

103-02969

**PHOENIX**  
TECHNOLOGY SERVICES



## **EQT Production - Marcellus**

Wetzel County, WV

Wetzel County 514381

Well #514381

Main Wellbore

Design: As Drilled Surveys

## **Standard Survey Report**

13 March, 2014

Received  
Office of Oil & Gas

DEC 10 2014



Where energy meets innovation.

01/23/2015

<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Site Wetzel County 514381
<b>Company:</b>	EQT Production - Marcellus	<b>TVD Reference:</b>	KB @ 1346.0usft
<b>Project:</b>	Wetzel County, WV	<b>MD Reference:</b>	KB @ 1346.0usft
<b>Site:</b>	Wetzel County 514381	<b>North Reference:</b>	Grid
<b>Well:</b>	Well #514381	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Main Wellbore		
<b>Design:</b>	As Drilled Surveys		

**Project** 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

**Site** Wetzel County 514381

<b>Site Position:</b>		<b>Northing:</b>	385,243.00 usft	<b>Latitude:</b>	39.55
<b>From:</b>	Map	<b>Easting:</b>	1,678,298.00 usft	<b>Longitude:</b>	-80.64
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	-0.73 °

**Well** Well #514381

<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	385,243.00 usft	<b>Latitude:</b>	39° 33' 7.591 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,678,298.00 usft	<b>Longitude:</b>	80° 38' 27.298 W
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	1,330.0 usft

**Wellbore** Main Wellbore

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	2/26/2014	-8.62	67.03	52,447

**Design** As Drilled Surveys

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	306.78

**Survey Program** Date 3/13/2014

From (')	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	5,324.0	514381 Gyro (Main Wellbore)	GYD_DP_MS	Gyrodata gyro-compassing and drop
0.00	10,504.0	514381 PHX MWD (Main Wellbore)	MWD	MWD - Standard

**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)
0.0	0.00	0.00	0.0	-1,346.0	0.0	0.0	0.0	0.00	0.00	0.00
103.0	0.18	150.92	103.0	-1,243.0	-0.1	0.1	-0.1	0.17	0.17	0.00
203.0	0.14	149.44	203.0	-1,143.0	-0.4	0.2	-0.4	0.04	-0.04	-1.48
303.0	0.12	154.15	303.0	-1,043.0	-0.6	0.3	-0.6	0.02	-0.02	4.71
403.0	0.06	179.69	403.0	-943.0	-0.7	0.4	-0.7	0.07	-0.06	25.54
503.0	0.10	83.65	503.0	-843.0	-0.8	0.5	-0.8	0.12	0.04	-96.04
603.0	0.09	60.27	603.0	-743.0	-0.7	0.6	-0.9	0.04	-0.01	-23.38
703.0	0.07	29.30	703.0	-643.0	-0.6	0.7	-0.9	0.05	-0.02	-30.97



