



Where energy meets innovation.

# EQT PRODUCTION

Wetzel County, WV

Big 177

Well #512916 - MRC - Slot 512916

API#47-103-03058

OH

Design: 512916 As Drilled

## Standard Survey Report

05 September, 2017



PHOENIX  
TECHNOLOGY SERVICES

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Office of Oil and Gas

JAN 24 2018

WV Department of  
Environmental Protection

02/16/2018

Company:	EQT PRODUCTION	Local Co-ordinate Reference:	Well Well #512916 - MRC - Slot 512916
Project:	Wetzel County, WV	TVD Reference:	KB @23' @ 834.0usft
Site:	Big 177	MD Reference:	KB @23' @ 834.0usft
Well:	Well #512916 - MRC	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	512916 As Drilled	Database:	Compass 5000 NER

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 177				
Site Position:		Northing:	396,138.09 usft	Latitude:	39° 34' 57.245 N
From:	Map	Easting:	1,694,445.70 usft	Longitude:	80° 35' 2.833 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.69 °

Well	Well #512916 - MRC - Slot 512916					
Well Position	+N/-S	0.0 usft	Northing:	396,140.09 usft	Latitude:	39° 34' 57.263 N
	+E/-W	0.0 usft	Easting:	1,694,435.93 usft	Longitude:	80° 35' 2.958 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	811.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/23/2017	-8.35	66.90	52,341

Design	512916 As Drilled				
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	330.31	

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Survey Program	Date 9/5/2017				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
110.0	5,522.0	512916 Gyrodata Gyro (OH)	GYD_DP_MS	Gyrodata gyro-compassing and drop	
5,564.0	6,438.0	SDI Air Curve (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1	
6,517.0	15,667.0	Phoenix MWD Surveys (OH)	MWD+HDGM	OWSG Rev.2 MWD + HDGM	

WV Department of Environmental Protection

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
110.0	0.44	132.41	110.0	-0.3	0.3	-0.4	0.40	0.40	0.00
210.0	0.42	139.98	210.0	-0.8	0.8	-1.1	0.06	-0.02	7.57
310.0	0.37	129.79	310.0	-1.3	1.3	-1.8	0.09	-0.05	-10.19
410.0	0.40	121.11	410.0	-1.7	1.9	-2.4	0.07	0.03	-8.68
510.0	0.44	132.47	510.0	-2.1	2.4	-3.1	0.09	0.04	11.36
610.0	0.29	124.31	610.0	-2.5	2.9	-3.7	0.16	-0.15	-8.16
710.0	0.18	145.75	710.0	-2.8	3.2	-4.0	0.14	-0.11	21.44
810.0	0.62	323.75	810.0	-2.5	3.0	-3.7	0.80	0.44	178.00

<b>Company:</b>	EQT PRODUCTION	<b>Local Co-ordinate Reference:</b>	Well Well #512916 - MRC - Slot 512916
<b>Project:</b>	Wetzel County, WV	<b>TVD Reference:</b>	KB @23' @ 834.0usft
<b>Site:</b>	Big 177	<b>MD Reference:</b>	KB @23' @ 834.0usft
<b>Well:</b>	Well #512916 - MRC	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	512916 As Drilled	<b>Database:</b>	Compass 5000 NER

