



## **EQT PRODUCTION**

**Taylor County, WV**

**RSM118**

**Well #515749- Marcellus - Slot 515749**

**API #47-9101321**

**Main Wellbore**

**Design: 515749 As Drilled Surveys**

## **Standard Survey Report**

**31 August, 2015**



**Where energy meets innovation.**

WV Department of  
Environmental Protection

**02/12/2016**



Phoenix Technology Services  
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Well #515749- Marcellus - Slot 515749
Company:	EQT PRODUCTION	TVD Reference:	KB @ 1488.0usft
Project:	Taylor County, WV	MD Reference:	KB @ 1488.0usft
Site:	RSM118	North Reference:	Grid
Well:	Well #515749- Marcellus	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515749 As Drilled Surveys		

Project	Taylor 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	RSM118				
Site Position:		Northing:	289,938.90 usft	Latitude:	39.29
From:	Map	Easting:	1,803,864.30 usft	Longitude:	-80.19
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.44 °

Well	Well #515749- Marcellus - Slot 515749					
Well Position	+N/-S	0.0 usft	Northing:	289,946.00 usft	Latitude:	39° 17' 38.387 N
	+E/-W	0.0 usft	Easting:	1,803,871.20 usft	Longitude:	80° 11' 34.754 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,465.0 usft

Wellbore	Main Wellbore				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/10/2015	-9.52	66.48	52,273

Design	515749 As Drilled Surveys				
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Audit Notes:

Version:	1.0	Phase:	ACTUAL	Tie On Depth:	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	137.08

Survey Program	Date	8/31/2015			
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From (')	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	4,759.0	515749 Gyrodata Gyro (Main Wellbore)	GYD_DP_MS	Gyrodata gyro-compassing and drop
0.00	13,514.0	515749 PHX MWD (Main Wellbore)	PHX+MWD+HDGM	PHX+OWSG MWD + HDGM

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	-1,488.0	0.0	0.0	0.0	0.00	0.00	0.00
110.0	0.59	308.55	110.0	-1,378.0	0.4	-0.4	-0.6	0.54	0.54	0.00
210.0	0.55	314.58	210.0	-1,278.0	1.0	-1.2	-1.5	0.07	-0.04	6.03
310.0	0.53	326.07	310.0	-1,178.0	1.7	-1.8	-2.5	0.11	-0.02	11.49
410.0	0.43	330.55	410.0	-1,078.0	2.4	-2.2	-3.3	0.11	-0.10	4.48
510.0	0.30	323.06	510.0	-978.0	3.0	-2.6	-3.9	0.14	-0.13	-7.49
610.0	0.28	326.26	610.0	-878.0	3.4	-2.9	-4.4	0.03	-0.02	3.20



