



## **EQT PRODUCTION**

**Ritchie County, WV**

**PUL96 Pad**

**Well #515977- Marcellus - Slot 515977**

**API #47-08510210**

**Main Wellbore**

**Design: 515977 As Drilled Surveys**

## **Standard Survey Report**

**15 January, 2016**



# Phoenix Technology Services

## Survey Report



Database:	EDM 5000.1 Build 74	Local Co-ordinate Reference:	US State Plane 1927 (Exact solution)
Company:	Q7 PRODUCTION	TVD Reference:	US State Plane 1927 (Exact solution)
Project:	PHX MWD	MD Reference:	US State Plane 1927 (Exact solution)
Site:	PHX MWD	North Reference:	US State Plane 1927 (Exact solution)
Well:	PHX MWD	Survey Calculation Method:	Minimum Curvature
Wellbore:	PHX MWD		
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:	PHX MWD					
Well Position	+N/-S	0.0 usft	Northing:	262,445.77 usft	Latitude:	39° 12' 39.621 N
	+E/-W	0.0 usft	Easting:	1,578,914.31 usft	Longitude:	80° 59' 10.032 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,183.0 usft

Wellbore:	PHX MWD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	1/5/2016	-7.66	66.53	51,976

Design:	PHX MWD				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	130.74	

Survey Program	Date	1/15/2016			
From (')	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	3,155.0	515977 VES Gyro (Main Wellbore)	VES Spec AVG 04-09-15	Triaxial Continuous Gyro Model	
0.00	10,592.0	515977 PHX MWD (Main Wellbore)	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	0.34	118.64	110.0	-1,096.0	-0.2	0.3	0.3	0.31	0.31	0.00	
210.0	0.33	141.78	210.0	-996.0	-0.5	0.7	0.9	0.13	-0.01	23.14	
310.0	0.38	136.01	310.0	-896.0	-1.0	1.1	1.5	0.06	0.05	-5.77	
410.0	0.39	134.84	410.0	-796.0	-1.5	1.6	2.2	0.01	0.01	-1.17	
510.0	0.28	165.18	510.0	-696.0	-1.9	1.9	2.7	0.21	-0.13	30.34	
610.0	0.10	260.63	610.0	-596.0	-2.2	1.9	2.8	0.29	-0.16	95.45	
710.0	0.09	351.74	710.0	-496.0	-2.1	1.8	2.7	0.14	-0.01	91.11	

Database:	EQM 5000.1 Build 74	Local Co-ordinate Reference:	North American Datum 83
Company:	JOY PRODUCTION	TVD Reference:	NA 83 @ 1000 Feet
Project:	NAME: 5000.1	MD Reference:	NA 83 @ 1000 Feet
Site:	WELL NO: 5000	North Reference:	GRID
Well:	WELL: 5000.1	Survey Calculation Method:	Minimum Curvature
Wellbore:	WELLBORE: 5000.1		
Design:	DESIGN: 5000.1		

