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## **EQT PRODUCTION**

**Tyler County, WV**

**WEU4**

**Well #512890 -Marcellus - Slot 512890**

**Main Wellbore**

**API#: 47-095-02278**

**Design: 512890 As Drilled Surveys**

## **Standard Survey Report**

**17 March, 2016**

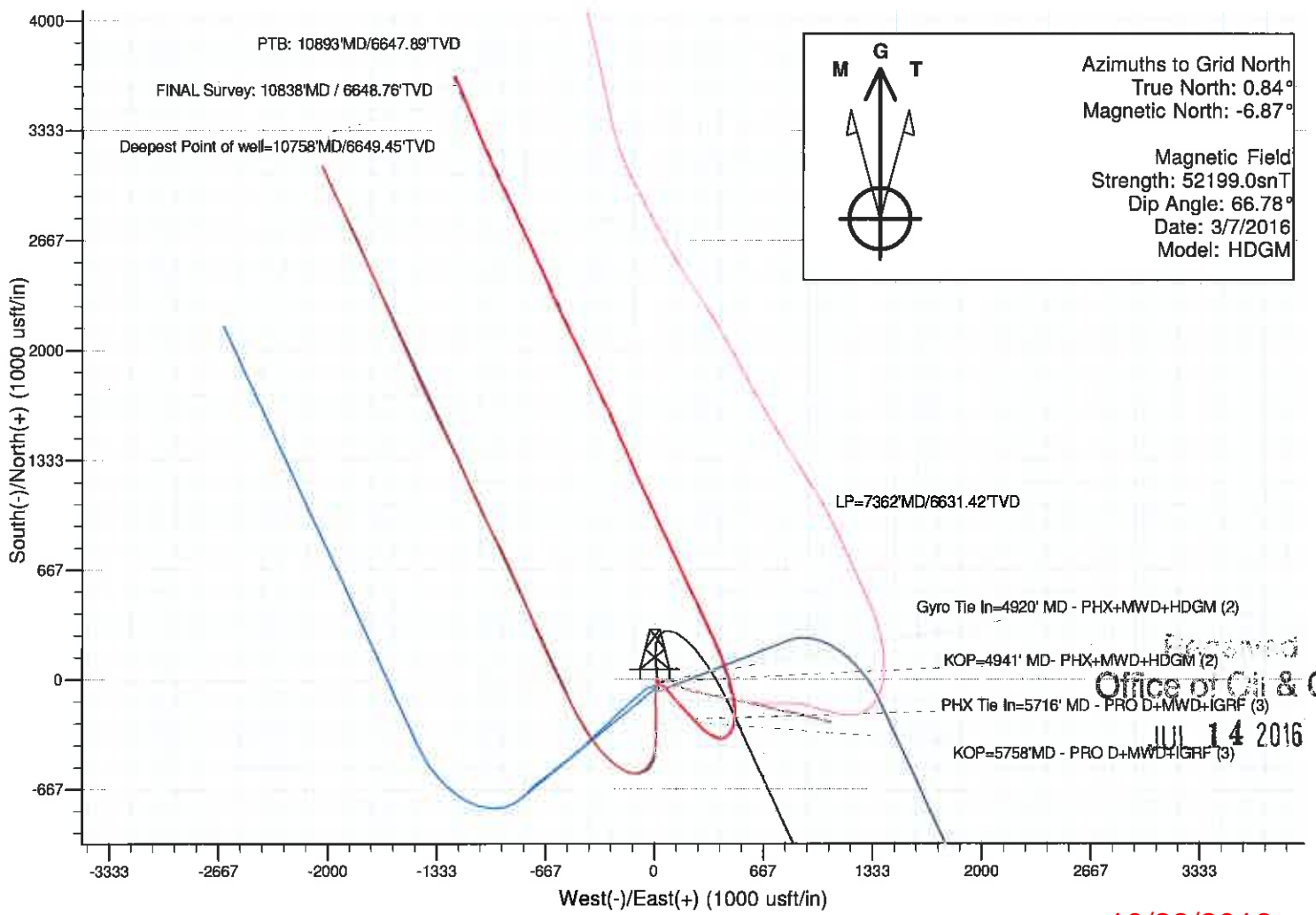
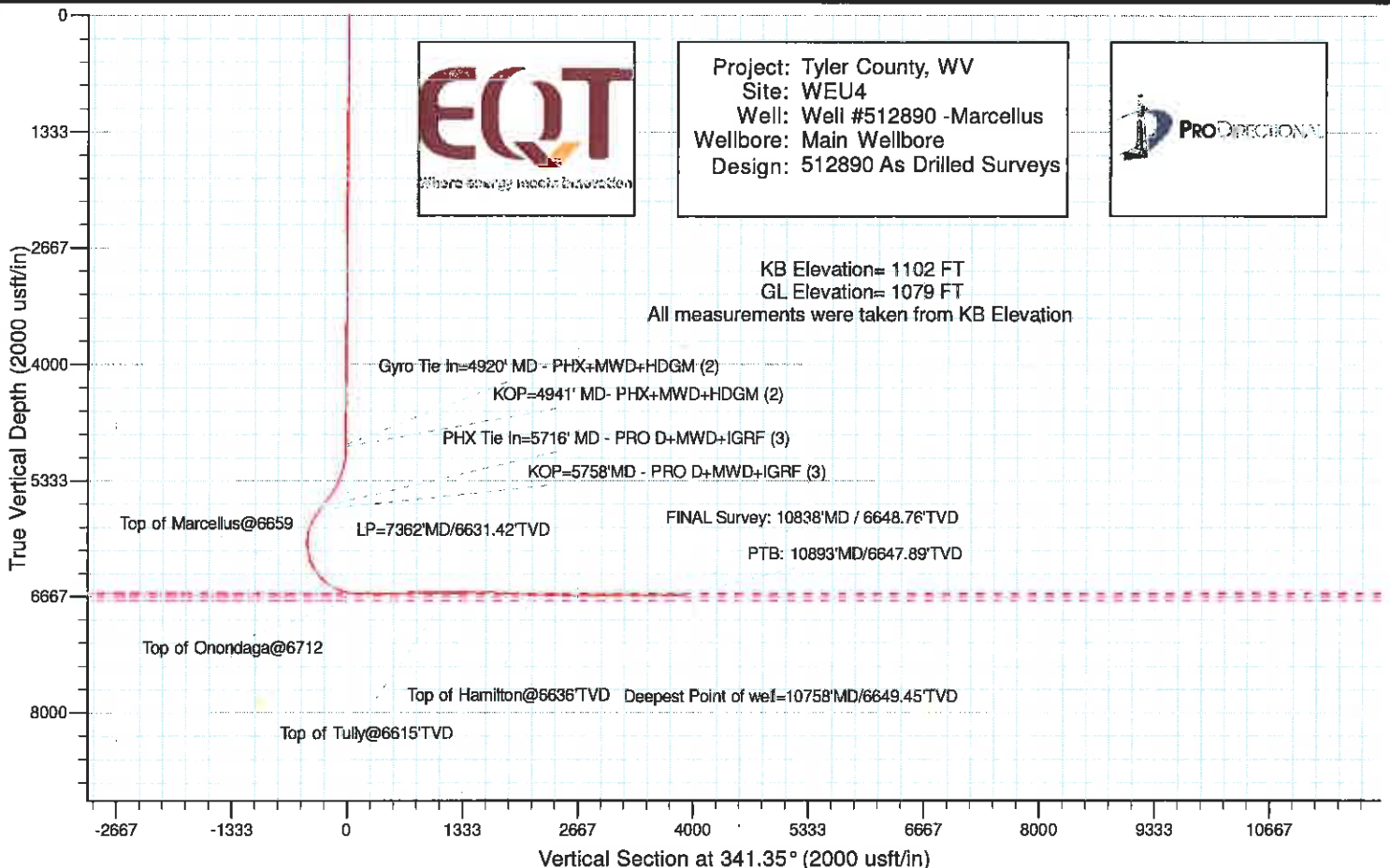
Received  
Office of Oil & Gas  
JUL 14 2016



