

33.05742



Mountaineer Keystone, LLC

Harrison County, West Virginia NAD 27

Maxwell PAD

Maxwell #4HM

Wellbore #1

Design: Wellbore #1

DDC Survey Report

12 December, 2014

Received
Office of Oil & Gas
SEP 25 2015



10/30/2015

33-05742



Survey Report



Company:	Mountaineer Keystone, LLC	Local Co-ordinate Reference:	Well Maxwell #4HM
Project:	Harrison County, West Virginia NAD 27	TVD Reference:	WELL @ 1482.0usft
Site:	Maxwell PAD	MD Reference:	WELL @ 1482.0usft
Well:	Maxwell #4HM	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Compass

Project	Harrison County, West Virginia NAD 27		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia North 4701		

Site	Maxwell FAD				
Site Position:		Northing:	265,036.00 usft	Latitude:	39° 13' 27.934 N
From:	Map	Easting:	1,754,372.00 usft	Longitude:	80° 22' 1.290 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.55 °

Well	Maxwell #4HM					
Well Position	+N/-S	0.0 usft	Northing:	265,036.00 usft	Latitude:	39° 13' 27.935 N
	+E/-W	0.0 usft	Easting:	1,754,387.00 usft	Longitude:	80° 22' 1.099 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	1,462.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/21/2014	-8.76	66.66	52,157

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:		Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
		0.0	0.0	0.0	339.73

Survey Program	Date 12/12/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	2,746.0	GYRO (Wellbore #1)	Good_gyro	Good Gyro
2,891.0	15,462.0	MWD (Wellbore #1)	MWD default	MWD - Standard

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	1.51	56.20	100.0	0.7	1.1	0.3	1.51	1.51	0.00	
200.0	0.67	69.31	200.0	1.7	2.7	0.6	0.87	-0.84	13.11	
300.0	0.06	149.59	300.0	1.8	3.3	0.6	0.66	0.61	80.28	
400.0	0.40	196.84	400.0	1.5	3.2	0.2	0.36	0.34	47.25	
500.0	0.12	168.52	500.0	1.0	3.2	-0.1	0.30	-0.28	-28.32	
600.0	0.15	175.15	600.0	0.8	3.2	-0.4	0.03	0.03	0.53	
700.0	0.22	192.31	700.0	0.5	3.2	-0.7	0.09	0.07	17.16	
800.0	0.33	215.11	800.0	0.0	3.0	-1.0	0.15	0.11	22.80	
900.0	0.36	207.80	900.0	-0.5	2.6	-1.4	0.05	0.03	-7.31	

