



EQT PRODUCTION

Wetzel County, WV

BIG 333

Well #514416- Marcellus - Slot 514416

API #47-10303037

Main Wellbore

Design: 514416 As Drilled Surveys

Standard Survey Report

28 August, 2015

RECEIVED
Office of Oil and Gas

JAN 27 2016

WV Department of
Environmental Protection



Where energy meets innovation.



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Well #514416- Marcellus - Slot 514416
Company:	EQT PRODUCTION	TVD Reference:	KB @ 1468.0usft
Project:	Wetzel County, WV	MD Reference:	KB @ 1468.0usft
Site:	BIG 333	North Reference:	Grid
Well:	Well #514416- Marcellus	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	514416 As Drilled Surveys		

Project	Wetzel County, WV		
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	BIG 333				
Site Position:		Northing:	374,995.30 usft	Latitude:	39.52
From:	Map	Easting:	1,692,038.00 usft	Longitude:	-80.59
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.70 °

Well	Well #514416- Marcellus - Slot 514416					
Well Position	+N/-S	0.0 usft	Northing:	374,995.30 usft	Latitude:	39° 31' 28.000 N
	+E/-W	0.0 usft	Easting:	1,692,038.00 usft	Longitude:	80° 35' 30.302 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,452.0 usft

Wellbore	Main Wellbore				
----------	---------------	--	--	--	--

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/7/2015	-8.28	67.03	52,497

Design	514416 As Drilled Surveys				
--------	---------------------------	--	--	--	--

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	360.00

Survey Program	Date	From (°)	To (usft)	Survey (Wellbore)	Tool Name	Description
	8/28/2015	0.00	6,531.0	514416 Gyrodata Gyro (Main Wellbore)	GYD_DP_MS	Gyrodata gyro-compassing and drop
		0.00	15,056.0	514416 PHX MWD (Main Wellbore)	PHX+MWD+HDGM	PHX+OWSG MWD + HDGM

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	-1,468.0	0.0	0.0	0.0	0.00	0.00	0.00
103.0	0.23	310.53	103.0	-1,365.0	0.1	-0.2	0.1	0.22	0.22	0.00
203.0	0.07	328.66	203.0	-1,265.0	0.3	-0.3	0.3	0.16	-0.16	18.13
303.0	0.05	137.52	303.0	-1,165.0	0.3	-0.3	0.3	0.12	-0.02	168.86
403.0	0.04	206.28	403.0	-1,065.0	0.3	-0.3	0.3	0.05	-0.01	68.76
503.0	0.05	245.19	503.0	-965.0	0.2	-0.4	0.2	0.03	0.01	38.91
603.0	0.04	222.66	603.0	-865.0	0.2	-0.4	0.2	0.02	-0.01	-22.53
703.0	0.04	8.64	703.0	-765.0	0.2	-0.5	0.2	0.08	0.00	145.98