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	0.14	47.91	810.0	-396.0	-1.9	1.9	2.7	0.12	0.05	56.17
910.0	0.21	307.34	910.0	-296.0	-1.7	1.8	2.5	0.27	0.07	-100.57
1,010.0	0.10	4.26	1,010.0	-196.0	-1.5	1.7	2.3	0.18	-0.11	56.94
1,110.0	0.08	77.87	1,110.0	-96.0	-1.4	1.7	2.3	0.11	-0.02	73.59
1,210.0	0.07	348.15	1,210.0	4.0	-1.4	1.8	2.3	0.11	-0.01	-89.72
1,310.0	0.24	92.59	1,310.0	104.0	-1.3	2.0	2.4	0.27	0.17	104.44
1,410.0	0.40	118.20	1,410.0	204.0	-1.5	2.5	2.9	0.21	0.16	25.61
1,510.0	0.46	133.61	1,510.0	304.0	-1.9	3.1	3.6	0.13	0.06	15.41
1,610.0	0.55	119.84	1,610.0	404.0	-2.5	3.8	4.5	0.15	0.09	-13.77
1,710.0	0.65	107.50	1,710.0	504.0	-2.8	4.8	5.5	0.16	0.10	-12.34
1,810.0	0.89	102.69	1,810.0	604.0	-3.2	6.1	6.7	0.25	0.24	-4.81
1,910.0	0.83	119.27	1,910.0	704.0	-3.7	7.5	8.1	0.25	-0.06	16.58
2,010.0	0.63	144.52	2,009.9	803.9	-4.5	8.4	9.3	0.37	-0.20	25.25
2,110.0	0.56	148.31	2,109.9	903.9	-5.4	9.0	10.3	0.08	-0.07	3.79
2,210.0	0.45	163.63	2,209.9	1,003.9	-6.2	9.4	11.1	0.17	-0.11	15.32
2,310.0	0.51	170.88	2,309.9	1,103.9	-7.0	9.5	11.8	0.09	0.06	7.25
2,410.0	0.46	154.04	2,409.9	1,203.9	-7.8	9.8	12.5	0.15	-0.05	-16.84
2,510.0	0.42	149.47	2,509.9	1,303.9	-8.5	10.1	13.2	0.05	-0.04	-4.57
2,610.0	0.39	158.58	2,609.9	1,403.9	-9.1	10.5	13.9	0.07	-0.03	9.11
2,710.0	0.41	145.79	2,709.9	1,503.9	-9.7	10.8	14.5	0.09	0.02	-12.79
2,810.0	0.39	146.22	2,809.9	1,603.9	-10.3	11.2	15.2	0.02	-0.02	0.43
2,910.0	0.36	150.51	2,909.9	1,703.9	-10.9	11.5	15.8	0.04	-0.03	4.29
3,010.0	0.38	200.64	3,009.9	1,803.9	-11.4	11.6	16.2	0.31	0.02	50.13
3,110.0	0.34	184.39	3,109.9	1,903.9	-12.0	11.4	16.5	0.11	-0.04	-16.25
3,155.0	0.27	177.77	3,154.9	1,948.9	-12.3	11.4	16.7	0.17	-0.16	-14.71
3,217.0	4.60	76.60	3,216.8	2,010.8	-11.9	13.8	18.2	7.52	6.98	-163.18
3,260.0	8.70	74.50	3,259.6	2,053.6	-10.6	18.6	21.0	9.55	9.53	-4.88
3,303.0	12.40	73.50	3,301.8	2,095.8	-8.4	26.2	25.3	8.61	8.60	-2.33
3,389.0	16.39	79.93	3,385.1	2,179.1	-3.7	47.0	38.0	4.99	4.64	7.48
3,432.0	21.30	75.70	3,425.8	2,219.8	-0.7	60.6	46.3	11.85	11.42	-9.84
3,475.0	22.90	78.30	3,465.6	2,259.6	3.0	76.3	55.9	4.36	3.72	8.05
3,518.0	24.00	82.30	3,505.1	2,299.1	5.8	93.2	66.8	4.50	2.56	9.30
3,561.0	24.10	87.30	3,544.4	2,338.4	7.4	110.6	79.0	4.74	0.23	11.63
3,604.0	25.00	88.80	3,583.5	2,377.5	8.0	128.5	92.1	2.55	2.09	3.49
3,647.0	28.00	87.50	3,621.9	2,415.9	8.6	147.7	106.2	7.11	6.98	-3.02
3,690.0	31.90	84.60	3,659.2	2,453.2	10.2	169.1	121.5	9.67	9.07	-6.74
3,733.0	35.60	83.00	3,694.9	2,488.9	12.8	192.8	137.8	8.85	8.60	-3.72
3,776.0	38.40	82.30	3,729.3	2,523.3	16.1	218.5	155.0	6.58	6.51	-1.63
3,819.0	41.00	81.40	3,762.4	2,556.4	20.0	245.6	173.1	6.19	6.05	-2.09
3,862.0	41.80	80.60	3,794.6	2,588.6	24.4	273.7	191.5	2.23	1.86	-1.86
3,905.0	42.00	80.10	3,826.6	2,620.6	29.2	302.0	209.8	0.91	0.47	-1.16
3,948.0	40.60	78.00	3,858.9	2,652.9	34.6	330.0	227.4	4.27	-2.79	-4.66

