



**PHOENIX**  
TECHNOLOGY SERVICES USA INC.

# **EQT Production - Marcellus**

**Taylor County, WV**  
**Taylor County 513128**  
**Well #513128**

**Main Wellbore**

**Survey: Surveys**

## **Standard Survey Report**

**22 February, 2011**

**RECEIVED**  
**Office of Oil & Gas**

**OCT 12 2011**

**WV Department of**  
**Environmental Protection**



Survey Report

<b>Company:</b>	EQT Production - Marcellus	<b>Local Co-ordinate Reference:</b>	Site Taylor County 513128
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	KB est @ 1430.0ft (Original Well Elev)
<b>Site:</b>	Taylor County 513128	<b>MD Reference:</b>	KB est @ 1430.0ft (Original Well Elev)
<b>Well:</b>	Well #513128	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Main Wellbore	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	513128 Surveys	<b>Database:</b>	EQT2010

<b>Project</b>	Taylor 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>	Taylor County 513128				
<b>Site Position:</b>		<b>Northing:</b>	298,013.60ft	<b>Latitude:</b>	39.3163228
<b>From:</b>	Map	<b>Easting:</b>	1,812,475.62ft	<b>Longitude:</b>	-80.1628092
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	in	<b>Grid Convergence:</b>	-0.42 °

<b>Well</b>	Well #513128					
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	298,013.60 ft	<b>Latitude:</b>	39.3163228
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	1,812,475.62 ft	<b>Longitude:</b>	-80.1628092
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	1,420.0ft

<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</b>
	IGRF2010_14	12/22/2010	(°)	(°)	(nT)
			-8.78	67.09	52,658

<b>Design</b>	513128 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)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	328.91	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
2,500.0	0.85	9.05	2,499.9	11.9	-1.9	11.1	0.00	0.00	0.00	
<b>Tie-In @ 2500ft</b>										
2,550.0	0.90	19.70	2,549.9	12.6	-1.7	11.7	0.34	0.10	21.30	
2,568.0	0.70	15.70	2,567.9	12.8	-1.6	11.8	1.15	-1.11	-22.22	
2,600.0	0.70	21.00	2,599.9	13.2	-1.5	12.1	0.20	0.00	16.56	
2,631.0	0.70	53.10	2,630.9	13.5	-1.3	12.2	1.25	0.00	103.55	
2,663.0	1.50	67.80	2,662.9	13.8	-0.7	12.2	2.63	2.50	45.94	
2,695.0	1.50	83.00	2,694.9	14.0	0.1	11.9	1.24	0.00	47.50	
2,726.0	2.00	90.50	2,725.9	14.0	1.0	11.5	1.77	1.61	24.19	
2,758.0	2.50	100.70	2,757.9	13.9	2.3	10.7	2.00	1.56	31.87	
2,790.0	3.10	108.50	2,789.8	13.5	3.8	9.6	2.22	1.87	24.37	
2,821.0	3.80	109.10	2,820.8	12.9	5.6	8.2	2.26	2.26	1.94	
2,852.0	4.30	124.00	2,851.7	11.9	7.5	6.3	3.74	1.61	48.06	
2,884.0	5.00	123.90	2,883.6	10.5	9.6	4.0	2.19	2.19	-0.31	
2,915.0	5.60	127.60	2,914.5	8.8	12.0	1.3	2.23	1.94	11.94	
2,946.0	6.20	130.90	2,945.3	6.8	14.4	-1.7	2.22	1.94	10.65	
3,041.0	8.90	136.20	3,039.5	-1.9	23.4	-13.7	2.93	2.84	5.58	
3,135.0	10.30	143.20	3,132.1	-13.9	33.5	-29.2	1.94	1.49	7.45	
3,229.0	11.30	149.70	3,224.5	-28.6	43.1	-46.7	1.67	1.06	6.91	
3,323.0	12.50	155.20	3,316.5	-45.8	52.0	-66.1	1.76	1.28	5.85	



Survey Report

<b>Company:</b>	EQT Production - Marcellus	<b>Local Co-ordinate Reference:</b>	Site Taylor County 513128
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	KB est @ 1430.0ft (Original Well Elev)
<b>Site:</b>	Taylor County 513128	<b>MD Reference:</b>	KB est @ 1430.0ft (Original Well Elev)
<b>Well:</b>	Well #513128	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Main Wellbore	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	513128 Surveys	<b>Database:</b>	EQT2010

