



## **EQT PRODUCTION**

**Ritchie County, WV**

**PUL96 Pad**

**Well #515965- Marcellus - Slot 515965**

**API #47-08510209**

**515965 ST01**

**Design: 515965 ST01 As Drilled**

## **Standard Survey Report**

**07 January, 2016**



Phoenix Technology Services  
Survey Report



Database:	COMPASS 5000	Local Co-ordinate Reference:	NAD 1927 (NADCON CONUS)
Company:	LOT PRODUCTION	TVD Reference:	MEAN SEA LEVEL
Project:	LOT 1000000000	MD Reference:	NAD 1927 (NADCON CONUS)
Site:	PHX MWD	North Reference:	US
Well:	515965	Survey Calculation Method:	Average of 3 Surveys
Wellbore:	515965		
Design:	PHX MWD		

Project:	PHX MWD		
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:	PHX MWD				
Site Position:		Northing:	262,406.23 usft	Latitude:	39.21
From:	Map	Easting:	1,578,892.82 usft	Longitude:	-80.99
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.95 °

Well:	515965					
Well Position:	+N-S	0.0 usft	Northing:	262,432.59 usft	Latitude:	39° 12' 39.489 N
	+E-W	0.0 usft	Easting:	1,578,907.15 usft	Longitude:	80° 59' 10.120 W
Position Uncertainty:		0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,183.0 usft

Wellbore:	515965				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/16/2015	-7.66	66.53	51,962

Design:	PHX MWD				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	3,800.0
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)	
	0.0	0.0	0.0	141.76	

Survey Program	Date:	1/7/2016		
From ()	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	3,800.0	515965 VES Gyro (Main Wellbore)	VES Spec AVG 04-09-15	Triaxial Continuous Gyro Model
0.00	10,652.0	515965 ST01 PHX MWD (515965 ST01)	PHX+MWD+HDGM	PHX+OWSG MWD + HDGM

Survey:	PHX MWD										
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	-1,206.0	0.0	0.0	0.0	0.00	0.00	0.00	
110.0	0.46	92.15	110.0	-1,096.0	0.0	0.4	0.3	0.42	0.42	0.00	
210.0	0.41	117.93	210.0	-996.0	-0.2	1.2	0.9	0.20	-0.05	25.78	
310.0	0.41	124.69	310.0	-896.0	-0.6	1.8	1.5	0.05	0.00	6.76	
410.0	0.37	126.45	410.0	-796.0	-1.0	2.3	2.2	0.04	-0.04	1.76	
510.0	0.45	132.68	510.0	-696.0	-1.4	2.9	2.9	0.09	0.08	6.23	
610.0	0.19	201.25	610.0	-596.0	-1.8	3.1	3.4	0.42	-0.26	68.57	
710.0	0.17	232.04	710.0	-496.0	-2.1	2.9	3.5	0.10	-0.02	30.79	



# Phoenix Technology Services Survey Report



Database:	COMPASS 5000.1 Build 74	Local Co-ordinate Reference:	North West 40' Grid, Magnetic North
Company:	EQT PRODUCTION	TVD Reference:	MEAN OF OBSERV
Project:	WALTON 2016-17	MD Reference:	MEAN OF OBSERV
Site:	WALTON FIELD	North Reference:	MEAN OF OBSERV
Well:	WALTON 2016-17	Survey Calculation Method:	Minimum Curvature
Wellbore:	WALTON 2016-17		
Design:	WALTON 2016-17		