Database:	COM 5000.1 Single User DB	Local Co-ordinate Reference:	Well Name:
Company:	EQT TECHNOLOGY	TVD Reference:	MD Reference:
Project:	Wade County, WV	MD Reference:	North Reference:
Site:	01231141	North Reference:	Survey Calculation Method:
Well:	WV 8511411 - Marcellus	Survey Calculation Method:	Maximum Curvature
Wellbore:	Main Wellbore		
Design:	12877-34 Drilled Survey		

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)	
3,991.0	40.30	76.00	3,891.6	2,685.6	40.9	357.2	243.9	3.24	-1.16	-4.65	
4,034.0	40.30	76.90	3,924.3	2,718.3	47.4	384.2	260.2	1.35	0.00	2.09	
4,077.0	40.20	77.00	3,957.2	2,751.2	53.7	411.3	276.6	0.28	-0.23	0.23	
4,120.0	40.40	77.60	3,990.0	2,784.0	59.8	438.4	293.1	1.02	0.47	1.40	
4,163.0	40.00	78.40	4,022.8	2,816.8	65.6	465.6	309.9	1.52	-0.93	1.86	
4,206.0	39.80	78.70	4,055.8	2,849.8	71.1	492.6	326.9	0.65	-0.47	0.70	
4,250.0	39.80	80.30	4,089.6	2,883.6	76.2	520.2	344.4	2.37	-0.45	3.64	
4,293.0	40.20	79.90	4,122.6	2,916.6	80.9	547.4	361.9	1.52	1.40	-0.93	
4,335.0	40.50	79.90	4,154.6	2,948.6	85.7	574.2	379.1	0.71	0.71	0.00	
4,379.0	39.60	78.60	4,188.3	2,982.3	91.0	602.0	396.7	2.79	-2.05	-2.95	
4,423.0	40.40	78.10	4,222.0	3,016.0	96.7	629.7	414.0	1.96	1.82	-1.14	
4,465.0	40.70	77.70	4,253.9	3,047.9	102.4	656.4	430.5	0.95	0.71	-0.95	
4,508.0	40.00	77.20	4,286.7	3,080.7	108.5	683.6	447.1	1.79	-1.63	-1.16	
4,605.0	38.90	75.70	4,361.6	3,155.6	122.9	743.5	483.1	1.50	-1.13	-1.55	
4,699.0	41.40	78.10	4,433.5	3,227.5	136.6	802.5	518.9	3.13	2.66	2.55	
4,794.0	44.30	80.20	4,503.1	3,297.1	148.7	866.0	559.0	3.40	3.05	2.21	
4,888.0	43.30	77.50	4,571.0	3,365.0	161.3	929.8	599.2	2.25	-1.06	-2.87	
4,982.0	44.10	78.10	4,638.9	3,432.9	175.0	993.3	638.3	0.98	0.85	0.64	
5,077.0	43.30	80.70	4,707.6	3,501.6	187.1	1,057.8	679.3	2.07	-0.84	2.74	
5,171.0	43.30	84.30	4,776.0	3,570.0	195.5	1,121.7	722.2	2.63	0.00	3.83	
5,265.0	42.10	81.60	4,845.1	3,639.1	203.3	1,184.9	765.1	2.33	-1.28	-2.87	
5,360.0	41.20	78.60	4,916.1	3,710.1	214.1	1,247.1	805.1	2.30	-0.95	-3.16	
5,454.0	40.50	83.30	4,987.2	3,781.2	223.8	1,307.8	844.8	3.35	-0.74	5.00	
5,549.0	38.80	80.50	5,060.4	3,854.4	232.3	1,367.8	884.7	2.60	-1.79	-2.95	
5,643.0	38.30	78.80	5,133.9	3,927.9	242.9	1,425.4	921.5	1.25	-0.53	-1.81	
5,737.0	40.00	80.40	5,206.8	4,000.8	253.6	1,483.8	958.7	2.10	1.81	1.70	
5,832.0	42.60	82.10	5,278.2	4,072.2	263.1	1,545.7	999.4	2.98	2.74	1.79	
5,926.0	41.90	80.40	5,347.7	4,141.7	272.7	1,608.2	1,040.5	1.43	-0.74	-1.81	
6,020.0	40.20	78.50	5,418.6	4,212.6	284.0	1,668.9	1,079.1	2.24	-1.81	-2.02	
6,114.0	40.30	79.20	5,490.4	4,284.4	295.7	1,728.5	1,116.6	0.49	0.11	0.74	
6,209.0	42.10	81.20	5,561.8	4,355.8	306.3	1,790.1	1,156.4	2.35	1.89	2.11	
6,303.0	40.40	79.60	5,632.5	4,426.5	316.7	1,851.2	1,195.9	2.13	-1.81	-1.70	
6,397.0	41.70	80.30	5,703.4	4,497.4	327.4	1,912.0	1,235.0	1.47	1.38	0.74	
6,492.0	43.20	79.80	5,773.5	4,567.5	338.5	1,975.2	1,275.6	1.62	1.58	-0.53	
6,586.0	42.40	77.50	5,842.5	4,636.5	351.1	2,037.8	1,314.8	1.87	-0.85	-2.45	
6,680.0	45.00	77.30	5,910.4	4,704.4	365.2	2,101.1	1,353.6	2.77	2.77	-0.21	
6,743.0	44.40	78.50	5,955.2	4,749.2	374.5	2,144.5	1,380.3	1.64	-0.95	1.90	
6,775.0	43.80	82.70	5,978.2	4,772.2	378.2	2,166.4	1,394.6	9.32	-1.88	13.13	
6,806.0	45.00	89.00	6,000.4	4,794.4	379.7	2,188.0	1,410.0	14.73	3.87	20.32	
6,837.0	45.90	94.30	6,022.1	4,816.1	379.1	2,210.1	1,427.1	12.52	2.90	17.10	
6,869.0	47.40	99.70	6,044.1	4,838.1	376.2	2,233.2	1,446.4	13.13	4.69	16.88	
6,900.0	48.50	104.40	6,064.9	4,858.9	371.4	2,255.7	1,466.6	11.80	3.55	15.16	