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)	
910.0	2.76	314.65	909.9	-0.4	1.0	-0.8	2.15	2.14	-9.10	
1,010.0	4.46	310.27	1,009.7	3.8	-3.7	5.2	1.72	1.70	-4.38	
1,110.0	5.83	309.49	1,109.3	9.6	-10.6	13.6	1.37	1.37	-0.78	
1,210.0	6.04	309.51	1,208.8	16.1	-18.6	23.2	0.21	0.21	0.02	
1,310.0	5.47	310.93	1,308.3	22.6	-26.2	32.6	0.59	-0.57	1.42	
1,410.0	2.51	326.74	1,408.0	27.6	-31.0	39.3	3.13	-2.96	15.81	
1,510.0	0.63	28.27	1,508.0	29.9	-32.0	41.8	2.28	-1.88	61.53	
1,610.0	0.53	81.69	1,608.0	30.4	-31.3	41.9	0.53	-0.10	53.42	
1,710.0	0.56	89.68	1,708.0	30.5	-30.3	41.5	0.08	0.03	7.99	
1,810.0	0.61	95.48	1,808.0	30.5	-29.3	41.0	0.08	0.05	5.80	
1,910.0	0.67	98.88	1,908.0	30.3	-28.2	40.3	0.07	0.06	3.40	
2,010.0	0.72	101.27	2,008.0	30.1	-27.0	39.5	0.06	0.05	2.39	
2,110.0	0.61	97.13	2,108.0	29.9	-25.9	38.8	0.12	-0.11	-4.14	
2,210.0	0.53	93.64	2,208.0	29.8	-24.9	38.2	0.09	-0.08	-3.49	
2,310.0	0.46	77.29	2,308.0	29.9	-24.0	37.8	0.16	-0.07	-16.35	
2,410.0	0.56	79.23	2,408.0	30.1	-23.1	37.6	0.10	0.10	1.94	
2,510.0	0.66	79.24	2,507.9	30.3	-22.1	37.2	0.10	0.10	0.01	
2,610.0	0.67	71.16	2,607.9	30.6	-21.0	36.9	0.09	0.01	-8.08	
2,710.0	0.73	65.22	2,707.9	31.0	-19.8	36.8	0.09	0.06	-5.94	
2,810.0	0.57	25.99	2,807.9	31.7	-19.0	37.0	0.46	-0.16	-39.23	
2,910.0	0.49	19.48	2,907.9	32.6	-18.7	37.6	0.10	-0.08	-6.51	
3,010.0	0.24	5.93	3,007.9	33.2	-18.5	38.0	0.26	-0.25	-13.55	
3,110.0	0.26	0.79	3,107.9	33.6	-18.5	38.4	0.03	0.02	-5.14	
3,210.0	0.27	345.47	3,207.9	34.1	-18.5	38.8	0.07	0.01	-15.32	
3,310.0	0.17	324.88	3,307.9	34.4	-18.7	39.2	0.13	-0.10	-20.59	
3,410.0	0.17	290.14	3,407.9	34.6	-18.9	39.4	0.10	0.00	-34.74	
3,510.0	0.20	293.85	3,507.9	34.7	-19.2	39.7	0.03	0.03	3.71	
3,610.0	0.20	290.59	3,607.9	34.9	-19.5	40.0	0.01	0.00	-3.26	
3,710.0	0.22	297.56	3,707.9	35.0	-19.9	40.3	0.03	0.02	6.97	
3,810.0	0.17	294.71	3,807.9	35.2	-20.2	40.5	0.05	-0.05	-2.85	
3,910.0	0.07	35.27	3,907.9	35.3	-20.3	40.7	0.20	-0.10	100.56	
4,010.0	0.12	60.48	4,007.9	35.4	-20.2	40.7	0.06	0.05	25.21	
4,110.0	0.14	73.11	4,107.9	35.5	-19.9	40.7	0.03	0.02	12.63	
4,210.0	0.30	92.15	4,207.9	35.5	-19.6	40.5	0.17	0.16	19.04	
4,310.0	0.32	97.29	4,307.9	35.4	-19.0	40.2	0.03	0.02	5.14	
4,410.0	0.34	96.49	4,407.9	35.4	-18.5	39.9	0.02	0.02	-0.80	
4,510.0	0.34	98.70	4,507.9	35.3	-17.9	39.5	0.01	0.00	2.21	
4,610.0	0.38	105.26	4,607.9	35.2	-17.3	39.1	0.06	0.04	6.56	
4,710.0	0.44	118.88	4,707.9	34.9	-16.6	38.5	0.11	0.06	13.62	
4,810.0	0.55	112.67	4,807.9	34.5	-15.8	37.8	0.12	0.11	-6.21	
4,910.0	0.56	105.81	4,907.9	34.2	-14.9	37.1	0.07	0.01	-6.86	
5,010.0	0.59	104.78	5,007.9	33.9	-13.9	36.4	0.03	0.03	-1.03	
5,110.0	0.38	101.23	5,107.9	33.7	-13.1	35.8	0.21	-0.21	-3.55	

<b>Company:</b>	EQT PRODUCTION	<b>Local Co-ordinate Reference:</b>	Well Well #512916 - MRC - Slot 512916
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<b>Site:</b>	Big 177	<b>MD Reference:</b>	KB @23' @ 834.0usft
<b>Well:</b>	Well #512916 - MRC	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	512916 As Drilled	<b>Database:</b>	Compass 5000 NER

