

103.02733

**PHOENIX**  
TECHNOLOGY SERVICES



## **EQT Production - Marcellus**

Wetzel County, WV  
Wetzel County 513924  
Well #513924

Main Wellbore

Design: As Drilled Surveys

## **Standard Survey Report**

02 January, 2014



Where energy meets innovation.

10/31/2014

103-02733

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Site Wetzel County 513924
<b>Company:</b>	EQT Production - Marcellus	<b>TVD Reference:</b>	KB @ 1489.0usft
<b>Project:</b>	Wetzel County, WV	<b>MD Reference:</b>	KB @ 1489.0usft
<b>Site:</b>	Wetzel County 513924	<b>North Reference:</b>	Grid
<b>Well:</b>	Well #513924	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Main Wellbore		
<b>Design:</b>	As Drilled Surveys		

<b>Project</b>	Wetzel 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>	Wetzel County 513924				
<b>Site Position:</b>		<b>Northing:</b>	385,143.00 usft	<b>Latitude:</b>	39.55
<b>From:</b>	Map	<b>Easting:</b>	1,688,204.00 usft	<b>Longitude:</b>	-80.61
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	-0.71 °

<b>Well</b>	Well #513924					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	385,143.00 usft	<b>Latitude:</b>	39° 33' 7.827 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,688,204.00 usft	<b>Longitude:</b>	80° 36' 20.822 W
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	1,473.0 usft

<b>Wellbore</b>	Main Wellbore				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010_14	12/10/2013	-8.64	67.04	52,468

<b>Design</b>	As Drilled Surveys				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	348.28	

<b>Survey Program</b>	Date 1/2/2014				
<b>From (')</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
0.00	6,118.0	513924 VES Final Gyro (Main Wellbore)	GyroFlex		
0.00	13,814.0	513924 MWD (Main Wellbore)	MWD	MWD - Standard	

<b>Survey</b>											
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>Subsea 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>	
0.0	0.00	0.00	0.0	-1,489.0	0.0	0.0	0.0	0.00	0.00	0.00	
103.0	0.21	355.67	103.0	-1,386.0	0.2	0.0	0.2	0.20	0.20	0.00	
203.0	0.24	331.00	203.0	-1,286.0	0.6	-0.1	0.6	0.10	0.03	-24.67	
303.0	0.02	340.97	303.0	-1,186.0	0.8	-0.2	0.8	0.22	-0.22	9.97	
403.0	0.18	11.15	403.0	-1,086.0	0.9	-0.2	0.9	0.16	0.16	30.18	
503.0	0.19	39.71	503.0	-986.0	1.2	-0.1	1.2	0.09	0.01	28.56	
603.0	0.14	89.96	603.0	-886.0	1.3	0.2	1.3	0.15	-0.05	50.25	
703.0	0.18	58.87	703.0	-786.0	1.4	0.4	1.3	0.09	0.04	-31.09	



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Phoenix Technology Services  
Survey Report