# Phoenix Technology Services

## Survey Report



<b>Database:</b> EQM 5000.1 Build 74 <b>Company:</b> TOT PRODUCTION <b>Project:</b> Natchez County, Wyo <b>Site:</b> POCOR Field <b>Well:</b> Wyo EQ 10772 - JAWBROOK <b>Wellbore:</b> JAWBROOK <b>Design:</b> 11137-24-DHWH-TotPro	<b>Local Co-ordinate Reference:</b> <b>TVD Reference:</b> <b>MD Reference:</b> <b>North Reference:</b> <b>Survey Calculation Method:</b>	<b>Wellbore Reference:</b> <b>MD Reference:</b> <b>North Reference:</b> <b>Survey Calculation Method:</b>
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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)
6,932.0	49.10	106.60	6,085.9	4,879.9	365.0	2,278.9	1,488.4	5.50	1.88	6.88
6,963.0	49.80	111.10	6,106.1	4,900.1	357.4	2,301.2	1,510.3	11.26	2.26	14.52
6,995.0	51.50	114.90	6,126.4	4,920.4	347.7	2,323.9	1,533.8	10.61	5.31	11.88
7,026.0	53.90	117.60	6,145.2	4,939.2	336.8	2,346.0	1,557.7	10.39	7.74	8.71
7,058.0	55.40	119.90	6,163.7	4,957.7	324.2	2,368.9	1,583.2	7.51	4.69	7.19
7,089.0	55.20	123.20	6,181.3	4,975.3	310.9	2,390.6	1,608.4	8.78	-0.85	10.65
7,120.0	57.20	127.00	6,198.6	4,992.6	296.1	2,411.7	1,634.0	12.08	6.45	12.26
7,152.0	58.40	130.20	6,215.6	5,009.6	279.2	2,432.8	1,661.1	9.28	3.75	10.00
7,183.0	59.50	133.60	6,231.6	5,025.6	261.4	2,452.6	1,687.6	10.04	3.55	10.97
<b>Survey Point</b>										
7,202.5	60.41	135.56	6,241.4	5,035.4	249.6	2,464.6	1,704.5	9.87	4.64	10.06
7,215.0	61.00	136.80	6,247.5	5,041.5	241.7	2,472.2	1,715.3	9.87	4.76	9.91
7,246.0	62.80	138.70	6,262.1	5,056.1	221.5	2,490.5	1,742.4	7.93	5.81	6.13
7,277.0	64.50	141.10	6,275.9	5,069.9	200.2	2,508.4	1,769.8	8.84	5.48	7.74
7,320.0	66.80	143.70	6,293.6	5,087.6	169.2	2,532.3	1,808.2	7.68	5.35	6.05
7,351.0	67.50	146.40	6,305.7	5,099.7	145.8	2,548.7	1,835.9	8.34	2.26	8.71
7,383.0	68.70	149.30	6,317.6	5,111.6	120.7	2,564.5	1,864.3	9.21	3.75	9.06