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)	
5,210.0	0.26	101.81	5,207.9	33.6	-12.6	35.4	0.12	-0.12	0.58	
5,310.0	0.24	94.15	5,307.9	33.6	-12.1	35.2	0.04	-0.02	-7.66	
5,410.0	0.33	107.51	5,407.9	33.5	-11.7	34.8	0.11	0.09	13.36	
5,510.0	0.46	119.41	5,507.9	33.2	-11.0	34.3	0.15	0.13	11.90	
5,522.0	0.48	119.55	5,519.9	33.1	-10.9	34.2	0.17	0.17	1.17	
5,564.0	2.86	269.89	5,561.9	33.0	-11.8	34.6	7.82	5.67	357.87	
5,608.0	6.61	273.76	5,605.7	33.2	-15.5	36.5	8.55	8.52	8.80	
5,652.0	10.55	277.04	5,649.2	33.9	-22.0	40.3	9.02	8.95	7.45	
5,695.0	14.48	282.95	5,691.2	35.6	-31.1	46.3	9.60	9.14	13.74	
5,739.0	16.88	283.93	5,733.5	38.3	-42.7	54.4	5.49	5.45	2.23	
5,783.0	19.22	285.65	5,775.4	41.8	-55.9	64.0	5.45	5.32	3.91	
5,826.0	22.48	285.18	5,815.5	45.9	-70.6	74.8	7.59	7.58	-1.09	
5,870.0	25.67	280.82	5,855.7	49.9	-88.1	87.0	8.30	7.25	-9.91	
5,914.0	29.23	279.62	5,894.8	53.5	-108.1	100.0	8.19	8.09	-2.73	
5,957.0	32.48	277.62	5,931.7	56.7	-129.9	113.6	7.92	7.56	-4.65	
6,001.0	36.43	277.56	5,967.9	60.0	-154.5	128.7	8.98	8.98	-0.14	
6,044.0	39.34	275.69	6,001.9	63.1	-180.8	144.3	7.27	6.77	-4.35	
6,088.0	39.67	275.29	6,035.8	65.7	-208.6	160.4	0.95	0.75	-0.91	
6,132.0	39.68	273.94	6,069.7	68.0	-236.6	176.3	1.96	0.02	-3.07	
6,175.0	39.17	272.54	6,102.9	69.5	-263.9	191.1	2.38	-1.19	-3.26	
6,219.0	38.35	271.66	6,137.2	70.6	-291.4	205.6	2.25	-1.86	-2.00	
6,263.0	38.10	274.26	6,171.8	72.0	-318.6	220.3	3.70	-0.57	5.91	
6,306.0	37.80	275.00	6,205.7	74.1	-345.0	235.2	1.27	-0.70	1.72	
6,350.0	36.99	273.88	6,240.7	76.2	-371.6	250.2	2.40	-1.84	-2.55	
6,394.0	37.03	273.92	6,275.8	78.0	-398.0	264.9	0.11	0.09	0.09	
6,438.0	38.72	275.68	6,310.5	80.2	-424.9	280.2	4.56	3.84	4.00	
<b>Tie In</b>										
6,517.0	40.27	278.24	6,371.5	86.3	-474.8	310.2	2.85	1.96	3.24	
<b>First Phoenix MWD Survey</b>										
6,549.0	41.64	280.72	6,395.7	89.8	-495.5	323.4	6.64	4.28	7.75	
6,580.0	43.26	283.24	6,418.5	94.1	-516.0	337.3	7.58	5.23	8.13	
6,612.0	43.75	283.75	6,441.7	99.3	-537.4	352.4	1.88	1.53	1.59	
6,706.0	44.54	286.18	6,509.2	116.2	-600.6	398.4	1.99	0.84	2.59	
6,769.0	44.35	286.96	6,554.2	128.8	-642.9	430.3	0.92	-0.30	1.24	
6,800.0	44.68	286.84	6,576.3	135.1	-663.7	446.1	1.10	1.06	-0.39	
6,822.0	45.42	288.47	6,591.8	139.8	-678.5	457.5	6.21	3.35	7.39	
<b>As-Drilled KOP: 6822'MD/6591.8"TV</b>										
6,832.0	45.76	289.19	6,598.8	142.1	-685.3	462.9	6.21	3.43	7.25	
6,863.0	47.54	292.47	6,620.1	150.1	-706.3	480.3	9.60	5.74	10.58	
6,894.0	49.34	295.51	6,640.7	159.6	-727.5	499.0	9.36	5.81	9.81	
6,926.0	51.43	298.50	6,661.1	170.8	-749.5	519.6	9.72	6.53	9.34	
6,957.0	52.93	301.32	6,680.1	183.0	-770.7	540.7	8.66	4.84	9.10	
6,989.0	54.48	304.21	6,699.0	197.0	-792.4	563.5	8.74	4.84	9.03	
7,020.0	56.35	307.40	6,716.6	211.9	-813.1	586.8	10.40	6.03	10.29	

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Project:	Wetzel County, WV	TVD Reference:	KB @23' @ 834.0usft
Site:	Big 177	MD Reference:	KB @23' @ 834.0usft
Well:	Well #512916 - MRC	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	512916 As Drilled	Database:	Compass 5000 NER