<b>Database:</b>	EDM 5000 1 Single User Db	<b>Local Co-ordinate Reference:</b>	Site Wetzel County 513924
<b>Company:</b>	EQT Production - Marcellus	<b>TVD Reference:</b>	KB @ 1489.0usft
<b>Project:</b>	Wetzel County, WV	<b>MD Reference:</b>	KB @ 1488.0usft
<b>Site:</b>	Wetzel County 513924	<b>North Reference:</b>	Grid
<b>Well:</b>	Well #513924	<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	0.23	35.95	803.0	-686.0	1.7	0.7	1.5	0.10	0.05	-22.92	
903.0	0.16	38.00	903.0	-586.0	1.9	0.9	1.7	0.07	-0.07	2.05	
1,003.0	0.15	39.04	1,003.0	-486.0	2.1	1.0	1.9	0.01	-0.01	1.04	
1,103.0	0.23	5.27	1,103.0	-386.0	2.4	1.1	2.2	0.13	0.08	-33.77	
1,203.0	0.16	10.40	1,203.0	-286.0	2.8	1.2	2.5	0.07	-0.07	5.13	
1,303.0	0.38	330.33	1,303.0	-186.0	3.2	1.0	2.9	0.28	0.22	-40.07	
1,403.0	0.50	332.38	1,403.0	-86.0	3.9	0.7	3.7	0.12	0.12	2.05	
1,503.0	0.63	329.45	1,503.0	14.0	4.7	0.2	4.6	0.13	0.13	-2.93	
1,603.0	0.64	327.28	1,603.0	114.0	5.7	-0.4	5.6	0.03	0.01	-2.17	
1,703.0	0.60	324.38	1,703.0	214.0	6.6	-1.0	6.6	0.05	-0.04	-2.90	
1,803.0	0.39	326.70	1,803.0	314.0	7.3	-1.5	7.4	0.21	-0.21	2.32	
1,903.0	0.44	325.27	1,903.0	414.0	7.9	-1.9	8.1	0.05	0.05	-1.43	
2,003.0	0.34	343.71	2,003.0	514.0	8.5	-2.2	8.8	0.16	-0.10	18.44	
2,103.0	0.31	122.98	2,103.0	614.0	8.6	-2.1	8.9	0.61	-0.03	139.27	
2,203.0	0.99	89.60	2,203.0	714.0	8.5	-1.0	8.5	0.75	0.68	-33.38	
2,303.0	1.40	92.07	2,302.9	813.9	8.4	1.1	8.0	0.41	0.41	2.47	
2,403.0	1.34	82.59	2,402.9	913.9	8.6	3.5	7.7	0.23	-0.06	-9.48	
2,503.0	1.31	79.54	2,502.9	1,013.9	8.9	5.8	7.6	0.08	-0.03	-3.05	
2,603.0	1.54	59.91	2,602.8	1,113.8	9.8	8.1	8.0	0.54	0.23	-19.63	
2,703.0	1.65	40.84	2,702.8	1,213.8	11.6	10.2	9.3	0.54	0.11	-19.07	
2,803.0	1.66	19.79	2,802.8	1,313.8	14.0	11.6	11.4	0.60	0.01	-21.05	
2,903.0	1.49	5.16	2,902.7	1,413.7	16.7	12.2	13.8	0.44	-0.17	-14.63	
3,003.0	1.42	11.01	3,002.7	1,513.7	19.2	12.6	16.2	0.16	-0.07	5.85	
3,103.0	1.46	6.91	3,102.7	1,613.7	21.7	13.0	18.6	0.11	0.04	-4.10	
3,203.0	1.35	357.40	3,202.6	1,713.6	24.1	13.1	20.9	0.26	-0.11	-9.51	
3,303.0	1.40	355.32	3,302.6	1,813.6	26.5	12.9	23.3	0.07	0.05	-2.08	
3,403.0	1.33	354.06	3,402.6	1,913.6	28.9	12.7	25.7	0.08	-0.07	-1.26	
3,503.0	1.46	356.45	3,502.6	2,013.6	31.3	12.5	28.1	0.14	0.13	2.39	
3,603.0	1.45	340.28	3,602.5	2,113.5	33.8	12.0	30.6	0.41	-0.01	-16.17	
3,703.0	1.35	339.31	3,702.5	2,213.5	36.0	11.1	33.0	0.10	-0.10	-0.97	
3,803.0	1.27	341.63	3,802.5	2,313.5	38.2	10.4	35.3	0.10	-0.08	2.32	
3,903.0	1.11	334.92	3,902.4	2,413.4	40.1	9.6	37.3	0.21	-0.16	-6.71	
4,003.0	1.12	335.97	4,002.4	2,513.4	41.9	8.8	39.2	0.02	0.01	1.05	
4,103.0	0.92	343.13	4,102.4	2,613.4	43.6	8.2	41.0	0.24	-0.20	7.16	
4,203.0	0.83	328.33	4,202.4	2,713.4	44.9	7.6	42.5	0.24	-0.09	-14.80	
4,303.0	0.64	326.11	4,302.4	2,813.4	46.0	6.9	43.7	0.19	-0.19	-2.22	
4,403.0	0.40	351.50	4,402.4	2,913.4	46.8	6.5	44.5	0.33	-0.24	25.39	
4,503.0	0.52	347.44	4,502.4	3,013.4	47.6	6.4	45.3	0.12	0.12	-4.06	
4,603.0	0.38	355.95	4,602.4	3,113.4	48.4	6.2	46.1	0.15	-0.14	8.51	
4,703.0	0.49	59.50	4,702.4	3,213.4	48.9	6.6	46.6	0.47	0.11	63.55	
4,803.0	0.68	68.07	4,802.4	3,313.4	49.4	7.5	46.8	0.21	0.19	8.57	
4,903.0	0.77	70.84	4,902.4	3,413.4	49.8	8.7	47.0	0.10	0.09	2.77	



