



Where energy meets innovation.

## **EQT PRODUCTION**

Ritchie County, WV

OXF122

Well #512426 -Marcellus - Slot 512426

API #47-08510235

Stk

Design: Stk

## **Standard Survey Report**

17 February, 2016



<b>Company:</b>	EQT PRODUCTION	<b>Local Co-ordinate Reference:</b>	Well Well #512426 -Marcellus - Slot 512426
<b>Project:</b>	Ritchie County, WV	<b>TVD Reference:</b>	GL 1111 + 23' KB @ 1134.00usft
<b>Site:</b>	OXF122	<b>MD Reference:</b>	GL 1111 + 23' KB @ 1134.00usft
<b>Well:</b>	Well #512426 -Marcellus	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Stk	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Stk	<b>Database:</b>	Well_Planner1

<b>Project</b>	Ritchie County, WV		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	West Virginia North 4701		

<b>Site</b>	OXF122				
<b>Site Position:</b>		<b>Northing:</b>	233,060.52 usft	<b>Latitude:</b>	39° 7' 55.94 N
<b>From:</b>	Map	<b>Easting:</b>	1,622,368.52 usft	<b>Longitude:</b>	80° 49' 52.49 W
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	-0.85 °

<b>Well</b>	Well #512426 -Marcellus - Slot 512426					
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	233,069.84 usft	<b>Latitude:</b>	39° 7' 56.04 N
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	1,622,397.04 usft	<b>Longitude:</b>	80° 49' 52.13 W
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>	1,134.00 usft	<b>Ground Level:</b>	1,111.00 usft

<b>Wellbore</b>	Stk				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	2/3/2016	-7.72	66.52	52,037

<b>Design</b>	Stk				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	5,400.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	137.98	

<b>Survey Program</b>	<b>Date</b>	2/17/2016			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
110.00	3,086.00	512426 VES Gyro (Main Wellbore)	InFlex Gyro 05-12-15	Triaxial Continuous Gyro Model	
3,124.00	5,316.00	512426 PHX MWD (Main Wellbore)	PHX+MWD+HDGM	PHX+OWSG MWD + HDGM	
5,395.00	5,400.00	512426 ProDirectional (Main Wellbore)	MWD - OWSG	MWD - OWSG	
5,400.00	14,312.00	#1 Pro MWD (Stk)	MWD - OWSG	MWD - OWSG	

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110.00	0.33	96.48	110.00	-0.04	0.31	0.24	0.30	0.30	0.00	
210.00	0.48	109.03	210.00	-0.20	1.00	0.82	0.17	0.15	12.55	
310.00	0.68	113.66	309.99	-0.58	1.94	1.73	0.21	0.20	4.63	
410.00	0.69	122.56	409.98	-1.14	2.99	2.85	0.11	0.01	8.90	
510.00	0.64	110.40	509.98	-1.66	4.02	3.92	0.15	-0.05	-12.16	
610.00	0.71	108.68	609.97	-2.05	5.13	4.96	0.07	0.07	-1.72	
710.00	0.85	113.58	709.96	-2.55	6.40	6.17	0.15	0.14	4.90	



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<b>Project:</b>	Ritchie County, WV	<b>TVD Reference:</b>	GL 1111 + 23' KB @ 1134.00usft
<b>Site:</b>	OXF122	<b>MD Reference:</b>	GL 1111 + 23' KB @ 1134.00usft
<b>Well:</b>	Well #512426 -Marcellus	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Stk	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Stk	<b>Database:</b>	Well_Planner1