10/28/2016



Project: Tyler County, WV  
 Site: WEU4  
 Well: Well #512890 - Marcellus  
 Wellbore: Main Wellbore  
 Design: 512890 As Drilled Surveys



Azimuths to Grid North  
 True North: 0.84°  
 Magnetic North: -6.87°

Magnetic Field  
 Strength: 52199.0snT  
 Dip Angle: 66.78°  
 Date: 3/7/2016  
 Model: HDGM

Approved  
 Office of Oil & Gas  
 JUL 14 2016

10/28/2016



Professional Directional  
Survey Report



<b>Company:</b>	EQT PRODUCTION	<b>Local Co-ordinate Reference:</b>	Well Well #512890 -Marcellus - Slot 512890
<b>Project:</b>	Tyler County, WV	<b>TVD Reference:</b>	GL 1079 + 23' kb @ 1102 00usft (Savannah 803)
<b>Site:</b>	WEU4	<b>MD Reference:</b>	GL 1079 + 23' kb @ 1102 00usft (Savannah 803)
<b>Well:</b>	Well #512890 -Marcellus	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Main Wellbore	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	512890 As Drilled Surveys	<b>Database:</b>	Well_Planner1

<b>Project:</b>	Tyler 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		

<b>Site:</b>	WEU4				
<b>Site Position:</b>		<b>Northing:</b>	318,364.31 usft	<b>Latitude:</b>	39° 21' 59.62 N
<b>From:</b>	Map	<b>Easting:</b>	1,626,574.86 usft	<b>Longitude:</b>	80° 49' 15.03 W
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	-0.84 "

<b>Well:</b>	Well #512890 -Marcellus - Slot 512890					
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	318,364.31 usft	<b>Latitude:</b>	39° 21' 59.62 N
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	1,626,574.86 usft	<b>Longitude:</b>	80° 49' 15.03 W
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>	1,102.00 usft	<b>Ground Level:</b>	1,079.00 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>
	HDGM	3/7/2016	-7.72	66.78	52,199

<b>Design:</b>	512890 As Drilled Surveys				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	341.35	

<b>Survey Program</b>	<b>Date</b>	3/17/2016			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
110.00	4,920.00	512890 VES Gyro (Main Wellbore)	VES InFlex Gyro Tandem 08	Triaxial Continuous Gyro Model	
4,941.00	5,716.00	512890 PHX MWD (Main Wellbore)	PHX+MWD+HDGM	PHX+OWSG MWD + HDGM	
5,758.00	10,893.00	512890 Pro D MWD (Main Wellbore)	MWD - OWSG	MWD - OWSG	

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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110.00	0.20	58.64	110.00	0.10	0.16	0.04	0.18	0.18	0.00
210.00	0.20	65.86	210.00	0.26	0.47	0.10	0.03	0.00	0.00
310.00	0.20	91.75	310.00	0.33	0.81	0.05	0.09	0.00	0.00
410.00	0.46	91.89	410.00	0.31	1.38	-0.15	0.26	0.26	0.00
510.00	0.36	93.48	509.99	0.28	2.10	-0.41	0.10	-0.10	0.00
610.00	0.39	98.94	609.99	0.21	2.75	-0.68	0.05	0.03	0.00
710.00	0.39	95.34	709.99	0.12	3.42	-0.98	0.02	0.00	-3.60
810.00	0.76	86.57	809.98	0.13	4.42	-1.29	0.38	0.37	-8.77

Received  
Office of Oil & Gas  
JUN 14 2016



# Professional Directional Survey Report



<b>Company:</b>	EQT PRODUCTION	<b>Local Co-ordinate Reference:</b>	Well Well #512890 -Marcellus - Slot 512890
<b>Project:</b>	Tyler County, WV	<b>TVD Reference:</b>	GL 1079 + 23' kb @ 1102 00usft (Savannah 803)
<b>Site:</b>	WEU4	<b>MD Reference:</b>	GL 1079 + 23' kb @ 1102 00usft (Savannah 803)
<b>Well:</b>	Well #512890 -Marcellus	<b>North Reference:</b>	Gnd
<b>Wellbore:</b>	Main Wellbore	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	512890 As Drilled Surveys	<b>Database:</b>	Well_Planner1