# Phoenix Technology Services

## Survey Report



<b>Database:</b>	EDM 5000.1 Single Use; Db	<b>Local Co-ordinate Reference:</b>	Well Well #515749- Marcellus - Slot 515749
<b>Company:</b>	EQT PRODUCTION	<b>TVD Reference:</b>	KB @ 1488.0usft
<b>Project:</b>	Taylor County, WV	<b>MD Reference:</b>	KB @ 1488.0usft
<b>Site:</b>	RSM118	<b>North Reference:</b>	Gnd
<b>Well:</b>	Well #515749- Marcellus	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Main Wellbore		
<b>Design:</b>	515749 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)	
710.0	0.22	6.65	710.0	-778.0	3.8	-3.0	-4.8	0.18	-0.06	40.39	
810.0	0.18	17.53	810.0	-678.0	4.1	-2.9	-5.0	0.05	-0.04	10.88	
910.0	0.28	16.50	910.0	-578.0	4.5	-2.8	-5.2	0.10	0.10	-1.03	
1,010.0	0.28	14.92	1,010.0	-478.0	5.0	-2.7	-5.5	0.01	0.00	-1.58	
1,110.0	0.46	13.29	1,110.0	-378.0	5.6	-2.5	-5.8	0.18	0.18	-1.63	
1,210.0	1.07	356.51	1,210.0	-278.0	6.9	-2.5	-6.8	0.64	0.61	-16.78	
1,310.0	1.07	354.88	1,309.9	-178.1	8.8	-2.6	-8.2	0.03	0.00	-1.63	
1,410.0	1.06	354.94	1,409.9	-78.1	10.6	-2.8	-9.7	0.01	-0.01	0.06	
1,510.0	1.08	359.04	1,509.9	21.9	12.5	-2.9	-11.1	0.08	0.02	4.10	
1,610.0	1.20	359.81	1,609.9	121.9	14.5	-2.9	-12.6	0.12	0.12	0.77	
1,710.0	1.25	359.17	1,709.9	221.9	16.6	-2.9	-14.2	0.05	0.05	-0.64	
1,810.0	1.36	349.33	1,809.8	321.8	18.9	-3.1	-16.0	0.25	0.11	-9.84	
1,910.0	1.39	351.25	1,909.8	421.8	21.3	-3.6	-18.0	0.05	0.03	1.92	
2,010.0	1.39	351.45	2,009.8	521.8	23.7	-3.9	-20.0	0.00	0.00	0.20	
2,110.0	1.50	351.83	2,109.8	621.8	26.1	-4.3	-22.1	0.11	0.11	0.38	
2,210.0	1.38	358.36	2,209.7	721.7	28.6	-4.5	-24.0	0.20	-0.12	6.53	
2,310.0	1.31	352.52	2,309.7	821.7	31.0	-4.7	-25.9	0.15	-0.07	-5.84	
2,410.0	1.21	354.91	2,409.7	921.7	33.2	-4.9	-27.6	0.11	-0.10	2.39	
2,510.0	1.17	358.84	2,509.7	1,021.7	35.2	-5.0	-29.2	0.09	-0.04	3.93	
2,610.0	0.94	357.10	2,609.6	1,121.6	37.1	-5.1	-30.6	0.23	-0.23	-1.74	
2,710.0	0.70	358.53	2,709.6	1,221.6	38.5	-5.2	-31.7	0.24	-0.24	1.43	
2,810.0	0.65	4.90	2,809.6	1,321.6	39.7	-5.1	-32.6	0.09	-0.05	6.37	
2,910.0	0.56	348.10	2,909.6	1,421.6	40.7	-5.2	-33.4	0.20	-0.09	-16.80	
3,010.0	0.57	344.54	3,009.6	1,521.6	41.7	-5.4	-34.2	0.04	0.01	-3.56	
3,110.0	0.60	336.02	3,109.6	1,621.6	42.6	-5.8	-35.2	0.09	0.03	-8.52	
3,210.0	0.56	335.43	3,209.6	1,721.6	43.6	-6.2	-36.1	0.04	-0.04	-0.59	
3,310.0	0.51	331.82	3,309.6	1,821.6	44.4	-6.6	-37.0	0.06	-0.05	-3.61	
3,410.0	0.48	335.28	3,409.6	1,921.6	45.2	-7.0	-37.8	0.04	-0.03	3.46	
3,510.0	0.48	324.67	3,509.6	2,021.6	45.9	-7.4	-38.6	0.09	0.00	-10.61	
3,610.0	0.44	313.17	3,609.6	2,121.6	46.5	-7.9	-39.4	0.10	-0.04	-11.50	
3,710.0	0.45	311.25	3,709.6	2,221.6	47.0	-8.5	-40.2	0.02	0.01	-1.92	
3,810.0	0.42	303.18	3,809.6	2,321.6	47.5	-9.1	-41.0	0.07	-0.03	-8.07	
3,910.0	0.48	315.13	3,909.6	2,421.6	48.0	-9.7	-41.7	0.11	0.06	11.95	
4,010.0	0.56	311.55	4,009.6	2,521.6	48.6	-10.4	-42.6	0.09	0.08	-3.58	
4,110.0	0.57	317.82	4,109.6	2,621.6	49.3	-11.1	-43.6	0.06	0.01	6.27	
4,210.0	0.56	327.53	4,209.6	2,721.6	50.1	-11.7	-44.6	0.10	-0.01	9.71	
4,310.0	0.64	329.87	4,309.6	2,821.6	51.0	-12.2	-45.6	0.08	0.08	2.34	
4,410.0	0.43	335.22	4,409.5	2,921.5	51.8	-12.6	-46.5	0.22	-0.21	5.35	
4,510.0	0.34	327.95	4,509.5	3,021.5	52.4	-12.9	-47.2	0.10	-0.09	-7.27	
4,610.0	0.26	339.96	4,609.5	3,121.5	52.9	-13.2	-47.7	0.10	-0.08	5.20	
4,710.0	0.19	335.61	4,709.5	3,221.5	53.2	-13.3	-48.0	0.07	-0.07	-4.35	
<b>Gyro Tie On=4758' MD</b>											
4,759.0	0.23	327.77	4,758.5	3,270.5	53.4	-13.4	-48.2	0.10	0.08	-16.00	

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Phoenix Technology Services  
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Well#515749- Marcellus - Slot 515749
Company:	EQT PRODUCTION	TVD Reference:	KB @ 1658.0usft
Project:	Taylor County, WV	MD Reference:	KB @ 1458.0usft
Site:	PEM119	North Reference:	Grid
Well:	Well #515749- Marcellus	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515749 AS Drilled Surveys		