**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)
810.00	0.90	112.62	809.95	-3.15	7.80	7.56	0.05	0.05	-0.96
910.00	0.81	111.22	909.94	-3.71	9.18	8.90	0.09	-0.09	-1.40
1,010.00	0.61	105.92	1,009.93	-4.11	10.35	9.98	0.21	-0.20	-5.30
1,110.00	0.48	101.08	1,109.93	-4.33	11.28	10.77	0.14	-0.13	-4.84
1,210.00	0.39	111.44	1,209.92	-4.54	12.01	11.41	0.12	-0.09	10.36
1,310.00	0.32	116.61	1,309.92	-4.79	12.57	11.97	0.08	-0.07	5.17
1,410.00	0.30	119.70	1,409.92	-5.04	13.05	12.48	0.03	-0.02	3.09
1,510.00	0.20	89.03	1,509.92	-5.17	13.45	12.84	0.16	-0.10	-30.67
1,610.00	0.03	55.98	1,609.92	-5.15	13.65	12.96	0.18	-0.17	-33.05
1,710.00	0.07	136.72	1,709.92	-5.18	13.71	13.03	0.07	0.04	80.74
1,810.00	0.24	159.46	1,809.92	-5.42	13.83	13.28	0.18	0.17	22.74
1,910.00	0.24	161.81	1,909.92	-5.82	13.97	13.67	0.01	0.00	2.35
2,010.00	0.33	154.27	2,009.92	-6.28	14.16	14.14	0.10	0.09	-7.54
2,110.00	0.32	166.27	2,109.92	-6.81	14.35	14.66	0.07	-0.01	12.00
2,210.00	0.23	175.67	2,209.91	-7.28	14.43	15.07	0.10	-0.09	9.40
2,310.00	0.19	170.47	2,309.91	-7.64	14.47	15.36	0.04	-0.04	-5.20
2,410.00	0.19	175.16	2,409.91	-7.97	14.51	15.64	0.02	0.00	4.69
2,510.00	0.14	166.36	2,509.91	-8.25	14.56	15.88	0.06	-0.05	-8.80
2,610.00	0.15	251.77	2,609.91	-8.41	14.46	15.93	0.20	0.01	85.41
2,710.00	0.15	233.25	2,709.91	-8.53	14.23	15.87	0.05	0.00	-18.52
2,810.00	0.03	271.34	2,809.91	-8.61	14.10	15.84	0.13	-0.12	38.09
2,910.00	0.08	349.19	2,909.91	-8.54	14.06	15.76	0.08	0.05	77.85
3,010.00	0.38	212.18	3,009.91	-8.75	13.87	15.79	0.44	0.30	-137.01
3,086.00	0.12	314.89	3,085.91	-8.91	13.68	15.78	0.56	-0.34	135.14
3,124.00	1.90	174.60	3,123.90	-9.51	13.71	16.24	5.25	4.68	-369.18
3,167.00	5.70	170.10	3,166.80	-12.32	14.15	18.62	8.86	8.84	-10.47
3,210.00	10.20	167.70	3,209.38	-18.15	15.32	23.74	10.49	10.47	-5.58
3,253.00	13.20	164.20	3,251.48	-26.60	17.47	31.46	7.17	6.98	-8.14
3,296.00	13.40	149.30	3,293.34	-35.61	21.35	40.75	7.96	0.47	-34.65
3,339.00	16.40	140.00	3,334.89	-44.55	27.80	51.70	8.90	6.98	-21.63
3,382.00	20.70	135.70	3,375.65	-54.64	37.02	65.37	10.49	10.00	-10.00
3,425.00	24.90	131.10	3,415.29	-66.04	49.15	81.96	10.60	9.77	-10.70
3,468.00	29.20	126.50	3,453.58	-78.23	64.41	101.24	11.11	10.00	-10.70
3,511.00	32.30	119.70	3,490.54	-90.17	82.84	122.44	10.82	7.21	-15.81
3,554.00	35.10	112.80	3,526.32	-100.66	104.22	144.55	11.02	6.51	-16.05
3,597.00	37.80	106.40	3,560.92	-109.18	128.27	166.97	10.84	6.28	-14.88
3,640.00	40.30	100.50	3,594.32	-115.43	154.60	189.25	10.41	5.81	-13.72
3,683.00	43.90	95.50	3,626.23	-119.40	183.13	211.29	11.43	8.37	-11.63
3,726.00	46.20	89.80	3,656.62	-120.77	213.51	232.64	10.80	5.35	-13.26
3,770.00	48.10	84.20	3,686.56	-119.06	245.69	252.92	10.28	4.32	-12.73
3,813.00	49.50	78.30	3,714.89	-114.13	277.64	270.64	10.82	3.26	-13.72
3,856.00	49.50	72.00	3,742.84	-105.76	309.22	285.55	11.14	0.00	-14.65
3,899.00	49.40	67.30	3,770.80	-94.40	339.83	297.61	8.31	-0.23	-10.93

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<b>Site:</b>	OXF122	<b>MD Reference:</b>	GL 1111 + 23' KB @ 1134.00usft
<b>Well:</b>	Well #512426 -Marcellus	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Stk	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Stk	<b>Database:</b>	Well_Planner1

