



# **EQT Production - Marcellus**

**Ritchie County, WV**  
**Ritchie County 515277**  
**Well #515277**

**Main Wellbore**

**Design: As Drilled Surveys**

## **Standard Survey Report**

**14 April, 2015**

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Where energy meets innovation.

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Site Ritchie County 515277
<b>Company:</b>	EQT Production - Marcellus	<b>TVD Reference:</b>	KB@16 @ 1135.0usft
<b>Project:</b>	Ritchie County, WV	<b>MD Reference:</b>	KB@16 @ 1135.0usft
<b>Site:</b>	Ritchie County 515277	<b>North Reference:</b>	Grid
<b>Well:</b>	Well #515277	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Main Wellbore		
<b>Design:</b>	As Drilled Surveys		

<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		Using geodetic scale factor

<b>Site</b>	Ritchie County 515277				
<b>Site Position:</b>		<b>Northing:</b>	280,813.50 usft	<b>Latitude:</b>	39.26
<b>From:</b>	Map	<b>Easting:</b>	1,589,028.30 usft	<b>Longitude:</b>	-80.95
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	-0.93 °

<b>Well</b>	Well #515277					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	280,813.50 usft	<b>Latitude:</b>	39° 15' 42.781 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,589,028.30 usft	<b>Longitude:</b>	80° 57' 5.323 W
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	1,119.0 usft

<b>Wellbore</b>	Main Wellbore				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	3/16/2015	-8.33	66.77	52,196

<b>Design</b>	As Drilled Surveys				
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**Audit Notes:**

<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
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Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	356.98

<b>Survey Program</b>	Date 4/14/2015				
<b>From (')</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
0.00	4,228.0	515277 Gyrodata Gyros (Main Wellbore)	GYD_DP_MS	Gyrodata gyro-compassing and drop	
0.00	13,679.0	515277 PHX MWD (Main Wellbore)	MWD+IGRF	MWD+IGRF v3: standard declination	

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea 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	-1,135.0	0.0	0.0	0.0	0.00	0.00	0.00
103.0	0.14	210.38	103.0	-1,032.0	-0.1	-0.1	-0.1	0.14	0.14	0.00
203.0	0.09	227.33	203.0	-932.0	-0.3	-0.2	-0.3	0.06	-0.05	16.95
303.0	0.09	222.88	303.0	-832.0	-0.4	-0.3	-0.4	0.01	0.00	-4.45
403.0	0.07	250.61	403.0	-732.0	-0.5	-0.4	-0.4	0.04	-0.02	27.73
503.0	0.09	226.51	503.0	-632.0	-0.5	-0.5	-0.5	0.04	0.02	-24.10
603.0	0.06	247.20	603.0	-532.0	-0.6	-0.6	-0.6	0.04	-0.03	20.69
703.0	0.03	313.36	703.0	-432.0	-0.6	-0.7	-0.6	0.06	-0.03	66.16



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<b>Well:</b>	Well #515277	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Main Wellbore		
<b>Design:</b>	As Drilled Surveys		

