73	
7123.00	81.72	325.76	6799.62	451.92	-610.45	633.67	9.04	501999.92	1679816.35	
7155.00	84.88	327.55	6803.35	478.47	-627.91	664.59	11.33	502026.47	1679798.89	
7186.00	86.43	328.19	6805.70	504.64	-644.35	694.82	5.41	502052.64	1679782.45	
7279.00	88.81	328.83	6809.56	583.87	-692.89	785.88	2.65	502131.87	1679733.91	
7374.00	88.88	328.14	6811.48	664.84	-742.53	878.96	0.73	502212.84	1679684.27	
7469.00	90.28	329.86	6812.17	746.27	-791.46	972.21	2.33	502294.27	1679635.34	
7564.00	90.21	329.46	6811.77	828.25	-839.45	1065.68	0.43	502376.25	1679587.35	
7659.00	92.03	330.84	6809.91	910.63	-886.72	1159.26	2.40	502458.63	1679540.08	
7753.00	92.17	330.85	6806.46	992.66	-932.48	1252.01	0.15	502540.66	1679494.32	
7848.00	90.42	332.04	6804.32	1076.08	-977.88	1345.93	2.23	502624.08	1679448.92	
7947.00	88.88	335.71	6804.92	1164.95	-1021.46	1444.35	4.02	502712.95	1679405.34	
8037.00	90.00	337.93	6805.80	1247.67	-1056.88	1534.20	2.76	502795.67	1679369.92	
8131.00	90.07	338.24	6805.74	1334.88	-1091.97	1628.15	0.34	502882.88	1679334.83	
8226.00	89.72	338.29	6805.92	1423.13	-1127.15	1723.11	0.37	502971.13	1679299.65	
8320.00	90.98	340.53	6805.34	1511.11	-1160.20	1817.09	2.73	503059.11	1679266.60	
8414.00	91.19	340.73	6803.56	1599.78	-1191.37	1911.07	0.31	503147.78	1679235.43	
8509.00	90.70	339.94	6802.00	1689.22	-1223.34	2006.05	0.98	503237.22	1679203.46	
8602.00	90.63	339.67	6800.92	1776.50	-1255.44	2099.05	0.30	503324.50	1679171.36	
8696.00	90.28	339.35	6800.17	1864.55	-1288.34	2193.04	0.50	503412.55	1679138.46	
8790.00	90.28	338.96	6799.71	1952.39	-1321.79	2287.03	0.41	503500.39	1679105.01	