## 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)
910.00	0.81	86.02	909.98	0.22	5.79	-1.65	0.05	0.05	-0.55
1,010.00	0.74	84.99	1,009.97	0.32	7.14	-1.98	0.07	-0.07	-1.03
1,110.00	0.70	78.02	1,109.96	0.51	8.38	-2.20	0.10	-0.04	-6.97
1,210.00	0.66	70.82	1,209.95	0.82	9.52	-2.27	0.09	-0.04	-7.20
1,310.00	0.62	85.32	1,309.95	1.06	10.60	-2.39	0.17	-0.04	14.50
1,410.00	0.82	103.47	1,409.94	0.93	11.84	-2.90	0.30	0.20	18.15
1,510.00	0.85	107.41	1,509.93	0.54	13.24	-3.72	0.06	0.03	3.94
1,610.00	0.89	108.07	1,609.92	0.08	14.69	-4.62	0.04	0.04	0.66
1,710.00	0.88	104.97	1,709.90	-0.36	16.17	-5.51	0.05	-0.01	-3.10
1,810.00	0.82	113.87	1,809.89	-0.85	17.56	-6.42	0.14	-0.06	8.90
1,910.00	0.72	117.73	1,909.88	-1.43	18.77	-7.36	0.11	-0.10	3.86
2,010.00	0.64	123.29	2,009.88	-2.03	19.80	-8.25	0.10	-0.08	5.56
2,110.00	0.52	131.99	2,109.87	-2.64	20.60	-9.09	0.15	-0.12	8.70
2,210.00	0.44	154.20	2,209.87	-3.29	21.11	-9.86	0.20	-0.08	22.21
2,310.00	0.44	160.71	2,309.86	-3.99	21.40	-10.63	0.05	0.00	6.51
2,410.00	0.45	156.02	2,409.86	-4.72	21.69	-11.40	0.04	0.01	-4.69
2,510.00	0.44	164.22	2,509.86	-5.44	21.95	-12.18	0.06	-0.01	8.20
2,610.00	0.32	162.50	2,609.86	-6.08	22.14	-12.84	0.12	-0.12	-1.72
2,710.00	0.30	166.59	2,709.85	-6.60	22.28	-13.38	0.03	-0.02	4.09
2,810.00	0.24	173.35	2,809.85	-7.06	22.37	-13.85	0.07	-0.06	6.76
2,910.00	0.22	204.20	2,909.85	-7.45	22.31	-14.19	0.12	-0.02	30.85
3,010.00	0.23	209.33	3,009.85	-7.80	22.14	-14.47	0.02	0.01	5.13
3,110.00	0.17	193.39	3,109.85	-8.12	22.00	-14.73	0.08	-0.06	-15.94
3,210.00	0.21	207.65	3,209.85	-8.42	21.89	-14.98	0.06	0.04	14.26
3,310.00	0.27	202.17	3,309.85	-8.80	21.71	-15.28	0.06	0.06	-5.48
3,410.00	0.30	198.76	3,409.85	-9.27	21.54	-15.67	0.03	0.03	-3.41
3,510.00	0.31	207.74	3,509.85	-8.76	21.33	-16.06	0.05	0.01	8.98
3,610.00	0.30	212.07	3,609.85	-10.22	21.06	-16.42	0.03	-0.01	4.33
3,710.00	0.28	210.74	3,709.84	-10.65	20.80	-16.74	0.02	-0.02	-1.33
3,810.00	0.20	213.92	3,809.84	-11.00	20.58	-17.01	0.08	-0.08	3.18
3,910.00	0.15	210.29	3,909.84	-11.26	20.41	-17.20	0.05	-0.05	-3.63
4,010.00	0.24	164.23	4,009.84	-11.58	20.40	-17.49	0.17	0.09	-46.06
4,110.00	0.24	140.09	4,109.84	-11.94	20.60	-17.90	0.10	0.00	-24.14
4,210.00	0.28	156.43	4,209.84	-12.32	20.83	-18.34	0.08	0.04	16.34
4,310.00	0.29	162.08	4,309.84	-12.79	21.00	-18.83	0.03	0.01	5.65
4,410.00	0.33	162.59	4,409.84	-13.30	21.17	-19.37	0.04	0.04	0.51
4,510.00	0.34	179.90	4,509.84	-13.88	21.25	-19.94	0.10	0.01	17.31
4,610.00	0.43	191.28	4,609.83	-14.54	21.18	-20.55	0.12	0.09	0.58
4,710.00	0.39	186.02	4,709.83	-15.25	21.07	-21.18	0.05	-0.04	-5.26
4,810.00	0.41	198.57	4,809.83	-15.92	20.92	-21.78	0.09	0.02	12.89
4,910.00	0.46	210.20	4,909.83	-16.61	20.61	-22.33	0.10	0.05	11.63
4,920.00	0.50	211.69	4,919.83	-16.68	20.56	-22.38	0.42	0.40	14.90

Gyro Tie In=4920' MD - PHX+MWD+HDGM (2)