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<b>Project:</b>	Wetzel County, WV	<b>MD Reference:</b>	KB @ 1346.0usft
<b>Site:</b>	Wetzel County 514381	<b>North Reference:</b>	Grid
<b>Well:</b>	Well #514381	<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	0.09	12.04	803.0	-543.0	-0.5	0.8	-0.9	0.03	0.02	-17.26	
903.0	0.07	342.30	903.0	-443.0	-0.4	0.8	-0.8	0.05	-0.02	-29.74	
1,003.0	0.03	92.21	1,003.0	-343.0	-0.3	0.8	-0.8	0.09	-0.04	109.91	
1,103.0	0.04	266.34	1,103.0	-243.0	-0.3	0.8	-0.8	0.07	0.01	174.13	
1,203.0	0.07	163.51	1,203.0	-143.0	-0.4	0.7	-0.8	0.09	0.03	-102.83	
1,303.0	0.10	195.14	1,303.0	-43.0	-0.5	0.7	-0.9	0.05	0.03	31.63	
1,403.0	0.11	170.31	1,403.0	57.0	-0.7	0.7	-1.0	0.05	0.01	-24.83	
1,503.0	0.18	173.91	1,503.0	157.0	-0.9	0.8	-1.2	0.07	0.07	3.60	
1,603.0	0.27	179.43	1,603.0	257.0	-1.3	0.8	-1.4	0.09	0.09	5.52	
1,703.0	0.31	174.77	1,703.0	357.0	-1.8	0.8	-1.7	0.05	0.04	-4.66	
1,803.0	0.32	176.60	1,803.0	457.0	-2.4	0.8	-2.1	0.01	0.01	1.83	
1,903.0	0.49	152.96	1,903.0	557.0	-3.1	1.1	-2.7	0.23	0.17	-23.64	
2,003.0	0.59	152.20	2,003.0	657.0	-3.9	1.5	-3.5	0.10	0.10	-0.76	
2,103.0	0.61	148.37	2,103.0	757.0	-4.8	2.0	-4.5	0.04	0.02	-3.83	
2,203.0	0.68	146.54	2,203.0	857.0	-5.7	2.6	-5.5	0.07	0.07	-1.83	
2,303.0	0.71	145.94	2,303.0	957.0	-6.8	3.3	-6.7	0.03	0.03	-0.60	
2,403.0	0.76	147.70	2,403.0	1,057.0	-7.8	4.0	-7.9	0.05	0.05	1.76	
2,503.0	0.77	149.98	2,503.0	1,157.0	-9.0	4.7	-9.1	0.03	0.01	2.28	
2,603.0	0.72	151.45	2,602.9	1,256.9	-10.1	5.3	-10.3	0.05	-0.05	1.47	
2,703.0	0.52	155.05	2,702.9	1,356.9	-11.1	5.8	-11.3	0.20	-0.20	3.60	