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
3,417.0	12.00	162.80	3,408.3	-64.3	59.2	-85.7	1.79	-0.53	8.09	
3,511.0	12.00	173.40	3,500.3	-83.4	63.2	-104.0	2.34	0.00	11.28	
3,605.0	12.00	181.70	3,592.2	-102.8	64.1	-121.1	1.83	0.00	8.83	
3,699.0	13.40	187.90	3,683.9	-123.4	62.3	-137.8	2.08	1.49	6.60	
3,793.0	13.00	194.30	3,775.5	-144.4	58.2	-153.7	1.61	-0.43	6.81	
3,888.0	13.20	204.00	3,868.0	-164.7	51.1	-167.4	2.32	0.21	10.21	
3,982.0	13.60	213.60	3,959.5	-183.7	40.6	-178.3	2.40	0.43	10.21	
4,076.0	14.70	221.40	4,050.6	-201.9	26.6	-186.6	2.34	1.17	8.30	
4,170.0	15.50	229.30	4,141.4	-219.0	9.2	-192.3	2.35	0.85	8.40	
4,264.0	17.00	233.90	4,231.6	-235.3	-11.4	-195.6	2.10	1.60	4.89	
4,359.0	18.30	238.00	4,322.2	-251.4	-35.3	-197.1	1.89	1.37	4.32	
4,454.0	18.90	241.40	4,412.2	-266.7	-61.5	-196.6	1.30	0.63	3.58	
4,548.0	19.70	247.20	4,500.9	-280.1	-89.4	-193.7	2.21	0.85	6.17	
4,642.0	21.10	252.50	4,589.0	-291.3	-120.2	-187.4	2.46	1.49	5.64	
4,737.0	23.10	253.00	4,677.0	-301.9	-154.3	-178.9	2.11	2.11	0.53	
4,831.0	23.70	254.30	4,763.3	-312.4	-190.1	-169.4	0.84	0.64	1.38	
4,926.0	22.60	252.20	4,850.7	-323.2	-225.9	-160.1	1.45	-1.16	-2.21	
5,020.0	23.10	253.40	4,937.3	-333.9	-260.8	-151.3	0.73	0.53	1.28	
<b>February 16th Survey = 5020' MD</b>										
5,114.0	24.10	257.90	5,023.4	-343.2	-297.2	-140.5	2.19	1.06	4.79	
5,208.0	22.50	251.90	5,109.8	-352.8	-333.1	-130.2	3.04	-1.70	-6.38	
5,302.0	22.20	248.20	5,196.7	-365.0	-366.7	-123.3	1.53	-0.32	-3.94	
5,396.0	21.90	246.70	5,283.8	-378.6	-399.2	-118.0	0.68	-0.32	-1.60	
5,490.0	21.80	244.80	5,371.1	-392.9	-431.1	-113.9	0.76	-0.11	-2.02	
5,584.0	19.70	246.20	5,459.0	-406.8	-461.4	-110.1	2.30	-2.23	1.49	
5,678.0	19.80	239.80	5,547.5	-421.2	-489.7	-107.8	2.30	0.11	-6.81	
5,772.0	20.10	243.30	5,635.8	-436.4	-517.9	-106.3	1.31	0.32	3.72	
5,866.0	20.70	249.10	5,723.9	-449.6	-547.8	-102.2	2.24	0.64	6.17	
5,960.0	22.70	253.40	5,811.3	-460.7	-580.7	-94.7	2.72	2.13	4.57	
6,054.0	23.30	258.80	5,897.8	-469.5	-616.4	-83.8	2.33	0.64	5.74	
6,148.0	20.80	260.80	5,984.9	-475.8	-651.1	-71.3	2.78	-2.66	2.13	
6,242.0	17.70	260.70	6,073.7	-480.8	-681.7	-59.8	3.30	-3.30	-0.11	
6,336.0	15.10	262.60	6,163.8	-484.7	-707.9	-49.5	2.82	-2.77	2.02	
6,431.0	12.00	265.90	6,256.2	-487.0	-730.0	-40.1	3.36	-3.26	3.47	
6,525.0	9.30	267.90	6,348.6	-487.9	-747.4	-32.0	2.90	-2.87	2.13	
6,619.0	7.50	273.10	6,441.5	-487.9	-761.1	-24.8	2.08	-1.91	5.53	
6,713.0	5.40	283.20	6,535.0	-486.5	-771.5	-18.3	2.53	-2.23	10.74	
6,808.0	2.90	285.30	6,629.7	-484.9	-778.2	-13.4	2.64	-2.63	2.21	
6,902.0	0.00	173.70	6,723.7	-484.3	-780.5	-11.7	3.09	-3.09	0.00	
6,996.0	0.90	106.00	6,817.7	-484.5	-779.8	-12.2	0.96	0.96	0.00	
7,035.0	1.50	106.30	6,856.6	-484.7	-779.0	-12.8	1.54	1.54	0.77	
7,066.0	1.20	92.80	6,887.6	-484.8	-778.3	-13.3	1.40	-0.97	-43.55	
7,090.0	1.10	93.20	6,911.6	-484.8	-777.8	-13.6	0.42	-0.42	1.67	
7,121.0	2.30	325.60	6,942.6	-484.3	-777.9	-13.1	9.99	3.87	-411.61	
7,153.0	5.70	325.70	6,974.5	-482.5	-779.1	-10.9	10.63	10.62	0.31	
7,184.0	8.20	335.00	7,005.3	-479.2	-780.9	-7.2	8.82	8.06	30.00	
7,215.0	11.20	340.40	7,035.9	-474.4	-782.9	-2.0	10.10	9.68	17.42	
7,247.0	14.30	341.60	7,067.1	-467.7	-785.2	4.9	9.72	9.69	3.75	
7,278.0	16.50	342.30	7,097.0	-459.9	-787.7	12.9	7.12	7.10	2.26	
7,309.0	19.00	345.20	7,126.5	-450.8	-790.3	22.0	8.55	8.06	9.35	
7,404.0	28.20	347.70	7,213.4	-413.8	-799.1	58.2	9.74	9.68	2.63	
7,498.0	36.50	349.20	7,292.8	-364.6	-809.1	105.5	8.87	8.83	1.60	
7,592.0	46.30	350.30	7,363.2	-303.5	-820.1	163.5	10.45	10.43	1.17	
7,685.0	58.30	348.90	7,420.0	-231.3	-833.4	232.3	12.96	12.90	-1.51	