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)
4,771.0	1.20	36.50	4,770.5	3,282.5	53.5	-13.4	-48.3	9.47	8.08	572.75
4,802.0	5.10	42.70	4,801.5	3,313.5	54.8	-12.2	-48.4	12.61	12.58	20.00
4,833.0	9.10	45.70	4,832.2	3,344.2	57.5	-9.5	-48.6	12.95	12.90	9.68
4,865.0	11.80	50.40	4,863.7	3,375.7	61.4	-5.2	-48.5	8.84	8.44	14.69
4,896.0	14.80	56.00	4,893.9	3,405.9	65.6	0.5	-47.7	10.52	9.68	18.06
4,927.0	17.40	61.30	4,923.7	3,435.7	70.0	7.9	-45.9	9.63	8.39	17.10
4,959.0	20.60	63.50	4,953.9	3,465.9	74.8	17.1	-43.1	10.25	10.00	6.88
4,990.0	23.40	65.80	4,982.7	3,494.7	79.8	27.6	-39.6	9.45	9.03	7.42
5,022.0	26.30	63.30	5,011.7	3,523.7	85.6	39.7	-35.6	9.64	9.06	-7.81
5,053.0	28.20	62.20	5,039.2	3,551.2	92.1	52.4	-31.8	6.34	6.13	-3.55
5,084.0	29.90	62.90	5,066.3	3,578.3	99.0	65.7	-27.8	5.59	5.48	2.26
5,116.0	31.90	62.60	5,093.8	3,605.8	106.6	80.3	-23.3	6.27	6.25	-0.94
5,147.0	34.20	61.80	5,119.8	3,631.8	114.4	95.3	-18.9	7.55	7.42	-2.58
5,179.0	37.70	60.70	5,145.7	3,657.7	123.5	111.7	-14.3	11.12	10.94	-3.44
5,210.0	39.00	59.60	5,170.0	3,682.0	133.1	128.4	-10.0	4.74	4.19	-3.55
5,273.0	37.60	57.10	5,219.4	3,731.4	153.5	161.7	-2.3	3.31	-2.22	-3.97
5,367.0	37.80	55.50	5,293.8	3,805.8	185.4	209.5	6.9	1.06	0.21	-1.70
5,461.0	36.90	60.90	5,368.6	3,880.6	215.5	257.9	17.8	3.61	-0.96	5.74
5,556.0	36.90	60.70	5,444.5	3,956.5	243.3	307.7	31.4	0.13	0.00	-0.21
5,650.0	42.70	57.50	5,516.7	4,028.7	274.3	359.2	43.8	6.54	6.17	-3.40
5,744.0	39.30	60.80	5,587.7	4,099.7	305.9	412.1	56.6	4.29	-3.62	3.51
5,838.0	37.60	61.20	5,661.3	4,173.3	334.3	463.2	70.7	1.83	-1.81	0.43
5,933.0	37.60	62.60	5,736.6	4,248.6	361.6	514.4	85.5	0.90	0.00	1.47
6,027.0	42.20	61.80	5,808.6	4,320.6	389.7	567.7	101.2	4.92	4.89	-0.85
6,122.0	41.50	58.60	5,879.4	4,391.4	421.2	622.7	115.6	2.36	-0.74	-3.37
6,216.0	40.40	57.00	5,950.4	4,462.4	454.0	674.8	127.1	1.62	-1.17	-1.70
6,310.0	40.90	57.30	6,021.7	4,533.7	487.2	726.2	137.8	0.57	0.53	0.32
6,405.0	42.30	57.50	6,092.8	4,604.8	521.2	779.4	149.1	1.48	1.47	0.21
6,499.0	37.90	58.90	6,164.7	4,676.7	553.1	830.8	160.7	4.78	-4.68	1.49
6,593.0	36.10	59.70	6,239.7	4,751.7	582.0	879.4	172.7	1.98	-1.91	0.85
6,688.0	35.50	66.90	6,316.8	4,828.8	607.0	929.0	188.2	4.48	-0.63	7.58
6,719.0	34.20	69.20	6,342.3	4,854.3	613.6	945.4	194.5	5.96	-4.19	7.42
6,783.0	34.90	66.10	6,395.0	4,907.0	627.4	979.0	207.2	2.96	1.09	-4.84
6,814.0	37.40	63.80	6,420.0	4,932.0	635.1	995.5	212.8	9.17	8.06	-7.42
6,846.0	39.60	62.70	6,445.0	4,957.0	644.1	1,013.3	218.4	7.20	6.88	-3.44
6,877.0	41.20	59.50	6,468.7	4,980.7	653.8	1,030.9	223.2	8.45	5.16	-10.32
6,909.0	42.10	55.10	6,492.6	5,004.6	665.3	1,048.8	227.0	9.56	2.81	-13.75
6,972.0	42.20	52.90	6,539.3	5,051.3	690.2	1,083.0	232.1	2.35	0.16	-3.49
7,066.0	39.60	55.10	6,610.3	5,122.3	726.4	1,132.7	239.5	3.16	-2.77	2.34
7,160.0	38.10	52.90	6,683.5	5,195.5	761.0	1,180.5	246.6	2.17	-1.60	-2.84
7,254.0	37.40	57.30	6,757.9	5,269.9	793.9	1,227.6	254.6	2.96	-0.74	4.68
7,349.0	38.10	57.50	6,833.0	5,345.0	825.2	1,276.6	265.0	0.75	0.74	0.21