2,803.0	0.36	158.68	2,802.9	1,456.9	-11.8	6.1	-11.9	0.16	-0.16	3.63	
2,903.0	0.34	156.12	2,902.9	1,556.9	-12.3	6.3	-12.5	0.03	-0.02	-2.56	
3,003.0	0.31	160.36	3,002.9	1,656.9	-12.9	6.6	-13.0	0.04	-0.03	4.24	
3,103.0	0.28	171.10	3,102.9	1,756.9	-13.4	6.7	-13.4	0.06	-0.03	10.74	
3,203.0	0.24	184.60	3,202.9	1,856.9	-13.8	6.7	-13.6	0.07	-0.04	13.50	
3,303.0	0.16	177.18	3,302.9	1,956.9	-14.2	6.7	-13.8	0.08	-0.08	-7.42	
3,403.0	0.18	168.61	3,402.9	2,056.9	-14.4	6.7	-14.0	0.03	0.02	-8.57	
3,503.0	0.19	160.47	3,502.9	2,156.9	-14.8	6.8	-14.3	0.03	0.01	-8.14	
3,603.0	0.17	156.77	3,602.9	2,256.9	-15.1	6.9	-14.6	0.02	-0.02	-3.70	
3,703.0	0.20	162.49	3,702.9	2,356.9	-15.4	7.0	-14.8	0.04	0.03	5.72	
3,803.0	0.16	205.15	3,802.9	2,456.9	-15.6	7.0	-15.0	0.14	-0.04	42.66	
3,903.0	0.13	258.33	3,902.9	2,556.9	-15.8	6.9	-15.0	0.13	-0.03	53.18	
4,003.0	0.11	259.75	4,002.9	2,656.9	-15.8	6.7	-14.8	0.02	-0.02	1.42	
4,103.0	0.10	241.72	4,102.9	2,756.9	-15.9	6.5	-14.7	0.03	-0.01	-18.03	
4,203.0	0.22	239.45	4,202.9	2,856.9	-16.0	6.3	-14.6	0.12	0.12	-2.27	
4,303.0	0.12	241.31	4,302.9	2,956.9	-16.2	6.0	-14.5	0.10	-0.10	1.86	
4,403.0	0.11	60.15	4,402.9	3,056.9	-16.2	6.0	-14.5	0.23	-0.01	178.84	
4,503.0	0.34	81.26	4,502.9	3,156.9	-16.1	6.4	-14.7	0.24	0.23	21.11	
4,603.0	0.37	72.84	4,602.9	3,256.9	-16.0	7.0	-15.1	0.06	0.03	-8.42	
4,703.0	0.47	69.97	4,702.9	3,356.9	-15.7	7.7	-15.5	0.10	0.10	-2.87	
4,803.0	0.50	62.36	4,802.9	3,456.9	-15.4	8.4	-16.0	0.07	0.03	-7.61	
4,903.0	0.55	56.77	4,902.9	3,556.9	-14.9	9.2	-16.3	0.07	0.05	-5.59	