Received  
Office of Oil & Gas  
JUL 14 2016



# Professional Directional Survey Report



<b>Company:</b>	EQT PRODUCTION	<b>Local Co-ordinate Reference:</b>	Well Well #512890 -Marcellus - Slot 512890
<b>Project:</b>	Tyler County, WV	<b>TVD Reference:</b>	GL 1079 + 23' kb @ 1102 00usft (Savannah 803)
<b>Site:</b>	WEU4	<b>MD Reference:</b>	GL 1079 + 23' kb @ 1102 00usft (Savannah 803)
<b>Well:</b>	Well #512890 -Marcellus	<b>North Reference:</b>	Gnd
<b>Wellbore:</b>	Main Wellbore	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	512890 As Drilled Surveys	<b>Database:</b>	Well_Planner1

## 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)
4,941.00	0.30	209.00	4,940.83	-16.81	20.49	-22.48	0.96	-0.95	-12.81
<b>KOP=4941' MD- PHX+MWD+HDGM (2)</b>									
4,984.00	1.80	140.40	4,983.82	-17.43	20.86	-23.18	3.98	3.49	-159.53
5,027.00	5.40	132.80	5,026.73	-19.32	22.78	-25.59	8.43	8.37	-17.67
5,070.00	9.60	132.10	5,069.35	-23.10	26.93	-30.50	9.77	9.77	-1.63
5,114.00	13.80	131.60	5,112.43	-29.05	33.58	-38.26	9.55	9.55	-1.14
5,157.00	17.10	130.70	5,153.87	-36.58	42.21	-48.16	7.69	7.67	-2.09
5,200.00	19.50	130.00	5,194.69	-45.32	52.50	-59.73	5.60	5.58	-1.63
5,243.00	21.20	132.60	5,235.00	-55.19	63.72	-72.67	4.48	3.95	6.05
5,286.00	22.40	136.90	5,274.93	-66.44	75.04	-86.95	4.64	2.79	10.00
5,329.00	23.80	139.10	5,314.48	-78.98	86.32	-102.44	3.82	3.26	5.12
5,372.00	25.30	139.10	5,353.59	-92.48	98.02	-118.97	3.49	3.49	0.00
5,415.00	28.30	139.00	5,391.97	-107.12	110.73	-136.91	6.98	6.98	-0.23
5,458.00	32.50	138.90	5,429.05	-123.53	125.01	-157.02	9.77	9.77	-0.23
5,501.00	35.10	139.00	5,464.78	-141.57	140.72	-179.14	8.05	6.05	0.23
5,544.00	38.90	137.90	5,499.12	-160.92	157.89	-202.97	8.97	8.84	-2.56
5,587.00	40.50	137.40	5,532.20	-181.22	176.39	-228.12	3.79	3.72	-1.16
5,630.00	39.90	137.00	5,565.04	-201.58	195.25	-253.44	1.52	-1.40	-0.93
5,673.00	39.50	136.50	5,598.13	-221.59	214.07	-278.42	1.19	-0.93	-1.16
5,716.00	39.40	136.10	5,631.33	-241.34	232.95	-303.17	0.64	-0.23	-0.93
<b>PHX Tie In=6716' MD - PRO D+MWD+IGRF (3)</b>									
5,758.00	39.20	135.90	5,663.83	-260.48	251.43	-327.21	0.56	-0.48	-0.48
<b>KOP=5758' MD - PRO D+MWD+IGRF (3)</b>									
5,790.00	38.40	135.70	5,688.77	-274.86	265.40	-345.30	2.53	-2.50	-0.63
5,821.00	38.10	135.30	5,713.11	-288.54	278.86	-362.57	1.25	-0.97	-1.29
5,853.00	36.80	132.60	5,738.52	-302.05	292.86	-379.85	6.54	-4.06	-8.44
5,884.00	35.60	127.80	5,763.54	-313.87	308.82	-395.51	9.93	-3.87	-15.48
5,915.00	33.50	124.20	5,789.07	-324.21	321.03	-409.85	9.45	-6.77	-11.61
5,946.00	31.10	120.50	5,815.28	-333.08	335.01	-422.73	10.03	-7.74	-11.94
5,978.00	28.60	115.60	5,843.03	-340.59	349.04	-434.33	10.91	-7.81	-15.31
6,009.00	26.30	111.00	5,870.55	-346.26	362.15	-443.89	10.09	-7.42	-14.84
6,041.00	23.90	107.70	5,899.52	-350.77	374.94	-452.26	8.68	-7.50	-10.31
6,072.00	20.20	105.20	5,928.25	-354.08	386.10	-458.97	12.31	-11.94	-8.06
6,104.00	17.30	99.40	5,958.55	-356.31	396.13	-464.28	10.76	-9.06	-18.13
6,135.00	17.50	90.30	5,988.14	-357.09	405.34	-467.96	8.79	0.65	-29.35
6,166.00	18.00	80.10	6,017.67	-356.29	414.72	-470.21	10.15	1.61	-32.90
6,198.00	18.50	69.70	6,048.07	-353.68	424.35	-470.81	10.28	1.56	-32.50
6,229.00	19.10	61.10	6,077.42	-349.52	433.41	-469.77	9.14	1.94	-27.74
6,261.00	20.20	52.80	6,107.56	-343.65	442.39	-467.08	9.37	3.44	-26.94
6,292.00	21.10	43.80	6,136.58	-336.38	450.52	-462.80	10.63	2.90	-29.03
6,324.00	21.50	35.80	6,166.40	-327.47	457.94	-456.72	9.16	1.25	-29.03
6,355.00	22.30	27.60	6,195.17	-317.64	463.99	-449.35	10.19	2.58	-26.45
6,387.00	24.40	22.20	6,224.55	-306.14	469.30	-440.15	9.36	6.56	-16.88
6,418.00	26.80	19.90	6,252.50	-293.64	474.10	-429.84	8.38	7.74	-7.42