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Well #514416- Marcellus - Slot 514416
Company:	EQT PRODUCTION	TVD Reference:	KB @ 1468.0usft
Project:	Wetzel County, WV	MD Reference:	KB @ 1468.0usft
Site:	BIG 333	North Reference:	Grid
Well:	Well #514416- Marcellus	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	514416 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	0.06	37.26	803.0	-665.0	0.3	-0.4	0.3	0.03	0.02	28.62	
903.0	0.08	45.97	903.0	-565.0	0.4	-0.3	0.4	0.02	0.02	8.71	
1,003.0	0.10	67.56	1,003.0	-465.0	0.4	-0.2	0.4	0.04	0.02	21.59	
1,103.0	0.06	213.48	1,103.0	-365.0	0.4	-0.2	0.4	0.15	-0.04	145.92	
1,203.0	0.09	218.58	1,203.0	-265.0	0.3	-0.2	0.3	0.03	0.03	5.10	
1,303.0	0.15	190.89	1,303.0	-165.0	0.1	-0.3	0.1	0.08	0.06	-27.69	
1,403.0	0.25	194.42	1,403.0	-65.0	-0.2	-0.4	-0.2	0.10	0.10	3.53	
1,503.0	0.28	201.81	1,503.0	35.0	-0.6	-0.5	-0.6	0.05	0.03	7.39	
1,603.0	0.26	197.77	1,603.0	135.0	-1.1	-0.7	-1.1	0.03	-0.02	-4.04	
1,703.0	0.24	168.49	1,703.0	235.0	-1.5	-0.7	-1.5	0.13	-0.02	-29.28	
1,803.0	0.28	128.29	1,803.0	335.0	-1.9	-0.5	-1.9	0.18	0.04	-40.20	
1,903.0	0.43	138.75	1,903.0	435.0	-2.3	-0.1	-2.3	0.16	0.15	10.46	
2,003.0	0.63	146.84	2,003.0	535.0	-3.0	0.5	-3.0	0.21	0.20	8.09	
2,103.0	0.88	162.67	2,103.0	635.0	-4.2	1.0	-4.2	0.32	0.25	15.83	
2,203.0	1.14	171.55	2,203.0	735.0	-6.0	1.4	-6.0	0.30	0.26	8.88	
2,303.0	1.37	171.10	2,302.9	834.9	-8.1	1.7	-8.1	0.23	0.23	-0.45	
2,403.0	1.54	173.33	2,402.9	934.9	-10.6	2.1	-10.6	0.18	0.17	2.23	
2,503.0	1.54	178.51	2,502.9	1,034.9	-13.3	2.3	-13.3	0.14	0.00	5.18	
2,603.0	1.09	188.02	2,602.8	1,134.8	-15.6	2.2	-15.6	0.50	-0.45	9.51	
2,703.0	0.95	188.40	2,702.8	1,234.8	-17.4	1.9	-17.4	0.14	-0.14	0.38	
2,803.0	0.96	181.35	2,802.8	1,334.8	-19.0	1.8	-19.0	0.12	0.01	-7.05	
2,903.0	0.92	179.03	2,902.8	1,434.8	-20.7	1.8	-20.7	0.06	-0.04	-2.32	
3,003.0	0.88	182.42	3,002.8	1,534.8	-22.2	1.7	-22.2	0.07	-0.04	3.39	
3,103.0	0.59	185.69	3,102.8	1,634.8	-23.5	1.7	-23.5	0.29	-0.29	3.27	
3,203.0	0.27	184.90	3,202.8	1,734.8	-24.3	1.6	-24.3	0.32	-0.32	-0.79	
3,303.0	0.14	202.75	3,302.8	1,834.8	-24.6	1.5	-24.6	0.14	-0.13	17.85	
3,403.0	0.04	243.23	3,402.8	1,934.8	-24.7	1.4	-24.7	0.11	-0.10	40.48	
3,503.0	0.05	117.21	3,502.8	2,034.8	-24.8	1.5	-24.8	0.08	0.01	-126.02	
3,603.0	0.22	308.94	3,602.8	2,134.8	-24.7	1.3	-24.7	0.27	0.17	-168.27	
3,703.0	0.19	311.18	3,702.8	2,234.8	-24.4	1.1	-24.4	0.03	-0.03	2.24	
3,803.0	0.09	309.46	3,802.8	2,334.8	-24.3	0.9	-24.3	0.10	-0.10	-1.72	
3,903.0	0.11	290.67	3,902.8	2,434.8	-24.2	0.7	-24.2	0.04	0.02	-18.79	
4,003.0	0.16	252.15	4,002.8	2,534.8	-24.2	0.5	-24.2	0.10	0.05	-38.52	
4,103.0	0.30	275.77	4,102.8	2,634.8	-24.2	0.1	-24.2	0.17	0.14	23.62	
4,203.0	0.30	285.07	4,202.8	2,734.8	-24.1	-0.4	-24.1	0.05	0.00	9.30	
4,303.0	0.30	280.33	4,302.8	2,834.8	-24.0	-0.9	-24.0	0.02	0.00	-4.74	
4,403.0	0.29	284.34	4,402.8	2,934.8	-23.9	-1.4	-23.9	0.02	-0.01	4.01	
4,503.0	0.26	274.77	4,502.8	3,034.8	-23.8	-1.9	-23.8	0.05	-0.03	-9.57	
4,603.0	0.25	293.93	4,602.8	3,134.8	-23.7	-2.3	-23.7	0.09	-0.01	19.16	
4,703.0	0.20	274.98	4,702.8	3,234.8	-23.6	-2.7	-23.6	0.09	-0.05	-18.95	
4,803.0	0.20	295.78	4,802.8	3,334.8	-23.5	-3.0	-23.5	0.07	0.00	20.80	
4,903.0	0.25	356.13	4,902.8	3,434.8	-23.2	-3.2	-23.2	0.23	0.05	60.35	

RECEIVED
Office of Oil and Gas



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Well #514416- Marcellus - Slot 514416
Company:	EQT PRODUCTION	TVD Reference:	KB @ 1468.0usft
Project:	Wetzel County, WV	MD Reference:	KB @ 1468.0usft
Site:	BIG 333	North Reference:	Gnd
Well:	Well #514416- Marcellus	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	514416 As Drilled Surveys		