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)
810.0	0.11	145.03	810.0	-396.0	-2.3	2.9	3.5	0.20	-0.06	-87.01
910.0	0.17	256.35	910.0	-296.0	-2.4	2.8	3.6	0.23	0.06	111.32
1,010.0	0.21	272.90	1,010.0	-196.0	-2.4	2.4	3.4	0.07	0.04	16.55
1,110.0	0.21	279.08	1,110.0	-96.0	-2.4	2.1	3.1	0.02	0.00	6.18
1,210.0	0.18	8.05	1,210.0	4.0	-2.2	1.9	2.9	0.27	-0.03	88.97
1,310.0	0.26	70.09	1,310.0	104.0	-1.9	2.2	2.9	0.24	0.08	62.04
1,410.0	0.41	81.89	1,410.0	204.0	-1.8	2.7	3.1	0.16	0.15	11.80
1,510.0	0.37	87.99	1,510.0	304.0	-1.8	3.4	3.5	0.06	-0.04	6.10
1,610.0	0.70	102.18	1,610.0	404.0	-1.9	4.3	4.1	0.35	0.33	14.19
1,710.0	0.69	100.20	1,710.0	504.0	-2.1	5.5	5.1	0.03	-0.01	-1.98
1,810.0	0.76	105.01	1,810.0	604.0	-2.4	6.7	6.0	0.09	0.07	4.81
1,910.0	0.77	110.83	1,910.0	704.0	-2.8	8.0	7.2	0.08	0.01	5.82
2,010.0	0.79	115.07	2,009.9	803.9	-3.3	9.3	8.3	0.06	0.02	4.24
2,110.0	0.82	110.99	2,109.9	903.9	-3.9	10.6	9.6	0.06	0.03	-4.08
2,210.0	0.60	128.49	2,209.9	1,003.9	-4.5	11.6	10.7	0.31	-0.22	17.50
2,310.0	0.63	140.15	2,309.9	1,103.9	-5.2	12.4	11.8	0.13	0.03	11.66
2,410.0	0.58	141.36	2,409.9	1,203.9	-6.0	13.1	12.8	0.05	-0.05	1.21
2,510.0	0.59	144.36	2,509.9	1,303.9	-6.8	13.7	13.8	0.03	0.01	3.00
2,610.0	0.49	157.32	2,609.9	1,403.9	-7.7	14.1	14.8	0.16	-0.10	12.96
2,710.0	0.41	134.58	2,709.9	1,503.9	-8.3	14.6	15.5	0.19	-0.08	-22.74
2,810.0	0.28	138.02	2,809.9	1,603.9	-8.7	15.0	16.1	0.13	-0.13	3.44
2,910.0	0.32	154.94	2,909.9	1,703.9	-9.2	15.3	16.6	0.10	0.04	16.92
3,010.0	0.30	152.04	3,009.9	1,803.9	-9.6	15.5	17.2	0.03	-0.02	-2.90
3,110.0	0.28	143.69	3,109.9	1,903.9	-10.1	15.8	17.7	0.05	-0.02	-8.35
3,210.0	0.29	143.63	3,209.9	2,003.9	-10.5	16.1	18.2	0.01	0.01	-0.06
3,310.0	0.27	120.08	3,309.9	2,103.9	-10.8	16.4	18.6	0.12	-0.02	-23.55
3,410.0	0.28	125.00	3,409.9	2,203.9	-11.1	16.8	19.1	0.03	0.01	4.92
3,510.0	0.30	127.94	3,509.9	2,303.9	-11.4	17.2	19.6	0.02	0.02	2.94
3,610.0	0.37	135.84	3,609.9	2,403.9	-11.7	17.7	20.2	0.08	0.07	7.70
3,710.0	0.45	142.69	3,709.9	2,503.9	-12.3	18.1	20.9	0.09	0.08	7.05
3,800.0	0.41	145.85	3,799.9	2,593.9	-12.8	18.5	21.6	0.05	-0.04	3.51
3,821.0	8.40	114.50	3,820.8	2,614.8	-13.5	20.0	23.0	38.33	38.03	-149.28
3,853.0	12.70	114.40	3,852.3	2,646.3	-16.0	25.3	28.2	13.44	13.44	-0.31
3,884.0	16.10	117.10	3,882.3	2,676.3	-19.3	32.2	35.1	11.18	10.97	8.71
3,915.0	15.50	120.40	3,912.1	2,706.1	-23.4	39.6	42.9	3.48	-1.94	10.85
3,946.0	14.20	119.50	3,942.1	2,736.1	-27.4	48.5	50.3	4.26	-4.19	-2.90
3,978.0	13.30	124.50	3,973.2	2,767.2	-31.4	53.0	57.4	4.66	-2.81	15.63
4,009.0	13.90	131.70	4,003.3	2,797.3	-35.9	58.7	64.5	5.79	1.84	23.23
4,041.0	14.30	128.40	4,034.3	2,828.3	-40.9	64.7	72.1	2.81	1.25	-10.31
4,072.0	15.40	112.20	4,064.3	2,858.3	-44.8	71.5	79.4	13.81	3.55	-52.26
4,103.0	16.60	101.40	4,094.1	2,888.1	-47.2	79.6	86.4	10.34	3.87	-34.84
4,136.0	17.80	94.10	4,125.6	2,919.6	-48.5	89.3	93.4	7.48	3.64	-22.12



# Phoenix Technology Services

## Survey Report



Database:	004110103 - Completion of	Local Co-ordinate Reference:	North Reference:
Company:	JOY PRODUCTIONS	TVD Reference:	MD Reference:
Project:	Wick County, WY	North Reference:	Survey Calculation Method:
Site:	10230 East		
Well:	WELL 0110607 - MARIPOSA		
Wellbore:	110607-010		
Design:	110607-010-010		