**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)
3,942.00	48.40	65.40	3,799.07	-81.41	369.52	307.83	4.06	-2.33	-4.42
3,985.00	45.60	62.00	3,828.40	-67.50	397.71	316.37	8.71	-6.51	-7.91
4,028.00	44.10	60.10	3,858.88	-52.83	424.24	323.23	4.68	-3.49	-4.42
4,072.00	43.70	59.40	3,890.59	-37.46	450.60	329.45	1.43	-0.91	-1.59
4,115.00	42.90	60.60	3,921.88	-22.71	476.14	335.59	2.67	-1.86	2.79
4,158.00	40.90	65.30	3,953.89	-9.64	501.68	342.98	8.65	-4.65	10.93
4,201.00	40.30	65.80	3,986.54	1.94	527.16	351.43	1.59	-1.40	1.16
4,244.00	40.00	65.30	4,019.41	13.42	552.40	359.80	1.02	-0.70	-1.16
4,287.00	40.80	64.80	4,052.15	25.18	577.66	367.98	2.01	1.86	-1.16
4,329.00	43.00	66.00	4,083.41	36.85	603.17	376.38	5.57	5.24	2.86
4,372.00	43.60	66.30	4,114.71	48.77	630.14	385.58	1.48	1.40	0.70
4,416.00	43.50	65.70	4,146.60	61.10	657.83	394.96	0.97	-0.23	-1.36
4,459.00	44.20	65.60	4,177.61	73.38	684.97	404.00	1.64	1.63	-0.23
4,503.00	44.80	65.70	4,208.99	86.10	713.07	413.36	1.37	1.36	0.23
4,542.00	44.30	65.10	4,236.78	97.49	737.95	421.55	1.68	-1.28	-1.54
4,585.00	43.60	65.70	4,267.74	109.91	765.08	430.48	1.89	-1.63	1.40
4,628.00	42.80	66.30	4,299.09	121.88	791.97	439.59	2.09	-1.86	1.40
4,671.00	42.00	67.70	4,330.84	133.21	818.66	449.03	2.88	-1.86	3.26
4,714.00	43.20	67.90	4,362.49	144.21	845.60	458.90	2.81	2.79	0.47
4,757.00	44.70	68.00	4,393.45	155.41	873.26	469.10	3.49	3.49	0.23
4,800.00	45.00	68.20	4,423.93	166.72	901.40	479.53	0.77	0.70	0.47
4,843.00	44.80	67.10	4,454.39	178.27	929.47	489.74	1.86	-0.47	-2.56
4,886.00	45.70	67.20	4,484.67	190.12	957.61	499.77	2.10	2.09	0.23
4,929.00	46.90	67.40	4,514.37	202.12	986.29	510.06	2.81	2.79	0.47
4,972.00	47.20	66.90	4,543.67	214.34	1,015.30	520.39	1.10	0.70	-1.16
5,015.00	46.60	66.00	4,573.05	226.89	1,044.08	530.34	2.07	-1.40	-2.09
5,058.00	46.00	64.70	4,602.76	239.85	1,072.33	539.62	2.59	-1.40	-3.02
5,101.00	45.60	64.50	4,632.74	253.07	1,100.18	548.44	0.99	-0.93	-0.47
5,144.00	45.40	63.30	4,662.88	266.56	1,127.72	556.85	2.04	-0.47	-2.79
5,187.00	44.60	63.90	4,693.28	280.08	1,154.96	565.04	2.11	-1.86	1.40
5,230.00	43.40	66.70	4,724.22	292.57	1,182.08	573.92	5.31	-2.79	6.51
5,273.00	42.60	68.30	4,755.67	303.79	1,209.17	583.72	3.15	-1.86	3.72
5,316.00	42.40	68.70	4,787.37	314.44	1,236.20	593.90	0.78	-0.47	0.93
5,395.00	45.60	66.60	4,844.19	335.33	1,286.94	612.34	4.45	4.05	-2.66
5,400.00	45.72	66.58	4,847.69	336.75	1,290.22	613.48	2.51	2.50	-0.32
<b>Tie into OH at 5400'MD / 4847.70' TVD</b>									
5,478.00	45.60	65.90	4,902.20	359.23	1,341.28	630.96	0.65	-0.16	-0.88
5,554.00	45.00	66.30	4,955.66	381.11	1,390.67	647.76	0.87	-0.79	0.53
5,585.00	42.80	68.20	4,978.00	389.43	1,410.48	654.85	8.27	-7.10	6.13
5,617.00	42.50	72.20	5,001.54	396.77	1,430.87	663.04	8.52	-0.94	12.50
5,649.00	43.80	74.60	5,024.88	403.02	1,451.84	672.44	6.54	4.06	7.50
5,680.00	44.30	75.00	5,047.16	408.67	1,472.64	682.17	1.85	1.61	1.29
5,712.00	45.00	73.40	5,069.93	414.80	1,494.28	692.10	4.14	2.19	-5.00
5,743.00	44.90	71.10	5,091.87	421.47	1,515.14	701.10	5.25	-0.32	-7.42



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<b>Site:</b>	OXF122	<b>MD Reference:</b>	GL 1111 + 23' KB @ 1134.00usft
<b>Well:</b>	Well #512426 -Marcellus	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Stk	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Stk	<b>Database:</b>	Well_Planner1