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DIRECTIONAL REPORT



Company: CHESAPEAKE	Date: 3/14/2013	Time: 10:38:56	Page: 4
Field: MARSHALL COUNTY (NAD 27)	Co-ordinate(NE) Reference: Well: 1H, Grid North		
Site: FORK RIDGE PAD	Vertical (TVD) Reference: SITE 1413.0		
Well: 1H	Section (VS) Reference: Well (0.00N,0.00E,339.97Azi)		
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
8885.00	90.42	339.30	6799.13	2041.16	-1355.63	2382.02	0.39	503589.16	1679071.17	
8978.00	90.98	339.91	6798.00	2128.32	-1388.04	2475.01	0.89	503676.32	1679038.76	
9073.00	91.26	339.75	6796.14	2217.48	-1420.79	2569.99	0.34	503765.48	1679006.01	
9167.00	91.12	339.20	6794.19	2305.49	-1453.74	2663.97	0.60	503853.49	1678973.06	
9262.00	92.17	339.22	6791.46	2394.27	-1487.45	2758.92	1.11	503942.27	1678939.35	
9356.00	91.12	338.50	6788.76	2481.91	-1521.33	2852.86	1.35	504029.91	1678905.47	
9451.00	89.23	338.68	6788.47	2570.35	-1556.01	2947.83	2.00	504118.35	1678870.79	
9546.00	89.51	338.56	6789.52	2658.80	-1590.64	3042.79	0.32	504206.80	1678836.16	
9640.00	89.02	340.33	6790.72	2746.81	-1623.64	3136.78	1.95	504294.81	1678803.16	
9735.00	89.65	340.59	6791.82	2836.33	-1655.41	3231.77	0.72	504384.33	1678771.39	
9829.00	89.72	339.89	6792.34	2924.79	-1687.19	3325.76	0.75	504472.79	1678739.61	
9923.00	91.75	341.45	6791.14	3013.48	-1718.30	3419.74	2.72	504561.48	1678708.50	
10018.00	90.21	338.86	6789.51	3102.81	-1750.54	3514.72	3.17	504650.81	1678676.26	
10112.00	90.63	338.82	6788.82	3190.47	-1784.47	3608.70	0.45	504738.47	1678642.33	PLAN 6 TIE IN
10207.00	90.28	340.68	6788.07	3279.59	-1817.35	3703.69	1.99	504827.59	1678609.45	
10301.00	90.63	340.73	6787.32	3368.31	-1848.41	3797.68	0.38	504916.31	1678578.39	
10395.00	90.84	339.74	6786.11	3456.76	-1880.20	3891.67	1.08	505004.76	1678546.60	
10490.00	91.75	339.75	6783.97	3545.87	-1913.08	3986.64	0.96	505093.87	1678513.72	
10584.00	92.73	339.53	6780.29	3633.93	-1945.76	4080.57	1.07	505181.93	1678481.04	
10679.00	91.26	339.23	6776.99	3722.78	-1979.19	4175.50	1.58	505270.78	1678447.61	
10774.00	90.49	337.58	6775.54	3811.10	-2014.15	4270.45	1.92	505359.10	1678412.65	
10868.00	88.67	339.23	6776.22	3898.49	-2048.74	4364.41	2.61	505446.49	1678378.06	
10963.00	90.91	341.96	6776.57	3988.08	-2080.30	4459.38	3.72	505536.08	1678346.50	
11057.00	91.54	341.00	6774.56	4077.19	-2110.15	4553.33	1.22	505625.19	1678316.65	
11152.00	92.73	341.24	6771.02	4167.02	-2140.87	4648.24	1.28	505715.02	1678285.93	
11247.00	92.09	340.80	6767.03	4256.77	-2171.74	4743.14	0.82	505804.77	1678255.06	
11342.00	90.49	342.11	6764.89	4346.81	-2201.94	4838.08	2.18	505894.81	1678224.86	
11436.00	90.42	342.15	6764.14	4436.27	-2230.79	4932.01	0.09	505984.27	1678196.01	
11530.00	90.63	342.30	6763.28	4525.78	-2259.48	5025.93	0.27	506073.78	1678167.32	
11623.00	90.84	342.02	6762.09	4614.30	-2287.97	5118.86	0.38	506162.30	1678138.83	
11715.00	91.40	342.52	6760.29	4701.92	-2315.98	5210.77	0.82	506249.92	1678110.82	
11810.00	92.03	342.60	6757.45	4792.51	-2344.44	5305.63	0.67	506340.51	1678082.36	
11904.00	91.68	342.67	6754.41	4882.18	-2372.48	5399.47	0.38	506430.18	1678054.32	
12017.00	92.87	343.07	6749.92	4990.08	-2405.74	5512.24	1.11	506538.08	1678021.06	LAST MWD SVY
12076.00	92.87	343.07	6746.97	5046.45	-2422.90	5571.08	0.00	506594.45	1678003.90	PROJ TO BIT

Targets

Name	Description Dip. Dir.	TVD	+N/-S	+E/-W	Map Northing	Map Easting	<--- Latitude ---> Deg Min Sec	<--- Longitude ---> Deg Min Sec

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
761.00	760.99	13.375	17.500	SURFACE
2450.00	2439.81	9.625	12.250	INTERMEDIATE



Weatherford International Ltd.