7,414.0	70.80	152.10	6,328.3	5,122.3	95.3	2,578.7	1,891.6	10.85	6.77	9.03
7,445.0	72.90	154.30	6,338.0	5,132.0	69.0	2,592.0	1,918.8	9.56	6.77	7.10
7,477.0	75.50	155.80	6,346.7	5,140.7	41.1	2,605.0	1,946.9	9.02	8.13	4.06
7,508.0	78.40	157.10	6,353.7	5,147.7	13.4	2,617.1	1,974.1	10.48	9.35	4.84
7,540.0	81.00	159.30	6,359.4	5,153.4	-15.8	2,628.8	2,002.0	10.57	8.13	6.88
7,571.0	82.90	161.60	6,363.8	5,157.8	-44.7	2,639.1	2,028.7	9.57	6.13	7.42
7,603.0	85.10	163.90	6,367.1	5,161.1	-75.1	2,648.5	2,055.7	9.92	6.88	7.19
<b>Survey Point</b>										
7,606.7	85.41	164.04	6,367.4	5,161.4	-78.7	2,649.6	2,058.8	9.23	8.44	3.76
<b>Survey Point</b>										
7,609.9	85.68	164.16	6,367.7	5,161.7	-81.7	2,650.4	2,061.4	9.23	8.44	3.76
7,635.0	87.80	165.10	6,369.1	5,163.1	-105.9	2,657.1	2,082.2	9.23	8.44	3.75
<b>Survey Point</b>										
7,729.0	89.80	165.40	6,371.0	5,165.0	-196.7	2,681.0	2,159.7	2.15	2.13	0.32
7,823.0	89.80	164.40	6,371.4	5,165.4	-287.5	2,705.5	2,237.5	1.06	0.00	-1.06
7,918.0	88.70	163.80	6,372.6	5,166.6	-378.9	2,731.5	2,316.8	1.32	-1.16	-0.63
8,012.0	89.40	164.00	6,374.2	5,168.2	-469.2	2,757.6	2,395.5	0.77	0.74	0.21
8,106.0	90.00	163.70	6,374.7	5,168.7	-559.4	2,783.7	2,474.2	0.71	0.64	-0.32
8,201.0	90.60	162.90	6,374.2	5,168.2	-650.4	2,811.0	2,554.3	1.05	0.63	-0.84
8,295.0	89.20	163.10	6,374.3	5,168.3	-740.3	2,838.5	2,633.8	1.50	-1.49	0.21
8,390.0	90.40	164.10	6,374.7	5,168.7	-831.5	2,865.3	2,713.6	1.64	1.26	1.05
8,484.0	92.00	165.30	6,372.7	5,166.7	-922.1	2,890.1	2,791.5	2.13	1.70	1.28
8,578.0	90.00	166.40	6,371.1	5,165.1	-1,013.2	2,913.1	2,868.4	2.43	-2.13	1.17
8,673.0	90.70	165.70	6,370.5	5,164.5	-1,105.4	2,936.0	2,945.9	1.04	0.74	-0.74
8,767.0	89.10	165.10	6,370.6	5,164.6	-1,196.4	2,959.7	3,023.2	1.82	-1.70	-0.64
8,861.0	90.00	164.50	6,371.4	5,165.4	-1,287.1	2,984.3	3,101.1	1.15	0.96	-0.64