Survey											
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
803.0	0.10	104.01	803.0	-332.0	-0.6	-0.6	-0.6	0.13	0.07	150.65	
903.0	0.14	154.62	903.0	-232.0	-0.7	-0.5	-0.7	0.11	0.04	50.61	
1,003.0	0.05	148.67	1,003.0	-132.0	-0.9	-0.4	-0.9	0.09	-0.09	-5.95	
1,103.0	0.32	150.71	1,103.0	-32.0	-1.2	-0.3	-1.2	0.27	0.27	2.04	
1,203.0	0.48	157.97	1,203.0	68.0	-1.8	0.0	-1.8	0.17	0.16	7.26	
1,303.0	0.50	164.44	1,303.0	168.0	-2.6	0.3	-2.6	0.06	0.02	6.47	
1,403.0	0.47	173.09	1,403.0	268.0	-3.4	0.5	-3.5	0.08	-0.03	8.65	
1,503.0	0.34	171.17	1,503.0	368.0	-4.1	0.6	-4.2	0.13	-0.13	-1.92	
1,603.0	0.41	167.23	1,603.0	468.0	-4.8	0.7	-4.8	0.07	0.07	-3.94	
1,703.0	0.45	169.63	1,703.0	568.0	-5.5	0.8	-5.6	0.04	0.04	2.40	
1,803.0	0.46	173.13	1,803.0	668.0	-6.3	1.0	-6.3	0.03	0.01	3.50	
1,903.0	0.45	176.71	1,903.0	768.0	-7.1	1.0	-7.1	0.03	-0.01	3.58	
2,003.0	0.46	187.33	2,003.0	868.0	-7.9	1.0	-7.9	0.08	0.01	10.62	
2,103.0	0.46	186.47	2,103.0	968.0	-8.7	0.9	-8.7	0.01	0.00	-0.86	
2,203.0	0.55	187.14	2,203.0	1,068.0	-9.6	0.8	-9.6	0.09	0.09	0.67	
2,303.0	0.50	192.83	2,303.0	1,168.0	-10.5	0.7	-10.5	0.07	-0.05	5.69	
2,403.0	0.46	201.60	2,403.0	1,268.0	-11.3	0.4	-11.3	0.08	-0.04	8.77	
2,503.0	0.40	193.72	2,503.0	1,368.0	-12.0	0.2	-12.0	0.08	-0.06	-7.88	
2,603.0	0.45	189.51	2,603.0	1,468.0	-12.7	0.0	-12.7	0.06	0.05	-4.21	
2,703.0	0.51	191.16	2,702.9	1,567.9	-13.5	-0.1	-13.5	0.06	0.06	1.65	
2,803.0	0.50	194.01	2,802.9	1,667.9	-14.4	-0.3	-14.3	0.03	-0.01	2.85	
2,903.0	0.47	202.65	2,902.9	1,767.9	-15.2	-0.6	-15.1	0.08	-0.03	8.64	
3,003.0	0.48	215.80	3,002.9	1,867.9	-15.9	-1.0	-15.8	0.11	0.01	13.15	
3,103.0	0.46	224.36	3,102.9	1,967.9	-16.5	-1.5	-16.4	0.07	-0.02	8.56	
3,203.0	0.27	235.73	3,202.9	2,067.9	-16.9	-2.0	-16.8	0.20	-0.19	11.37	
3,303.0	0.30	251.42	3,302.9	2,167.9	-17.2	-2.4	-17.0	0.08	0.03	15.69	
3,403.0	0.36	246.86	3,402.9	2,267.9	-17.4	-3.0	-17.2	0.07	0.06	-4.56	
3,503.0	0.34	240.28	3,502.9	2,367.9	-17.6	-3.5	-17.4	0.04	-0.02	-6.58	
3,603.0	0.29	255.61	3,602.9	2,467.9	-17.8	-4.0	-17.6	0.10	-0.05	15.33	
3,703.0	0.32	258.13	3,702.9	2,567.9	-18.0	-4.5	-17.7	0.03	0.03	2.52	
3,803.0	0.27	250.99	3,802.9	2,667.9	-18.1	-5.0	-17.8	0.06	-0.05	-7.14	
3,903.0	0.29	255.07	3,902.9	2,767.9	-18.2	-5.5	-17.9	0.03	0.02	4.08	
4,003.0	0.29	256.06	4,002.9	2,867.9	-18.4	-6.0	-18.0	0.01	0.00	0.99	
4,103.0	0.34	259.65	4,102.9	2,967.9	-18.5	-6.5	-18.1	0.05	0.05	3.59	
4,203.0	0.48	268.97	4,202.9	3,067.9	-18.5	-7.2	-18.1	0.15	0.14	9.32	
<b>Gyro Tie In=4228' MD</b>											
4,228.0	0.48	279.03	4,227.9	3,092.9	-18.5	-7.4	-18.1	0.34	0.00	40.24	
4,297.0	0.30	259.90	4,296.9	3,161.9	-18.5	-7.9	-18.1	0.32	-0.26	-27.72	
4,339.0	0.20	300.30	4,338.9	3,203.9	-18.5	-8.1	-18.0	0.47	-0.24	96.19	
4,382.0	0.10	350.90	4,381.9	3,246.9	-18.4	-8.1	-18.0	0.36	-0.23	117.67	
4,425.0	0.20	72.80	4,424.9	3,289.9	-18.4	-8.1	-17.9	0.49	0.23	190.47	
<b>KOP=4468' MD</b>											
4,468.0	0.70	75.80	4,467.9	3,332.9	-18.3	-7.8	-17.8	1.16	1.16	6.98	