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)
7,051.0	58.23	310.29	6,733.4	228.3	-833.4	611.0	9.91	6.06	9.32
7,083.0	60.10	312.13	6,749.8	246.4	-854.0	637.0	7.65	5.84	5.75
7,114.0	62.46	313.71	6,764.7	264.9	-873.9	662.9	8.83	7.61	5.10
7,146.0	65.43	315.00	6,778.7	285.0	-894.5	690.6	9.96	9.28	4.03
7,177.0	68.70	316.73	6,790.8	305.5	-914.4	718.2	11.73	10.55	5.58
7,209.0	71.25	317.47	6,801.8	327.5	-934.8	747.5	8.26	7.97	2.31
7,240.0	72.47	318.61	6,811.4	349.4	-954.5	776.3	5.26	3.94	3.68
7,271.0	73.32	318.82	6,820.5	371.7	-974.1	805.3	2.82	2.74	0.68
7,303.0	75.77	320.52	6,829.1	395.2	-994.0	835.6	9.21	7.66	5.31
7,334.0	77.29	322.15	6,836.3	418.7	-1,012.9	865.4	7.08	4.90	5.26
7,366.0	79.01	324.69	6,842.9	443.9	-1,031.5	896.5	9.45	5.38	7.94
7,397.0	81.43	326.56	6,848.1	469.1	-1,048.8	926.9	9.81	7.81	6.03
7,429.0	83.57	328.78	6,852.3	495.9	-1,065.7	958.6	9.59	6.69	6.94
7,460.0	85.61	329.92	6,855.2	522.4	-1,081.5	989.5	7.53	6.58	3.68
7,486.0	87.56	330.55	6,856.8	544.9	-1,094.3	1,015.4	7.86	7.48	2.42
<b>As-Drilled LP: 7486°MD/6856.8°TVD - Hamilton Target</b>									
7,491.0	87.93	330.67	6,857.0	549.3	-1,096.8	1,020.4	7.86	7.48	2.42
7,554.0	91.56	333.27	6,857.3	604.9	-1,126.4	1,083.4	7.09	5.76	4.13
7,649.0	93.30	332.83	6,853.2	689.5	-1,169.4	1,178.2	1.89	1.83	-0.46
7,743.0	90.35	332.38	6,850.2	772.9	-1,212.6	1,272.0	3.17	-3.14	-0.48
7,837.0	88.75	333.16	6,851.0	856.5	-1,255.6	1,365.9	1.89	-1.70	0.83
7,931.0	88.81	333.21	6,853.0	940.4	-1,298.0	1,459.8	0.08	0.06	0.05
8,026.0	89.75	333.92	6,854.2	1,025.4	-1,340.3	1,554.6	1.24	0.99	0.75
8,120.0	90.28	331.52	6,854.1	1,109.0	-1,383.4	1,648.5	2.61	0.56	-2.55
8,215.0	90.52	329.49	6,853.5	1,191.6	-1,430.2	1,743.5	2.15	0.25	-2.14
8,309.0	89.18	330.40	6,853.7	1,273.0	-1,477.3	1,837.5	1.72	-1.43	0.97
8,403.0	90.02	331.40	6,854.4	1,355.1	-1,523.0	1,931.5	1.39	0.89	1.06
8,491.0	91.19	332.83	6,853.4	1,432.9	-1,564.1	2,019.5	2.10	1.33	1.63
8,585.0	90.92	331.82	6,851.7	1,516.1	-1,607.8	2,113.4	1.11	-0.29	-1.07
8,680.0	89.84	332.40	6,851.1	1,600.1	-1,652.2	2,208.3	1.29	-1.14	0.61
8,774.0	89.78	331.00	6,851.4	1,682.9	-1,696.8	2,302.3	1.49	-0.06	-1.49
8,868.0	89.44	328.41	6,852.0	1,764.0	-1,744.2	2,396.3	2.78	-0.36	-2.76
8,963.0	89.92	330.46	6,852.6	1,845.8	-1,792.5	2,491.3	2.22	0.51	2.16
9,057.0	88.70	331.98	6,853.7	1,928.2	-1,837.7	2,585.3	2.07	-1.30	1.62
9,151.0	88.30	330.40	6,856.2	2,010.5	-1,883.0	2,679.2	1.73	-0.43	-1.68
9,246.0	89.78	332.34	6,857.8	2,093.9	-1,928.5	2,774.2	2.57	1.56	2.04
9,340.0	90.58	331.56	6,857.5	2,176.8	-1,972.7	2,868.1	1.19	0.85	-0.83
9,434.0	90.72	333.19	6,856.4	2,260.1	-2,016.3	2,962.1	1.74	0.15	1.73
9,528.0	90.88	334.26	6,855.1	2,344.4	-2,057.9	3,055.9	1.15	0.17	1.14
9,623.0	90.33	332.99	6,854.1	2,429.5	-2,100.1	3,150.7	1.46	-0.58	-1.34
9,717.0	90.95	332.59	6,853.0	2,513.1	-2,143.1	3,244.6	0.78	0.66	-0.43
9,811.0	91.91	332.46	6,850.7	2,596.5	-2,186.5	3,338.5	1.03	1.02	-0.14
9,905.0	90.25	332.39	6,848.9	2,679.8	-2,230.0	3,432.4	1.77	-1.77	-0.07