Received  
Office of Oil & Gas  
27.74  
26.94  
-29.03  
-29.03  
14 2016



## Professional Directional Survey Report



<b>Company:</b>	EQT PRODUCTION	<b>Local Co-ordinate Reference:</b>	Well Well #512890 -Marcellus - Slot 512890
<b>Project:</b>	Tyler County, WV	<b>TVD Reference:</b>	GL 1079 + 23' kb @ 1102 00usft (Savannah 803)
<b>Site:</b>	WEU4	<b>MD Reference:</b>	GL 1079 + 23' kb @ 1102 00usft (Savannah 803)
<b>Well:</b>	Well #512890 -Marcellus	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Main Wellbore	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	512890 As Drilled Surveys	<b>Database:</b>	Well_Planner1

### 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)
6,450.00	29.10	16.30	6,280.77	-279.38	478.74	-417.82	8.91	7.19	-11.25
6,481.00	30.80	12.10	6,307.63	-264.39	482.52	-404.82	8.70	5.48	-13.55
6,513.00	32.80	7.30	6,334.83	-247.77	485.34	-389.98	10.07	6.25	-15.00
6,544.00	35.40	4.10	6,360.50	-230.48	487.05	-374.14	10.19	8.39	-10.32
6,576.00	37.90	1.60	6,386.18	-211.41	487.98	-356.37	9.10	7.81	-7.81
6,607.00	40.50	358.90	6,410.20	-191.82	488.06	-337.84	10.03	8.39	-8.71
6,638.00	43.80	356.30	6,433.18	-171.05	487.17	-317.87	12.04	10.65	-8.39
6,670.00	46.90	354.30	6,455.67	-148.36	485.30	-295.77	10.66	9.69	-6.25
6,702.00	50.20	352.30	6,476.85	-124.55	482.48	-272.31	11.33	10.31	-6.25
6,733.00	53.60	349.10	6,495.98	-100.49	478.53	-248.25	13.65	10.97	-10.32
6,764.00	55.00	344.60	6,514.07	-75.99	472.80	-223.20	12.62	4.52	-14.52
6,796.00	56.80	344.40	6,532.01	-50.45	465.72	-196.74	5.65	5.83	-0.63
6,827.00	60.10	344.70	6,548.23	-24.99	458.68	-170.37	10.68	10.65	0.97
6,859.00	64.10	344.00	6,563.20	2.23	451.05	-142.13	12.65	12.50	-2.19
6,890.00	67.10	342.40	6,576.01	29.25	442.89	-113.92	10.76	9.68	-5.16
6,922.00	69.40	340.30	6,587.87	57.41	433.38	-84.20	9.42	7.19	-6.56
6,953.00	71.20	339.10	6,598.32	84.78	423.25	-55.03	6.86	5.81	-3.87
6,984.00	74.60	338.40	6,607.43	112.39	412.52	-25.44	11.18	10.97	-2.26
7,016.00	79.00	338.40	6,614.74	141.35	401.05	5.67	13.75	13.75	0.00
7,017.39	79.14	338.40	6,615.00	142.62	400.55	7.03	10.32	10.32	0.00
<b>Top of Tully@6615'TVD</b>									