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Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,511.0	1.40	70.90	4,510.9	3,375.9	-18.0	-7.0	-17.6	1.64	1.63	-11.40
4,554.0	2.50	77.60	4,553.9	3,418.9	-17.7	-5.6	-17.3	2.61	2.56	15.58
4,597.0	3.20	82.70	4,596.8	3,461.8	-17.3	-3.5	-17.1	1.73	1.63	11.86
4,640.0	4.40	84.00	4,639.7	3,504.7	-17.0	-0.7	-16.9	2.80	2.79	3.02
4,683.0	5.80	82.20	4,682.6	3,547.6	-16.5	3.1	-16.7	3.28	3.26	-4.19
4,726.0	7.00	85.00	4,725.3	3,590.3	-16.0	7.9	-16.4	2.88	2.79	6.51
4,769.0	8.00	90.40	4,767.9	3,632.9	-15.8	13.5	-16.5	2.84	2.33	12.56
4,813.0	9.10	95.30	4,811.4	3,676.4	-16.1	20.0	-17.2	3.00	2.50	11.14
4,856.0	10.30	96.20	4,853.8	3,718.8	-16.9	27.2	-18.3	2.81	2.79	2.09
4,900.0	11.70	95.10	4,897.0	3,762.0	-17.7	35.6	-19.5	3.22	3.18	-2.50
4,944.0	12.80	88.80	4,940.0	3,805.0	-18.0	44.9	-20.3	3.93	2.50	-14.32
4,987.0	14.70	88.30	4,981.8	3,846.8	-17.7	55.1	-20.6	4.43	4.42	-1.16
5,030.0	16.70	88.90	5,023.2	3,888.2	-17.4	66.8	-20.9	4.67	4.65	1.40
5,073.0	18.00	89.00	5,064.2	3,929.2	-17.2	79.6	-21.4	3.02	3.02	0.23
5,115.0	18.80	90.40	5,104.1	3,969.1	-17.1	92.8	-22.0	2.18	1.90	3.33
5,158.0	20.80	90.40	5,144.5	4,009.5	-17.2	107.4	-22.9	4.65	4.65	0.00
5,201.0	20.80	90.40	5,184.7	4,049.7	-17.3	122.7	-23.8	0.00	0.00	0.00
5,245.0	21.50	89.60	5,225.8	4,090.8	-17.3	138.5	-24.6	1.72	1.59	-1.82
5,288.0	22.40	89.01	5,265.6	4,130.6	-17.1	154.6	-25.3	2.15	2.09	-1.37
5,332.0	22.90	89.20	5,306.2	4,171.2	-16.9	171.6	-25.9	1.15	1.14	0.43
5,365.0	23.00	89.80	5,336.6	4,201.6	-16.8	184.4	-26.5	0.77	0.30	1.82
5,396.0	22.60	90.90	5,365.2	4,230.2	-16.8	196.4	-27.2	1.89	-1.29	3.55
5,428.0	22.00	91.40	5,394.8	4,259.8	-17.1	208.6	-28.0	1.97	-1.88	1.56
5,459.0	23.50	90.80	5,423.4	4,288.4	-17.3	220.6	-28.9	4.90	4.84	-1.94
5,490.0	27.10	91.30	5,451.4	4,316.4	-17.6	233.8	-29.8	11.63	11.61	1.61
5,522.0	31.00	91.50	5,479.4	4,344.4	-17.9	249.3	-31.0	12.19	12.19	0.63
5,554.0	34.90	91.30	5,506.2	4,371.2	-18.4	266.7	-32.4	12.19	12.19	-0.63
5,585.0	38.70	90.20	5,531.1	4,396.1	-18.6	285.3	-33.6	12.44	12.26	-3.55
5,617.0	41.90	90.00	5,555.5	4,420.5	-18.6	306.0	-34.7	10.01	10.00	-0.63
5,648.0	45.00	90.50	5,578.0	4,443.0	-18.7	327.3	-35.9	10.06	10.00	1.61
5,680.0	48.90	90.80	5,599.8	4,464.8	-19.0	350.7	-37.4	12.21	12.19	0.94
5,711.0	52.40	91.30	5,619.5	4,484.5	-19.4	374.7	-39.1	11.36	11.29	1.61
5,743.0	55.50	90.70	5,638.3	4,503.3	-19.9	400.5	-40.9	9.81	9.69	-1.88
5,774.0	57.50	90.30	5,655.4	4,520.4	-20.1	426.4	-42.5	6.54	6.45	-1.29
5,806.0	59.80	89.40	5,672.0	4,537.0	-20.0	453.7	-43.9	7.58	7.19	-2.81
5,838.0	62.20	88.80	5,687.6	4,552.6	-19.6	481.7	-44.9	7.68	7.50	-1.88
5,869.0	64.80	89.10	5,701.4	4,566.4	-19.1	509.4	-45.9	8.43	8.39	0.97
5,901.0	66.60	89.50	5,714.6	4,579.6	-18.7	538.6	-47.1	5.74	5.63	1.25
5,964.0	67.50	88.60	5,739.1	4,604.1	-17.8	596.6	-49.2	1.94	1.43	1.43
6,027.0	67.30	89.20	5,763.3	4,628.3	-16.7	654.7	-51.1	0.93	-0.32	0.95
6,090.0	67.40	90.10	5,787.6	4,652.6	-16.3	712.9	-53.8	1.33	0.16	1.43
6,154.0	68.00	89.60	5,811.9	4,676.9	-16.1	772.1	-56.8	1.18	0.94	-0.78