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)
5,003.0	0.38	357.47	5,002.8	3,534.8	-22.7	-3.2	-22.7	0.13	0.13	1.34
5,103.0	0.41	4.31	5,102.8	3,634.8	-22.0	-3.2	-22.0	0.06	0.03	6.84
5,203.0	0.33	13.45	5,202.8	3,734.8	-21.3	-3.1	-21.3	0.10	-0.08	9.14
5,303.0	0.36	102.73	5,302.8	3,834.8	-21.1	-2.7	-21.1	0.49	0.03	89.28
5,403.0	0.55	135.96	5,402.8	3,934.8	-21.6	-2.1	-21.6	0.32	0.19	33.23
5,503.0	0.69	144.71	5,502.8	4,034.8	-22.4	-1.4	-22.4	0.17	0.14	8.75
5,603.0	0.48	163.53	5,602.7	4,134.7	-23.3	-0.9	-23.3	0.28	-0.21	18.82
5,703.0	0.05	308.81	5,702.7	4,234.7	-23.7	-0.9	-23.7	0.52	-0.43	145.28
5,803.0	0.39	318.36	5,802.7	4,334.7	-23.4	-1.1	-23.4	0.34	0.34	9.55
5,903.0	0.93	308.53	5,902.7	4,434.7	-22.6	-2.0	-22.6	0.55	0.54	-9.83
6,003.0	1.35	305.15	6,002.7	4,534.7	-21.4	-3.6	-21.4	0.43	0.42	-3.38
6,103.0	1.44	307.01	6,102.7	4,634.7	-20.0	-5.5	-20.0	0.10	0.09	1.86
6,203.0	1.55	306.99	6,202.7	4,734.7	-18.4	-7.6	-18.4	0.11	0.11	-0.02
6,303.0	1.41	314.49	6,302.6	4,834.6	-16.7	-9.6	-16.7	0.24	-0.14	7.50
6,403.0	1.33	317.01	6,402.6	4,934.6	-15.0	-11.3	-15.0	0.10	-0.08	2.52
6,503.0	1.14	324.25	6,502.6	5,034.6	-13.4	-12.6	-13.4	0.25	-0.19	7.24
6,531.0	1.15	320.89	6,530.6	5,062.6	-12.9	-13.0	-12.9	0.24	0.04	-12.00
Gyro Tie On=6631' MD										
6,531.1	1.15	320.89	6,530.7	5,062.7	-12.9	-13.0	-12.9	0.00	0.00	0.00
6,564.0	1.10	321.00	6,563.6	5,095.6	-12.4	-13.4	-12.4	0.15	-0.15	0.33
6,595.0	1.00	316.60	6,594.6	5,126.6	-12.0	-13.8	-12.0	0.41	-0.32	-14.19
6,627.0	1.00	328.00	6,626.5	5,158.5	-11.6	-14.1	-11.6	0.62	0.00	35.63
6,658.0	1.10	102.60	6,657.5	5,189.5	-11.4	-13.9	-11.4	6.25	0.32	434.19
6,690.0	5.20	116.80	6,689.5	5,221.5	-12.1	-12.4	-12.1	12.94	12.81	44.38
6,722.0	8.40	119.80	6,721.3	5,253.3	-13.9	-9.0	-13.9	10.06	10.00	9.38
6,754.0	10.90	117.90	6,752.8	5,284.8	-16.5	-4.3	-16.5	7.87	7.81	-5.94
6,786.0	13.20	118.50	6,784.1	5,316.1	-19.7	1.6	-19.7	7.20	7.19	1.88
6,817.0	16.10	121.40	6,814.1	5,346.1	-23.6	8.3	-23.6	9.65	9.35	9.35
6,849.0	18.30	122.20	6,844.7	5,376.7	-28.6	16.4	-28.6	6.91	6.88	2.50
6,880.0	20.00	122.80	6,873.9	5,405.9	-34.1	25.0	-34.1	5.52	5.48	1.94
6,912.0	22.60	120.90	6,903.7	5,435.7	-40.2	34.8	-40.2	8.41	8.13	-5.94
6,943.0	23.80	115.50	6,932.2	5,464.2	-45.9	45.6	-45.9	7.87	3.87	-17.42
6,975.0	22.00	106.20	6,961.7	5,493.7	-50.4	57.2	-50.4	12.61	-5.63	-29.06
7,007.0	20.80	96.50	6,991.5	5,523.5	-52.7	68.6	-52.7	11.66	-3.75	-30.31
7,038.0	20.80	85.90	7,020.5	5,552.5	-52.9	79.5	-52.9	12.13	0.00	-34.19
7,070.0	20.90	76.50	7,050.4	5,582.4	-51.2	90.8	-51.2	10.45	0.31	-29.38
7,102.0	20.80	68.00	7,080.3	5,612.3	-47.7	101.6	-47.7	9.45	-0.31	-26.56
7,133.0	19.50	59.30	7,109.5	5,641.5	-43.0	111.1	-43.0	10.53	-4.19	-28.06
7,165.0	19.70	50.70	7,139.6	5,671.6	-36.9	119.9	-36.9	9.03	0.63	-26.88
7,196.0	21.10	44.10	7,168.7	5,700.7	-29.6	127.8	-29.6	8.68	4.52	-21.29
7,228.0	22.70	39.10	7,198.4	5,730.4	-20.6	135.7	-20.6	7.67	5.00	-15.63
7,259.0	24.20	32.40	7,226.8	5,758.8	-10.6	142.9	-10.6	9.46	4.84	-21.61
7,291.0	25.80	26.00	7,255.8	5,787.8	1.2	149.5	1.2	9.91	5.00	-20.00