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<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	0.62	61.29	5,002.9	3,656.9	-14.4	10.1	-16.7	0.08	0.07	4.52	
5,103.0	0.67	59.67	5,102.9	3,756.9	-13.8	11.1	-17.1	0.05	0.05	-1.62	
5,203.0	0.64	68.47	5,202.9	3,856.9	-13.3	12.1	-17.7	0.10	-0.03	8.80	
5,303.0	0.69	64.90	5,302.9	3,956.9	-12.9	13.2	-18.2	0.06	0.05	-3.57	
<b>Gyro Tie In MD=5324'</b>											
5,324.0	0.70	76.82	5,323.9	3,977.9	-12.8	13.4	-18.4	0.69	0.05	56.76	
5,340.0	0.50	53.60	5,339.9	3,993.9	-12.7	13.6	-18.5	1.94	-1.25	-145.13	
5,371.0	0.50	89.90	5,370.9	4,024.9	-12.6	13.8	-18.6	1.00	0.00	117.10	
<b>KOP=5403' MD/ 5403' TVD</b>											
5,403.0	0.60	56.30	5,402.9	4,056.9	-12.5	14.1	-18.8	1.04	0.31	-105.00	
5,435.0	2.00	237.00	5,434.9	4,088.9	-12.8	13.7	-18.7	8.12	4.38	-560.31	
5,467.0	6.10	238.30	5,466.8	4,120.8	-14.0	11.8	-17.8	12.81	12.81	4.06	
5,498.0	9.80	240.10	5,497.5	4,151.5	-16.1	8.1	-16.2	11.96	11.94	5.81	
5,530.0	12.60	243.20	5,528.9	4,182.9	-19.1	2.7	-13.6	8.95	8.75	9.69	
5,562.0	13.90	249.50	5,560.0	4,214.0	-22.0	-4.1	-9.9	6.07	4.06	19.69	
5,593.0	15.50	250.60	5,590.0	4,244.0	-24.7	-11.4	-5.6	5.24	5.16	3.55	
5,625.0	17.40	250.10	5,620.7	4,274.7	-27.7	-20.0	-0.6	5.95	5.94	-1.56	
5,657.0	19.20	249.00	5,651.1	4,305.1	-31.2	-29.4	4.8	5.73	5.63	-3.44	
5,688.0	21.50	246.10	5,680.1	4,334.1	-35.4	-39.3	10.3	8.10	7.42	-9.35	
5,720.0	24.20	246.60	5,709.6	4,363.6	-40.3	-50.7	16.5	8.46	8.44	1.56	
5,752.0	27.90	247.10	5,738.4	4,392.4	-45.9	-63.6	23.5	11.58	11.56	1.56	
5,783.0	31.10	247.70	5,765.3	4,419.3	-51.7	-77.7	31.3	10.37	10.32	1.94	
5,815.0	35.10	246.90	5,792.1	4,446.1	-58.5	-93.9	40.2	12.57	12.50	-2.50	
5,847.0	39.00	248.00	5,817.7	4,471.7	-65.9	-111.7	50.0	12.36	12.19	3.44	
5,910.0	42.80	248.10	5,865.3	4,519.3	-81.3	-149.9	71.4	6.03	6.03	0.16	
5,973.0	41.00	245.50	5,912.2	4,566.2	-97.8	-188.6	92.5	3.97	-2.86	-4.13	
6,037.0	42.10	246.50	5,960.1	4,614.1	-115.1	-227.4	113.2	2.01	1.72	1.56	
6,100.0	43.30	249.10	6,006.4	4,660.4	-131.2	-266.9	135.2	3.39	1.90	4.13	
6,163.0	42.20	247.20	6,052.6	4,706.6	-147.1	-306.6	157.5	2.69	-1.75	-3.02	
6,227.0	40.70	246.10	6,100.6	4,754.6	-163.9	-345.5	178.6	2.61	-2.34	-1.72	
6,290.0	40.40	247.40	6,148.5	4,802.5	-180.1	-383.1	199.0	1.42	-0.48	2.06	
6,353.0	40.70	250.90	6,196.4	4,850.4	-194.6	-421.4	221.0	3.64	0.48	5.56	
6,416.0	39.30	250.10	6,244.6	4,898.6	-208.2	-459.6	243.4	2.37	-2.22	-1.27	
6,479.0	40.30	249.60	6,293.0	4,947.0	-222.1	-497.4	265.4	1.67	1.59	-0.79	
6,543.0	41.90	251.30	6,341.3	4,995.3	-236.1	-537.1	288.8	3.05	2.50	2.66	
6,606.0	40.30	249.40	6,388.7	5,042.7	-250.0	-576.1	311.7	3.22	-2.54	-3.02	
6,669.0	41.70	248.30	6,436.3	5,090.3	-265.0	-614.6	333.6	2.50	2.22	-1.75	
6,732.0	42.10	247.30	6,483.2	5,137.2	-280.9	-653.6	355.3	1.24	0.63	-1.59	
6,795.0	40.90	246.00	6,530.4	5,184.4	-297.4	-691.9	376.1	2.34	-1.90	-2.06	
6,858.0	40.10	245.70	6,578.3	5,232.3	-314.1	-729.2	396.0	1.31	-1.27	-0.48	
6,922.0	38.80	244.40	6,627.7	5,281.7	-331.3	-766.1	415.2	2.41	-2.03	-2.03	
6,985.0	39.30	245.90	6,676.6	5,330.6	-348.0	-802.1	434.1	1.70	0.79	2.38	
7,049.0	41.90	246.80	6,725.2	5,379.2	-364.7	-840.3	454.7	4.16	4.06	1.41	