DIRECTIONAL REPORT



Company: CHESAPEAKE	Date: 3/14/2013	Time: 10:38:56	Page: 5
Field: MARSHALL COUNTY (NAD 27)	Co-ordinate(NE) Reference: Well: 1H, Grid North		
Site: FORK RIDGE PAD	Vertical (TVD) Reference: SITE 1413.0		
Well: 1H	Section (VS) Reference: Well (0.00N,0.00E,339.97Azi)		
Wellpath: HORIZONTAL	Survey Calculation Method: Minimum Curvature		Db: Sybase

Annotation

MD ft	TVD ft	
836.00	835.99	FIRST MWD SVY
12017.00	6749.92	LAST MWD SVY
12076.00	6746.97	PROJ TO BIT
10112.00	6788.82	PLAN 6 TIE IN

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
6620.89	6571.00	MIDDLESEX		0.00	0.00
6720.99	6643.00	GENESECO		0.00	0.00
6765.82	6672.00	TULLY		0.00	0.00
7125.70	6800.00	MARCELLUS		0.00	0.00
	0.00	ONONDAGA		0.00	0.00

**WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
CONSTRUCTION INSPECTION REPORT**

1. Project: Charles Town – Tuscarilla WWTP	Date of Inspection: June 13, 2013
SRF#: C-544392-02	Completion Date: March 4, 2014
IJDC# 2008S-1069	Startup Date: September 5, 2013
2. Total Project Cost: \$15,147,192.00	Construction Completion: 83.9% thru 6/25/13
SRF Loan: \$15,147,192.00	Scheduled Completion: 85.7% thru 6/30/13
IJDC Loan: N/A	Const. Eng. Expended: 86.3% thru 5/31/13
IJDC Grant: N/A	

3. Contract Information:				
Contractor	Current Amount	Completed Amount	% Complete	% Scheduled
Contract 1-M.A. Bongiovani, Inc.	\$ 13,034,999.58	\$ 10,935,971.00	83.9 %	85.7 %
4. Change Orders: 5	Submitted: 5	Approved: 4		

5. Anticipated Change Orders (describe & estimate costs):
 PEW pump station control modifications, asphalt paving reduction, and lagoon closure procedures will likely result in future change orders. No cost estimates have been developed to date.

6. Contact Persons:		
Name	Title	Telephone
Mike Hanna, P.E.	Project Engineer – Black & Veatch	(301) 921-2877
Gail Maxwell	Resident Project Rep – Black & Veatch	(336) 354-2909
Jane Arnett	Utilities Manager – City of Charles Town	(304) 725-2316 X 13



Weatherford[®]

Drilling Services

EOW Summary



WELL: MFORK RIDGE MSH 201H

MARSHALL COUNTY, WV

Prepared by: ADAM BORDELON

Submitted: APRIL 3, 2013

Weatherford International Ltd.
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Weatherford®



FINAL SURVEYS.....	SEC.1
DAYS vs DEPTH.....	SEC.2
DAILY ACTIVITY.....	SEC.3
BHA REPORTS.....	SEC.4
MOTOR REPORTS	SEC.5
SLIDE REPORT.....	SEC.6