7,047.00	82.20	338.40	6,619.80	169.78	389.79	36.21	10.32	10.32	0.00
7,079.00	85.40	337.10	6,623.25	199.22	377.75	67.95	10.78	10.00	-4.06
7,110.00	87.90	334.60	6,625.07	227.46	365.09	98.75	11.39	8.06	-8.06
7,173.00	89.10	334.90	6,626.71	284.42	338.22	161.31	1.96	1.90	0.48
7,268.00	87.10	334.40	6,629.86	370.22	297.57	255.61	2.17	-2.11	-0.53
7,362.00	91.00	334.80	6,631.42	455.03	257.12	348.90	4.15	4.15	0.21
<b>LP=7362'MD/6631.42'TVD</b>									
7,456.00	91.10	333.40	6,629.70	539.50	215.92	442.11	1.28	0.11	-1.28
7,551.00	92.30	335.00	6,626.88	624.99	174.59	536.33	2.10	1.26	1.68
7,645.00	92.80	335.10	6,622.70	710.13	134.98	629.67	0.54	0.53	0.11
7,739.00	90.60	334.80	6,619.91	795.18	95.05	723.02	2.40	-2.34	-0.53
7,833.00	91.20	334.90	6,618.43	880.19	54.96	816.38	0.71	0.84	0.32
7,928.00	92.00	334.90	6,615.78	968.18	14.68	910.74	0.84	0.84	0.00
8,022.00	89.90	335.00	6,614.22	1,051.32	-25.12	1,004.14	2.24	-2.23	0.11
8,117.00	90.00	335.00	6,614.31	1,137.42	-65.26	1,098.56	0.11	0.11	0.00
8,211.00	88.80	335.10	6,615.29	1,222.64	-104.91	1,191.98	1.28	-1.28	0.11
8,305.00	89.40	335.80	6,616.77	1,308.13	-143.96	1,285.47	0.98	0.64	0.74
8,400.00	89.50	336.20	6,617.68	1,394.92	-182.60	1,380.06	0.43	0.11	0.85
8,494.00	89.80	337.00	6,618.25	1,481.18	-219.93	1,473.73	0.91	0.32	0.85
8,588.00	90.30	337.00	6,618.17	1,567.71	-256.66	1,567.46	0.53	0.53	0.00
8,683.00	90.00	333.40	6,617.92	1,653.93	-296.50	1,661.90	3.80	-0.32	-3.79
8,777.00	87.00	333.80	6,620.38	1,738.09	-338.28	1,755.00	3.22	-3.19	0.43
8,871.00	87.10	334.10	6,625.22	1,822.43	-379.51	1,848.09	0.34	0.11	0.32

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## Professional Directional Survey Report



<b>Company:</b>	EQT PRODUCTION	<b>Local Co-ordinate Reference:</b>	Well Well #512890 -Marcellus - Slot 512890
<b>Project:</b>	Tyler County, WV	<b>TVD Reference:</b>	GL 1079 + 23' kb @ 1102.00usft (Savannah 803)
<b>Site:</b>	WEU4	<b>MD Reference:</b>	GL 1079 + 23' kb @ 1102 00usft (Savannah 803)
<b>Well:</b>	Well #512890 -Marcellus	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Main Wellbore	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	512890 As Drilled Surveys	<b>Database:</b>	Well_Planner1