**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)
5,775.00	44.90	70.50	5,114.54	428.90	1,536.47	709.86	1.32	0.00	-1.88
5,807.00	45.20	68.70	5,137.15	436.79	1,557.69	718.20	4.09	0.94	-5.63
5,838.00	43.70	70.20	5,159.28	444.42	1,578.02	726.15	5.91	-4.84	4.84
5,870.00	41.50	72.80	5,182.83	451.30	1,598.55	734.78	8.80	-6.88	8.13
5,902.00	40.10	73.40	5,207.06	457.38	1,618.55	743.65	4.54	-4.38	1.88
5,933.00	39.70	71.90	5,230.84	463.31	1,637.53	751.95	3.36	-1.29	-4.84
5,965.00	39.30	71.40	5,255.53	469.71	1,656.85	760.12	1.60	-1.25	-1.56
6,060.00	42.90	77.60	5,327.14	486.27	1,716.99	788.08	5.72	3.79	6.53
6,155.00	45.20	76.10	5,395.41	501.31	1,781.30	819.96	2.66	2.42	-1.58
6,250.00	45.30	71.60	5,462.31	520.07	1,846.07	849.38	3.37	0.11	-4.74
6,344.00	42.40	69.60	5,530.10	541.67	1,907.49	874.45	3.42	-3.09	-2.13
6,439.00	42.20	69.10	5,600.36	564.21	1,967.32	897.74	0.41	-0.21	-0.53
6,534.00	41.50	67.60	5,671.13	587.59	2,026.23	919.81	1.29	-0.74	-1.58
6,629.00	41.60	72.10	5,742.24	609.28	2,085.35	943.27	3.14	0.11	4.74
6,724.00	44.10	72.80	5,811.88	628.75	2,146.95	970.04	2.68	2.63	0.74
6,807.00	44.70	69.00	5,871.20	647.76	2,201.80	992.64	3.28	0.72	-4.58
6,902.00	45.40	70.20	5,938.31	671.19	2,264.82	1,017.41	1.16	0.74	1.26
6,933.00	45.90	69.60	5,959.98	678.81	2,285.63	1,025.69	2.13	1.61	-1.94
6,964.00	46.10	70.00	5,981.52	686.51	2,306.56	1,033.98	1.13	0.65	1.29
6,996.00	45.40	69.70	6,003.85	694.40	2,328.08	1,042.51	2.29	-2.19	-0.94
7,028.00	44.60	67.80	6,026.47	702.60	2,349.17	1,050.54	4.89	-2.50	-5.94
7,059.00	44.00	69.60	6,048.66	710.47	2,369.34	1,058.20	4.49	-1.94	5.81
7,091.00	44.10	73.60	6,071.67	717.48	2,390.44	1,067.11	8.70	0.31	12.50
7,122.00	44.60	78.90	6,093.84	722.63	2,411.48	1,077.37	12.06	1.61	17.10
7,154.00	45.10	82.90	6,116.53	726.19	2,433.75	1,089.63	8.95	1.56	12.50
7,186.00	45.80	88.30	6,138.99	727.93	2,456.47	1,103.55	12.22	2.19	16.88
7,218.00	45.50	88.70	6,161.36	728.53	2,479.35	1,118.41	1.30	-0.94	1.25
7,249.00	46.30	89.60	6,182.93	728.86	2,501.61	1,133.07	3.32	2.58	2.90
7,285.00	48.10	95.30	6,207.40	727.71	2,527.97	1,151.57	12.64	5.00	15.83
7,317.00	48.00	98.50	6,228.80	724.86	2,551.59	1,169.51	7.44	-0.31	10.00
7,349.00	50.60	102.40	6,249.67	720.44	2,575.44	1,188.75	12.30	8.13	12.19
7,380.00	53.10	105.60	6,268.82	714.54	2,599.08	1,208.96	11.44	8.06	10.32
7,412.00	55.80	108.80	6,287.42	706.83	2,623.94	1,231.33	11.72	8.44	10.00
7,444.00	57.80	112.00	6,304.95	697.49	2,649.03	1,255.06	10.44	6.25	10.00
7,475.00	60.10	114.90	6,320.94	686.91	2,673.39	1,279.22	10.92	7.42	9.35
7,507.00	62.20	117.90	6,336.38	674.45	2,698.48	1,305.28	10.51	6.56	9.38
7,539.00	63.90	121.10	6,350.89	660.40	2,723.30	1,332.33	10.38	5.31	10.00
7,570.00	65.00	123.50	6,364.26	645.45	2,746.94	1,359.26	7.83	3.55	7.74
7,602.00	66.20	125.50	6,377.48	628.95	2,770.95	1,387.59	6.82	3.75	6.25
7,634.00	67.30	128.00	6,390.11	611.36	2,794.50	1,416.43	7.96	3.44	7.81
7,665.00	67.90	130.60	6,401.93	593.20	2,816.68	1,444.76	7.99	1.94	8.39
7,697.00	68.70	133.40	6,413.76	573.31	2,838.77	1,474.33	8.51	2.50	8.75
7,728.00	70.20	135.30	6,424.64	553.02	2,859.52	1,503.29	7.51	4.84	6.13