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6,216.0	67.90	89.60	5,835.2	4,700.2	-15.7	829.5	-59.4	0.16	-0.16	0.00	
6,279.0	68.90	90.20	5,858.3	4,723.3	-15.6	888.1	-62.4	1.82	1.59	0.95	
6,342.0	69.80	90.10	5,880.6	4,745.6	-15.8	947.1	-65.6	1.44	1.43	-0.16	
6,405.0	69.70	90.40	5,902.4	4,767.4	-16.1	1,006.2	-69.0	0.47	-0.16	0.48	
6,468.0	70.00	89.70	5,924.1	4,789.1	-16.1	1,065.3	-72.2	1.15	0.48	-1.11	
6,532.0	70.40	90.30	5,945.7	4,810.7	-16.1	1,125.5	-75.3	1.08	0.63	0.94	
6,594.0	70.40	89.90	5,966.5	4,831.5	-16.2	1,183.9	-78.5	0.61	0.00	-0.65	
6,658.0	70.70	89.50	5,987.9	4,852.9	-15.9	1,244.3	-81.4	0.75	0.47	-0.63	
6,721.0	70.60	89.80	6,008.7	4,873.7	-15.5	1,303.7	-84.2	0.48	-0.16	0.48	
6,784.0	71.30	89.40	6,029.3	4,894.3	-15.1	1,363.3	-86.9	1.26	1.11	-0.63	
6,847.0	71.40	89.60	6,049.4	4,914.4	-14.6	1,423.0	-89.5	0.34	0.16	0.32	
6,910.0	71.60	90.20	6,069.4	4,934.4	-14.5	1,482.7	-92.5	0.96	0.32	0.95	
6,973.0	72.60	89.70	6,088.8	4,953.8	-14.4	1,542.7	-95.6	1.76	1.59	-0.79	
7,005.0	72.30	88.90	6,098.4	4,963.4	-14.1	1,573.2	-96.9	2.56	-0.94	-2.50	
7,036.0	69.40	85.40	6,108.6	4,973.6	-12.6	1,602.4	-97.0	14.19	-9.35	-11.29	
7,068.0	66.70	79.60	6,120.6	4,985.6	-8.8	1,631.8	-94.7	18.81	-8.44	-18.13	
7,099.0	65.40	75.00	6,133.2	4,998.2	-2.5	1,659.4	-89.9	14.19	-4.19	-14.84	
7,131.0	65.70	74.50	6,146.4	5,011.4	5.1	1,687.5	-83.7	1.70	0.94	-1.56	
7,162.0	67.20	73.90	6,158.8	5,023.8	12.9	1,714.9	-77.4	5.15	4.84	-1.94	
7,194.0	68.70	71.20	6,170.8	5,035.8	21.8	1,743.2	-70.1	9.12	4.69	-8.44	
7,225.0	69.30	68.20	6,181.9	5,046.9	31.8	1,770.3	-61.5	9.24	1.94	-9.68	
7,257.0	69.60	65.90	6,193.2	5,058.2	43.5	1,797.9	-51.2	6.80	0.94	-7.19	
7,288.0	69.90	62.90	6,203.9	5,068.9	56.1	1,824.1	-40.1	9.13	0.97	-9.68	
7,319.0	69.80	59.50	6,214.6	5,079.6	70.1	1,849.6	-27.4	10.30	-0.32	-10.97	
7,351.0	69.60	55.80	6,225.7	5,090.7	86.1	1,875.0	-12.7	10.86	-0.63	-11.56	
7,383.0	69.50	51.90	6,236.9	5,101.9	103.8	1,899.2	3.7	11.42	-0.31	-12.19	
7,414.0	69.50	48.50	6,247.7	5,112.7	122.4	1,921.5	21.0	10.27	0.00	-10.97	
7,446.0	69.20	44.40	6,259.0	5,124.0	143.0	1,943.2	40.5	12.03	-0.94	-12.81	
7,477.0	69.10	40.40	6,270.1	5,135.1	164.4	1,962.7	60.8	12.06	-0.32	-12.90	
7,509.0	69.80	37.00	6,281.3	5,146.3	187.8	1,981.4	83.2	10.19	2.19	-10.63	
7,540.0	71.10	34.20	6,291.7	5,156.7	211.5	1,998.4	106.0	9.49	4.19	-9.03	
7,572.0	71.80	31.10	6,301.8	5,166.8	237.1	2,014.8	130.7	9.44	2.19	-9.69	
7,603.0	72.40	27.90	6,311.4	5,176.4	262.7	2,029.3	155.5	10.01	1.94	-10.32	
7,635.0	74.60	25.20	6,320.5	5,185.5	290.2	2,043.0	182.2	10.62	6.88	-8.44	
7,667.0	74.60	22.30	6,329.0	5,194.0	318.4	2,055.5	209.8	8.74	0.00	-9.06	
7,698.0	74.50	18.40	6,337.2	5,202.2	346.4	2,065.9	237.2	12.13	0.32	-12.58	
7,729.0	75.50	15.00	6,345.3	5,210.3	375.1	2,074.5	265.4	11.07	3.23	-10.97	
7,761.0	77.20	13.30	6,352.8	5,217.8	405.3	2,082.1	295.1	14.11	5.31	-5.31	
7,793.0	78.30	10.30	6,359.6	5,224.6	435.9	2,088.4	325.3	9.79	3.44	-9.38	
7,824.0	78.70	6.30	6,365.8	5,230.8	465.9	2,092.8	355.1	12.71	1.29	-12.90	
7,856.0	79.00	2.50	6,372.0	5,237.0	497.2	2,095.2	386.2	11.69	0.94	-11.68	
7,887.0	79.90	359.60	6,377.6	5,242.6	527.7	2,095.8	416.6	9.64	2.90	-9.35	
7,918.0	80.50	356.20	6,382.9	5,247.9	558.2	2,094.7	447.1	10.98	1.94	-10.97	