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Well #514416- Marcellus - Slot 514416
Company:	EQT PRODUCTION	TVD Reference:	KB @ 1468.0usft
Project:	Wetzel County, WV	MD Reference:	KB @ 1466.0usft
Site:	BIG 333	North Reference:	Grid
Well:	Well #514416- Marcellus	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	514416 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)	
7,322.0	27.10	20.20	7,283.6	5,815.6	13.9	154.9	13.9	9.32	4.19	-18.71	
7,354.0	28.50	15.00	7,311.9	5,843.9	28.1	159.4	28.1	8.75	4.38	-16.25	
514417 Top of Perf (copy) (copy)											
7,386.0	30.70	11.70	7,339.7	5,871.7	43.5	163.0	43.5	8.55	6.88	-10.31	
7,417.0	33.40	9.10	7,366.0	5,898.0	59.6	166.0	59.6	9.78	8.71	-8.39	
514418 Top of Perf (copy) (copy)											
7,447.1	36.04	7.49	7,390.8	5,922.8	76.6	168.4	76.6	9.26	8.75	-5.33	
7,449.0	36.20	7.40	7,392.3	5,924.3	77.7	168.6	77.7	9.26	8.78	-4.97	
514570 Top of Perf (copy) (copy) (copy)											
7,468.1	37.75	6.18	7,407.5	5,939.5	89.1	169.9	89.1	8.97	8.10	-6.40	
7,481.0	38.80	5.40	7,417.6	5,949.6	97.1	170.7	97.1	8.97	8.16	-6.03	
7,512.0	41.80	2.70	7,441.3	5,973.3	117.1	172.1	117.1	11.20	9.68	-8.71	
7,544.0	45.00	1.60	7,464.5	5,996.5	139.0	173.0	139.0	10.27	10.00	-3.44	
7,575.0	48.40	0.20	7,485.8	6,017.8	161.6	173.3	161.6	11.45	10.97	-4.52	
7,607.0	51.30	359.20	7,506.4	6,038.4	186.0	173.2	186.0	9.37	9.06	-3.13	
7,639.0	54.70	357.90	7,525.7	6,057.7	211.6	172.5	211.6	11.11	10.63	-4.06	
7,670.0	57.70	356.40	7,542.9	6,074.9	237.3	171.2	237.3	10.48	9.68	-4.84	
7,702.0	61.60	355.00	7,559.1	6,091.1	264.8	169.2	264.8	12.76	12.19	-4.38	
7,733.0	65.30	353.70	7,572.9	6,104.9	292.4	166.4	292.4	12.51	11.94	-4.19	
7,765.0	68.90	351.90	7,585.4	6,117.4	321.7	162.7	321.7	12.39	11.25	-5.63	
7,797.0	72.10	350.60	7,596.1	6,128.1	351.5	158.1	351.5	10.71	10.00	-4.06	
7,828.0	74.80	349.00	7,604.9	6,136.9	380.7	152.9	380.7	10.02	8.71	-5.16	
7,860.0	77.20	347.10	7,612.6	6,144.6	411.1	146.4	411.1	9.46	7.50	-5.94	
7,891.0	80.10	345.20	7,618.7	6,150.7	440.6	139.2	440.6	11.12	9.35	-6.13	
7,923.0	82.00	344.20	7,623.7	6,155.7	471.1	130.8	471.1	6.69	5.94	-3.13	
7,954.0	83.80	343.60	7,627.6	6,159.6	500.6	122.3	500.6	6.12	5.81	-1.94	
7,986.0	86.20	343.60	7,630.3	6,162.3	531.2	113.3	531.2	7.50	7.50	0.00	
514416 Plat LP 2 (copy)											
8,004.2	87.91	343.72	7,631.3	6,163.3	548.7	108.2	548.7	9.38	9.35	0.65	
LP=8017' MD/7632' TVD											
8,017.0	89.10	343.80	7,631.6	6,163.6	560.9	104.6	560.9	9.38	9.35	0.64	
8,049.0	90.50	343.70	7,631.7	6,163.7	591.7	95.6	591.7	4.39	4.38	-0.31	
514419 LP 539' VS											
8,072.4	89.82	343.25	7,631.7	6,163.7	614.1	89.0	614.1	3.49	-2.90	-1.94	
8,111.0	88.70	342.50	7,632.2	6,164.2	651.0	77.6	651.0	3.49	-2.90	-1.94	
514419 Plat LP 2 (copy) (copy)											
8,126.3	88.72	342.62	7,632.5	6,164.5	665.6	73.0	665.6	0.81	0.16	0.79	
8,174.0	88.80	343.00	7,633.5	6,165.5	711.1	58.9	711.1	0.81	0.16	0.79	
8,238.0	90.00	342.50	7,634.2	6,166.2	772.2	40.0	772.2	2.03	1.88	-0.78	
8,300.0	90.20	342.10	7,634.1	6,166.1	831.3	21.1	831.3	0.72	0.32	-0.65	
Deepest Point=8363' MD/7634' TVD											
8,363.0	90.50	342.50	7,633.7	6,165.7	891.3	2.0	891.3	0.79	0.48	0.63	
8,427.0	90.10	341.90	7,633.4	6,165.4	952.3	-17.6	952.3	1.13	-0.63	-0.94	
8,490.0	90.10	341.80	7,633.3	6,165.3	1,012.1	-37.2	1,012.1	0.16	0.00	-0.16	