<b>Company:</b>	EQT PRODUCTION	<b>Local Co-ordinate Reference:</b>	Well Well #512426 -Marcellus - Slot 512426
<b>Project:</b>	Ritchie County, WV	<b>TVD Reference:</b>	GL 1111 + 23' KB @ 1134.00usft
<b>Site:</b>	OXF122	<b>MD Reference:</b>	GL 1111 + 23' KB @ 1134.00usft
<b>Well:</b>	Well #512426 -Marcellus	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Stk	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Stk	<b>Database:</b>	Well_Planner1

**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)
7,760.00	72.20	138.10	6,434.96	530.97	2,880.29	1,533.57	10.38	6.25	8.75
7,792.00	73.10	140.00	6,444.50	507.90	2,900.31	1,564.11	6.33	2.81	5.94
7,823.00	75.70	142.60	6,452.84	484.60	2,918.97	1,593.91	11.64	8.39	8.39
7,855.00	77.50	145.40	6,460.25	459.42	2,937.26	1,624.86	10.20	5.63	8.75
7,887.00	79.00	148.20	6,466.77	433.21	2,954.41	1,655.82	9.76	4.69	8.75
7,918.00	81.10	150.40	6,472.13	406.96	2,970.00	1,685.75	9.73	6.77	7.10
7,950.00	83.70	152.40	6,476.36	379.11	2,985.18	1,716.60	10.22	8.13	6.25
7,982.00	86.20	154.30	6,479.18	350.63	2,999.47	1,747.33	9.80	7.81	5.94
8,076.00	89.20	161.50	6,482.95	263.67	3,034.78	1,835.57	8.29	3.19	7.66
8,171.00	90.00	160.90	6,483.62	173.74	3,065.39	1,922.87	1.05	0.84	-0.63
8,266.00	89.60	160.60	6,483.95	84.05	3,096.71	2,010.47	0.53	-0.42	-0.32
8,361.00	89.60	159.90	6,484.61	-5.36	3,128.81	2,098.38	0.74	0.00	-0.74
8,456.00	88.80	158.50	6,485.94	-94.16	3,162.54	2,186.92	1.70	-0.84	-1.47
8,551.00	90.50	162.30	6,486.52	-183.63	3,194.40	2,274.72	4.38	1.79	4.00
8,646.00	89.90	162.50	6,486.19	-274.18	3,223.13	2,361.22	0.67	-0.63	0.21
8,741.00	89.40	162.10	6,486.77	-364.68	3,252.01	2,447.79	0.67	-0.53	-0.42
8,836.00	89.40	162.70	6,487.76	-455.23	3,280.73	2,534.29	0.63	0.00	0.63
8,930.00	89.20	163.00	6,488.91	-545.04	3,308.45	2,619.56	0.38	-0.21	0.32
9,025.00	88.50	162.70	6,490.82	-635.80	3,336.46	2,705.73	0.80	-0.74	-0.32
9,120.00	87.70	161.40	6,493.97	-726.12	3,365.72	2,792.42	1.61	-0.84	-1.37
9,215.00	87.30	161.10	6,498.11	-816.00	3,396.22	2,879.61	0.53	-0.42	-0.32
9,310.00	86.90	160.40	6,502.92	-905.57	3,427.50	2,967.10	0.85	-0.42	-0.74
9,405.00	88.20	160.30	6,506.98	-994.95	3,459.42	3,054.86	1.37	1.37	-0.11
9,499.00	92.20	161.70	6,506.65	-1,083.81	3,490.02	3,141.36	4.51	4.26	1.49
9,594.00	90.20	160.90	6,504.66	-1,173.77	3,520.47	3,228.57	2.27	-2.11	-0.84
9,689.00	87.30	160.10	6,506.73	-1,263.29	3,552.17	3,316.30	3.17	-3.05	-0.84
9,784.00	86.90	159.10	6,511.54	-1,352.22	3,585.24	3,404.50	1.13	-0.42	-1.05
9,879.00	86.30	159.10	6,517.17	-1,440.81	3,619.07	3,492.96	0.63	-0.63	0.00
9,974.00	86.00	159.10	6,523.55	-1,529.36	3,652.88	3,581.38	0.32	-0.32	0.00
10,068.00	85.90	158.90	6,530.19	-1,616.90	3,686.49	3,668.91	0.24	-0.11	-0.21
10,163.00	88.30	161.90	6,535.00	-1,706.26	3,718.30	3,756.60	4.04	2.53	3.16
10,258.00	88.00	161.60	6,538.07	-1,796.44	3,748.04	3,843.49	0.45	-0.32	-0.32
10,353.00	86.70	162.40	6,542.46	-1,886.69	3,777.36	3,930.17	1.61	-1.37	0.84
10,448.00	86.40	162.10	6,548.18	-1,977.00	3,806.27	4,016.62	0.45	-0.32	-0.32
10,543.00	85.60	161.40	6,554.80	-2,067.00	3,835.95	4,103.34	1.12	-0.84	-0.74
10,638.00	89.90	162.80	6,558.53	-2,157.31	3,865.12	4,189.96	4.76	4.53	1.47
10,733.00	89.90	162.10	6,558.70	-2,247.89	3,893.76	4,276.43	0.74	0.00	-0.74
10,828.00	89.70	161.70	6,559.03	-2,338.18	3,923.28	4,363.27	0.47	-0.21	-0.42
10,923.00	89.50	161.40	6,559.69	-2,428.30	3,953.34	4,450.34	0.38	-0.21	-0.32
11,017.00	88.80	160.80	6,561.09	-2,517.22	3,983.79	4,536.78	0.98	-0.74	-0.64
11,112.00	89.20	160.70	6,562.74	-2,606.90	4,015.10	4,624.36	0.43	0.42	-0.11
11,207.00	88.90	160.60	6,564.32	-2,696.52	4,046.57	4,712.01	0.33	-0.32	-0.11
11,302.00	87.80	158.00	6,567.06	-2,785.34	4,080.14	4,800.46	2.97	-1.16	-2.74