<b>Company:</b>	EQT PRODUCTION	<b>Local Co-ordinate Reference:</b>	Well Well #512916 - MRC - Slot 512916
<b>Project:</b>	Wetzel County, WV	<b>TVD Reference:</b>	KB @23' @ 834.0usft
<b>Site:</b>	Big 177	<b>MD Reference:</b>	KB @23' @ 834.0usft
<b>Well:</b>	Well #512916 - MRC	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	512916 As Drilled	<b>Database:</b>	Compass 5000 NER

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)
10,000.0	90.36	331.37	6,848.4	2,763.5	-2,274.7	3,527.4	1.08	0.12	-1.07
10,094.0	89.27	331.14	6,848.7	2,846.0	-2,319.9	3,621.4	1.19	-1.16	-0.24
10,189.0	89.33	331.90	6,849.9	2,929.5	-2,365.2	3,716.4	0.80	0.06	0.80
10,283.0	89.24	330.82	6,851.0	3,011.9	-2,410.3	3,810.3	1.15	-0.10	-1.15
10,377.0	89.18	332.84	6,852.3	3,094.8	-2,454.7	3,904.3	2.15	-0.06	2.15
10,472.0	89.81	331.92	6,853.2	3,179.0	-2,498.7	3,999.2	1.17	0.66	-0.97
10,566.0	90.67	330.69	6,852.8	3,261.4	-2,543.8	4,093.2	1.60	0.91	-1.31
10,660.0	90.39	332.02	6,851.9	3,343.9	-2,588.9	4,187.2	1.45	-0.30	1.41
10,755.0	91.59	331.85	6,850.3	3,427.7	-2,633.6	4,282.1	1.28	1.26	-0.18
10,849.0	90.08	331.92	6,848.9	3,510.6	-2,677.9	4,376.1	1.61	-1.61	0.07
10,944.0	90.58	332.34	6,848.4	3,594.6	-2,722.3	4,471.0	0.69	0.53	0.44
11,038.0	89.13	331.86	6,848.6	3,677.7	-2,766.3	4,565.0	1.62	-1.54	-0.51
11,132.0	89.68	331.78	6,849.6	3,760.5	-2,810.6	4,658.9	0.59	0.59	-0.09
11,226.0	88.61	331.52	6,851.0	3,843.2	-2,855.3	4,752.9	1.17	-1.14	-0.28
11,321.0	88.82	331.11	6,853.1	3,926.6	-2,900.9	4,847.9	0.48	0.22	-0.43
11,414.0	89.58	334.77	6,854.4	4,009.4	-2,943.2	4,940.7	4.02	0.82	3.94
11,509.0	90.12	334.76	6,854.6	4,095.3	-2,983.7	5,035.5	0.57	0.57	-0.01
11,603.0	91.05	334.44	6,853.7	4,180.2	-3,024.0	5,129.2	1.05	0.99	-0.34
11,697.0	91.73	334.94	6,851.4	4,265.2	-3,064.2	5,222.9	0.90	0.72	0.53
11,792.0	90.44	335.02	6,849.6	4,351.2	-3,104.3	5,317.6	1.36	-1.36	0.08
11,886.0	90.22	332.14	6,849.1	4,435.4	-3,146.1	5,411.4	3.07	-0.23	-3.06
11,980.0	90.75	331.40	6,848.3	4,518.2	-3,190.6	5,505.4	0.97	0.56	-0.79
12,075.0	89.16	329.80	6,848.3	4,601.0	-3,237.2	5,600.3	2.37	-1.67	-1.68
12,169.0	89.78	328.84	6,849.2	4,681.8	-3,285.2	5,694.3	1.22	0.66	-1.02
12,263.0	89.24	328.76	6,850.0	4,762.2	-3,333.9	5,788.3	0.58	-0.57	-0.09
12,357.0	89.13	329.66	6,851.4	4,843.0	-3,382.0	5,882.3	0.96	-0.12	0.96
12,451.0	89.07	332.56	6,852.8	4,925.2	-3,427.4	5,976.2	3.09	-0.06	3.09
12,546.0	90.30	332.04	6,853.4	5,009.3	-3,471.6	6,071.2	1.41	1.29	-0.55
12,640.0	89.05	334.00	6,853.9	5,093.1	-3,514.2	6,165.1	2.47	-1.33	2.09
12,734.0	89.48	334.07	6,855.1	5,177.6	-3,555.4	6,258.9	0.46	0.46	0.07
12,829.0	88.71	332.15	6,856.6	5,262.3	-3,598.3	6,353.7	2.18	-0.81	-2.02
12,923.0	88.62	332.34	6,858.8	5,345.5	-3,642.1	6,447.6	0.22	-0.10	0.20
13,017.0	89.30	333.78	6,860.5	5,429.3	-3,684.7	6,541.5	1.69	0.72	1.53
13,111.0	89.76	336.77	6,861.3	5,514.6	-3,724.0	6,635.1	3.22	0.49	3.18
13,206.0	90.16	336.74	6,861.3	5,601.9	-3,761.5	6,729.5	0.42	0.42	-0.03
13,300.0	89.30	339.97	6,861.8	5,689.3	-3,796.1	6,822.6	3.56	-0.91	3.44
13,394.0	89.72	341.75	6,862.6	5,778.1	-3,826.9	6,915.0	1.95	0.45	1.89
13,489.0	90.56	341.63	6,862.3	5,868.3	-3,856.8	7,008.1	0.89	0.88	-0.13
13,583.0	88.53	341.41	6,863.1	5,957.4	-3,886.6	7,100.3	2.17	-2.16	-0.23
13,677.0	88.55	340.98	6,865.5	6,046.4	-3,916.9	7,192.6	0.46	0.02	-0.46
13,771.0	89.73	341.86	6,866.9	6,135.5	-3,946.8	7,284.9	1.57	1.26	0.94
13,866.0	90.65	342.96	6,866.6	6,226.0	-3,975.5	7,377.7	1.51	0.97	1.16
13,960.0	89.33	341.45	6,866.6	6,315.5	-4,004.3	7,469.7	2.13	-1.40	-1.61
14,054.0	89.65	341.20	6,867.4	6,404.6	-4,034.4	7,562.0	0.43	0.34	-0.27