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<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Site Ritchie County 515277
<b>Company:</b>	EQT Production - Marcellus	<b>TVD Reference:</b>	KB@16 @ 1135.0usft
<b>Project:</b>	Ritchie County, WV	<b>MD Reference:</b>	KB@16 @ 1135.0usft
<b>Site:</b>	Ritchie County 515277	<b>North Reference:</b>	Grid
<b>Well:</b>	Well #515277	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Main Wellbore		
<b>Design:</b>	As Drilled Surveys		

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,950.0	81.50	352.60	6,387.9	5,252.9	589.7	2,091.6	478.7	11.54	3.13	-11.25
7,982.0	82.30	349.50	6,392.4	5,257.4	620.9	2,086.7	510.2	9.91	2.50	-9.69
8,013.0	83.20	345.60	6,396.4	5,261.4	651.0	2,080.0	540.5	12.81	2.90	-12.58
8,045.0	83.90	342.10	6,400.0	5,265.0	681.5	2,071.2	571.5	11.09	2.19	-10.94
8,076.0	85.00	338.50	6,402.9	5,267.9	710.6	2,060.8	601.1	12.09	3.55	-11.61
8,108.0	86.30	335.60	6,405.4	5,270.4	739.9	2,048.3	631.1	9.91	4.06	-9.06
<b>LP=8171' MD/6408' TVD</b>										
8,171.0	88.80	332.80	6,408.1	5,273.1	796.6	2,021.0	689.1	5.95	3.97	-4.44
8,234.0	90.40	333.80	6,408.5	5,273.5	852.9	1,992.7	746.8	2.99	2.54	1.59
8,297.0	91.10	334.10	6,407.7	5,272.7	909.5	1,965.0	804.7	1.21	1.11	0.48
8,360.0	91.60	334.10	6,406.2	5,271.2	966.1	1,937.5	862.8	0.79	0.79	0.00
8,423.0	90.50	334.50	6,405.0	5,270.0	1,022.9	1,910.2	920.9	1.86	-1.75	0.63
8,486.0	90.20	334.00	6,404.7	5,269.7	1,079.6	1,882.8	979.0	0.93	-0.48	-0.79
8,549.0	90.00	335.50	6,404.6	5,269.6	1,136.6	1,855.9	1,037.3	2.40	-0.32	2.38
8,612.0	89.20	337.40	6,405.0	5,270.0	1,194.3	1,830.8	1,096.3	3.27	-1.27	3.02
8,676.0	89.00	337.70	6,406.0	5,271.0	1,253.5	1,806.3	1,156.6	0.56	-0.31	0.47
8,739.0	88.80	335.90	6,407.2	5,272.2	1,311.4	1,781.5	1,215.8	2.87	-0.32	-2.86
8,802.0	89.60	335.10	6,408.1	5,273.1	1,368.7	1,755.4	1,274.4	1.80	1.27	-1.27
8,865.0	90.10	335.00	6,408.3	5,273.3	1,425.8	1,728.8	1,332.8	0.81	0.79	-0.16
8,928.0	89.10	335.10	6,408.7	5,273.7	1,482.9	1,702.2	1,391.3	1.60	-1.59	0.16
8,992.0	88.70	335.30	6,409.9	5,274.9	1,541.0	1,675.4	1,450.7	0.70	-0.63	0.31