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Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,000.0	0.39	183.61	1,000.0	-1.1	2.5	-1.9	0.16	0.03	-24.19
1,100.0	0.48	215.44	1,100.0	-1.8	2.2	-2.4	0.25	0.09	31.83
1,200.0	0.49	236.31	1,200.0	-2.3	1.6	-2.8	0.18	0.01	20.87
1,300.0	0.82	238.80	1,299.9	-3.0	0.6	-3.0	0.33	0.33	2.49
1,400.0	0.82	250.16	1,399.9	-3.6	-0.6	-3.1	0.16	0.00	11.36
1,500.0	0.66	209.93	1,499.9	-4.3	-1.6	-3.5	0.53	-0.16	-40.23
1,600.0	0.32	215.87	1,599.9	-5.0	-2.1	-4.0	0.34	-0.34	5.94
1,700.0	0.21	182.04	1,699.9	-5.4	-2.2	-4.3	0.19	-0.11	-33.83
1,800.0	0.26	206.59	1,799.9	-5.8	-2.3	-4.7	0.11	0.05	24.55
1,900.0	0.18	172.98	1,899.9	-6.2	-2.4	-5.0	0.15	-0.08	-33.61
2,000.0	0.09	233.36	1,999.9	-6.4	-2.5	-5.1	0.16	-0.09	60.38
2,100.0	0.31	290.04	2,099.9	-6.3	-2.8	-5.0	0.27	0.22	56.68
2,200.0	0.15	310.84	2,199.9	-6.2	-3.1	-4.7	0.18	-0.16	20.80
2,300.0	0.23	294.62	2,299.9	-6.0	-3.4	-4.4	0.10	0.08	-16.22
2,400.0	0.37	254.02	2,399.9	-6.0	-3.9	-4.3	0.25	0.14	-40.60
2,500.0	0.53	262.86	2,499.9	-6.2	-4.7	-4.2	0.17	0.16	8.84
2,600.0	0.79	284.28	2,599.9	-6.0	-5.8	-3.7	0.35	0.26	21.42
2,700.0	0.89	296.32	2,699.9	-5.5	-7.2	-2.7	0.20	0.10	12.04
Tie In @ 2746' MD / 2746' TVD									
2,746.0	0.92	292.29	2,745.9	-5.2	-7.8	-2.2	0.15	0.07	-8.76
2,891.0	1.19	304.89	2,890.9	-3.9	-10.1	-0.2	0.24	0.19	8.69
2,985.0	0.71	239.49	2,984.9	-3.7	-11.4	0.5	1.17	-0.51	-69.57
3,079.0	0.71	242.58	3,078.8	-4.2	-12.5	0.4	0.04	0.00	3.29
3,173.0	0.49	241.61	3,172.8	-4.7	-13.3	0.2	0.23	-0.23	-1.03
3,267.0	0.49	237.29	3,266.8	-5.1	-14.0	0.1	0.04	0.00	-4.60
3,361.0	0.62	263.51	3,360.8	-5.4	-14.9	0.1	0.30	0.14	27.89
3,455.0	0.88	259.68	3,454.8	-5.6	-16.1	0.4	0.28	0.28	-4.07
3,547.0	0.49	243.11	3,546.8	-5.9	-17.1	0.4	0.47	-0.42	-18.01
3,641.0	0.80	267.30	3,640.8	-6.1	-18.1	0.6	0.43	0.33	25.73
3,735.0	1.02	246.28	3,734.8	-6.4	-19.6	0.7	0.42	0.23	-22.36
3,829.0	1.10	259.68	3,828.8	-6.9	-21.2	0.8	0.28	0.09	14.26
3,922.0	1.10	258.71	3,921.8	-7.3	-23.0	1.1	0.02	0.00	-1.04
4,016.0	1.28	259.50	4,015.8	-7.6	-24.9	1.5	0.19	0.19	0.84
4,110.0	1.28	269.11	4,109.7	-7.8	-27.0	2.0	0.23	0.00	10.22
4,204.0	1.50	198.36	4,203.7	-9.0	-28.4	1.4	1.72	0.23	-75.24
4,298.0	2.39	151.27	4,297.7	-11.9	-27.9	-1.5	1.87	0.95	-50.12
4,392.0	1.81	146.77	4,391.6	-14.9	-26.1	-4.9	0.64	-0.62	-4.79
4,485.0	1.50	126.99	4,484.6	-16.8	-24.3	-7.4	0.69	-0.33	-21.27
4,579.0	1.41	120.69	4,578.5	-18.2	-22.3	-9.3	0.20	-0.10	-1.60
4,673.0	1.81	125.01	4,672.5	-19.6	-20.1	-11.4	0.44	0.43	1.60
4,767.0	1.81	116.81	4,766.4	-21.1	-17.6	-13.7	0.28	0.00	-8.72
4,861.0	1.81	116.81	4,860.4	-22.5	-14.9	-15.9	0.00	0.00	0.00
4,954.0	2.52	120.69	4,953.3	-24.2	-11.9	-18.6	0.78	0.76	4.17