<b>Company:</b>	EQT PRODUCTION	<b>Local Co-ordinate Reference:</b>	Well Well #512916 - MRC - Slot 512916
<b>Project:</b>	Wetzel County, WV	<b>TVD Reference:</b>	KB @23' @ 834.0usft
<b>Site:</b>	Big 177	<b>MD Reference:</b>	KB @23' @ 834.0usft
<b>Well:</b>	Well #512916 - MRC	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	512916 As Drilled	<b>Database:</b>	Compass 5000 NER

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)	
14,148.0	90.47	341.90	6,867.3	6,493.7	-4,064.1	7,654.2	1.15	0.87	0.74	
14,243.0	88.64	339.47	6,868.1	6,583.4	-4,095.5	7,747.6	3.20	-1.93	-2.56	
14,337.0	88.65	341.82	6,870.3	6,672.0	-4,126.7	7,840.1	2.50	0.01	2.50	
14,432.0	89.36	340.26	6,871.9	6,761.8	-4,157.5	7,933.4	1.80	0.75	-1.64	
14,527.0	89.27	341.46	6,873.1	6,851.6	-4,188.7	8,026.8	1.27	-0.09	1.26	
14,621.0	89.19	343.72	6,874.3	6,941.3	-4,216.8	8,118.6	2.41	-0.09	2.40	
14,715.0	89.30	344.71	6,875.6	7,031.7	-4,242.4	8,209.8	1.06	0.12	1.05	
14,810.0	88.07	342.40	6,877.8	7,122.8	-4,269.2	8,302.3	2.75	-1.29	-2.43	
14,904.0	88.41	341.09	6,880.7	7,212.0	-4,298.7	8,394.4	1.44	0.36	-1.39	
14,998.0	88.42	342.11	6,883.3	7,301.2	-4,328.3	8,486.5	1.08	0.01	1.09	
15,092.0	88.98	341.19	6,885.4	7,390.4	-4,357.9	8,578.7	1.15	0.60	-0.98	
15,186.0	88.75	342.69	6,887.2	7,479.7	-4,387.1	8,670.7	1.61	-0.24	1.60	
15,282.0	89.15	342.63	6,889.0	7,571.3	-4,415.7	8,764.5	0.42	0.42	-0.06	
15,375.0	90.48	342.30	6,889.3	7,660.0	-4,443.7	8,855.4	1.47	1.43	-0.35	
15,469.0	88.41	341.38	6,890.2	7,749.3	-4,473.0	8,947.5	2.41	-2.20	-0.98	
15,563.0	88.99	342.53	6,892.4	7,838.7	-4,502.1	9,039.5	1.37	0.62	1.22	
15,588.0	89.21	341.92	6,892.7	7,862.5	-4,509.7	9,064.0	2.59	0.88	-2.44	
<b>Final Phoenix MWD Survey</b>										
15,667.0	89.21	341.92	6,893.8	7,937.6	-4,534.2	9,141.4	0.00	0.00	0.00	
<b>As-Drilled TD: 15667'MD/6893.8'TVD - Deepest Point @ 15667'MD/6893.8TVD</b>										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
512916-As-Drilled KOP - hit/miss target - Shape - Point	0.00	360.00	6,591.8	139.8	-678.5	396,279.91	1,693,757.41	39° 34' 58.564 N	80° 35' 11.646 W	
512916-As-Drilled LP - actual wellpath hits target center - Point	0.00	0.00	6,856.8	544.9	-1,094.3	396,685.04	1,693,341.58	39° 35' 2.518 N	80° 35' 17.019 W	
512916-As-Drilled TD - actual wellpath hits target center - Point	0.00	360.00	6,893.8	7,937.6	-4,534.2	404,077.67	1,689,901.70	39° 36' 15.166 N	80° 36' 2.110 W	