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<b>Project:</b>	Wetzel County, WV	<b>MD Reference:</b>	KB @ 1489.0usft
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<b>Well:</b>	Well #513924	<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)	
5,003.0	0.97	94.29	5,002.4	3,513.4	50.0	10.2	46.9	0.40	0.20	23.45	
5,103.0	1.21	98.19	5,102.3	3,613.3	49.8	12.1	46.3	0.25	0.24	3.90	
5,203.0	1.50	104.44	5,202.3	3,713.3	49.3	14.4	45.4	0.33	0.29	6.25	
5,303.0	1.86	108.60	5,302.3	3,813.3	48.4	17.2	44.0	0.38	0.36	4.16	
5,403.0	2.11	113.48	5,402.2	3,913.2	47.2	20.4	42.1	0.30	0.25	4.88	
5,503.0	2.18	109.41	5,502.1	4,013.1	45.8	23.9	40.0	0.17	0.07	-4.07	
5,603.0	2.71	115.52	5,602.0	4,113.0	44.2	27.8	37.6	0.59	0.53	6.11	
5,703.0	2.88	118.70	5,701.9	4,212.9	42.0	32.1	34.6	0.23	0.17	3.18	
5,803.0	3.34	118.60	5,801.8	4,312.8	39.4	36.9	31.0	0.46	0.46	-0.10	
5,903.0	3.97	119.85	5,901.6	4,412.6	36.2	42.5	26.9	0.63	0.63	1.25	
6,003.0	4.15	123.94	6,001.3	4,512.3	32.5	48.5	22.0	0.34	0.18	4.09	
6,103.0	4.87	127.62	6,101.0	4,612.0	27.9	54.8	16.2	0.78	0.72	3.68	
<b>Gyro Tie In MD=6118'</b>											
6,118.0	4.53	118.01	6,116.0	4,627.0	27.2	55.9	15.3	5.71	-2.27	-64.07	
6,199.0	5.30	127.90	6,196.7	4,707.7	23.4	61.6	10.4	1.41	0.95	12.21	
6,263.0	4.70	125.30	6,260.4	4,771.4	20.1	66.1	6.2	1.00	-0.94	-4.06	
6,295.0	4.60	124.30	6,292.3	4,803.3	18.6	68.2	4.4	0.40	-0.31	-3.13	
6,326.0	4.30	122.20	6,323.2	4,834.2	17.3	70.2	2.7	1.10	-0.97	-6.77	
6,358.0	5.90	116.30	6,355.1	4,866.1	15.9	72.7	0.8	5.26	5.00	-18.44	
6,390.0	10.10	115.60	6,386.8	4,897.8	14.0	76.7	-1.9	13.13	13.13	-2.19	
6,421.0	14.20	114.80	6,417.1	4,928.1	11.2	82.7	-5.8	13.24	13.23	-2.58	
6,452.0	17.50	115.60	6,446.9	4,957.9	7.6	90.3	-10.9	10.67	10.65	2.58	
6,484.0	19.70	118.80	6,477.2	4,988.2	2.9	99.4	-17.3	7.58	6.88	10.00	
6,516.0	22.00	121.40	6,507.1	5,018.1	-2.8	109.2	-24.9	7.75	7.19	8.13	
6,547.0	24.50	122.40	6,535.6	5,046.6	-9.3	119.6	-33.4	8.16	8.06	3.23	
6,578.0	27.80	121.80	6,563.4	5,074.4	-16.5	131.2	-42.8	10.68	10.65	-1.94	
6,610.0	30.00	124.00	6,591.4	5,102.4	-24.9	144.2	-53.7	7.63	6.88	6.88	
6,641.0	32.80	122.60	6,617.9	5,128.9	-33.8	157.7	-65.1	9.33	9.03	-4.52	
6,673.0	36.40	121.70	6,644.2	5,155.2	-43.5	173.0	-77.7	11.36	11.25	-2.81	
6,704.0	40.80	122.30	6,668.5	5,179.5	-53.7	189.4	-91.1	14.24	14.19	1.94	
6,736.0	42.50	120.90	6,692.4	5,203.4	-64.8	207.5	-105.6	6.06	5.31	-4.38	
6,767.0	42.40	119.30	6,715.2	5,226.2	-75.3	225.6	-119.6	3.50	-0.32	-5.16	
6,799.0	42.20	123.00	6,738.9	5,249.9	-86.5	244.1	-134.2	7.81	-0.63	11.56	
6,830.0	42.30	124.50	6,761.9	5,272.9	-98.1	261.4	-149.1	3.27	0.32	4.84	
6,861.0	42.20	123.70	6,784.8	5,295.8	-109.7	278.7	-164.0	1.76	-0.32	-2.58	
6,893.0	41.00	119.80	6,808.7	5,319.7	-120.9	296.7	-178.7	8.92	-3.75	-12.19	
6,924.0	38.80	113.70	6,832.5	5,343.5	-129.9	314.4	-191.0	14.47	-7.10	-19.68	
6,956.0	35.80	108.00	6,858.0	5,369.0	-136.8	332.5	-201.5	14.29	-9.38	-17.81	
6,987.0	34.50	104.50	6,883.3	5,394.3	-141.8	349.7	-209.9	7.73	-4.19	-11.29	
7,018.0	33.20	100.40	6,909.1	5,420.1	-145.5	366.5	-216.9	8.47	-4.19	-13.23	
7,050.0	31.90	94.80	6,936.1	5,447.1	-147.8	383.6	-222.6	10.25	-4.06	-17.50	
7,081.0	31.00	90.20	6,962.5	5,473.5	-148.5	399.7	-226.6	8.27	-2.90	-14.84	
7,113.0	30.10	84.50	6,990.1	5,501.1	-147.8	415.9	-229.2	9.48	-2.81	-17.81	