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5,042.0	1.81	85.87	5,041.3	-25.1	-8.8	-20.5	1.66	-0.81	-39.57
5,142.0	1.10	70.67	5,141.2	-24.6	-6.3	-20.9	0.80	-0.71	-15.20
5,236.0	0.49	49.47	5,235.2	-24.1	-5.2	-20.8	0.71	-0.65	-22.55
5,330.0	0.80	53.97	5,329.2	-23.4	-4.4	-20.5	0.33	0.33	4.79
5,424.0	0.31	70.27	5,423.2	-23.0	-3.6	-20.3	0.54	-0.52	17.34
5,518.0	0.40	108.48	5,517.2	-23.0	-3.0	-20.5	0.26	0.10	40.65
5,612.0	0.31	85.39	5,611.2	-23.1	-2.5	-20.8	0.18	-0.10	-24.56
5,705.0	0.62	144.57	5,704.2	-23.4	-1.9	-21.3	0.57	0.33	63.63
5,799.0	0.71	151.89	5,798.2	-24.4	-1.4	-22.4	0.13	0.10	7.79
5,893.0	0.88	148.10	5,892.2	-25.5	-0.7	-23.7	0.19	0.18	-4.03
5,987.0	0.62	142.90	5,986.2	-26.5	0.0	-24.9	0.29	-0.28	-5.53
6,081.0	0.49	167.31	6,080.2	-27.3	0.4	-25.8	0.28	-0.14	25.97
6,175.0	0.80	167.80	6,174.2	-28.3	0.6	-26.8	0.33	0.33	0.52
6,269.0	0.80	173.79	6,268.2	-29.6	0.8	-28.1	0.09	0.00	6.37
6,362.0	0.49	171.41	6,361.2	-30.7	1.0	-29.1	0.33	-0.33	-2.56
6,456.0	0.71	195.29	6,455.2	-31.6	0.9	-30.0	0.35	0.23	25.40
6,550.0	1.02	183.70	6,549.1	-33.0	0.7	-31.2	0.38	0.33	-12.33
6,644.0	0.62	177.49	6,643.1	-34.4	0.6	-32.5	0.44	-0.43	-6.61
6,737.0	0.88	187.49	6,736.1	-35.6	0.5	-33.6	0.31	0.28	10.75
6,831.0	3.80	29.91	6,830.1	-33.6	2.0	-32.2	4.92	3.11	-167.64
6,925.0	8.88	16.78	6,923.5	-24.0	5.7	-24.4	5.59	5.40	-13.97
7,019.0	13.08	8.40	7,015.7	-6.5	9.3	-9.3	4.77	4.47	-8.91
7,113.0	19.71	4.57	7,105.9	19.9	12.1	14.4	7.14	7.05	-4.07
7,207.0	27.71	1.88	7,191.9	57.6	14.1	49.1	8.59	8.51	-2.86
7,301.0	38.31	0.60	7,270.6	108.7	15.1	96.7	11.30	11.28	-1.36
7,395.0	50.11	355.49	7,337.9	174.0	12.6	158.9	13.10	12.55	-5.44
7,488.0	58.68	349.48	7,392.0	248.9	2.5	232.6	10.60	9.22	-6.46
7,520.0	59.08	346.18	7,408.5	275.6	-3.3	259.7	8.92	1.25	-10.31
7,551.0	62.48	344.51	7,423.7	301.8	-10.1	286.6	11.93	10.97	-5.39
7,582.0	63.59	341.07	7,437.7	328.2	-18.3	314.2	10.52	3.58	-11.10
7,645.0	65.11	340.98	7,464.5	382.1	-36.8	371.2	4.00	4.00	-0.14
7,676.0	64.38	337.98	7,477.5	408.5	-46.7	399.3	10.41	-5.58	-9.68
7,707.0	64.21	333.71	7,490.9	433.9	-58.1	427.2	12.42	-0.55	-13.77
7,739.0	67.08	331.77	7,504.1	459.9	-71.5	456.1	10.53	8.97	-6.06
7,770.0	71.19	333.00	7,515.2	485.5	-84.9	484.9	13.77	13.26	3.97
7,801.0	74.81	335.07	7,524.2	512.2	-97.9	514.4	13.31	11.68	6.68
7,832.0	79.32	336.40	7,531.2	539.7	-110.3	544.5	15.14	14.55	4.29
7,864.0	83.39	337.50	7,536.0	568.8	-122.7	576.1	13.16	12.72	3.44
7,895.0	88.29	338.07	7,538.2	597.4	-134.3	607.0	15.91	15.81	1.84
7,926.0	91.30	338.38	7,538.3	626.2	-145.8	638.0	9.76	9.71	0.00
7,957.0	91.60	338.38	7,537.5	655.0	-157.3	668.9	0.97	0.97	-0.18
8,048.0	90.66	338.22	7,535.7	739.6	-190.9	759.9	1.05	1.05	-0.71
8,142.0	88.90	337.55	7,536.1	826.6	-226.3	853.8	2.00	-1.87	0.00