RECEIVED
Office of Oil and Gas



Phoenix Technology Services
Survey Report



Database:	EDM 6000.1 Single User Db	Local Co-ordinate Reference:	Well Well #514416- Marcellus - Slot 514416
Company:	EQT PRODUCTION	TVD Reference:	KB @ 1468.0usft
Project:	Wetzel County, WV	MD Reference:	KB @ 1468.0usft
Site:	BIG 333	North Reference:	Grid
Well:	Well #514416- Marcellus	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	514416 As Drilled Surveys		

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)
8,553.0	90.00	341.00	7,633.2	6,165.2	1,071.8	-57.3	1,071.8	1.28	-0.16	-1.27
8,616.0	90.20	341.20	7,633.1	6,165.1	1,131.4	-77.7	1,131.4	0.45	0.32	0.32
8,679.0	91.40	343.30	7,632.2	6,164.2	1,191.4	-96.9	1,191.4	3.84	1.90	3.33
8,742.0	92.20	345.80	7,630.2	6,162.2	1,252.1	-113.7	1,252.1	4.16	1.27	3.97
8,806.0	91.10	345.90	7,628.4	6,160.4	1,314.1	-129.3	1,314.1	1.73	-1.72	0.16
8,869.0	90.50	346.50	7,627.5	6,159.5	1,375.3	-144.4	1,375.3	1.35	-0.95	0.95
8,932.0	90.40	347.20	7,627.0	6,159.0	1,436.7	-158.7	1,436.7	1.12	-0.16	1.11
8,995.0	90.00	345.00	7,626.8	6,158.8	1,497.8	-173.8	1,497.8	3.55	-0.63	-3.49
9,058.0	90.40	342.80	7,626.6	6,158.6	1,558.3	-191.3	1,558.3	3.55	0.63	-3.49
9,121.0	89.40	343.20	7,626.7	6,158.7	1,618.6	-209.7	1,618.6	1.71	-1.59	0.63
9,184.0	89.00	343.00	7,627.6	6,159.6	1,678.9	-228.0	1,678.9	0.71	-0.63	-0.32
9,247.0	89.20	342.40	7,628.6	6,160.6	1,739.0	-246.8	1,739.0	1.00	0.32	-0.95
9,310.0	88.90	341.70	7,629.6	6,161.6	1,798.9	-266.2	1,798.9	1.21	-0.48	-1.11
9,373.0	89.70	342.60	7,630.4	6,162.4	1,858.9	-285.5	1,858.9	1.91	1.27	1.43
9,436.0	89.90	343.20	7,630.6	6,162.6	1,919.1	-304.0	1,919.1	1.00	0.32	0.95
9,499.0	90.60	344.10	7,630.3	6,162.3	1,979.6	-321.7	1,979.6	1.81	1.11	1.43
9,562.0	91.20	344.10	7,629.3	6,161.3	2,040.1	-339.0	2,040.1	0.95	0.95	0.00
9,625.0	91.40	344.20	7,627.9	6,159.9	2,100.7	-356.2	2,100.7	0.35	0.32	0.16
9,688.0	91.20	343.90	7,626.5	6,158.5	2,161.3	-373.5	2,161.3	0.57	-0.32	-0.48
9,751.0	91.10	344.80	7,625.2	6,157.2	2,221.9	-390.5	2,221.9	1.44	-0.16	1.43
9,815.0	92.20	347.30	7,623.4	6,155.4	2,284.0	-405.9	2,284.0	4.27	1.72	3.91
9,878.0	91.30	345.80	7,621.4	6,153.4	2,345.3	-420.6	2,345.3	2.78	-1.43	-2.38
9,941.0	90.30	345.20	7,620.6	6,152.6	2,406.2	-436.3	2,406.2	1.85	-1.59	-0.95
10,004.0	89.90	344.50	7,620.5	6,152.5	2,467.1	-452.8	2,467.1	1.28	-0.63	-1.11
10,067.0	89.20	342.80	7,620.9	6,152.9	2,527.5	-470.5	2,527.5	2.92	-1.11	-2.70
10,130.0	89.10	340.70	7,621.9	6,153.9	2,587.3	-490.3	2,587.3	3.34	-0.16	-3.33
10,193.0	89.80	341.10	7,622.5	6,154.5	2,646.9	-510.9	2,646.9	1.28	1.11	0.63
10,256.0	89.70	339.40	7,622.8	6,154.8	2,706.1	-532.2	2,706.1	2.70	-0.16	-2.70
10,319.0	89.90	340.20	7,623.0	6,155.0	2,765.3	-553.9	2,765.3	1.31	0.32	1.27
10,382.0	90.60	341.70	7,622.7	6,154.7	2,824.8	-574.5	2,824.8	2.63	1.11	2.38
10,445.0	90.90	341.50	7,621.9	6,153.9	2,884.6	-594.4	2,884.6	0.57	0.48	-0.32
10,508.0	90.90	342.50	7,620.9	6,152.9	2,944.5	-613.8	2,944.5	1.59	0.00	1.59
10,571.0	89.20	342.60	7,620.8	6,152.8	3,004.6	-632.7	3,004.6	2.70	-2.70	0.16
10,634.0	89.30	342.80	7,621.7	6,153.7	3,064.7	-651.5	3,064.7	0.35	0.16	0.32
10,698.0	90.70	342.90	7,621.7	6,153.7	3,125.9	-670.3	3,125.9	2.19	2.19	0.16
10,761.0	91.80	343.20	7,620.3	6,152.3	3,186.1	-688.7	3,186.1	1.81	1.75	0.48
10,824.0	90.30	341.50	7,619.1	6,151.1	3,246.2	-707.8	3,246.2	3.60	-2.38	-2.70
10,887.0	89.50	339.30	7,619.2	6,151.2	3,305.5	-728.9	3,305.5	3.72	-1.27	-3.49
10,950.0	90.70	340.50	7,619.1	6,151.1	3,364.7	-750.6	3,364.7	2.69	1.90	1.90
11,014.0	90.90	341.80	7,618.2	6,150.2	3,425.2	-771.3	3,425.2	2.05	0.31	2.03
11,077.0	90.20	341.30	7,617.6	6,149.6	3,485.0	-791.2	3,485.0	1.37	-1.11	-0.79
11,140.0	90.00	341.80	7,617.5	6,149.5	3,544.7	-811.1	3,544.7	0.85	-0.32	0.79