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<b>Project:</b>	Wetzel County, WV	<b>MD Reference:</b>	KB @ 1469.0usft
<b>Site:</b>	Wetzel County 513924	<b>North Reference:</b>	Gnd
<b>Well:</b>	Well #513924	<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)	
7,144.0	29.50	78.10	7,017.0	5,528.0	-145.5	431.1	-230.0	10.44	-1.94	-20.65	
7,176.0	28.50	72.40	7,045.0	5,556.0	-141.6	446.1	-229.2	9.18	-3.13	-17.81	
7,207.0	29.10	69.20	7,072.1	5,583.1	-136.6	460.2	-227.2	5.34	1.94	-10.32	
7,239.0	29.50	64.10	7,100.1	5,611.1	-130.4	474.6	-224.1	7.90	1.25	-15.94	
7,270.0	29.20	57.50	7,127.1	5,638.1	-123.0	487.8	-219.5	10.48	-0.97	-21.29	
7,302.0	29.10	50.60	7,155.0	5,666.0	-113.9	500.4	-213.1	10.50	-0.31	-21.56	
7,333.0	29.10	43.90	7,182.1	5,693.1	-103.7	511.5	-205.4	10.51	0.00	-21.61	
7,365.0	29.70	38.40	7,210.0	5,721.0	-91.9	521.8	-195.9	8.64	1.88	-17.19	
7,396.0	29.90	34.40	7,236.9	5,747.9	-79.5	531.0	-185.6	6.44	0.65	-12.90	
7,428.0	30.70	31.20	7,264.6	5,775.6	-65.9	539.7	-174.1	5.63	2.50	-10.00	
7,459.0	33.00	28.20	7,290.9	5,801.9	-51.7	547.8	-161.8	9.01	7.42	-9.68	
7,491.0	36.20	24.70	7,317.2	5,828.2	-35.4	555.9	-147.5	11.77	10.00	-10.94	
7,522.0	39.70	21.00	7,341.7	5,852.7	-17.8	563.2	-131.8	13.46	11.29	-11.94	
7,554.0	43.00	17.20	7,365.7	5,876.7	2.1	570.1	-113.7	12.95	10.31	-11.88	
7,586.0	46.70	13.70	7,388.4	5,899.4	23.9	576.1	-93.6	13.90	11.56	-10.94	
7,617.0	50.30	11.00	7,408.9	5,919.9	46.6	581.1	-72.4	13.32	11.61	-8.71	
7,649.0	53.90	8.00	7,428.6	5,939.6	71.5	585.2	-48.9	13.46	11.25	-9.38	
7,680.0	55.80	4.40	7,446.4	5,957.4	96.6	587.9	-24.8	11.30	6.13	-11.61	
7,712.0	59.40	1.60	7,463.6	5,974.6	123.6	589.3	1.4	13.46	11.25	-8.75	
7,743.0	62.50	0.00	7,478.6	5,989.6	150.7	589.7	27.8	10.97	10.00	-5.16	
7,775.0	63.70	359.60	7,493.1	6,004.1	179.2	589.6	55.8	3.91	3.75	-1.25	
7,807.0	65.40	357.10	7,506.9	6,017.9	208.1	588.8	84.2	8.83	5.31	-7.81	
7,838.0	68.00	355.10	7,519.1	6,030.1	236.5	586.8	112.4	10.27	8.39	-6.45	
7,870.0	71.30	353.00	7,530.2	6,041.2	266.4	583.7	142.3	12.01	10.31	-6.56	
7,901.0	71.10	352.80	7,540.2	6,051.2	295.5	580.1	171.5	0.89	-0.65	-0.65	
7,932.0	71.10	350.40	7,550.3	6,061.3	324.5	575.8	200.8	7.32	0.00	-7.74	
7,964.0	73.10	347.80	7,560.1	6,071.1	354.4	570.0	231.3	9.94	6.25	-8.13	
7,995.0	76.50	345.50	7,568.2	6,079.2	383.5	563.1	261.2	13.10	10.97	-7.42	
8,026.0	80.30	343.50	7,574.5	6,085.5	412.7	555.0	291.4	13.79	12.26	-6.45	
8,058.0	84.50	342.50	7,578.7	6,089.7	443.1	545.7	323.0	13.49	13.13	-3.13	
8,090.0	89.40	341.70	7,580.4	6,091.4	473.5	535.9	354.8	15.51	15.31	-2.50	
8,153.0	92.30	342.10	7,579.5	6,090.5	533.3	516.4	417.4	4.65	4.60	0.63	
8,216.0	93.40	342.60	7,576.3	6,087.3	593.3	497.3	480.0	1.92	1.75	0.79	
8,279.0	94.00	342.50	7,572.3	6,083.3	653.3	478.4	542.5	0.97	0.95	-0.16	
8,341.0	92.70	343.50	7,568.6	6,079.6	712.5	460.3	604.1	2.64	-2.10	1.61	
8,404.0	93.10	343.10	7,565.5	6,076.5	772.7	442.3	666.8	0.90	0.63	-0.63	
8,467.0	92.40	342.60	7,562.4	6,073.4	832.9	423.7	729.5	1.36	-1.11	-0.79	
8,530.0	92.80	342.30	7,559.6	6,070.6	892.9	404.7	792.1	0.79	0.63	-0.48	
8,593.0	90.90	342.40	7,557.5	6,068.5	952.9	385.6	854.7	3.02	-3.02	0.16	
8,656.0	90.90	342.70	7,556.6	6,067.6	1,013.0	366.7	917.4	0.48	0.00	0.48	
8,719.0	91.00	342.40	7,555.5	6,066.5	1,073.0	347.9	980.1	0.50	0.16	-0.48	
8,782.0	91.20	342.00	7,554.3	6,065.3	1,133.0	328.6	1,042.7	0.71	0.32	-0.63	
8,846.0	91.60	341.40	7,552.7	6,063.7	1,193.8	308.5	1,106.3	1.13	0.63	-0.94	