<b>Company:</b>	EQT PRODUCTION	<b>Local Co-ordinate Reference:</b>	Well Well #512426 -Marcellus - Slot 512426
<b>Project:</b>	Ritchie County, WV	<b>TVD Reference:</b>	GL 1111 + 23' KB @ 1134.00usft
<b>Site:</b>	OXF122	<b>MD Reference:</b>	GL 1111 + 23' KB @ 1134.00usft
<b>Well:</b>	Well #512426 -Marcellus	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Stk	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Stk	<b>Database:</b>	Well_Planner1

**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)
11,397.00	86.90	156.70	6,571.45	-2,872.91	4,116.68	4,889.99	1.66	-0.95	-1.37
11,492.00	87.70	159.20	6,575.92	-2,960.86	4,152.30	4,979.17	2.76	0.84	2.63
11,587.00	87.70	159.20	6,579.74	-3,049.60	4,186.01	5,067.65	0.00	0.00	0.00
11,682.00	86.80	162.10	6,584.29	-3,139.12	4,217.45	5,155.20	3.19	-0.95	3.05
11,777.00	86.40	162.20	6,589.93	-3,229.39	4,246.52	5,241.72	0.43	-0.42	0.11
11,872.00	91.00	164.50	6,592.08	-3,320.35	4,273.72	5,327.51	5.41	4.84	2.42
11,967.00	90.70	162.90	6,590.67	-3,411.52	4,300.38	5,413.08	1.71	-0.32	-1.68
12,062.00	90.30	162.90	6,589.85	-3,502.31	4,328.31	5,499.24	0.42	-0.42	0.00
12,156.00	90.00	162.60	6,589.60	-3,592.09	4,356.19	5,584.59	0.45	-0.32	-0.32
12,251.00	90.10	162.50	6,589.52	-3,682.71	4,384.67	5,670.99	0.15	0.11	-0.11
12,346.00	89.30	161.00	6,590.01	-3,772.93	4,414.42	5,757.92	1.79	-0.84	-1.58
12,441.00	88.80	161.30	6,591.59	-3,862.82	4,445.11	5,845.25	0.61	-0.53	0.32
12,536.00	89.80	160.20	6,592.75	-3,952.50	4,476.43	5,932.83	1.56	1.05	-1.16
12,630.00	89.50	159.40	6,593.32	-4,040.72	4,508.89	6,020.10	0.91	-0.32	-0.85
12,725.00	89.10	159.20	6,594.48	-4,129.58	4,542.46	6,108.59	0.47	-0.42	-0.21
12,820.00	88.60	159.40	6,596.39	-4,218.43	4,576.04	6,197.07	0.57	-0.53	0.21
12,915.00	88.50	159.40	6,598.80	-4,307.32	4,609.45	6,285.48	0.11	-0.11	0.00
13,010.00	88.00	159.40	6,601.70	-4,396.21	4,642.86	6,373.88	0.53	-0.53	0.00
13,105.00	91.50	159.30	6,602.11	-4,485.09	4,676.36	6,462.33	3.69	3.68	-0.11
13,200.00	90.40	157.20	6,600.54	-4,573.31	4,711.55	6,551.43	2.50	-1.16	-2.21
13,295.00	92.30	158.40	6,598.30	-4,661.24	4,747.44	6,640.77	2.37	2.00	1.26
13,389.00	91.80	161.90	6,594.93	-4,749.58	4,779.33	6,727.75	3.76	-0.53	3.72
13,484.00	89.70	161.70	6,593.69	-4,839.81	4,809.00	6,814.65	2.22	-2.21	-0.21
13,579.00	89.20	161.90	6,594.60	-4,930.06	4,838.67	6,901.55	0.57	-0.53	0.21
13,674.00	89.00	162.10	6,596.09	-5,020.40	4,868.02	6,988.31	0.30	-0.21	0.21
13,769.00	88.70	161.40	6,598.00	-5,110.60	4,897.76	7,075.24	0.80	-0.32	-0.74
13,864.00	88.30	160.60	6,600.49	-5,200.39	4,928.68	7,162.64	0.94	-0.42	-0.84
13,959.00	88.30	159.90	6,603.31	-5,289.76	4,960.77	7,250.51	0.74	0.00	-0.74
14,053.00	88.00	159.60	6,606.34	-5,377.91	4,993.29	7,337.76	0.45	-0.32	-0.32
14,148.00	88.70	158.30	6,609.08	-5,466.53	5,027.40	7,426.43	1.55	0.74	-1.37
14,243.00	88.80	157.80	6,611.15	-5,554.62	5,062.90	7,515.64	0.54	0.11	-0.53
14,258.00	88.90	157.50	6,611.45	-5,568.49	5,068.60	7,529.76	2.11	0.67	-2.00
<b>Last Survey 14258'MD / 6611.46'TVD</b>									
14,312.00	88.90	157.50	6,612.49	-5,618.37	5,089.26	7,580.65	0.00	0.00	0.00
<b>PTB: 14312'MD</b>									