Drilling Services-Charleroi, PA



FINAL SURVEYS



CHESAPEAKE
FORK RIDGE MSH 201-H
MARSHALL COUNTY, WV

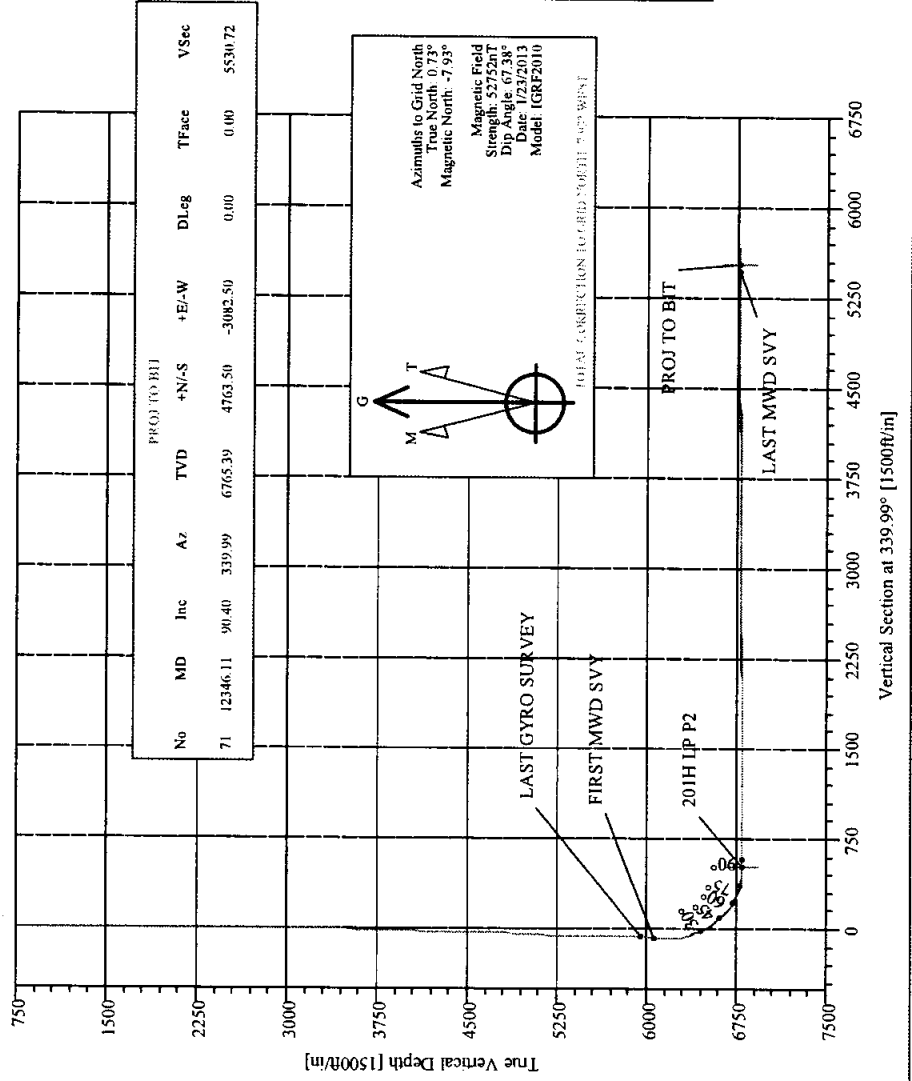
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	6539.00	24.64	293.13	6361.47	-438.87	-1043.13	0.00	0.00	-55.44	
2	6597.00	27.00	300.00	6413.68	-427.54	-1065.66	6.56	54.87	-37.08	
3	6614.99	25.09	299.48	6429.39	-423.73	-1072.32	11.00	186.58	-31.22	
4	6330.25	90.40	339.99	6800.57	-50.57	-1366.14	10.00	43.21	514.99	
5	12346.11	90.40	339.99	6765.39	4763.50	-3082.50	0.00	0.00	5530.72	201H PBHL P2

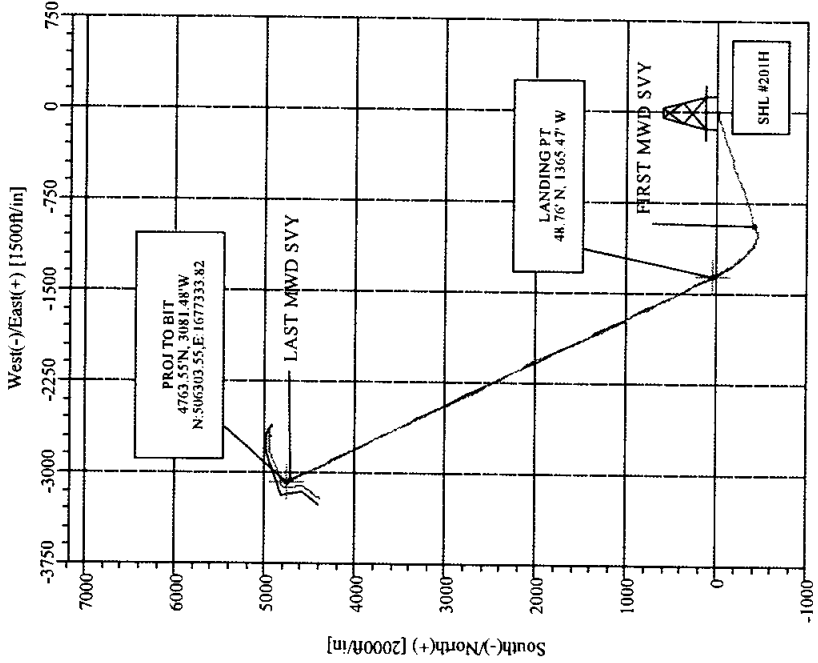
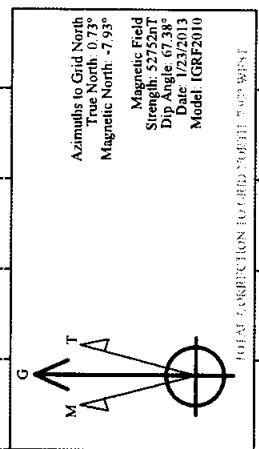
TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
201H PBHL P2	6765.39	4763.50	-3082.50	506303.50	1677332.80	Point
201H LP P2	6800.57	50.57	-1366.14	501590.57	1679049.16	Point