103.02733

Phoenix Technology Services  
Survey Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Site Wetzel County 513924
<b>Company:</b>	EQT Production - Marcellus	<b>TVD Reference:</b>	KB @ 1489.0usft
<b>Project:</b>	Wetzel County, WV	<b>MD Reference:</b>	KB @ 1489.0usft
<b>Site:</b>	Wetzel County 513924	<b>North Reference:</b>	Grid
<b>Well:</b>	Well #513924	<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)	
8,909.0	91.10	341.20	7,551.3	6,062.3	1,253.4	288.3	1,168.8	0.85	-0.79	-0.32	
8,972.0	89.80	340.60	7,550.8	6,061.8	1,312.9	267.7	1,231.2	2.27	-2.06	-0.95	
9,035.0	89.50	339.60	7,551.1	6,062.1	1,372.2	246.3	1,293.6	1.66	-0.48	-1.59	
9,098.0	89.70	339.40	7,551.6	6,062.6	1,431.2	224.2	1,355.9	0.45	0.32	-0.32	
9,161.0	90.60	341.90	7,551.4	6,062.4	1,490.6	203.3	1,418.3	4.22	1.43	3.97	
9,224.0	90.90	342.70	7,550.6	6,061.6	1,550.6	184.2	1,480.9	1.36	0.48	1.27	
9,288.0	90.20	342.90	7,550.0	6,061.0	1,611.8	165.2	1,544.6	1.14	-1.09	0.31	
9,350.0	90.60	343.60	7,549.5	6,060.5	1,671.1	147.4	1,606.4	1.30	0.65	1.13	
9,414.0	89.40	343.60	7,549.5	6,060.5	1,732.5	129.3	1,670.2	1.88	-1.88	0.00	
9,476.0	90.10	344.60	7,549.8	6,060.8	1,792.2	112.3	1,732.0	1.97	1.13	1.61	
9,539.0	90.20	343.10	7,549.7	6,060.7	1,852.7	94.8	1,794.8	2.39	0.16	-2.38	
9,602.0	90.30	341.70	7,549.4	6,060.4	1,912.7	75.8	1,857.5	2.23	0.16	-2.22	
9,665.0	90.30	340.70	7,549.0	6,060.0	1,972.4	55.5	1,920.0	1.59	0.00	-1.59	
9,728.0	90.30	340.40	7,548.7	6,059.7	2,031.8	34.5	1,982.4	0.48	0.00	-0.48	
9,791.0	90.60	339.30	7,548.2	6,059.2	2,090.9	12.8	2,044.8	1.81	0.48	-1.75	
9,854.0	89.80	339.90	7,548.0	6,059.0	2,150.0	-9.2	2,107.0	1.59	-1.27	0.95	
9,917.0	91.40	341.40	7,547.3	6,058.3	2,209.4	-30.1	2,169.5	3.48	2.54	2.38	
9,980.0	92.30	340.60	7,545.3	6,056.3	2,268.9	-50.6	2,231.9	1.91	1.43	-1.27	
10,042.0	91.20	340.30	7,543.4	6,054.4	2,327.3	-71.3	2,293.3	1.84	-1.77	-0.48	
10,105.0	90.00	338.60	7,542.8	6,053.8	2,386.3	-93.4	2,355.6	3.30	-1.90	-2.70	
10,168.0	90.30	338.40	7,542.6	6,053.6	2,444.9	-116.5	2,417.6	0.57	0.48	-0.32	
10,231.0	91.40	339.90	7,541.7	6,052.7	2,503.8	-138.9	2,479.8	2.95	1.75	2.38	
10,294.0	91.80	339.10	7,539.9	6,050.9	2,562.8	-161.0	2,542.1	1.42	0.63	-1.27	
10,357.0	90.80	339.70	7,538.5	6,049.5	2,621.7	-183.1	2,604.3	1.85	-1.59	0.95	
10,420.0	90.10	340.80	7,538.0	6,049.0	2,681.0	-204.4	2,666.7	2.07	-1.11	1.75	
10,483.0	88.90	339.20	7,538.5	6,049.5	2,740.2	-226.0	2,729.0	3.17	-1.90	-2.54	
10,546.0	89.80	339.70	7,539.2	6,050.2	2,799.2	-248.1	2,791.3	1.63	1.43	0.79	
10,609.0	90.50	338.80	7,539.1	6,050.1	2,858.1	-270.4	2,853.5	1.81	1.11	-1.43	
10,673.0	91.10	338.50	7,538.2	6,049.2	2,917.7	-293.7	2,916.6	1.05	0.94	-0.47	
10,736.0	91.10	339.70	7,537.0	6,048.0	2,976.6	-316.2	2,978.8	1.90	0.00	1.90	
10,799.0	90.10	339.90	7,536.3	6,047.3	3,035.7	-337.9	3,041.1	1.62	-1.59	0.32	
10,862.0	90.20	341.00	7,536.1	6,047.1	3,095.0	-359.0	3,103.5	1.75	0.16	1.75	
10,925.0	90.10	342.80	7,536.0	6,047.0	3,154.9	-378.6	3,166.1	2.86	-0.16	2.86	
10,988.0	90.20	342.00	7,535.8	6,046.8	3,215.0	-397.6	3,228.7	1.28	0.16	-1.27	
11,051.0	90.70	341.40	7,535.3	6,046.3	3,274.8	-417.4	3,291.3	1.24	0.79	-0.95	
11,114.0	91.40	342.50	7,534.2	6,045.2	3,334.7	-436.9	3,353.9	2.07	1.11	1.75	
11,177.0	90.90	344.90	7,532.9	6,043.9	3,395.1	-454.6	3,416.7	3.89	-0.79	3.81	
11,240.0	91.30	344.70	7,531.7	6,042.7	3,455.9	-471.1	3,479.6	0.71	0.63	-0.32	
11,302.0	91.30	345.60	7,530.3	6,041.3	3,515.8	-487.0	3,541.5	1.45	0.00	1.45	
11,366.0	91.40	346.60	7,528.8	6,039.8	3,577.9	-502.4	3,605.4	1.57	0.16	1.56	
11,429.0	91.70	346.80	7,527.1	6,038.1	3,639.2	-516.9	3,668.4	0.57	0.48	0.32	
11,492.0	89.70	345.80	7,526.3	6,037.3	3,700.4	-531.8	3,731.3	3.55	-3.17	-1.59	