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8,236.0	89.69	336.20	7,537.3	913.1	-263.2	947.7	1.66	0.84	-1.44
8,329.0	89.60	337.19	7,537.8	998.5	-300.0	1,040.6	1.07	-0.10	1.06
8,422.0	88.90	336.59	7,539.1	1,084.0	-336.5	1,133.4	0.99	-0.75	-0.65
8,516.0	88.46	336.57	7,541.2	1,170.2	-373.8	1,227.3	0.47	-0.47	-0.02
8,610.0	89.96	336.39	7,542.5	1,256.4	-411.3	1,321.1	1.61	1.60	-0.19
8,705.0	91.01	336.89	7,541.7	1,343.6	-449.0	1,416.0	1.22	1.11	0.53
8,799.0	90.31	336.59	7,540.6	1,430.0	-486.1	1,509.8	0.81	-0.74	-0.32
8,893.0	89.25	336.01	7,541.0	1,516.1	-523.9	1,603.7	1.29	-1.13	-0.62
8,987.0	90.57	334.98	7,541.1	1,601.6	-562.9	1,697.4	1.78	1.40	-1.10
9,081.0	90.13	334.51	7,540.6	1,686.6	-603.0	1,791.1	0.68	-0.47	-0.50
9,175.0	89.78	334.22	7,540.6	1,771.3	-643.7	1,884.6	0.48	-0.37	-0.31
9,269.0	90.48	335.15	7,540.4	1,856.3	-683.9	1,978.3	1.24	0.74	0.99
9,363.0	90.04	334.27	7,540.0	1,941.3	-724.0	2,071.9	1.05	-0.47	-0.94
9,457.0	89.96	333.26	7,540.0	2,025.6	-765.6	2,165.4	1.08	-0.09	-1.07
9,551.0	90.31	334.05	7,539.8	2,109.9	-807.3	2,258.9	0.92	0.37	0.84
9,645.0	90.13	336.38	7,539.4	2,195.2	-846.7	2,352.6	2.49	-0.19	2.48
9,739.0	90.57	336.59	7,538.8	2,281.4	-884.2	2,446.4	0.52	0.47	0.22
9,833.0	89.87	337.09	7,538.5	2,367.8	-921.2	2,540.3	0.92	-0.74	0.53
9,927.0	89.08	336.68	7,539.3	2,454.3	-958.1	2,634.2	0.95	-0.84	-0.44
10,021.0	90.48	338.10	7,539.7	2,541.0	-994.2	2,728.1	2.12	1.49	1.51
10,115.0	91.80	340.50	7,537.8	2,628.9	-1,027.4	2,822.1	2.91	1.40	2.55
10,208.0	91.10	340.13	7,535.5	2,716.5	-1,058.7	2,915.0	0.85	-0.75	-0.40
10,302.0	89.60	338.80	7,534.9	2,804.5	-1,091.7	3,009.0	2.13	-1.60	-1.41
10,396.0	89.08	338.60	7,536.0	2,892.1	-1,125.9	3,103.0	0.59	-0.55	-0.21
10,490.0	90.57	339.99	7,536.3	2,980.0	-1,159.1	3,197.0	2.17	1.59	1.48
10,584.0	90.66	340.67	7,535.3	3,068.5	-1,190.7	3,291.0	0.73	0.10	0.72
10,678.0	90.48	339.35	7,534.3	3,156.8	-1,222.9	3,385.0	1.42	-0.19	-1.40
10,772.0	90.13	338.46	7,533.8	3,244.5	-1,256.7	3,479.0	1.02	-0.37	-0.95
10,866.0	91.36	339.94	7,532.6	3,332.4	-1,290.1	3,572.9	2.05	1.31	1.57
10,960.0	90.75	339.40	7,530.9	3,420.5	-1,322.7	3,666.9	0.87	-0.65	-0.57
11,054.0	90.22	338.97	7,530.1	3,508.4	-1,356.1	3,760.9	0.73	-0.56	-0.46
11,148.0	90.31	340.75	7,529.6	3,596.6	-1,388.5	3,854.9	1.90	0.10	1.89
11,241.0	90.22	341.09	7,529.2	3,684.5	-1,418.9	3,947.9	0.38	-0.10	0.37
11,335.0	89.60	341.26	7,529.4	3,773.5	-1,449.2	4,041.9	0.68	-0.66	0.18
11,429.0	91.63	340.77	7,528.4	3,862.4	-1,479.8	4,135.8	2.22	2.16	-0.52
11,523.0	90.40	339.69	7,526.7	3,950.8	-1,511.6	4,229.8	1.74	-1.31	-1.15
11,617.0	88.72	338.23	7,527.4	4,038.5	-1,545.3	4,323.8	2.37	-1.79	-1.55
11,710.0	90.66	339.76	7,527.9	4,125.3	-1,578.7	4,416.8	2.66	2.09	1.65
11,804.0	91.89	341.17	7,525.8	4,213.9	-1,610.1	4,510.7	1.99	1.31	1.50
11,898.0	91.98	341.96	7,522.7	4,303.0	-1,639.8	4,604.6	0.85	0.10	0.87
11,992.0	90.92	340.82	7,520.3	4,392.1	-1,669.8	4,698.6	1.66	-1.13	-1.21
12,086.0	89.34	339.98	7,520.1	4,480.6	-1,701.3	4,792.6	1.90	-1.68	-0.89
12,179.0	89.69	338.83	7,520.8	4,567.7	-1,734.0	4,885.5	1.29	0.38	-1.24
12,273.0	89.69	339.44	7,521.4	4,655.5	-1,767.5	4,979.5	0.65	0.00	0.65