RECEIVED
Office of Oil and Gas

JAN 27 2016



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Well #514416- Marcellus - Slot 514416
Company:	EQT PRODUCTION	TVD Reference:	KB @ 1468.0usft
Project:	Wetzel County, WV	MD Reference:	KB @ 1468.0usft
Site:	BIG 333	North Reference:	Grid
Well:	Well #514416- Marcellus	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	514416 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)
11,203.0	90.30	341.60	7,617.4	6,149.4	3,604.6	-830.9	3,604.6	0.57	0.48	-0.32
11,266.0	90.40	341.50	7,617.0	6,149.0	3,664.3	-850.8	3,664.3	0.22	0.16	-0.16
11,329.0	91.90	344.10	7,615.7	6,147.7	3,724.5	-869.5	3,724.5	4.76	2.38	4.13
11,392.0	90.80	343.80	7,614.2	6,146.2	3,785.0	-886.9	3,785.0	1.81	-1.75	-0.48
11,455.0	90.20	343.00	7,613.7	6,145.7	3,845.4	-904.9	3,845.4	1.59	-0.95	-1.27
11,518.0	90.10	342.90	7,613.5	6,145.5	3,905.6	-923.4	3,905.6	0.22	-0.16	-0.16
11,581.0	90.20	344.20	7,613.3	6,145.3	3,966.0	-941.2	3,966.0	2.07	0.16	2.06
514416 Deflection Point (copy)										
11,622.0	90.40	344.72	7,613.1	6,145.1	4,005.6	-952.2	4,005.6	1.36	0.48	1.27
11,644.0	90.50	345.00	7,613.0	6,145.0	4,026.8	-957.9	4,026.8	1.36	0.48	1.27
11,707.0	90.90	347.10	7,612.2	6,144.2	4,087.9	-973.1	4,087.9	3.39	0.63	3.33
11,771.0	90.70	347.90	7,611.3	6,143.3	4,150.4	-987.0	4,150.4	1.29	-0.31	1.25
11,834.0	90.50	348.50	7,610.6	6,142.6	4,212.0	-999.8	4,212.0	1.00	-0.32	0.95
11,897.0	90.50	348.60	7,610.1	6,142.1	4,273.8	-1,012.3	4,273.8	0.16	0.00	0.16
11,960.0	90.90	348.70	7,609.3	6,141.3	4,335.6	-1,024.7	4,335.6	0.65	0.63	0.16
12,023.0	89.80	347.70	7,608.9	6,140.9	4,397.2	-1,037.6	4,397.2	2.36	-1.75	-1.59
12,086.0	89.40	347.20	7,609.4	6,141.4	4,458.7	-1,051.3	4,458.7	1.02	-0.63	-0.79
12,149.0	89.70	346.80	7,609.9	6,141.9	4,520.1	-1,065.5	4,520.1	0.79	0.48	-0.63
12,212.0	89.80	347.30	7,610.1	6,142.1	4,581.5	-1,079.6	4,581.5	0.81	0.16	0.79