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Survey Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Well #515749- Marcellus - Slot 515749
<b>Company:</b>	EQT PRODUCTION	<b>TVD Reference:</b>	KB @ 1485.0usft
<b>Project:</b>	Taylor County, WV	<b>MD Reference:</b>	KB @ 1488.0usft
<b>Site:</b>	RSM113	<b>North Reference:</b>	Grid
<b>Well:</b>	Well #515749- Marcellus	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Main Wellbore		
<b>Design:</b>	515749 As Drilled Surveys		

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)
7,443.0	35.30	54.70	6,908.4	5,420.4	856.5	1,323.2	273.9	3.47	-2.98	-2.98
7,537.0	36.00	58.70	6,984.7	5,496.7	886.6	1,369.0	283.1	2.59	0.74	4.26
7,569.0	35.50	58.70	7,010.7	5,522.7	896.3	1,385.0	286.8	1.56	-1.56	0.00
7,600.0	34.90	64.50	7,036.1	5,548.1	904.8	1,400.7	291.3	10.95	-1.94	18.71
7,632.0	35.20	72.80	7,062.3	5,574.3	911.5	1,417.8	298.0	14.92	0.94	25.94
7,663.0	36.90	79.60	7,087.3	5,599.3	915.8	1,435.5	306.9	14.02	5.48	21.94
7,694.0	37.40	81.10	7,112.1	5,624.1	918.9	1,453.9	317.2	3.34	1.61	4.84
7,726.0	38.00	83.30	7,137.4	5,649.4	921.6	1,473.3	328.5	4.60	1.88	6.88
7,757.0	38.20	86.50	7,161.8	5,673.8	923.3	1,492.4	340.2	6.40	0.65	10.32
7,789.0	38.60	89.60	7,186.8	5,698.8	924.0	1,512.2	353.2	6.15	1.25	9.69
7,820.0	39.10	93.00	7,211.0	5,723.0	923.5	1,531.7	366.8	7.07	1.61	10.97
7,852.0	39.50	97.30	7,235.8	5,747.8	921.7	1,551.8	381.8	8.60	1.25	13.44
7,883.0	40.70	99.40	7,259.5	5,771.5	918.8	1,571.6	397.4	5.83	3.87	6.77
7,915.0	42.10	100.20	7,283.5	5,795.5	915.2	1,592.4	414.3	4.68	4.38	2.50
7,946.0	43.70	101.30	7,306.2	5,818.2	911.2	1,613.2	431.3	5.70	5.16	3.55
7,977.0	43.50	105.40	7,328.6	5,840.6	906.3	1,634.0	449.0	9.14	-0.65	13.23
8,009.0	44.70	109.90	7,351.6	5,863.6	899.5	1,655.2	468.4	10.48	3.75	14.06
8,040.0	46.70	114.20	7,373.3	5,885.3	891.2	1,675.7	488.5	11.84	6.45	13.87
8,072.0	48.80	118.10	7,394.8	5,906.8	880.8	1,697.0	510.6	11.15	6.56	12.19
8,103.0	50.90	120.20	7,414.8	5,926.8	869.2	1,717.7	533.2	8.53	6.77	6.77
8,135.0	53.10	122.30	7,434.5	5,946.5	856.1	1,739.2	557.4	8.60	6.88	6.56
8,166.0	54.40	123.50	7,452.8	5,964.8	842.6	1,760.2	581.7	5.23	4.19	3.87
8,197.0	55.50	125.20	7,470.6	5,982.6	828.2	1,781.1	606.4	5.72	3.55	5.48
8,229.0	56.40	128.00	7,488.5	6,000.5	812.4	1,802.4	632.5	7.78	2.81	8.75
8,260.0	58.40	130.90	7,505.2	6,017.2	795.8	1,822.6	658.4	10.18	6.45	9.35
515747 Plat LP (copy) (copy)										
8,284.9	60.34	133.56	7,517.9	6,029.9	781.4	1,838.4	679.7	12.04	7.78	10.68
8,292.0	60.90	134.30	7,521.4	6,033.4	777.1	1,842.9	685.9	12.04	7.92	10.42
8,323.0	63.80	137.80	7,535.8	6,047.8	757.4	1,861.9	713.4	13.69	9.35	11.29
8,354.0	66.60	139.70	7,548.8	6,060.8	736.2	1,880.5	741.5	10.61	9.03	6.13
8,386.0	68.50	142.00	7,561.0	6,073.0	713.3	1,899.1	771.0	8.91	5.94	7.19
8,417.0	71.90	145.20	7,571.5	6,083.5	689.8	1,916.4	800.0	14.65	10.97	10.32
8,449.0	74.30	148.20	7,580.8	6,092.8	664.2	1,933.2	830.1	11.69	7.50	9.38
8,480.0	77.40	152.30	7,588.4	6,100.4	638.1	1,948.2	859.4	16.26	10.00	13.23
8,511.0	81.20	153.30	7,594.2	6,106.2	611.0	1,962.1	888.7	12.66	12.26	3.23
8,543.0	85.50	155.00	7,597.9	6,109.9	582.4	1,975.9	919.1	14.44	13.44	5.31
8,574.0	88.70	155.50	7,599.4	6,111.4	554.3	1,988.9	948.5	10.45	10.32	1.61
515748 LP OA (copy)										
8,667.9	89.59	156.29	7,600.8	6,112.8	468.6	2,027.2	1,037.3	1.27	0.95	0.84
515749 Plat LP (copy)										
8,668.1	89.59	156.29	7,600.8	6,112.8	468.4	2,027.3	1,037.6	1.27	0.95	0.84
LP=8669 MD17601 TVD										
8,669.0	89.60	156.30	7,600.9	6,112.9	467.6	2,027.7	1,038.4	1.27	0.95	0.84