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SEP 25 2015

33-05742



Survey Report



Company:	Mountaineer Keystone, LLC	Local Co-ordinate Reference:	Well Maxwell #4HM
Project:	Harrison County, West Virginia NAD 27	TVD Reference:	WELL @ 1482.0usft
Site:	Maxwell PAD	MD Reference:	WELL @ 1482.0usft
Well:	Maxwell #4HM	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Compass

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,367.0	92.59	340.87	7,519.5	4,743.9	-1,799.4	5,073.5	3.44	3.09	1.52
12,460.0	91.19	340.18	7,516.4	4,831.5	-1,830.4	5,166.4	1.68	-1.51	-0.74
12,555.0	90.48	339.74	7,515.0	4,920.8	-1,862.9	5,261.4	0.88	-0.75	-0.46
12,648.0	89.87	338.53	7,514.7	5,007.7	-1,896.1	5,354.4	1.46	-0.66	-1.30
12,742.0	89.60	338.47	7,515.2	5,095.1	-1,930.5	5,448.4	0.29	-0.29	-0.06
12,836.0	91.98	340.96	7,513.9	5,183.3	-1,963.1	5,542.4	3.66	2.53	2.65
12,930.0	91.36	340.76	7,511.1	5,272.0	-1,993.9	5,636.3	0.69	-0.66	-0.21
13,024.0	90.22	338.98	7,509.9	5,360.3	-2,026.2	5,730.3	2.25	-1.21	-1.89
13,118.0	89.87	338.44	7,509.8	5,447.9	-2,060.4	5,824.3	0.68	-0.37	-0.57
13,212.0	91.36	341.16	7,508.8	5,536.1	-2,092.8	5,918.3	3.30	1.59	2.89
13,306.0	91.54	340.36	7,506.4	5,624.8	-2,123.8	6,012.2	0.87	0.19	-0.85
13,399.0	90.75	340.10	7,504.5	5,712.3	-2,155.2	6,105.2	0.89	-0.85	-0.28
13,493.0	89.16	339.25	7,504.6	5,800.4	-2,187.9	6,199.2	1.92	-1.69	-0.90
13,587.0	91.63	341.00	7,504.0	5,888.8	-2,219.8	6,293.2	3.22	2.63	1.86
13,681.0	92.42	341.47	7,500.6	5,977.8	-2,250.1	6,387.1	0.98	0.84	0.50
13,775.0	92.33	340.89	7,496.7	6,066.7	-2,280.4	6,481.0	0.62	-0.10	-0.62
13,869.0	91.54	339.57	7,493.6	6,155.1	-2,312.1	6,574.9	1.64	-0.84	-1.40
13,963.0	91.36	339.77	7,491.2	6,243.2	-2,344.8	6,668.9	0.29	-0.19	0.21
14,056.0	91.98	341.37	7,488.5	6,330.9	-2,375.7	6,761.8	1.84	0.67	1.72
14,150.0	91.36	340.98	7,485.7	6,419.8	-2,406.0	6,855.8	0.78	-0.66	-0.41
14,244.0	91.28	341.52	7,483.6	6,508.8	-2,436.2	6,949.7	0.58	-0.09	0.57
14,338.0	91.36	341.49	7,481.4	6,597.9	-2,466.0	7,043.6	0.09	0.09	-0.03
14,432.0	90.92	342.31	7,479.5	6,687.2	-2,495.2	7,137.6	0.99	-0.47	0.87
14,525.0	92.24	342.65	7,477.0	6,775.9	-2,523.2	7,230.4	1.47	1.42	0.37
14,619.0	91.36	340.84	7,474.0	6,865.1	-2,552.7	7,324.3	2.14	-0.94	-1.93
14,713.0	92.59	341.24	7,470.8	6,953.9	-2,583.2	7,418.2	1.38	1.31	0.43
14,807.0	91.80	339.27	7,467.2	7,042.3	-2,614.9	7,512.1	2.26	-0.84	-2.10
14,901.0	91.54	339.21	7,464.4	7,130.2	-2,648.2	7,606.1	0.28	-0.28	-0.06
14,995.0	93.21	339.98	7,460.5	7,218.2	-2,681.0	7,700.0	1.96	1.78	0.82
15,088.0	92.68	339.03	7,455.8	7,305.2	-2,713.5	7,792.9	1.17	-0.57	-1.02
15,182.0	92.59	339.28	7,451.4	7,393.0	-2,746.9	7,886.8	0.28	-0.10	0.27
15,276.0	92.07	338.68	7,447.6	7,480.6	-2,780.6	7,980.7	0.84	-0.55	-0.64
15,370.0	92.15	338.38	7,444.2	7,568.1	-2,815.0	8,074.6	0.33	0.09	-0.32
15,401.0	92.42	338.05	7,442.9	7,596.8	-2,826.5	8,105.6	1.37	0.87	-1.06
Crossed 100' Hard Line @ 15455' MD / 7441' TVD									
15,454.6	92.42	338.05	7,440.7	7,646.5	-2,846.5	8,159.1	0.00	0.00	0.00
TD @ 15462' MD / 7440' TVD									
15,462.0	92.42	338.05	7,440.4	7,653.4	-2,849.2	8,166.5	0.00	0.00	0.00