KB ELEVATION: 1413'
GR ELEVATION: 1391'



No	MD	Inc	Az	TVD	+N/-S	+E/-W	DLeg	TFace	VSec
71	12346.11	90.40	339.99	6765.39	4763.50	-3082.50	0.00	0.00	5530.72



Survey: WFT MWD 2 (201H/HORIZONTAL)



Weatherford International Ltd.

DIRECTIONAL REPORT



Company: CHESAPEAKE Field: MARSHALL COUNTY (NAD 27) Site: FORK RIDGE PAD Well: 201H Wellpath: HORIZONTAL	Date: 4/3/2013 Time: 10:51:52 Page: 2 Co-ordinate(NE) Reference: Well: 201H, Grid North Vertical (TVD) Reference: SITE 1413.0 Section (VS) Reference: Well (0.00N,0.00E,339.99Azi) Survey Calculation Method: Minimum Curvature Db: Sybase
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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
6851.00	45.44	323.68	6619.66	-325.42	-1169.34	94.36	9.00	501214.58	1679245.96	
6882.00	47.17	325.46	6641.08	-307.15	-1182.33	115.96	6.96	501232.85	1679232.97	
6913.00	50.07	326.33	6661.57	-287.89	-1195.37	138.52	9.59	501252.11	1679219.93	
6945.00	52.71	326.81	6681.54	-267.03	-1209.14	162.84	8.33	501272.97	1679206.16	
6976.00	56.40	328.45	6699.51	-245.70	-1222.65	187.51	12.66	501294.30	1679192.65	
7008.00	58.93	330.10	6716.63	-222.45	-1236.46	214.07	9.03	501317.55	1679178.84	
7040.00	62.58	331.97	6732.26	-198.03	-1249.97	241.65	12.49	501341.97	1679165.33	
7071.00	66.06	333.56	6745.69	-173.19	-1262.75	269.36	12.14	501366.81	1679152.55	
7103.00	69.18	335.02	6757.87	-146.53	-1275.58	298.80	10.62	501393.47	1679139.72	
7134.00	71.72	336.70	6768.25	-119.88	-1287.52	327.93	9.65	501420.12	1679127.78	
7165.00	74.78	337.62	6777.18	-92.52	-1299.04	357.58	10.27	501447.48	1679116.26	
7197.00	78.01	338.46	6784.71	-63.68	-1310.67	388.66	10.41	501476.32	1679104.63	
7228.00	80.88	339.61	6790.39	-35.22	-1321.57	419.12	9.95	501504.78	1679093.73	
7259.00	83.25	340.81	6794.66	-6.34	-1331.96	449.82	8.55	501533.66	1679083.34	
7291.00	85.73	340.63	6797.74	23.73	-1342.48	481.67	7.77	501563.73	1679072.82	
7322.00	87.20	339.38	6799.65	52.80	-1353.06	512.61	6.22	501592.80	1679062.24	
7416.00	91.57	337.27	6800.66	140.12	-1387.77	606.54	5.16	501680.12	1679027.53	
7511.00	91.38	335.67	6798.21	227.19	-1425.68	701.32	1.70	501767.19	1678989.62	
7606.00	88.95	336.70	6797.94	314.10	-1464.03	796.10	2.78	501854.10	1678951.27	
7701.00	89.21	337.11	6799.46	401.47	-1501.29	890.95	0.51	501941.47	1678914.01	
7795.00	87.78	339.26	6801.93	488.70	-1536.21	984.87	2.75	502028.70	1678879.09	
7890.00	90.63	340.18	6803.25	577.79	-1569.13	1079.85	3.15	502117.79	1678846.17	