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Phoenix Technology Services  
Survey Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Well #515749- Marcellus - Slot 515749
<b>Company:</b>	EQT PRODUCTION	<b>TVD Reference:</b>	KB @ 1488 0usft
<b>Project:</b>	Taylor County W/V	<b>MD Reference:</b>	KB @ 1488 0usft
<b>Site:</b>	RSM118	<b>North Reference:</b>	Grid
<b>Well:</b>	Well #515749- Marcellus	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Main Wellbore		
<b>Design:</b>	515749 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)
<b>515749 LP 1041' VS</b>										
8,669.5	89.60	156.30	7,600.9	6,112.9	467.2	2,027.9	1,038.9	0.74	0.00	-0.74
8,763.0	89.60	155.60	7,601.5	6,113.5	381.8	2,066.0	1,127.3	0.74	0.00	-0.74
8,857.0	89.40	159.40	7,602.3	6,114.3	294.9	2,101.9	1,215.4	4.05	-0.21	4.04
8,951.0	89.60	159.50	7,603.2	6,115.2	206.9	2,134.9	1,302.3	0.24	0.21	0.11
9,046.0	88.10	158.10	7,605.1	6,117.1	118.4	2,169.3	1,390.6	2.16	-1.58	-1.47
9,140.0	88.70	157.90	7,607.7	6,119.7	31.3	2,204.5	1,478.3	0.67	0.64	-0.21
9,234.0	87.50	159.20	7,610.8	6,122.8	-56.2	2,238.8	1,565.8	1.88	-1.28	1.38
9,328.0	88.00	159.70	7,614.5	6,126.5	-144.1	2,271.8	1,652.6	0.75	0.53	0.53
9,423.0	88.30	158.90	7,617.6	6,129.6	-232.9	2,305.4	1,740.5	0.90	0.32	-0.84
9,517.0	89.50	160.10	7,619.4	6,131.4	-321.0	2,338.3	1,827.4	1.81	1.28	1.28
9,611.0	89.70	159.80	7,620.0	6,132.0	-409.3	2,370.5	1,914.0	0.38	0.21	-0.32
9,706.0	90.40	159.50	7,619.9	6,131.9	-498.3	2,403.5	2,001.7	0.80	0.74	-0.32
9,800.0	90.30	159.60	7,619.4	6,131.4	-586.4	2,436.4	2,088.6	0.15	-0.11	0.11
9,894.0	87.60	159.20	7,621.1	6,133.1	-674.4	2,469.5	2,175.5	2.90	-2.87	-0.43
9,989.0	87.80	158.40	7,624.9	6,136.9	-762.9	2,503.8	2,263.7	0.87	0.21	-0.84
10,083.0	87.60	158.40	7,628.7	6,140.7	-850.2	2,538.4	2,351.2	0.21	-0.21	0.00
10,177.0	87.90	157.60	7,632.4	6,144.4	-937.3	2,573.5	2,438.9	0.91	0.32	-0.85
10,271.0	88.20	157.00	7,635.6	6,147.6	-1,024.0	2,609.8	2,527.1	0.71	0.32	-0.64
10,366.0	87.60	156.90	7,639.0	6,151.0	-1,111.3	2,647.0	2,616.4	0.64	-0.63	-0.11
10,460.0	88.70	158.10	7,642.1	6,154.1	-1,198.1	2,682.9	2,704.4	1.73	1.17	1.28
10,554.0	87.70	156.60	7,645.0	6,157.0	-1,284.8	2,719.1	2,792.5	1.92	-1.06	-1.60
10,649.0	89.20	157.60	7,647.6	6,159.6	-1,372.3	2,756.0	2,881.8	1.90	1.58	1.05
10,743.0	90.20	160.30	7,648.1	6,160.1	-1,460.0	2,789.8	2,969.0	3.06	1.06	2.87
10,837.0	87.20	156.80	7,650.2	6,162.2	-1,547.5	2,824.2	3,056.4	4.90	-3.19	-3.72
10,931.0	90.90	157.80	7,651.8	6,163.8	-1,634.2	2,860.4	3,144.6	4.08	3.94	1.06
11,025.0	90.90	158.40	7,650.3	6,162.3	-1,721.4	2,895.5	3,232.3	0.64	0.00	0.64
11,120.0	89.40	160.30	7,650.1	6,162.1	-1,810.2	2,929.0	3,320.2	2.55	-1.58	2.00
11,214.0	87.30	161.50	7,652.8	6,164.8	-1,899.0	2,959.7	3,406.2	2.57	-2.23	1.28
11,308.0	87.20	162.10	7,657.3	6,169.3	-1,988.2	2,989.0	3,491.5	0.65	-0.11	0.64
11,402.0	88.20	161.20	7,661.0	6,173.0	-2,077.4	3,018.6	3,576.9	1.43	1.06	-0.96
11,497.0	89.40	160.70	7,663.0	6,175.0	-2,167.1	3,049.6	3,663.7	1.37	1.26	-0.53
11,591.0	89.10	160.50	7,664.3	6,176.3	-2,255.8	3,080.8	3,749.9	0.38	-0.32	-0.21
11,685.0	89.70	160.10	7,665.2	6,177.2	-2,344.3	3,112.5	3,836.3	0.77	0.64	-0.43
11,780.0	89.70	161.20	7,665.7	6,177.7	-2,433.9	3,144.0	3,923.4	1.16	0.00	1.16
11,874.0	86.90	162.00	7,668.5	6,180.5	-2,523.1	3,173.7	4,008.9	3.10	-2.98	0.85
11,969.0	86.90	160.10	7,673.7	6,185.7	-2,612.8	3,204.5	4,095.5	2.00	0.00	-2.00
12,063.0	86.70	160.40	7,678.9	6,190.9	-2,701.1	3,236.2	4,181.8	0.38	-0.21	0.32
12,157.0	87.20	158.20	7,683.9	6,195.9	-2,788.9	3,269.4	4,268.7	2.40	0.53	-2.34
12,252.0	90.40	158.60	7,685.9	6,197.9	-2,877.2	3,304.3	4,357.2	3.39	3.37	0.42
12,346.0	90.90	158.40	7,684.8	6,196.8	-2,964.7	3,338.8	4,444.7	0.57	0.53	-0.21
12,441.0	89.30	158.60	7,684.7	6,196.7	-3,053.1	3,373.6	4,533.1	1.70	-1.68	0.21
12,535.0	87.80	156.40	7,687.1	6,199.1	-3,139.9	3,409.5	4,621.2	2.83	-1.60	-2.34