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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)
7,112.0	41.20	246.00	6,772.3	5,426.3	-381.4	-878.6	475.3	1.39	-1.11	-1.27
7,176.0	40.20	245.20	6,820.9	5,474.9	-398.6	-916.6	495.4	1.76	-1.56	-1.25
7,239.0	40.30	245.50	6,868.9	5,522.9	-415.6	-953.6	514.9	0.35	0.16	0.48
7,271.0	43.30	250.40	6,892.8	5,546.8	-423.6	-973.3	526.0	13.85	9.38	15.31
7,302.0	45.50	256.40	6,915.0	5,569.0	-429.7	-994.1	538.9	15.28	7.10	19.35
7,334.0	46.00	261.40	6,937.3	5,591.3	-434.1	-1,016.6	554.3	11.30	1.56	15.63
7,366.0	46.30	265.20	6,959.5	5,613.5	-436.8	-1,039.5	571.0	8.61	0.94	11.88
7,398.0	45.50	268.50	6,981.7	5,635.7	-438.1	-1,062.4	588.6	7.82	-2.50	10.31
7,429.0	45.20	272.60	7,003.5	5,657.5	-437.9	-1,084.5	606.4	9.46	-0.97	13.23
7,461.0	45.40	277.40	7,026.0	5,680.0	-435.9	-1,107.1	625.7	10.68	0.63	15.00
7,493.0	46.70	280.80	7,048.3	5,702.3	-432.3	-1,129.9	646.1	8.66	4.06	10.63
7,525.0	48.10	283.50	7,069.9	5,723.9	-427.3	-1,152.9	667.5	7.60	4.38	8.44
7,556.0	49.10	286.50	7,090.4	5,744.4	-421.3	-1,175.3	689.1	7.94	3.23	9.68
7,588.0	50.80	289.40	7,111.0	5,765.0	-413.7	-1,198.6	712.3	8.74	5.31	9.06
7,619.0	52.40	292.00	7,130.3	5,784.3	-405.1	-1,221.3	735.6	8.36	5.16	8.39
7,651.0	53.80	293.60	7,149.5	5,803.5	-395.2	-1,244.9	760.5	5.93	4.38	5.00
7,682.0	56.60	296.00	7,167.2	5,821.2	-384.5	-1,268.0	785.4	11.04	9.03	7.74
7,714.0	58.50	298.90	7,184.4	5,838.4	-372.1	-1,292.0	812.0	9.68	5.94	9.06
7,746.0	60.70	302.00	7,200.5	5,854.5	-358.1	-1,315.8	839.4	10.82	6.88	9.69
7,777.0	62.80	304.60	7,215.2	5,869.2	-343.1	-1,338.6	866.7	10.02	6.77	8.39
7,809.0	65.10	307.70	7,229.3	5,883.3	-326.1	-1,361.8	895.4	11.29	7.19	9.69
7,840.0	66.90	310.10	7,241.9	5,895.9	-308.3	-1,383.8	923.7	9.15	5.81	7.74
7,872.0	69.10	311.70	7,253.9	5,907.9	-288.9	-1,406.2	953.3	8.29	6.88	5.00
7,904.0	71.30	313.50	7,264.7	5,918.7	-268.5	-1,428.4	983.3	8.68	6.88	5.63
7,935.0	73.20	316.20	7,274.2	5,928.2	-247.7	-1,449.3	1,012.5	10.31	6.13	8.71
7,967.0	75.00	318.60	7,282.9	5,936.9	-225.1	-1,470.2	1,042.7	9.15	5.63	7.50
7,999.0	76.70	321.20	7,290.8	5,944.8	-201.3	-1,490.1	1,073.0	9.50	5.31	8.13
8,030.0	78.70	323.90	7,297.4	5,951.4	-177.3	-1,508.5	1,102.1	10.68	6.45	8.71
<b>Top of Marcellus@7301' TVD</b>										
8,049.9	80.19	324.77	7,301.0	5,955.0	-161.4	-1,519.9	1,120.7	8.65	7.50	4.39
8,062.0	81.10	325.30	7,303.0	5,957.0	-151.6	-1,526.8	1,132.1	8.65	7.51	4.35
8,093.0	84.00	327.60	7,307.0	5,961.0	-126.0	-1,543.8	1,161.0	11.90	9.35	7.42
8,125.0	85.90	328.10	7,309.8	5,963.8	-99.0	-1,560.7	1,190.8	6.14	5.94	1.56
<b>LP=8189' MD/ 7312' TVD</b>										
8,189.0	90.00	329.80	7,312.1	5,966.1	-44.2	-1,593.7	1,250.0	6.93	6.41	2.66
<b>Deepest Pt of Well=8250' MD/ 7312' TVD</b>										
8,250.4	89.90	329.41	7,312.1	5,966.1	8.7	-1,624.8	1,306.6	0.65	-0.16	-0.63
8,252.0	89.90	329.40	7,312.2	5,966.2	10.1	-1,625.6	1,308.1	0.65	-0.16	-0.63
8,316.0	90.40	330.40	7,312.0	5,966.0	65.5	-1,657.7	1,366.9	1.75	0.78	1.56
8,379.0	90.70	332.50	7,311.4	5,965.4	120.8	-1,687.8	1,424.2	3.37	0.48	3.33
8,442.0	90.90	331.90	7,310.5	5,964.5	176.5	-1,717.2	1,481.1	1.00	0.32	-0.95
8,505.0	90.20	330.60	7,309.9	5,963.9	231.8	-1,747.5	1,538.4	2.34	-1.11	-2.06
8,569.0	90.40	331.60	7,309.6	5,963.6	287.8	-1,778.4	1,596.7	1.59	0.31	1.56