## Survey Report

<b>Company:</b>	EQT Production - Marcellus	<b>Local Co-ordinate Reference:</b>	Site Taylor County 513128
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	KB est @ 1430.0ft (Original Well Elev)
<b>Site:</b>	Taylor County 513128	<b>MD Reference:</b>	KB est @ 1430.0ft (Original Well Elev)
<b>Well:</b>	Well #513128	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Main Wellbore	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	513128 Surveys	<b>Database:</b>	EQT2010

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,780.0	70.60	347.10	7,460.9	-147.6	-851.2	313.1	13.06	12.95	-1.89
7,874.0	81.40	343.60	7,483.6	-59.5	-874.3	400.5	12.04	11.49	-3.72
7,968.0	88.30	341.50	7,492.0	29.7	-902.4	491.4	7.67	7.34	-2.23
8,015.0	89.10	340.60	7,493.1	74.2	-917.7	537.3	2.56	1.70	-1.91
8,069.0	90.30	336.30	7,493.4	124.4	-937.5	590.6	8.27	2.22	-7.96
8,163.0	91.50	335.20	7,491.9	210.1	-976.1	683.9	1.73	1.28	-1.17
8,257.0	90.40	334.50	7,490.3	295.1	-1,016.0	777.4	1.39	-1.17	-0.74
8,351.0	92.40	338.50	7,488.0	381.3	-1,053.5	870.5	4.76	2.13	4.26
8,445.0	91.60	341.70	7,484.8	469.6	-1,085.5	962.6	3.51	-0.85	3.40
8,540.0	90.90	342.00	7,482.7	559.9	-1,115.1	1,055.2	0.80	-0.74	0.32
8,634.0	90.60	343.70	7,481.5	649.7	-1,142.8	1,146.4	1.84	-0.32	1.81
8,728.0	91.60	346.20	7,479.7	740.4	-1,167.2	1,236.8	2.86	1.06	2.66
8,822.0	90.60	344.10	7,477.8	831.3	-1,191.3	1,327.0	2.47	-1.06	-2.23
8,917.0	87.90	340.90	7,479.1	921.8	-1,219.8	1,419.3	4.41	-2.84	-3.37
9,011.0	88.90	340.20	7,481.7	1,010.4	-1,251.1	1,511.3	1.30	1.06	-0.74
9,104.0	89.80	340.10	7,482.8	1,097.9	-1,282.7	1,602.5	0.97	0.97	-0.11
9,198.0	89.50	339.90	7,483.3	1,186.2	-1,314.8	1,694.8	0.38	-0.32	-0.21
9,292.0	90.90	339.30	7,483.0	1,274.3	-1,347.6	1,787.1	1.62	1.49	-0.64
9,386.0	90.80	339.60	7,481.6	1,362.4	-1,380.6	1,879.5	0.34	-0.11	0.32
9,480.0	88.60	339.90	7,482.1	1,450.5	-1,413.1	1,971.9	2.36	-2.34	0.32
9,574.0	89.00	340.30	7,484.1	1,538.9	-1,445.1	2,064.1	0.60	0.43	0.43
9,668.0	88.60	340.60	7,486.1	1,627.5	-1,476.6	2,156.1	0.53	-0.43	0.32
9,763.0	89.50	339.50	7,487.6	1,716.7	-1,509.0	2,249.3	1.50	0.95	-1.16
9,857.0	90.50	339.40	7,487.6	1,804.8	-1,542.0	2,341.7	1.07	1.06	-0.11
9,950.0	91.80	339.10	7,485.8	1,891.7	-1,574.9	2,433.2	1.43	1.40	-0.32