Phoenix Technology Services  
Survey Report



<b>Database:</b> EDM 5000.1 Single User Db <b>Company:</b> EQT PRODUCTION <b>Project:</b> Taylor County, WV <b>Site:</b> BSM118 <b>Well:</b> Well #515749- Marcellus <b>Wellbore:</b> Main Wellbore <b>Design:</b> 515749 As Drilled Surveys	<b>Local Co-ordinate Reference:</b> <b>TVD Reference:</b> <b>MD Reference:</b> <b>North Reference:</b> <b>Survey Calculation Method:</b>	Well Well #515749- Marcellus - Slot 515749 KB @ 1488.0usft KB @ 1488.0usft Grid Minimum Curvature
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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)
12,629.0	86.90	155.60	7,691.4	6,203.4	-3,225.6	3,447.7	4,710.0	1.28	-0.96	-0.85
12,722.0	87.90	157.20	7,695.6	6,207.6	-3,310.8	3,484.9	4,797.7	2.03	1.08	1.72
12,816.0	88.80	158.80	7,698.3	6,210.3	-3,397.9	3,520.1	4,885.4	1.95	0.96	1.70
12,910.0	88.60	158.90	7,700.5	6,212.5	-3,485.5	3,554.0	4,972.7	0.24	-0.21	0.11
13,005.0	88.00	157.60	7,703.3	6,215.3	-3,573.7	3,589.2	5,061.2	1.51	-0.63	-1.37
13,099.0	88.40	158.00	7,706.2	6,218.2	-3,660.7	3,624.7	5,149.1	0.60	0.43	0.43
13,194.0	88.00	158.40	7,709.2	6,221.2	-3,748.9	3,660.0	5,237.7	0.60	-0.42	0.42
13,288.0	88.50	158.40	7,712.1	6,224.1	-3,836.2	3,694.6	5,325.2	0.53	0.53	0.00
13,383.0	88.30	158.70	7,714.7	6,226.7	-3,924.6	3,729.3	5,413.6	0.38	-0.21	0.32
Final Survey=13452' MD/7716' TVD										
13,452.0	88.10	159.50	7,716.9	6,228.9	-3,989.1	3,753.9	5,477.5	1.19	-0.29	1.16
515749 Plat TD2 (copy) - 515749 Plat TD (copy)										
13,513.4	88.10	159.50	7,718.9	6,230.9	-4,046.6	3,775.4	5,534.3	0.00	0.00	0.00
PROJ to Bit/Deepest Point=13514' MD/7719' TVD										
13,514.0	88.10	159.50	7,719.0	6,231.0	-4,047.1	3,775.6	5,534.8	0.00	0.00	0.00