9,054.0	89.20	334.90	6,411.1	5,276.1	1,597.3	1,649.3	1,508.2	1.03	0.81	-0.65
9,117.0	89.80	334.20	6,411.6	5,276.6	1,654.1	1,622.2	1,566.4	1.46	0.95	-1.11
9,180.0	90.40	333.90	6,411.5	5,276.5	1,710.8	1,594.7	1,624.4	1.06	0.95	-0.48
9,243.0	90.20	334.90	6,411.2	5,276.2	1,767.6	1,567.4	1,682.6	1.62	-0.32	1.59
9,306.0	88.80	335.90	6,411.7	5,276.7	1,824.9	1,541.2	1,741.2	2.73	-2.22	1.59
9,369.0	88.00	334.90	6,413.5	5,278.5	1,882.1	1,515.0	1,799.8	2.03	-1.27	-1.59
9,432.0	88.30	334.20	6,415.5	5,280.5	1,939.0	1,487.9	1,858.0	1.21	0.48	-1.11
<b>Deepest Point of Well=9495' MD/6416' TVD</b>										
9,495.0	90.70	335.20	6,416.1	5,281.1	1,995.9	1,461.0	1,916.2	4.13	3.81	1.59
9,558.0	92.90	335.20	6,414.1	5,279.1	2,053.1	1,434.6	1,974.7	3.49	3.49	0.00
9,621.0	91.30	335.20	6,411.8	5,276.8	2,110.2	1,408.2	2,033.2	2.54	-2.54	0.00
9,684.0	90.60	334.90	6,410.7	5,275.7	2,167.4	1,381.6	2,091.6	1.21	-1.11	-0.48
9,747.0	91.20	334.70	6,409.7	5,274.7	2,224.4	1,354.8	2,149.9	1.00	0.95	-0.32
9,810.0	89.80	335.50	6,409.2	5,274.2	2,281.5	1,328.3	2,208.4	2.56	-2.22	1.27
9,873.0	89.70	336.10	6,409.5	5,274.5	2,339.0	1,302.5	2,267.1	0.97	-0.16	0.95
9,936.0	89.90	335.60	6,409.7	5,274.7	2,396.4	1,276.7	2,325.9	0.85	0.32	-0.79
9,999.0	90.40	335.30	6,409.5	5,274.5	2,453.7	1,250.5	2,384.5	0.93	0.79	-0.48
10,063.0	90.90	335.00	6,408.8	5,273.8	2,511.8	1,223.6	2,443.9	0.91	0.79	-0.47
10,126.0	91.50	335.20	6,407.5	5,272.5	2,568.9	1,197.1	2,502.4	1.00	0.95	0.32
10,189.0	90.50	333.80	6,406.4	5,271.4	2,625.8	1,170.0	2,560.6	2.73	-1.59	-2.22
10,252.0	89.70	332.50	6,406.3	5,271.3	2,682.0	1,141.5	2,618.2	2.42	1.27	-2.06
10,315.0	89.80	331.70	6,406.5	5,271.5	2,737.7	1,112.0	2,675.3	1.28	0.16	1.27

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<b>Company:</b>	EQT Production - Marcellus	<b>TVD Reference:</b>	KB@16 @ 1135.0usft
<b>Project:</b>	Ritchie County, WV	<b>MD Reference:</b>	KB@16 @ 1135.0usft
<b>Site:</b>	Ritchie County 515277	<b>North Reference:</b>	Grid
<b>Well:</b>	Well #515277	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Main Wellbore		
<b>Design:</b>	As Drilled Surveys		