10,044.0	90.80	338.70	7,483.6	1,979.4	-1,608.7	2,525.8	1.15	-1.06	-0.43
10,138.0	91.60	338.80	7,481.7	2,067.0	-1,642.8	2,618.4	0.86	0.85	0.11
10,232.0	90.90	338.30	7,479.6	2,154.4	-1,677.2	2,711.0	0.92	-0.74	-0.53
10,326.0	92.70	340.10	7,476.7	2,242.3	-1,710.5	2,803.5	2.71	1.91	1.91
10,421.0	91.60	341.10	7,473.1	2,331.8	-1,742.1	2,896.4	1.56	-1.16	1.05
10,515.0	90.10	339.60	7,471.7	2,420.3	-1,773.7	2,988.5	2.26	-1.60	-1.60
10,609.0	89.20	339.00	7,472.3	2,508.2	-1,806.9	3,081.0	1.15	-0.96	-0.64
10,704.0	90.30	339.00	7,472.7	2,596.9	-1,840.9	3,174.5	1.16	1.16	0.00
10,798.0	90.30	338.10	7,472.2	2,684.4	-1,875.3	3,267.2	0.96	0.00	-0.96
10,892.0	90.00	335.90	7,471.9	2,770.9	-1,912.0	3,360.2	2.36	-0.32	-2.34
10,986.0	92.10	337.90	7,470.2	2,857.4	-1,948.9	3,453.3	3.08	2.23	2.13
11,080.0	93.00	338.00	7,466.0	2,944.4	-1,984.2	3,546.1	0.96	0.96	0.11
11,174.0	92.40	337.70	7,461.6	3,031.4	-2,019.6	3,638.8	0.71	-0.64	-0.32
11,269.0	92.40	337.50	7,457.6	3,119.1	-2,055.7	3,732.6	0.21	0.00	-0.21
11,363.0	91.80	336.80	7,454.2	3,205.7	-2,092.2	3,825.6	0.98	-0.64	-0.74
11,457.0	91.60	340.10	7,451.4	3,293.1	-2,126.7	3,918.2	3.52	-0.21	3.51
11,551.0	90.90	342.60	7,449.4	3,382.1	-2,156.8	4,010.0	2.76	-0.74	2.66
11,645.0	90.80	342.00	7,448.0	3,471.7	-2,185.3	4,101.4	0.65	-0.11	-0.64
11,739.0	91.80	343.00	7,445.8	3,561.3	-2,213.6	4,192.8	1.50	1.06	1.06
11,834.0	90.80	341.90	7,443.7	3,651.8	-2,242.2	4,285.1	1.56	-1.05	-1.16
11,914.0	91.10	344.40	7,442.3	3,728.4	-2,265.4	4,362.7	3.15	0.37	3.12
11,957.0	91.10	344.40	7,441.5	3,769.8	-2,277.0	4,404.1	0.00	0.00	0.00





Survey Report

<b>Company:</b>	EQT Production - Marcellus	<b>Local Co-ordinate Reference:</b>	Site Taylor County 513128
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	KB est @ 1430.0ft (Original Well Elev)
<b>Site:</b>	Taylor County 513128	<b>MD Reference:</b>	KB est @ 1430.0ft (Original Well Elev)
<b>Well:</b>	Well #513128	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Main Wellbore	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	513128 Surveys	<b>Database:</b>	EQT2010

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,500.0	2,499.9	11.9	-1.9	Tie-In @ 2500ft
5,020.0	4,937.3	-333.9	-260.8	February 16th Survey = 5020' MD

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