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Wetzel County 513924
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1489.0usft
Project:	Wetzel County, WV	MD Reference:	KB @ 1489.0usft
Site:	Wetzel County 513924	North Reference:	Grid
Well:	Well #513924	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	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)	
11,555.0	90.10	345.60	7,526.4	6,037.4	3,761.5	-547.3	3,794.2	0.71	0.63	-0.32	
11,619.0	89.90	344.00	7,526.4	6,037.4	3,823.2	-564.1	3,858.1	2.52	-0.31	-2.50	
11,681.0	88.70	343.30	7,527.2	6,038.2	3,882.7	-581.6	3,919.9	2.24	-1.94	-1.13	
11,744.0	89.30	343.40	7,528.3	6,039.3	3,943.1	-599.6	3,982.7	0.97	0.95	0.16	
11,807.0	90.10	343.10	7,528.6	6,039.6	4,003.4	-617.8	4,045.4	1.36	1.27	-0.48	
11,870.0	90.90	343.20	7,528.1	6,039.1	4,063.7	-636.0	4,108.2	1.28	1.27	0.16	
11,933.0	91.90	343.40	7,526.5	6,037.5	4,124.0	-654.1	4,170.9	1.62	1.59	0.32	
11,996.0	92.30	343.00	7,524.2	6,035.2	4,184.3	-672.3	4,233.6	0.90	0.63	-0.63	
12,059.0	91.50	342.00	7,522.1	6,033.1	4,244.3	-691.3	4,296.3	2.03	-1.27	-1.59	
12,122.0	91.60	342.60	7,520.4	6,031.4	4,304.3	-710.4	4,358.9	0.97	0.16	0.95	
12,185.0	90.90	342.00	7,519.0	6,030.0	4,364.3	-729.6	4,421.5	1.46	-1.11	-0.95	
12,248.0	91.30	342.60	7,517.8	6,028.8	4,424.3	-748.7	4,484.2	1.14	0.63	0.95	
12,311.0	89.30	341.90	7,517.5	6,028.5	4,484.3	-767.9	4,546.8	3.36	-3.17	-1.11	
12,374.0	89.70	341.40	7,518.0	6,029.0	4,544.1	-787.7	4,609.4	1.02	0.63	-0.79	
12,437.0	90.30	341.00	7,518.0	6,029.0	4,603.8	-808.0	4,671.9	1.14	0.95	-0.63	
12,501.0	90.60	341.30	7,517.5	6,028.5	4,664.3	-828.7	4,735.4	0.66	0.47	0.47	
12,564.0	90.30	340.20	7,517.1	6,028.1	4,723.8	-849.5	4,797.9	1.81	-0.48	-1.75	
12,627.0	90.30	336.10	7,516.7	6,027.7	4,782.3	-872.9	4,859.9	6.51	0.00	-6.51	
12,691.0	90.50	336.40	7,516.3	6,027.3	4,840.8	-898.7	4,922.5	0.56	0.31	0.47	
12,754.0	91.70	338.30	7,515.1	6,026.1	4,899.0	-923.0	4,984.3	3.57	1.90	3.02	
12,818.0	91.40	339.40	7,513.3	6,024.3	4,958.6	-946.0	5,047.4	1.78	-0.47	1.72	
12,881.0	92.00	339.90	7,511.5	6,022.5	5,017.7	-967.9	5,109.7	1.24	0.95	0.79	
12,944.0	92.40	341.30	7,509.0	6,020.0	5,077.1	-988.9	5,172.1	2.31	0.63	2.22	
13,007.0	91.10	343.00	7,507.1	6,018.1	5,137.0	-1,008.2	5,234.7	3.40	-2.06	2.70	
13,071.0	90.20	344.10	7,506.4	6,017.4	5,198.4	-1,026.3	5,298.5	2.22	-1.41	1.72	
13,134.0	89.80	343.50	7,506.4	6,017.4	5,258.9	-1,043.9	5,361.3	1.14	-0.63	-0.95	
13,198.0	89.80	343.30	7,506.6	6,017.6	5,320.2	-1,062.1	5,425.0	0.31	0.00	-0.31	
13,261.0	90.40	343.30	7,506.5	6,017.5	5,380.5	-1,080.2	5,487.8	0.95	0.95	0.00	
13,325.0	90.90	345.00	7,505.8	6,016.8	5,442.1	-1,097.7	5,551.6	2.77	0.78	2.66	
13,388.0	89.60	345.60	7,505.5	6,016.5	5,503.0	-1,113.7	5,614.5	2.27	-2.06	0.95	
13,451.0	90.20	346.00	7,505.6	6,016.6	5,564.1	-1,129.2	5,677.5	1.14	0.95	0.63	
13,515.0	90.80	346.10	7,505.1	6,016.1	5,626.2	-1,144.6	5,741.4	0.95	0.94	0.16	
13,579.0	90.00	345.40	7,504.6	6,015.6	5,688.2	-1,160.3	5,805.4	1.66	-1.25	-1.09	
13,642.0	88.90	344.50	7,505.2	6,016.2	5,749.1	-1,176.7	5,868.2	2.26	-1.75	-1.43	
13,705.0	89.20	344.20	7,506.3	6,017.3	5,809.7	-1,193.7	5,931.1	0.67	0.48	-0.48	
Last Survey MD=13763'											
13,763.0	89.70	344.00	7,506.8	6,017.8	5,865.5	-1,209.6	5,988.9	0.93	0.86	-0.34	
Projection to TD MD=13814'											
13,814.0	89.70	344.00	7,507.1	6,018.1	5,914.5	-1,223.6	6,039.8	0.00	0.00	0.00	