12,275.0	90.00	347.30	7,610.3	6,142.3	4,642.9	-1,093.5	4,642.9	0.32	0.32	0.00
12,338.0	89.90	346.30	7,610.3	6,142.3	4,704.3	-1,107.8	4,704.3	1.60	-0.16	-1.59
12,401.0	90.40	345.40	7,610.1	6,142.1	4,765.4	-1,123.2	4,765.4	1.63	0.79	-1.43
12,465.0	90.70	346.00	7,609.5	6,141.5	4,827.4	-1,139.0	4,827.4	1.05	0.47	0.94
12,528.0	90.70	345.60	7,608.8	6,140.8	4,888.5	-1,154.5	4,888.5	0.63	0.00	-0.63
12,591.0	91.20	346.60	7,607.7	6,139.7	4,949.6	-1,169.6	4,949.6	1.77	0.79	1.59
12,654.0	90.10	344.60	7,607.0	6,139.0	5,010.6	-1,185.3	5,010.6	3.62	-1.75	-3.17
12,717.0	89.20	345.70	7,607.4	6,139.4	5,071.5	-1,201.4	5,071.5	2.26	-1.43	1.75
12,780.0	89.10	346.40	7,608.3	6,140.3	5,132.6	-1,216.6	5,132.6	1.12	-0.16	1.11
12,843.0	90.10	346.80	7,608.8	6,140.8	5,193.9	-1,231.2	5,193.9	1.71	1.59	0.63
12,907.0	91.30	347.00	7,608.0	6,140.0	5,256.3	-1,245.7	5,256.3	1.90	1.88	0.31
12,970.0	91.00	347.70	7,606.7	6,138.7	5,317.7	-1,259.5	5,317.7	1.21	-0.48	1.11
13,033.0	89.40	346.50	7,606.5	6,138.5	5,379.1	-1,273.6	5,379.1	3.17	-2.54	-1.90
13,096.0	89.20	346.60	7,607.3	6,139.3	5,440.4	-1,288.2	5,440.4	0.35	-0.32	0.16
13,158.0	90.10	347.30	7,607.6	6,139.6	5,500.8	-1,302.2	5,500.8	1.84	1.45	1.13
13,221.0	90.10	346.70	7,607.5	6,139.5	5,562.2	-1,316.4	5,562.2	0.95	0.00	-0.95
13,284.0	90.70	346.90	7,607.1	6,139.1	5,623.5	-1,330.8	5,623.5	1.00	0.95	0.32
13,347.0	91.10	346.50	7,606.1	6,138.1	5,684.8	-1,345.3	5,684.8	0.90	0.63	-0.63
13,410.0	90.80	346.40	7,605.1	6,137.1	5,746.0	-1,360.1	5,746.0	0.50	-0.48	-0.16
13,474.0	89.80	347.60	7,604.7	6,136.7	5,808.4	-1,374.4	5,808.4	2.44	-1.56	1.88
13,537.0	89.80	347.10	7,604.9	6,136.9	5,869.9	-1,388.2	5,869.9	0.79	0.00	-0.79
13,600.0	90.30	347.10	7,604.9	6,136.9	5,931.3	-1,402.3	5,931.3	0.79	0.79	0.00
13,663.0	90.80	347.10	7,604.3	6,136.3	5,992.7	-1,416.4	5,992.7	0.79	0.79	0.00
13,726.0	91.20	346.60	7,603.2	6,135.2	6,054.0	-1,430.7	6,054.0	1.02	0.63	-0.79