**Design Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,400.00	4,847.69	336.75	1,290.22	Tie into OH at 5400'MD / 4847.70' TVD
14,258.00	6,611.45	-5,568.49	5,068.60	Last Survey 14258'MD / 6611.46'TVD
14,312.00	6,612.49	-5,618.37	5,089.26	PTB: 14312'MD



# Professional Directional Survey Report



<b>Company:</b>	EQT PRODUCTION	<b>Local Co-ordinate Reference:</b>	Well Well #512426 -Marcellus - Slot 512426
<b>Project:</b>	Ritchie County, WV	<b>TVD Reference:</b>	GL 1111 + 23' KB @ 1134.00usft
<b>Site:</b>	OXF122	<b>MD Reference:</b>	GL 1111 + 23' KB @ 1134.00usft
<b>Well:</b>	Well #512426 -Marcellus	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Stk	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Stk	<b>Database:</b>	Well_Planner1

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_





Where energy meets innovation.

EQT PRODUCTION  
 OXF122  
 Ritchie County, WV  
 Well #512426 - Marcellus  
 Plan 3 - APV STK FINAL (Grid)  
 GL 1111 + 23 KB @ 1134.00usft



Azimuths to Grid North  
 True North: 0.85°  
 Magnetic North: 0.87°  
 Azimuth to Grid North  
 Magnetic Field  
 Strength: 50268 nT  
 Date: 2/2/2016  
 Model: HDGM

Geoidetic System: US State Plane 1927 (Exact solution)  
 Datum: NAD 1927 (NADCON CONUS)  
 Ellipsoid: Clarke 1866  
 Zone: West Virginia North 4701  
 System Datum: Mean Sea Level