103-02969

Phoenix Technology Services  
Survey Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Site Wetzel County 514381
<b>Company:</b>	EQT Production - Marcellus	<b>TVD Reference:</b>	KB @ 1346.0usft
<b>Project:</b>	Wetzel County, WV	<b>MD Reference:</b>	KB @ 1346.0usft
<b>Site:</b>	Wetzel County 514381	<b>North Reference:</b>	Grid
<b>Well:</b>	Well #514381	<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)
8,632.0	90.60	333.50	7,309.0	5,963.0	343.7	-1,807.4	1,653.4	3.03	0.32	3.02
8,695.0	90.90	333.60	7,308.2	5,962.2	400.1	-1,835.5	1,709.7	0.50	0.48	0.16
8,758.0	90.90	333.10	7,307.2	5,961.2	456.4	-1,863.8	1,766.0	0.79	0.00	-0.79
8,821.0	89.30	332.00	7,307.1	5,961.1	512.3	-1,892.8	1,822.8	3.08	-2.54	-1.75
8,885.0	89.30	331.90	7,307.9	5,961.9	568.8	-1,922.9	1,880.7	0.16	0.00	-0.16
8,948.0	89.20	331.40	7,308.7	5,962.7	624.2	-1,952.8	1,937.8	0.81	-0.16	-0.79
9,011.0	89.40	331.60	7,309.5	5,963.5	679.6	-1,982.9	1,995.0	0.45	0.32	0.32
9,074.0	89.50	332.60	7,310.1	5,964.1	735.3	-2,012.3	2,052.0	1.60	0.16	1.59
9,137.0	90.80	332.90	7,309.9	5,963.9	791.3	-2,041.2	2,108.6	2.12	2.06	0.48
9,201.0	91.20	332.30	7,308.8	5,962.8	848.1	-2,070.6	2,166.2	1.13	0.63	-0.94
9,264.0	91.50	332.70	7,307.3	5,961.3	903.9	-2,099.7	2,223.0	0.79	0.48	0.63
9,327.0	90.70	333.10	7,306.1	5,960.1	960.0	-2,128.4	2,279.5	1.42	-1.27	0.63
9,391.0	89.90	333.20	7,305.8	5,959.8	1,017.1	-2,157.3	2,336.9	1.26	-1.25	0.16
9,454.0	90.20	333.20	7,305.7	5,959.7	1,073.3	-2,185.7	2,393.3	0.48	0.48	0.00
9,517.0	90.20	333.60	7,305.5	5,959.5	1,129.7	-2,213.9	2,449.6	0.63	0.00	0.63
9,580.0	90.10	333.40	7,305.3	5,959.3	1,186.1	-2,242.0	2,505.9	0.35	-0.16	-0.32
9,644.0	90.20	333.80	7,305.1	5,959.1	1,243.4	-2,270.5	2,563.0	0.64	0.16	0.63
9,707.0	90.70	334.30	7,304.7	5,958.7	1,300.0	-2,298.1	2,619.0	1.12	0.79	0.79
9,770.0	90.40	331.70	7,304.1	5,958.1	1,356.2	-2,326.7	2,675.5	4.15	-0.48	-4.13
9,834.0	89.20	330.00	7,304.3	5,958.3	1,412.0	-2,357.8	2,733.9	3.25	-1.88	-2.66
9,897.0	89.10	329.70	7,305.2	5,959.2	1,466.5	-2,389.5	2,791.9	0.50	-0.16	-0.48
9,960.0	89.30	329.50	7,306.1	5,960.1	1,520.8	-2,421.4	2,850.0	0.45	0.32	-0.32
10,023.0	89.20	330.30	7,306.9	5,960.9	1,575.3	-2,452.9	2,907.9	1.28	-0.16	1.27
10,087.0	89.60	331.60	7,307.6	5,961.6	1,631.3	-2,484.0	2,966.3	2.13	0.63	2.03
10,150.0	90.40	332.40	7,307.6	5,961.6	1,686.9	-2,513.6	3,023.3	1.80	1.27	1.27
10,214.0	92.20	332.40	7,306.1	5,960.1	1,743.6	-2,543.2	3,081.0	2.81	2.81	0.00
10,277.0	92.60	332.00	7,303.5	5,957.5	1,799.3	-2,572.6	3,137.8	0.90	0.63	-0.63
10,340.0	92.70	331.20	7,300.6	5,954.6	1,854.7	-2,602.5	3,194.9	1.28	0.16	-1.27
10,404.0	92.80	330.80	7,297.5	5,951.5	1,910.6	-2,633.5	3,253.2	0.64	0.16	-0.63
<b>Final Survey=10446' MD/ 7295' TVD</b>										
10,446.0	93.20	330.30	7,295.3	5,949.3	1,947.1	-2,654.1	3,291.6	1.52	0.95	-1.19
<b>Projection to TD=10504' MD/ 7292' TVD</b>										
10,504.0	93.20	330.30	7,292.1	5,946.1	1,997.4	-2,682.8	3,344.7	0.00	0.00	0.00

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
8,049.9	7,301.0	Top of Marcellus@7301' TVD		0.00	

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103-02969

# Phoenix Technology Services Survey Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Site Wetzel County 514381
<b>Company:</b>	EQT Production - Marcellus	<b>TVD Reference:</b>	KB @ 1346.0usft
<b>Project:</b>	Wetzel County, WV	<b>MD Reference:</b>	KB @ 1346.0usft
<b>Site:</b>	Wetzel County 514381	<b>North Reference:</b>	Grid
<b>Well:</b>	Well #514381	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Main Wellbore		
<b>Design:</b>	As Drilled Surveys		