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)
4,167.0	19.20	89.90	4,155.0	2,949.0	-48.9	99.1	99.7	6.23	4.52	-13.55
4,199.0	20.90	85.70	4,185.1	2,979.1	-48.4	110.1	106.2	6.96	5.31	-13.13
4,230.0	22.60	82.10	4,213.9	3,007.9	-47.2	121.5	112.3	6.97	5.48	-11.61
4,262.0	24.50	79.60	4,243.2	3,037.2	-45.2	134.1	118.5	6.71	5.94	-7.81
4,293.0	26.90	76.80	4,271.2	3,065.2	-42.4	147.2	124.4	8.67	7.74	-9.03
4,324.0	29.30	74.60	4,298.5	3,092.5	-38.8	161.4	130.3	8.43	7.74	-7.10
4,356.0	31.40	72.50	4,326.1	3,120.1	-34.2	176.9	136.3	7.35	6.56	-6.56
4,387.0	32.90	71.40	4,352.4	3,146.4	-29.1	192.6	142.0	5.19	4.84	-3.55
4,418.0	34.60	70.80	4,378.1	3,172.1	-23.5	208.9	147.7	5.59	5.48	-1.94
4,513.0	36.00	69.40	4,455.7	3,249.7	-4.8	260.5	165.0	1.70	1.47	-1.47
4,607.0	36.80	68.30	4,531.3	3,325.3	15.3	312.5	181.4	1.10	0.85	-1.17
4,701.0	34.30	65.90	4,607.8	3,401.8	36.6	362.8	195.8	3.05	-2.66	-2.55
4,796.0	35.20	71.90	4,685.9	3,479.9	56.0	413.3	211.8	3.72	0.95	6.32
4,890.0	37.00	70.90	4,761.8	3,555.8	73.7	465.8	230.4	2.01	1.91	-1.06
4,985.0	35.00	68.70	4,838.7	3,632.7	92.9	518.2	247.7	2.51	-2.11	-2.32
5,079.0	37.00	70.70	4,914.7	3,708.7	112.1	570.0	264.8	2.47	2.13	2.13
5,173.0	37.30	70.30	4,989.7	3,783.7	131.0	623.5	283.0	0.41	0.32	-0.43
5,268.0	35.40	68.90	5,066.2	3,860.2	150.6	676.3	300.3	2.18	-2.00	-1.47
5,362.0	37.70	71.10	5,141.7	3,935.7	169.7	728.9	317.8	2.82	2.45	2.34
5,457.0	36.40	70.40	5,217.5	4,011.5	186.6	782.9	336.4	1.44	-1.37	-0.74
5,551.0	39.20	69.60	5,291.8	4,085.8	208.3	837.1	354.4	3.02	2.98	-0.85
5,645.0	38.10	68.50	5,365.2	4,159.2	229.3	891.9	371.9	1.38	-1.17	-1.17
5,739.0	36.70	67.60	5,439.9	4,233.9	250.6	944.9	387.9	1.60	-1.49	-0.96
5,834.0	38.60	67.80	5,515.1	4,309.1	272.7	998.5	403.8	2.00	2.00	0.21
5,928.0	37.60	65.90	5,589.0	4,383.0	295.5	1,051.9	418.9	1.64	-1.06	-2.02
6,022.0	36.80	65.20	5,663.9	4,457.9	319.0	1,103.6	432.5	0.96	-0.85	-0.74
6,117.0	38.00	67.00	5,739.4	4,533.4	342.3	1,156.4	446.8	1.71	1.26	1.89
6,211.0	38.40	68.10	5,813.3	4,607.3	364.5	1,210.1	462.6	0.84	0.43	1.17
6,274.0	38.40	67.10	5,862.6	4,656.6	379.4	1,246.3	473.3	0.99	0.00	-1.59
6,305.0	38.20	69.70	5,887.0	4,681.0	386.5	1,264.1	478.8	5.24	-0.65	8.39
6,337.0	37.40	75.30	5,912.2	4,706.2	392.4	1,282.8	485.7	11.01	-2.50	17.50
6,368.0	36.50	79.40	5,937.0	4,731.0	396.5	1,301.0	493.7	8.46	-2.90	13.23
6,398.0	35.90	84.90	5,961.2	4,755.2	398.9	1,318.5	502.7	11.01	-2.00	18.33
6,430.0	36.30	89.10	5,987.1	4,781.1	399.9	1,337.3	513.6	7.83	1.25	13.13
6,461.0	37.60	93.90	6,011.9	4,805.9	399.4	1,355.9	525.5	10.21	4.19	15.48
6,493.0	39.40	98.10	6,036.9	4,830.9	397.3	1,375.7	539.4	9.92	5.63	13.13
6,524.0	41.60	102.40	6,060.5	4,854.5	393.7	1,395.5	554.5	11.46	7.10	13.87
6,555.0	43.70	105.70	6,083.3	4,877.3	388.6	1,415.9	571.1	9.89	6.77	10.65
6,587.0	45.20	110.20	6,106.2	4,900.2	381.7	1,437.2	589.7	10.90	4.69	14.06
6,618.0	46.50	114.90	6,127.8	4,921.8	373.2	1,457.7	609.1	11.66	4.19	15.16
6,650.0	47.90	119.40	6,149.5	4,943.5	362.4	1,478.6	630.4	11.21	4.38	14.06
6,681.0	49.20	123.00	6,170.0	4,964.0	350.4	1,498.5	652.2	9.66	4.19	11.61