7985.00	91.14	339.93	6801.78	667.08	-1601.53	1174.83	0.60	502207.08	1678813.77	
8080.00	90.24	341.08	6800.64	756.63	-1633.23	1269.82	1.54	502296.63	1678782.07	
8174.00	90.38	340.84	6800.13	845.49	-1663.90	1363.81	0.30	502385.49	1678751.40	
8269.00	90.82	340.72	6799.14	935.19	-1695.17	1458.79	0.48	502475.19	1678720.13	
8364.00	91.19	340.31	6797.47	1024.73	-1726.85	1553.77	0.58	502564.73	1678688.45	
8456.00	91.17	340.22	6795.58	1111.31	-1757.91	1645.75	0.10	502651.31	1678657.39	
8548.00	91.31	340.13	6793.58	1197.84	-1789.11	1737.73	0.18	502737.84	1678626.19	
8643.00	91.78	340.01	6791.02	1287.11	-1821.48	1832.70	0.51	502827.11	1678593.82	
8738.00	90.02	340.65	6789.53	1376.55	-1853.45	1927.68	1.97	502916.55	1678561.85	
8832.00	89.49	339.21	6789.93	1464.84	-1885.71	2021.67	1.63	503004.84	1678529.59	
8927.00	88.92	340.45	6791.25	1554.01	-1918.46	2116.66	1.44	503094.01	1678496.84	
9021.00	90.31	342.05	6791.88	1643.01	-1948.67	2210.63	2.25	503183.01	1678466.63	
9116.00	89.95	342.24	6791.67	1733.43	-1977.80	2305.56	0.43	503273.43	1678437.50	
9210.00	91.25	341.07	6790.68	1822.65	-2007.38	2399.52	1.86	503362.65	1678407.92	
9305.00	91.00	341.07	6788.82	1912.49	-2038.20	2494.48	0.26	503452.49	1678377.10	
9399.00	91.13	341.57	6787.07	2001.53	-2068.30	2588.44	0.55	503541.53	1678347.00	
9494.00	91.63	340.07	6784.78	2091.22	-2099.50	2683.40	1.66	503631.22	1678315.80	
9589.00	89.44	338.10	6783.90	2179.95	-2133.41	2778.37	3.10	503719.95	1678281.89	
9683.00	89.35	337.88	6784.89	2267.10	-2168.63	2872.31	0.25	503807.10	1678246.67	
9776.00	89.88	338.03	6785.51	2353.29	-2203.54	2965.25	0.59	503893.29	1678211.76	
9871.00	90.02	337.92	6785.60	2441.36	-2239.16	3060.19	0.19	503981.36	1678176.14	
9964.00	89.86	339.32	6785.69	2527.96	-2273.07	3153.16	1.52	504067.96	1678142.23	
10058.00	90.07	339.21	6785.75	2615.87	-2306.35	3247.15	0.25	504155.87	1678108.95	
10152.00	90.58	338.79	6785.22	2703.62	-2340.03	3341.14	0.70	504243.62	1678075.27	
10247.00	91.22	339.62	6783.72	2792.42	-2373.76	3436.11	1.10	504332.42	1678041.54	
10341.00	91.68	340.00	6781.35	2880.62	-2406.19	3530.08	0.63	504420.62	1678009.11	
10435.00	90.17	339.86	6779.83	2968.90	-2438.44	3624.07	1.61	504508.90	1677976.86	
10530.00	90.59	341.12	6779.20	3058.44	-2470.17	3719.06	1.40	504598.44	1677945.13	
10623.00	90.94	341.26	6777.96	3146.46	-2500.15	3812.03	0.41	504686.46	1677915.15	
10718.00	90.93	341.26	6776.41	3236.41	-2530.67	3907.00	0.01	504776.41	1677884.63	



Weatherford International Ltd.