### 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)
8,986.00	87.20	334.30	6,629.94	1,907.86	-420.80	1,942.24	0.24	0.11	0.21
9,060.00	88.60	333.80	6,633.39	1,992.32	-461.91	2,035.41	1.58	1.49	-0.53
9,148.88	88.03	332.10	6,636.00	2,071.44	-502.31	2,123.30	2.02	-0.64	-1.91
<b>Top of Hamilton@6636'TVD</b>									
9,154.00	88.00	332.00	6,636.18	2,075.96	-504.71	2,128.34	2.02	-0.64	-1.92
9,249.00	89.40	335.30	6,638.33	2,161.05	-546.85	2,222.45	3.77	1.47	3.47
9,343.00	90.60	333.90	6,638.33	2,245.96	-587.17	2,315.79	1.96	1.28	-1.49
9,437.00	90.10	336.60	6,637.76	2,331.32	-626.52	2,409.25	2.92	-0.53	2.87
9,532.00	87.90	336.50	6,639.42	2,418.45	-664.32	2,503.90	2.32	-2.32	-0.11
9,626.00	89.70	335.90	6,641.39	2,504.44	-702.24	2,597.49	2.02	1.91	-0.64
9,721.00	88.80	335.10	6,642.63	2,590.87	-741.63	2,691.99	1.27	-0.95	-0.84
9,815.00	89.60	334.90	6,643.94	2,676.06	-781.36	2,785.40	0.88	0.85	-0.21
9,909.00	89.60	334.90	6,644.60	2,761.18	-821.23	2,878.80	0.00	0.00	0.00
10,004.00	90.20	334.30	6,644.76	2,847.00	-861.98	2,973.15	0.89	0.63	-0.63
10,098.00	89.80	333.90	6,644.76	2,931.55	-903.04	3,066.39	0.60	-0.43	-0.43
10,192.00	89.60	333.40	6,645.26	3,015.79	-944.76	3,159.54	0.57	-0.21	-0.53
10,287.00	90.50	335.70	6,645.17	3,101.56	-985.58	3,253.87	2.60	0.95	2.42
10,381.00	90.90	336.80	6,644.02	3,187.59	-1,023.43	3,347.49	1.25	0.43	1.17
10,475.00	88.20	337.30	6,644.76	3,274.14	-1,060.08	3,441.21	2.92	-2.87	0.53
10,569.00	88.60	337.10	6,647.39	3,360.76	-1,096.49	3,534.93	0.48	0.43	-0.21
10,664.00	89.40	337.50	6,649.04	3,448.39	-1,133.15	3,629.68	0.94	0.84	0.42
10,758.00	90.10	337.30	6,649.45	3,535.17	-1,169.27	3,723.45	0.77	0.74	-0.21
<b>Deepest Point of well=10758'MD/6649.45'TVD</b>									
10,838.00	90.90	336.70	6,648.76	3,608.80	-1,200.53	3,803.22	1.25	1.00	-0.75
<b>FINAL Survey. 10838'MD / 6648.76'TVD</b>									
10,893.00	90.90	336.70	6,647.89	3,659.31	-1,222.28	3,858.03	0.00	0.00	0.00
<b>PTB: 10893'MD/6647 89'TVD</b>									

### Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,017.39	6,615.00	Top of Tully@6615'TVD		0.00	
9,148.88	6,636.00	Top of Hamilton@6636'TVD		0.00	

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# Professional Directional Survey Report



<b>Company:</b>	EQT PRODUCTION	<b>Local Co-ordinate Reference:</b>	Well Well #512890 -Marcellus - Slot 512890
<b>Project:</b>	Tyler County, WV	<b>TVD Reference:</b>	GL 1079 + 23' kb @ 1102 00usft (Savannah 803)
<b>Site:</b>	WUEU4	<b>MD Reference:</b>	GL 1079 + 23' kb @ 1102 00usft (Savannah 803)
<b>Well:</b>	Well #512890 -Marcellus	<b>North Reference:</b>	Grd
<b>Wellbore:</b>	Main Wellbore	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	512890 As Drilled Surveys	<b>Database:</b>	Well_Planner1

### Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,920.00	4,919.83	-16.68	20.56	Gyro Tie In=4920' MD - PHX+MWD+HDGM (2)
4,941.00	4,940.83	-16.81	20.49	KOP=4941' MD- PHX+MWD+HDGM (2)
5,716.00	5,631.33	-241.34	232.95	PHX Tie In=5716' MD - PRO D+MWD+IGRF (3)
5,758.00	5,663.83	-260.48	251.43	KOP=5758'MD - PRO D+MWD+IGRF (3)
7,362.00	6,631.42	455.03	257.12	LP=7362'MD/6631.42'TVD
10,758.00	6,649.45	3,535.17	-1,169.27	Deepest Point of well=10758'MD/6649.45'TVD
10,838.00	6,648.76	3,608.80	-1,200.53	FINAL Survey: 10838'MD / 6648.76'TVD
10,893.00	6,647.89	3,659.31	-1,222.28	PTB: 10893'MD/6647.89'TVD

Checked By: _____	Approved By: _____	Date: _____
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