RECEIVED
Office of Oil and Gas



Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Well #514416- Marcellus - Slot 514416
Company:	EQT PRODUCTION	TVD Reference:	KB @ 1468.0usft
Project:	Wetzel County, WV	MD Reference:	KB @ 1468.0usft
Site:	BIG 333	North Reference:	Grid
Well:	Well #514416- Marcellus	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	514416 As Drilled Surveys		

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)
13,788.0	91.00	347.00	7,602.0	6,134.0	6,114.4	-1,444.9	6,114.4	0.72	-0.32	0.65
13,851.0	91.00	348.20	7,600.9	6,132.9	6,175.9	-1,458.4	6,175.9	1.90	0.00	1.90
13,914.0	89.80	347.80	7,600.5	6,132.5	6,237.5	-1,471.5	6,237.5	2.01	-1.90	-0.63
13,977.0	89.30	347.20	7,600.9	6,132.9	6,299.0	-1,485.1	6,299.0	1.24	-0.79	-0.95
14,039.0	89.80	347.00	7,601.4	6,133.4	6,359.5	-1,499.0	6,359.5	0.87	0.81	-0.32
14,102.0	89.20	347.60	7,602.0	6,134.0	6,420.9	-1,512.8	6,420.9	1.35	-0.95	0.95
14,164.0	89.30	347.60	7,602.8	6,134.8	6,481.5	-1,526.1	6,481.5	0.16	0.16	0.00
14,227.0	91.10	347.20	7,602.6	6,134.6	6,542.9	-1,539.9	6,542.9	2.93	2.86	-0.63
14,290.0	91.00	346.40	7,601.4	6,133.4	6,604.3	-1,554.2	6,604.3	1.28	-0.16	-1.27
14,353.0	90.40	346.70	7,600.7	6,132.7	6,665.5	-1,568.9	6,665.5	1.06	-0.95	0.48
14,415.0	89.80	345.40	7,600.5	6,132.5	6,725.7	-1,583.8	6,725.7	2.31	-0.97	-2.10
14,478.0	89.90	344.90	7,600.7	6,132.7	6,786.6	-1,600.0	6,786.6	0.81	0.16	-0.79
14,541.0	90.90	345.90	7,600.3	6,132.3	6,847.6	-1,615.9	6,847.6	2.24	1.59	1.59
14,603.0	91.50	346.80	7,599.0	6,131.0	6,907.8	-1,630.5	6,907.8	1.74	0.97	1.45
14,666.0	91.00	347.50	7,597.6	6,129.6	6,969.2	-1,644.5	6,969.2	1.37	-0.79	1.11
14,728.0	90.90	348.20	7,596.6	6,128.6	7,029.8	-1,657.6	7,029.8	1.14	-0.16	1.13
14,791.0	90.80	346.40	7,595.6	6,127.6	7,091.2	-1,671.4	7,091.2	2.86	-0.16	-2.86
14,854.0	89.70	345.70	7,595.4	6,127.4	7,152.4	-1,686.6	7,152.4	2.07	-1.75	-1.11
14,916.0	89.90	345.20	7,595.6	6,127.6	7,212.4	-1,702.2	7,212.4	0.87	0.32	-0.81
14,979.0	89.60	345.70	7,595.8	6,127.8	7,273.4	-1,718.0	7,273.4	0.93	-0.48	0.79
Final Survey=14998' MD/7596' TVD										
14,998.0	89.80	345.50	7,595.9	6,127.9	7,291.8	-1,722.7	7,291.8	1.49	1.05	-1.05
PROJ to Bit=15056' MD/7596' TVD - 514416 Plat TD4 (copy)										
15,056.0	89.80	345.50	7,596.2	6,128.2	7,347.9	-1,737.2	7,347.9	0.00	0.00	0.00

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,531.1	6,530.7	-12.9	-13.0	Gyro Tie On=6531' MD
8,017.0	7,631.6	560.9	104.6	LP=8017' MD/7632' TVD
8,363.0	7,633.7	891.3	2.0	Deepest Point=8363' MD/7634' TVD
14,998.0	7,595.9	7,291.8	-1,722.7	Final Survey=14998' MD/7596' TVD
15,056.0	7,596.2	7,347.9	-1,737.2	PROJ to Bit=15056' MD/7596' TVD

Checked By: _____ Approved By: _____ Date: _____

RECEIVED
Office of Oil and Gas

JAN 27 2016

WV Department of
Environmental Protection



EQT PRODUCTION

Project: Wetzel County, WV
Site: BIG 333
Well: Well #514416- Marcellus
Wellbore: Main Wellbore
Design: 514416 As Drilled Surveys