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,378.0	88.70	333.60	6,407.4	5,272.4	2,793.6	1,083.1	2,732.7	3.48	-1.75	3.02
10,441.0	88.40	334.10	6,409.0	5,274.0	2,850.2	1,055.3	2,790.6	0.93	-0.48	0.79
10,504.0	88.70	333.70	6,410.6	5,275.6	2,906.7	1,027.6	2,848.6	0.79	0.48	-0.63
10,567.0	89.20	333.90	6,411.7	5,276.7	2,963.2	999.8	2,906.5	0.85	0.79	0.32
10,630.0	89.50	335.10	6,412.4	5,277.4	3,020.1	972.7	2,964.7	1.96	0.48	1.90
10,693.0	89.80	334.10	6,412.8	5,277.8	3,077.0	945.7	3,022.9	1.66	0.48	-1.59
10,756.0	91.30	334.90	6,412.2	5,277.2	3,133.9	918.6	3,081.2	2.70	2.38	1.27
10,820.0	91.90	334.60	6,410.4	5,275.4	3,191.7	891.3	3,140.4	1.05	0.94	-0.47
10,883.0	90.80	336.30	6,408.9	5,273.9	3,249.0	865.1	3,199.0	3.21	-1.75	2.70
10,945.0	90.60	336.30	6,408.2	5,273.2	3,305.8	840.2	3,257.0	0.32	-0.32	0.00
11,009.0	89.80	336.30	6,407.9	5,272.9	3,364.4	814.5	3,316.8	1.25	-1.25	0.00
11,072.0	89.50	335.60	6,408.3	5,273.3	3,421.9	788.8	3,375.6	1.21	-0.48	-1.11
11,135.0	89.70	335.80	6,408.8	5,273.8	3,479.3	762.9	3,434.3	0.45	0.32	0.32
11,198.0	89.90	336.10	6,409.0	5,274.0	3,536.9	737.2	3,493.1	0.57	0.32	0.48
11,261.0	90.20	336.50	6,408.9	5,273.9	3,594.5	711.9	3,552.1	0.79	0.48	0.63
11,324.0	90.90	336.80	6,408.3	5,273.3	3,652.4	686.9	3,611.1	1.21	1.11	0.48
11,387.0	89.80	336.20	6,407.9	5,272.9	3,710.2	661.8	3,670.2	1.99	-1.75	-0.95
11,450.0	89.60	335.20	6,408.3	5,273.3	3,767.6	635.9	3,728.9	1.62	-0.32	-1.59
11,513.0	89.60	334.80	6,408.7	5,273.7	3,824.7	609.2	3,787.3	0.63	0.00	-0.63
11,576.0	89.90	334.60	6,409.0	5,274.0	3,881.6	582.3	3,845.6	0.57	0.48	-0.32
11,639.0	90.10	334.40	6,409.0	5,274.0	3,938.5	555.2	3,903.8	0.45	0.32	-0.32
11,702.0	90.50	333.90	6,408.7	5,273.7	3,995.2	527.7	3,961.9	1.02	0.63	-0.79
11,765.0	89.40	334.80	6,408.7	5,273.7	4,052.0	500.4	4,020.0	2.26	-1.75	1.43
11,828.0	89.00	334.50	6,409.6	5,274.6	4,108.9	473.5	4,078.3	0.79	-0.63	-0.48
11,891.0	89.40	334.80	6,410.5	5,275.5	4,165.8	446.5	4,136.5	0.79	0.63	0.48
11,954.0	89.80	334.80	6,410.9	5,275.9	4,222.8	419.7	4,194.9	0.63	0.63	0.00
12,017.0	89.90	334.60	6,411.1	5,276.1	4,279.8	392.8	4,253.2	0.35	0.16	-0.32
12,081.0	90.50	334.60	6,410.9	5,275.9	4,337.6	365.3	4,312.4	0.94	0.94	0.00
12,144.0	90.70	335.00	6,410.2	5,275.2	4,394.6	338.5	4,370.7	0.71	0.32	0.63
12,207.0	90.90	334.20	6,409.3	5,274.3	4,451.5	311.5	4,428.9	1.31	0.32	-1.27
12,270.0	89.60	334.60	6,409.0	5,274.0	4,508.3	284.2	4,487.1	2.16	-2.06	0.63
12,333.0	89.70	334.80	6,409.4	5,274.4	4,565.3	257.3	4,545.4	0.35	0.16	0.32
12,397.0	89.80	334.90	6,409.7	5,274.7	4,623.2	230.1	4,604.7	0.22	0.16	0.16
12,460.0	90.20	334.80	6,409.7	5,274.7	4,680.2	203.4	4,663.0	0.65	0.63	-0.16
12,523.0	90.30	334.80	6,409.4	5,274.4	4,737.2	176.5	4,721.4	0.16	0.16	0.00
12,586.0	90.60	334.80	6,408.9	5,273.9	4,794.2	149.7	4,779.7	0.48	0.48	0.00
12,649.0	89.20	334.80	6,409.0	5,274.0	4,851.2	122.9	4,838.0	2.22	-2.22	0.00
12,712.0	89.10	335.10	6,410.0	5,275.0	4,908.3	96.2	4,896.4	0.50	-0.16	0.48
12,775.0	89.50	335.50	6,410.8	5,275.8	4,965.5	69.9	4,955.0	0.90	0.63	0.63
12,838.0	89.80	335.80	6,411.1	5,276.1	5,022.9	43.9	5,013.7	0.67	0.48	0.48
12,902.0	90.10	335.50	6,411.2	5,276.2	5,081.2	17.5	5,073.3	0.66	0.47	-0.47
12,965.0	90.40	335.40	6,410.9	5,275.9	5,138.5	-8.7	5,131.9	0.50	0.48	-0.16