DIRECTIONAL REPORT



Company: CHESAPEAKE Field: MARSHALL COUNTY (NAD 27) Site: FORK RIDGE PAD Well: 201H Wellpath: HORIZONTAL	Date: 4/3/2013 Time: 10:51:52 Page: 3 Co-ordinate(NE) Reference: Well: 201H, Grid North Vertical (TVD) Reference: SITE 1413.0 Section (VS) Reference: Well (0.00N,0.00E,339.99Azi) Survey Calculation Method: Minimum Curvature Db: Sybase
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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
10811.00	91.27	341.14	6774.62	3324.44	-2560.63	3999.96	0.39	504864.44	1677854.67	
10905.00	90.17	341.26	6773.44	3413.41	-2590.92	4093.93	1.18	504953.41	1677824.38	
10999.00	91.07	341.62	6772.42	3502.52	-2620.84	4187.89	1.03	505042.52	1677794.46	
11093.00	90.75	340.61	6770.93	3591.45	-2651.26	4281.86	1.13	505131.45	1677764.04	
11188.00	90.75	340.11	6769.69	3680.91	-2683.19	4376.85	0.53	505220.91	1677732.11	
11283.00	91.56	339.91	6767.77	3770.17	-2715.66	4471.83	0.88	505310.17	1677699.64	
11377.00	89.39	338.21	6766.99	3857.95	-2749.25	4565.80	2.93	505397.95	1677666.05	
11472.00	90.07	338.66	6767.44	3946.30	-2784.17	4660.77	0.86	505486.30	1677631.13	
11566.00	90.66	338.24	6766.84	4033.72	-2818.69	4754.73	0.77	505573.72	1677596.61	
11661.00	91.21	338.70	6765.29	4122.08	-2853.55	4849.68	0.75	505662.08	1677561.75	
11756.00	89.93	339.15	6764.35	4210.72	-2887.71	4944.66	1.43	505750.72	1677527.59	
11850.00	88.71	340.33	6765.46	4298.90	-2920.26	5038.65	1.81	505838.90	1677495.04	
11945.00	88.85	340.25	6767.48	4388.31	-2952.29	5133.63	0.17	505928.31	1677463.01	
12039.00	89.35	340.11	6768.96	4476.73	-2984.16	5227.62	0.55	506016.73	1677431.14	
12133.00	89.44	340.16	6769.95	4565.13	-3016.10	5321.61	0.11	506105.13	1677399.20	
12228.00	91.85	342.44	6768.88	4655.10	-3046.55	5416.57	3.49	506195.10	1677368.75	
12284.00	91.82	342.05	6767.09	4708.40	-3063.62	5472.49	0.70	506248.40	1677351.68	LAST MWD SVY
12342.00	91.82	342.05	6765.25	4763.55	-3081.48	5530.43	0.00	506303.55	1677333.82	PROJ TO BIT

Targets

Name	Description Dip. Dir.	TVD	+N/-S	+E/-W	Map Northing	Map Easting	<--- Latitude ---> Deg Min Sec	<--- Longitude ---> Deg Min Sec

Casing Points

MD	TVD	Diameter	Hole Size	Name

Annotation

MD ft	TVD ft	
6100.00	5952.19	LAST GYRO SURVEY
6225.00	6068.58	FIRST MWD SVY
12284.00	6767.09	LAST MWD SVY
12342.00	6765.25	PROJ TO BIT

Formations

MD	TVD	Formations	Lithology	Dip Angle	Dip Direction