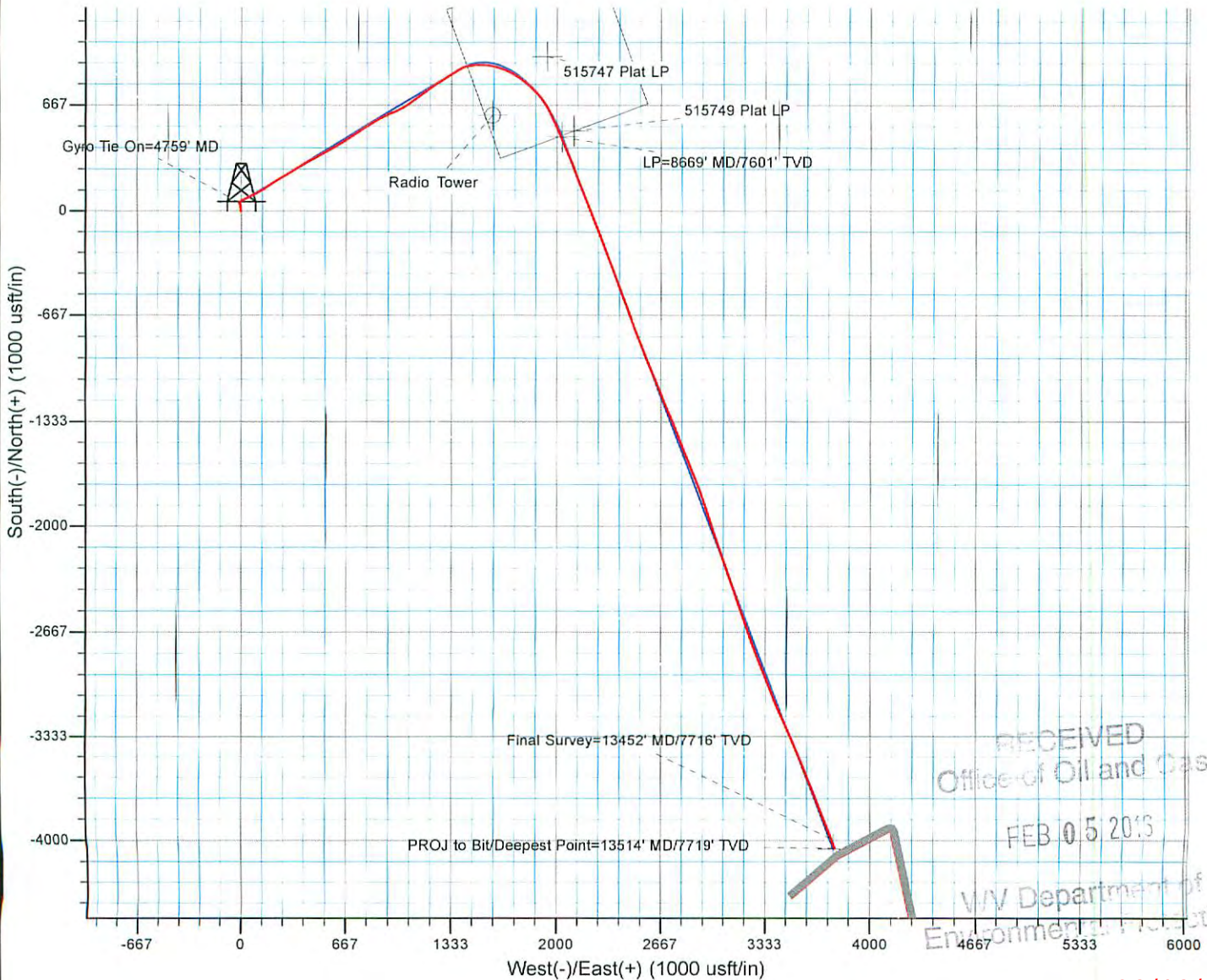
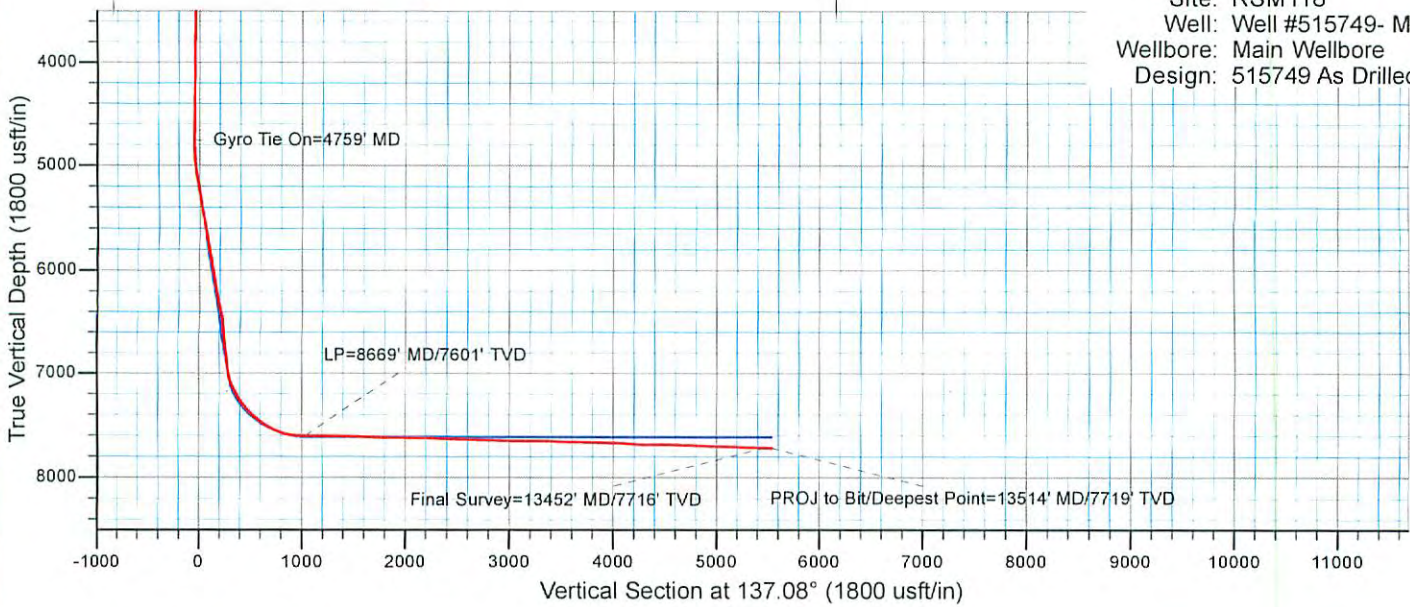
Target Name	- hit/miss target	- Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (974.6)	+E/-W (1,938.9)	Northing (usft)	Easting (usft)	Latitude	Longitude
515747 Plat LP (copy) (c			0.00	0.00	7,615.0	974.6	1,938.9	290,920.60	1,805,810.10	39° 17' 48.167 N	80° 11' 10.187 W
- actual wellpath misses target center by 238.4usft at 8284.9usft MD (7517.9 TVD, 781.4 N, 1838.4 E)											
- Rectangle (sides W1,000.0 H1,000.0 D0.0)											
515749 Plat LP (copy)			0.00	360.00	7,615.0	504.8	2,110.0	290,450.80	1,805,981.20	39° 17' 43.537 N	80° 11' 7.965 W
- actual wellpath misses target center by 91.4usft at 8668.1usft MD (7600.8 TVD, 468.4 N, 2027.3 E)											
- Point											

Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
4,759.0	4,758.5	53.4	-13.4	Gyro Tie On=4759' MD
8,669.0	7,600.9	467.6	2,027.7	LP=8669' MD/7601' TVD
13,452.0	7,716.9	-3,989.1	3,753.9	Final Survey=13452' MD/7716' TVD
13,514.0	7,719.0	-4,047.1	3,775.6	PROJ to Bit/Deepest Point=13514' MD/7719' TVD

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



Project: Taylor County, WV  
 Site: RSM118  
 Well: Well #515749- Marcellus  
 Wellbore: Main Wellbore  
 Design: 515749 As Drilled Surveys



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