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Survey Report



Company:	Mountaineer Keystone, LLC	Local Co-ordinate Reference:	Well Maxwell #4HM
Project:	Harrison County, West Virginia NAD 27	TVD Reference:	WELL @ 1482.0usft
Site:	Maxwell PAD	MD Reference:	WELL @ 1482.0usft
Well:	Maxwell #4HM	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Compass

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,746.0	2,745.9	-5.2	-7.8	Tie In @ 2746' MD / 2746' TVD
15,454.6	7,440.7	7,646.5	-2,846.5	Crossed 100' Hard Line @ 15455' MD / 7441' TVD
15,462.0	7,440.4	7,653.4	-2,849.2	TD @ 15462' MD / 7440' TVD

Checked By: _____ Approved By: _____ Date: _____

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Office of Oil & Gas
SEP 25 2015

Company Name: Mountaineer Keystone, LLC
 Maxwell #4HM
 Harrison County, West Virginia NAD 27
 Rig: Sidewinder #64
 Created By: Kaleigh DeCordova
 Date: 12/12/2014

33-05742

Maxwell #4HM
 Harrison County, West Virginia NAD 27
 Q141276 & AM-141211
 Design #3

Mountaineer Keystone, LLC

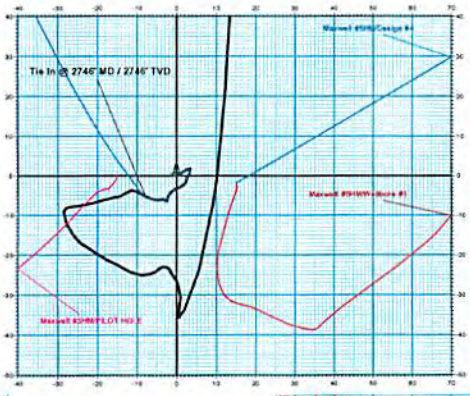
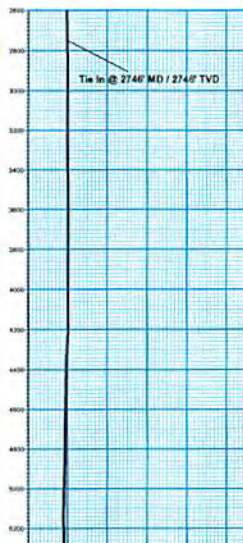
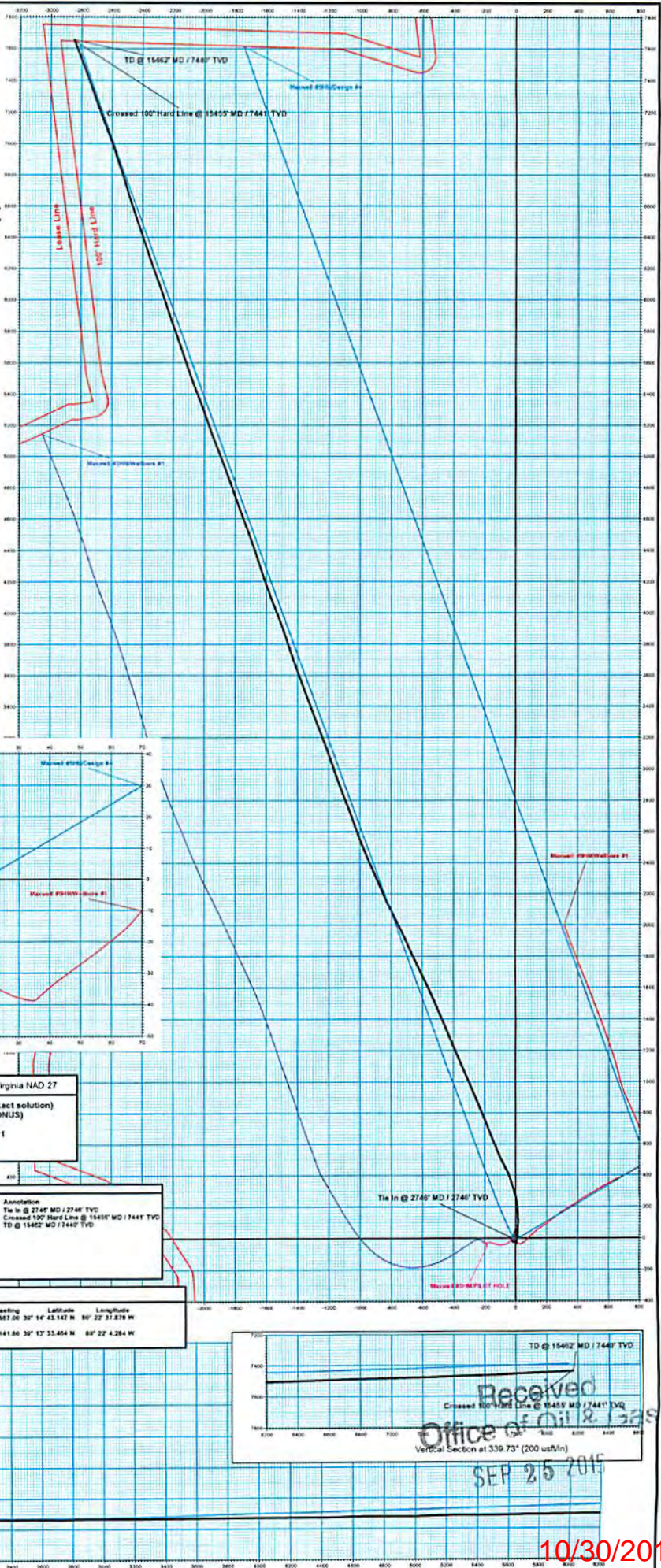