Phoenix Technology Services  
Survey Report



Where energy meets innovation.

Database:	106552101 - 106552101	Local Co-ordinate Reference:	106552101 - 106552101
Company:	UT PERCUSSION	TVD Reference:	106552101 - 106552101
Project:	106552101 - 106552101	MD Reference:	106552101 - 106552101
Site:	106552101 - 106552101	North Reference:	106552101 - 106552101
Well:	106552101 - 106552101	Survey Calculation Method:	106552101 - 106552101
Wellbore:	106552101 - 106552101		
Design:	106552101 - 106552101		

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)
9,229.0	90.50	165.80	6,367.2	5,161.2	-1,993.8	2,283.6	2,979.4	0.67	-0.21	0.63
9,323.0	90.20	165.60	6,366.6	5,160.6	-2,084.8	2,306.8	3,065.3	0.38	-0.32	-0.21
9,418.0	90.00	165.00	6,366.4	5,160.4	-2,176.7	2,330.9	3,152.4	0.67	-0.21	-0.63
9,512.0	89.70	165.20	6,366.7	5,160.7	-2,267.6	2,355.1	3,238.7	0.38	-0.32	0.21
9,606.0	89.40	165.30	6,367.4	5,161.4	-2,358.5	2,379.0	3,324.9	0.34	-0.32	0.11
9,701.0	89.20	165.20	6,368.6	5,162.6	-2,450.3	2,403.2	3,412.0	0.24	-0.21	-0.11
9,795.0	90.10	165.70	6,369.1	5,163.1	-2,541.3	2,426.8	3,498.1	1.10	0.96	0.53
9,890.0	91.20	166.50	6,368.1	5,162.1	-2,633.5	2,449.6	3,584.6	1.43	1.16	0.84
9,984.0	91.00	166.40	6,368.3	5,160.3	-2,724.9	2,471.7	3,670.0	0.24	-0.21	-0.11
10,079.0	90.90	166.70	6,364.7	5,158.7	-2,817.3	2,493.7	3,756.3	0.33	-0.11	0.32
10,173.0	90.70	166.70	6,363.4	5,157.4	-2,908.7	2,515.4	3,841.5	0.21	-0.21	0.00
10,268.0	90.70	166.20	6,362.2	5,156.2	-3,001.1	2,537.6	3,927.8	0.53	0.00	-0.53
10,362.0	89.60	163.90	6,362.0	5,156.0	-3,091.9	2,561.9	4,014.1	2.71	-1.17	-2.45
10,457.0	89.40	164.20	6,362.8	5,156.8	-3,183.2	2,588.0	4,102.0	0.38	-0.21	0.32
10,551.0	89.10	164.30	6,364.0	5,158.0	-3,273.7	2,613.5	4,188.9	0.34	-0.32	0.11
10,601.0	88.90	164.00	6,364.9	5,158.9	-3,321.8	2,627.1	4,235.1	0.72	-0.40	-0.60
10,648.3	88.90	164.00	6,365.8	5,159.8	-3,367.2	2,640.2	4,278.9	0.00	0.00	0.00
10,852.0	88.90	164.00	6,365.9	5,159.9	-3,370.8	2,641.2	4,282.3	0.00	0.00	0.00

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
3,800.0	3,799.9	-12.8	18.5	Gyro Tie On=3800' MD
7,278.0	6,376.7	-115.0	1,759.4	LP=7278' MD/6377'; TVD
8,002.0	6,381.8	-811.6	1,955.9	Deepest Point=8002' MD/6382' MD
10,601.0	6,364.9	-3,321.8	2,627.1	Final Survey=10601' MD/6365' TVD
10,852.0	6,365.9	-3,370.8	2,641.2	PROJ to TD=10652' MD/6366' TVD

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

Project: Ritchie County, WV  
 Site: PUL96 Pad  
 Well: Well #515965- Marcellus  
 Wellbore: 515965 ST01  
 Design: 515965 ST01 As Drilled