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<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Site Ritchie County 515277
<b>Company:</b>	EQT Production - Marcellus	<b>TVD Reference:</b>	KB@16 @ 1135.0usft
<b>Project:</b>	Ritchie County, WV	<b>MD Reference:</b>	KB@16 @ 1135.0usft
<b>Site:</b>	Ritchie County 515277	<b>North Reference:</b>	Grid
<b>Well:</b>	Well #515277	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Main Wellbore		
<b>Design:</b>	As Drilled Surveys		

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,028.0	90.70	335.40	6,410.3	5,275.3	5,195.8	-34.9	5,190.5	0.48	0.48	0.00
13,091.0	91.00	334.80	6,409.4	5,274.4	5,253.0	-61.4	5,248.9	1.06	0.48	-0.95
13,154.0	89.70	335.20	6,409.0	5,274.0	5,310.1	-88.0	5,307.3	2.16	-2.06	0.63
13,217.0	89.00	334.10	6,409.7	5,274.7	5,367.0	-115.0	5,365.6	2.07	-1.11	-1.75
13,280.0	89.30	334.20	6,410.6	5,275.6	5,423.7	-142.5	5,423.7	0.50	0.48	0.16
13,343.0	89.10	335.20	6,411.5	5,276.5	5,480.6	-169.4	5,481.9	1.62	-0.32	1.59
13,406.0	89.50	335.40	6,412.3	5,277.3	5,537.9	-195.7	5,540.5	0.71	0.63	0.32
13,469.0	89.60	335.30	6,412.8	5,277.8	5,595.1	-222.0	5,599.0	0.22	0.16	-0.16
13,532.0	90.00	334.70	6,413.0	5,278.0	5,652.2	-248.6	5,657.5	1.14	0.63	-0.95
13,595.0	90.40	334.30	6,412.8	5,277.8	5,709.1	-275.7	5,715.7	0.90	0.63	-0.63
Final Survey=13626' MD/ 6413' TVD										
13,626.0	90.50	334.10	6,412.5	5,277.5	5,737.0	-289.2	5,744.3	0.72	0.32	-0.65
Projection to TD=13679' MD/ 6412' TVD										
13,679.0	90.50	334.10	6,412.1	5,277.1	5,784.7	-312.4	5,793.1	0.00	0.00	0.00

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,228.0	4,227.9	-18.5	-7.4	Gyro Tie In=4228' MD
4,468.0	4,467.9	-18.3	-7.8	KOP=4468' MD
8,171.0	6,408.1	796.6	2,021.0	LP=8171' MD/ 6408' TVD
9,495.0	6,416.1	1,995.9	1,461.0	Deepest Point of Well=9495' MD/ 6416' TVD
13,626.0	6,412.5	5,737.0	-289.2	Final Survey=13626' MD/ 6413' TVD
13,679.0	6,412.1	5,784.7	-312.4	Projection to TD=13679' MD/ 6412' TVD

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

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85-10095

# EQT Production - Marcellus

Project: Ritchie County, WV  
Site: Ritchie County 515277  
Well: Well #515277  
Wellbore: Main Wellbore  
Design: As Drilled Surveys