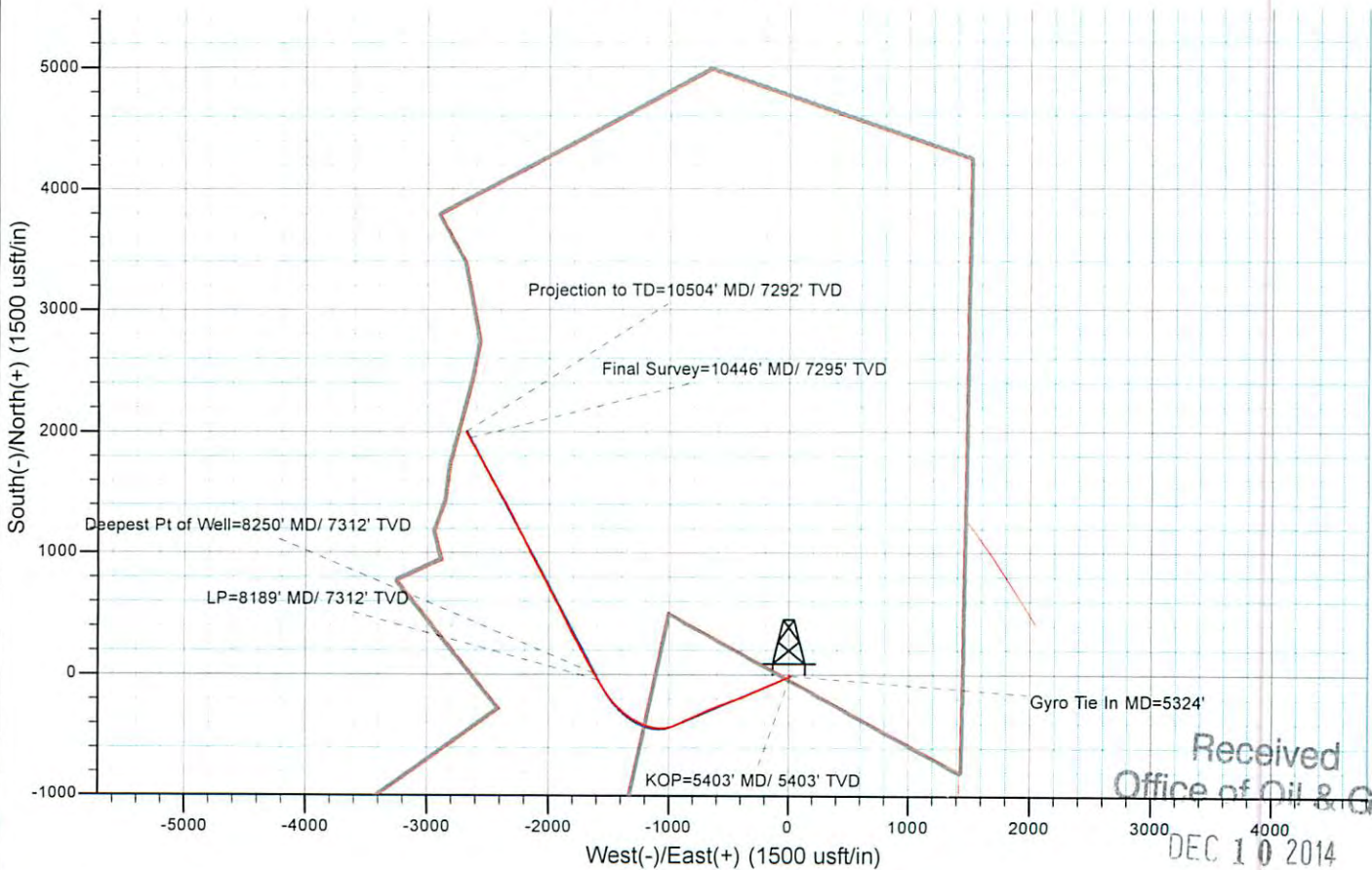
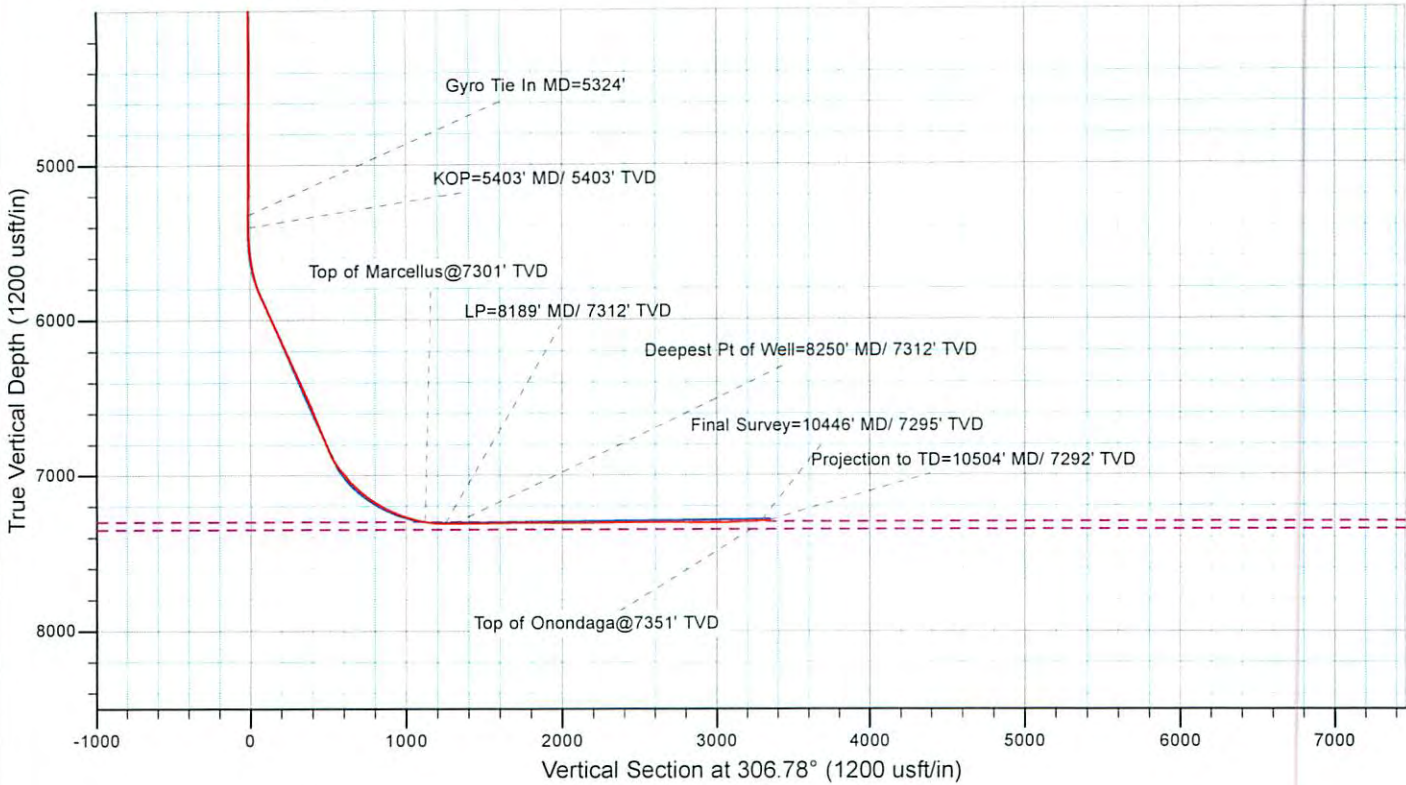
Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
5,324.0	5,323.9	-12.8	13.4	Gyro Tie In MD=5324'	
5,403.0	5,402.9	-12.5	14.1	KOP=5403' MD/ 5403' TVD	
8,189.0	7,312.1	-44.2	-1,593.7	LP=8189' MD/ 7312' TVD	
8,250.4	7,312.1	8.7	-1,624.8	Deepest Pt of Well=8250' MD/ 7312' TVD	
10,446.0	7,295.3	1,947.1	-2,654.1	Final Survey=10446' MD/ 7295' TVD	
10,504.0	7,292.1	1,997.4	-2,682.8	Projection to TD=10504' MD/ 7292' TVD	

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

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KB Elevation= 1346 FT  
 Ground Elevation= 1330 FT  
 All Depths are Measured from KB Elevation



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