PRO DIRECTIONAL

**Azimuth Corrections**

To convert a Magnetic Direction to a Grid Direction, Subtract 0.87°

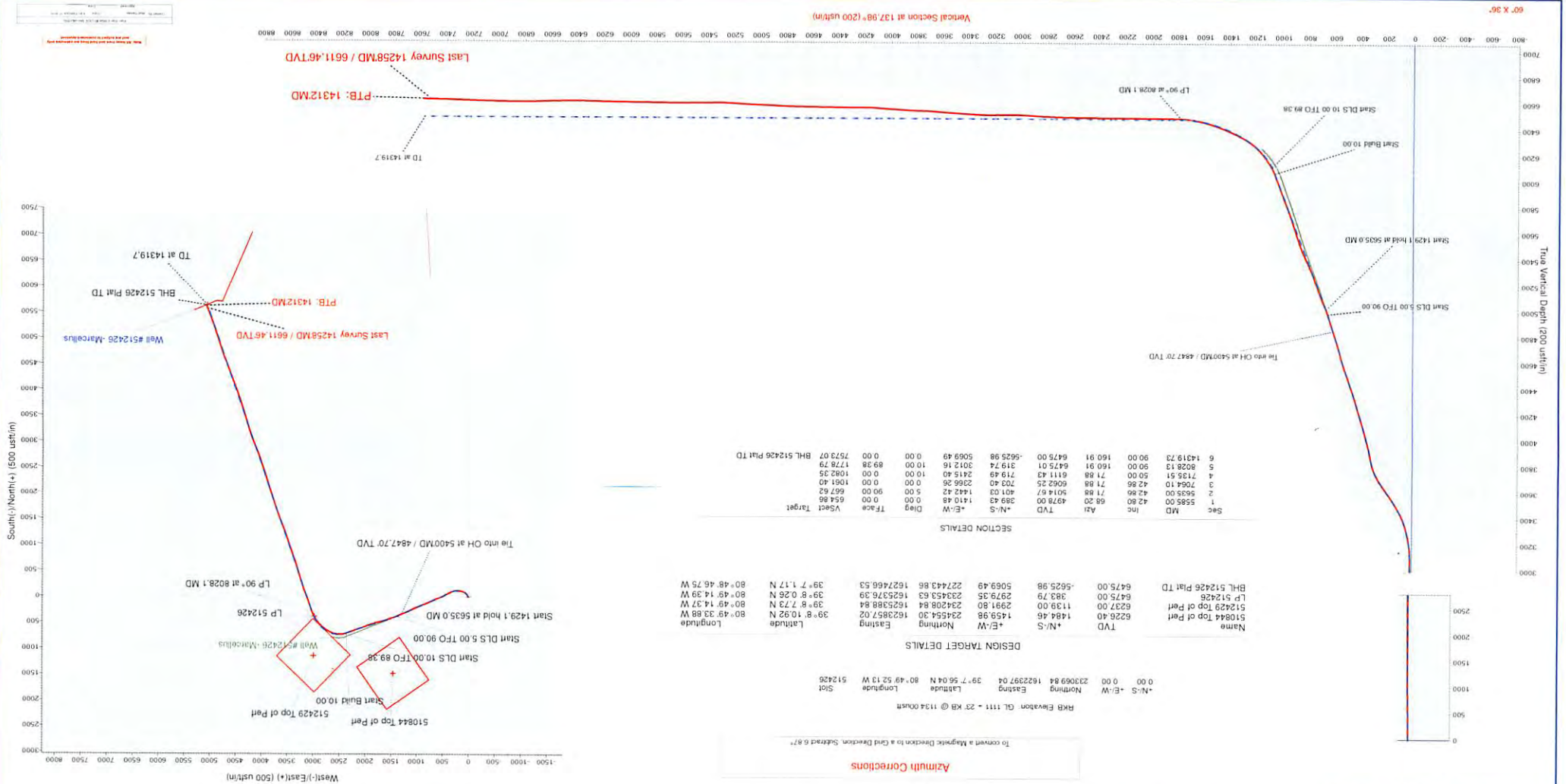
RKB Elevation: GL 1111 + 23 KB @ 1134.00usft  
 Nothing Easting Longitude Sigt  
 +N-S -E-W 0.00 230069.84 1622397.04 39° 7' 56.04 N 80° 49' 52.13 W 512426

**DESIGN TARGET DETAILS**

Name	TVD	+N-S	-E-W	Latitude	Longitude	Easting	Northing
510844 Top of Part	6226.40	1484.46	1459.98	39° 8' 10.92 N	80° 48' 33.88 W	234554.30	1622857.02
512429 Top of Part	6237.00	1139.00	2991.80	39° 8' 7.73 N	80° 49' 14.37 W	234208.84	1625388.84
LP 512426	6475.00	383.79	2979.35	39° 8' 0.26 N	80° 49' 14.39 W	233453.63	1625376.39
BHL 512426 Plat TD	6475.00	160.91	6475.00	39° 7' 1.17 N	80° 48' 46.75 W	227443.86	1627466.53

**SECTION DETAILS**

Sec	MD	Inc	Azi	TVD	+N-S	-E-W	Diaq	Target
1	5585.00	42.80	68.20	4978.00	289.43	1410.48	0.00	654.86
2	5625.00	42.86	71.88	5018.67	401.03	1442.42	5.00	661.62
3	7064.10	42.86	71.88	6062.25	203.40	2366.26	0.00	1091.40
4	7155.51	50.00	71.88	6111.43	219.49	2415.40	10.00	1082.35
5	8028.13	90.00	160.91	6475.01	319.74	3012.16	10.00	89.28
6	14319.73	90.00	160.91	6475.00	-5629.98	5069.49	0.00	0.00



60° X 36"

Vertical Section at 137.98° (200 usft/m)

South(-)/North(+) (500 usft/m)

West(-)/East(+) (500 usft/m)

True Vertical Depth (200 usft/m)

Vertical Section at 137.98° (200 usft/m)