G Azimuths to Grid North
M **T**

Correction: -8.21°

Magnetic Field
 Strength: 52156.6snT
 Dip Angle: 66.66°
 Date: 11/21/2014
 Model: IGRF2010

WELL DETAILS:		Maxwell #4HM	
Ground Level:		1442.0	
+N: S	+E: W	Easting	Latitude
8.0	0.0	26538.06	39° 17' 23.55" N
		80° 27' 1.899" W	



PROJECT DETAILS: Harrison County, West Virginia NAD 27

Geodetic System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1858
 Zone: West Virginia North 4701
 System Datum: Mean Sea Level

ANNOTATIONS

MD	Inc	Asl	TVD	+N: S	+E: W	Vsect	Departure	Annotation
2746.0	0.02	392.29	2746.9	-1.3	-1.8	-2.2	26.6	Tie In @ 2746' MD / 2746' TVD
15454.8	82.42	338.05	7440.7	3646.3	-2646.5	8159.1	8313.2	Crossed 100' Hard Line @ 15455' MD / 7441' TVD
15462.0	82.42	338.05	7440.4	2653.4	-2649.2	8166.5	8326.6	TD @ 15462' MD / 7441' TVD

DESIGN TARGET DETAILS

Name	TVD	+N: S	+E: W	Northing	Easting	Latitude	Longitude
PEHL (Maxwell #4HM DBS)	7384.6	7637.9	-2620.0	272673.00	1751567.06	39° 14' 43.147" N	80° 27' 37.878" W
- plan file target center							
LP Maxwell Boring	7368.9	8618	-245.2	265587.80	1751411.80	39° 17' 33.464" N	80° 27' 4.284" W

TD @ 15462' MD / 7441' TVD
 Crossed 100' Hard Line @ 15455' MD / 7441' TVD
 Received
 Office of Oil & Gas
 Vertical Section at 339.73° (200 usf/in)
 SEP 25 2015

10/30/2015