<b>Company:</b>	EQT PRODUCTION	<b>Local Co-ordinate Reference:</b>	Well Well #512916 - MRC - Slot 512916
<b>Project:</b>	Wetzel County, WV	<b>TVD Reference:</b>	KB @23' @ 834.0usft
<b>Site:</b>	Big 177	<b>MD Reference:</b>	KB @23' @ 834.0usft
<b>Well:</b>	Well #512916 - MRC	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	512916 As Drilled	<b>Database:</b>	Compass 5000 NER

**Design Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,438.0	6,310.5	80.2	-424.9	Tie In
6,517.0	6,371.5	86.3	-474.8	First Phoenix MWD Survey
6,822.0	6,591.8	139.8	-678.5	As-Drilled KOP: 6822'MD/6591.8"TV D
7,486.0	6,856.8	544.9	-1,094.3	As-Drilled LP: 7486'MD/6856.8"TV D
7,486.0	6,856.8	544.9	-1,094.3	Hamilton Target
15,588.0	6,892.7	7,862.5	-4,509.7	Final Phoenix MWD Survey
15,667.0	6,893.8	7,937.6	-4,534.2	As-Drilled TD: 15667'MD/6893.8"TV D
15,667.0	6,893.8	7,937.6	-4,534.2	Deepest Point @ 15667'MD/6893.8"TV D