103.02733

# Phoenix Technology Services Survey Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Site Wetzel County 513924
<b>Company:</b>	EQT Production - Marcellus	<b>TVD Reference:</b>	KB @ 1489.0usft
<b>Project:</b>	Wetzel County, WV	<b>MD Reference:</b>	KB @ 1489.0usft
<b>Site:</b>	Wetzel County 513924	<b>North Reference:</b>	Grid
<b>Well:</b>	Well #513924	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Main Wellbore		
<b>Design:</b>	As Drilled Surveys		

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,118.0	6,116.0	27.2	55.9	Gyro Tie In MD=6118'
13,763.0	7,506.8	5,865.5	-1,209.6	Last Survey MD=13763'
13,814.0	7,507.1	5,914.5	-1,223.6	Projection to TD MD=13814'

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



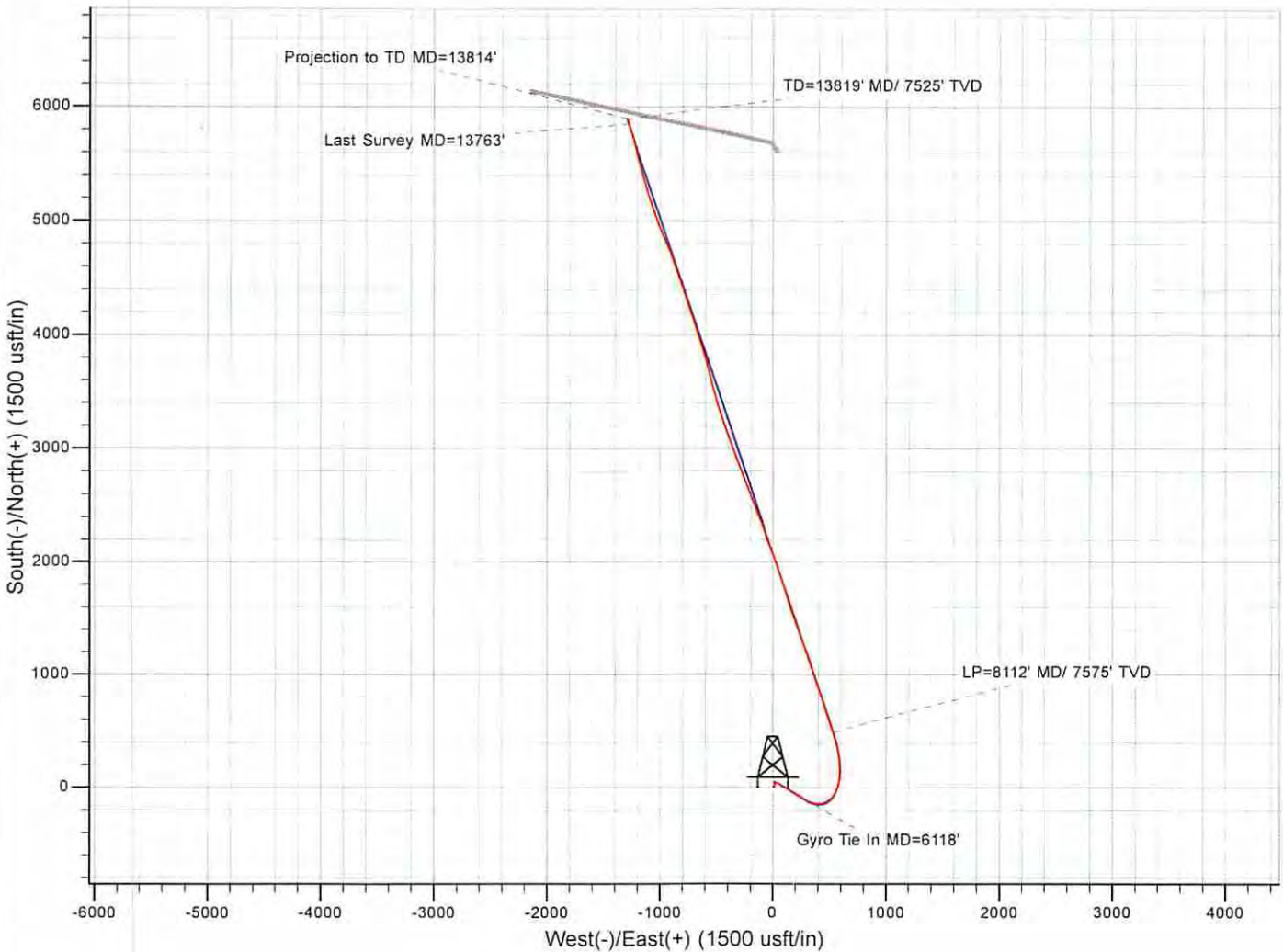
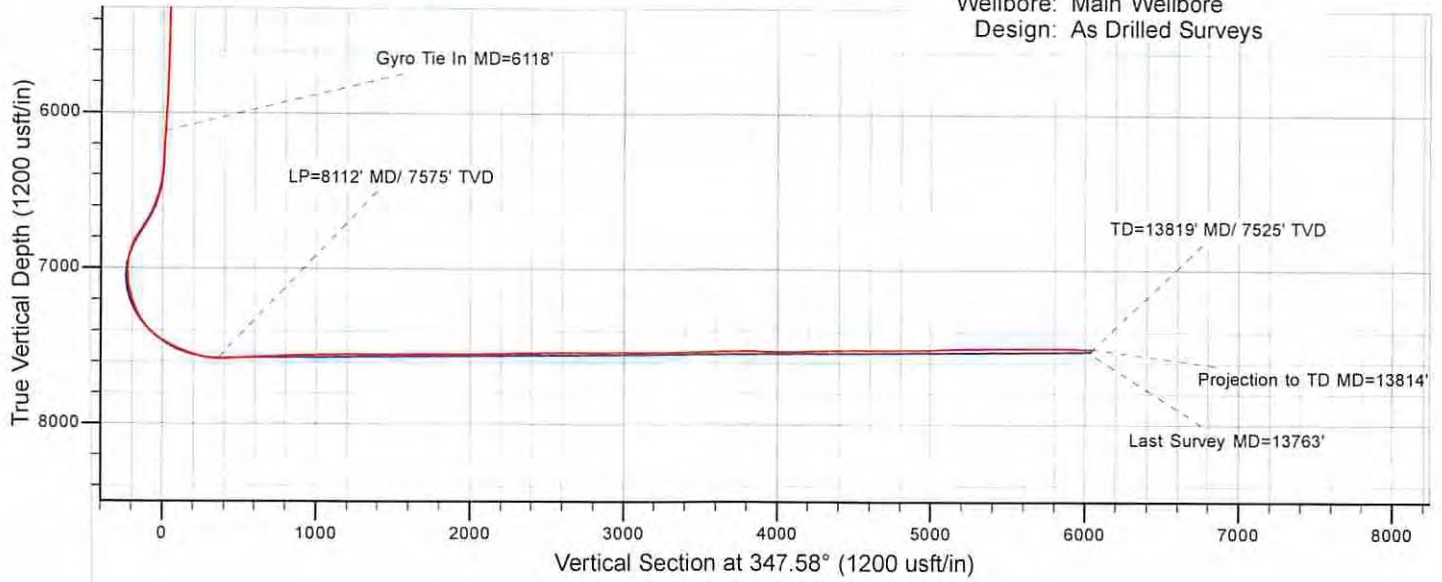
103-02733

**PHOENIX**  
TECHNOLOGY SERVICES



# EQT Production - Marcellus

Project: Wetzel County, WV  
Site: Wetzel County 513924  
Well: Well #513924  
Wellbore: Main Wellbore  
Design: As Drilled Surveys



10/31/2014