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

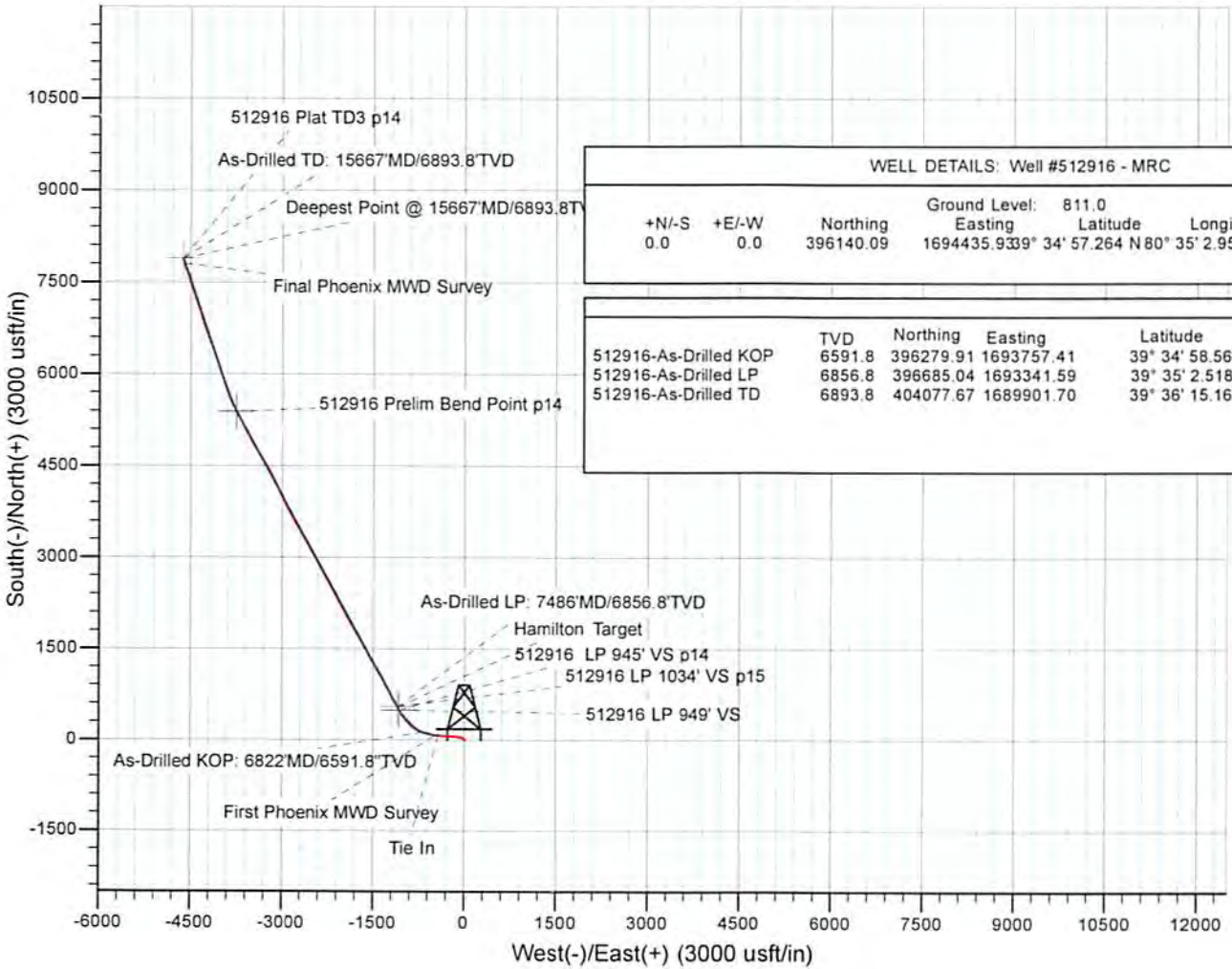
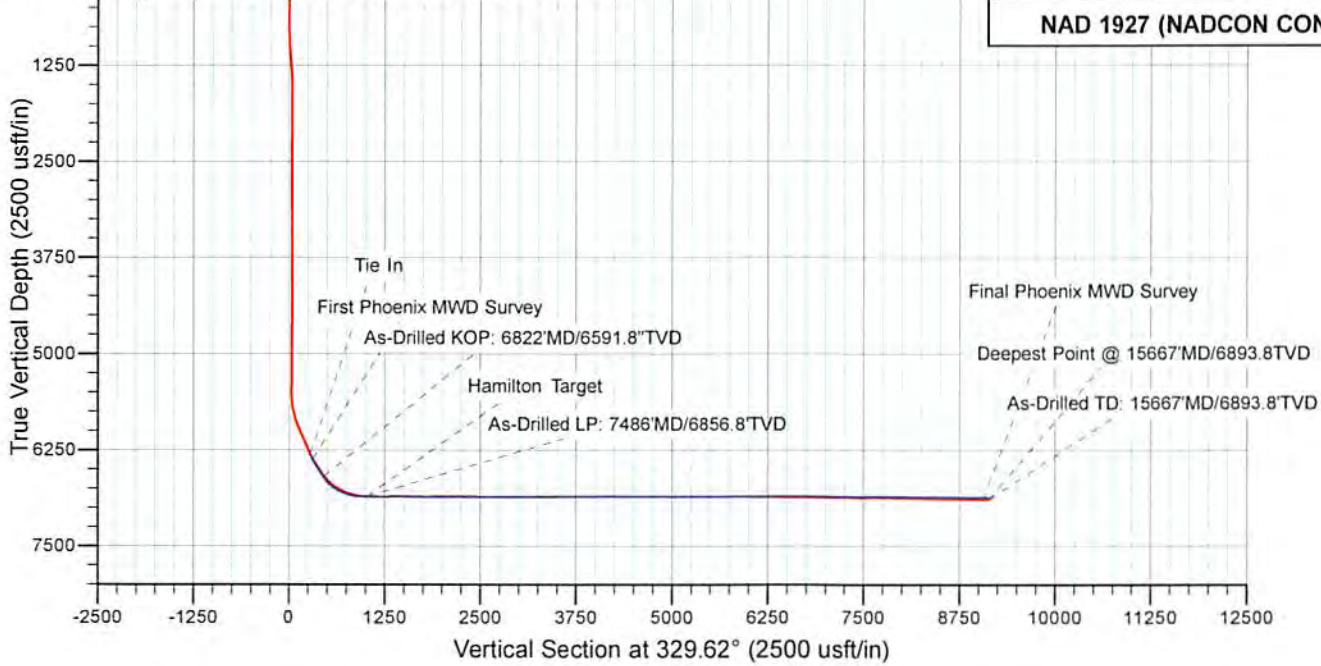


Project: Wetzel County, WV  
 API #47-103-03058 Site: Big 177  
 Well: Well #512916 - MRC  
 Wellbore: OH  
 Design: 512916 Plan 14

KB Elevation=1319 FT  
 Ground Elevation=1296 FT

All Survey Measurements were taken from KB Elevation

**NAD 1927 (NADCON CONUS)**



WELL DETAILS: Well #512916 - MRC						
+N/-S	+E/-W	Northing	Easting	Ground Level:	Latitude	Longitude
0.0	0.0	396140.09	1694435.9339	811.0	34° 57.264 N	80° 35' 2.958 W
						Slot
						512916

	TVD	Northing	Easting	Latitude	Longitude
512916-As-Drilled KOP	6591.8	396279.91	1693757.41	39° 34' 58.564 N	80° 35' 11.646 W
512916-As-Drilled LP	6856.8	396685.04	1693341.59	39° 35' 2.518 N	80° 35' 17.019 W
512916-As-Drilled TD	6893.8	404077.67	1689901.70	39° 36' 15.166 N	80° 36' 2.110 W