Phoenix Technology Services  
Survey Report



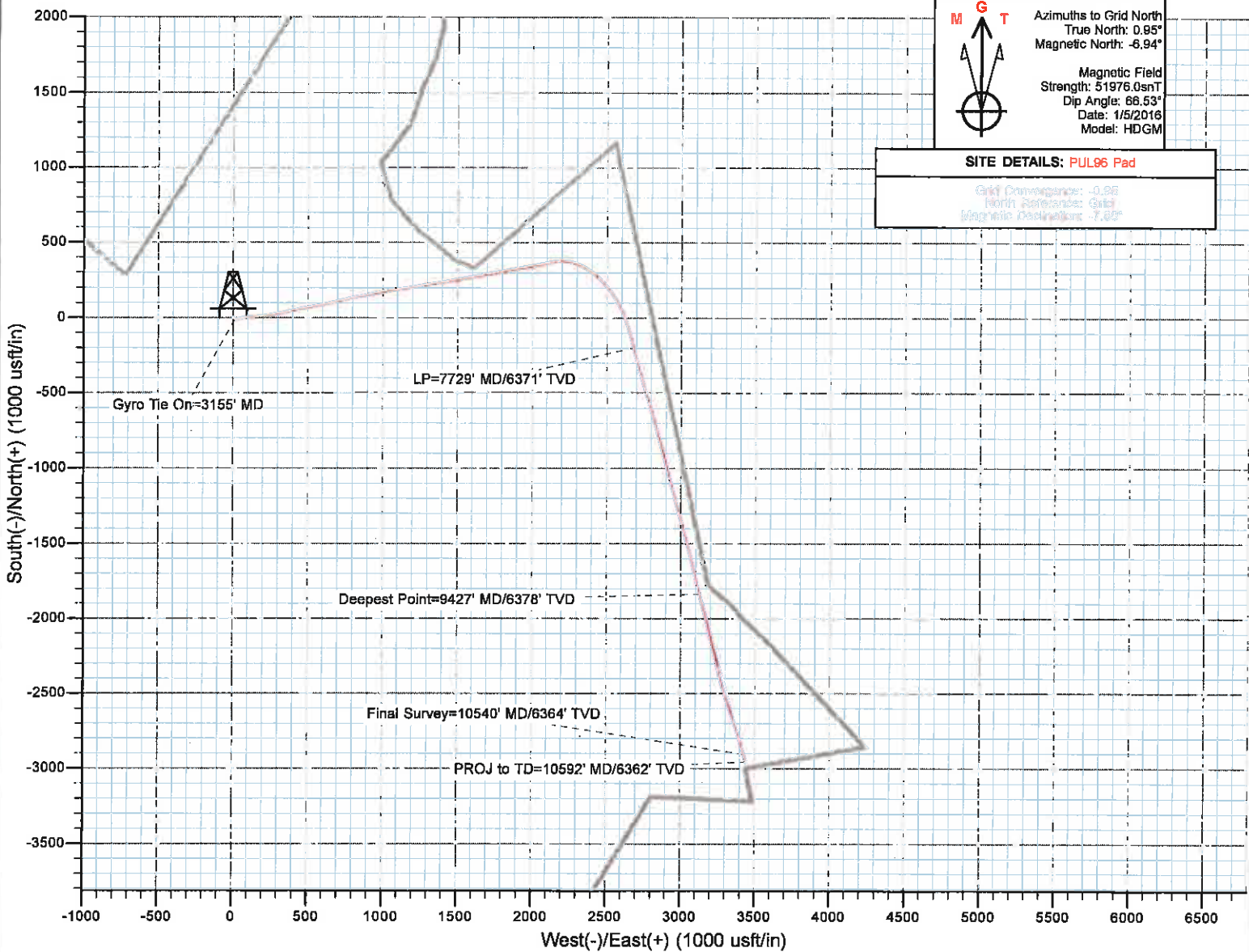
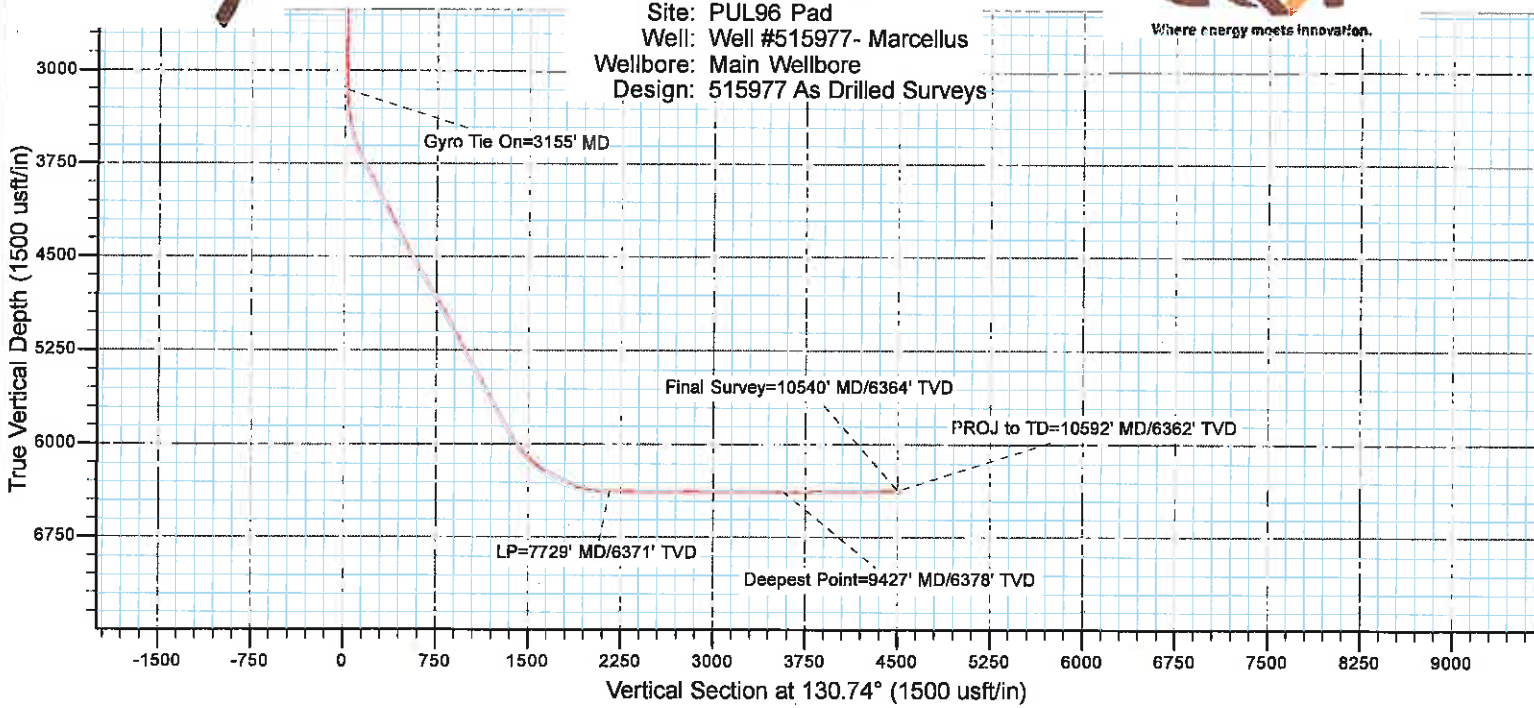
Database:	COMPASS 5000 - COMPASS 5000	Local Co-ordinate Reference:	Well: Well #7729' MD/6371' TVD
Company:	EQT PRODUCTION	TVD Reference:	18 33' @ 1200'usft
Project:	North Survey 170	MD Reference:	18 33' @ 1200'usft
Site:	10000' East	North Reference:	18 33' @ 1200'usft
Well:	Well #7729' MD/6371' TVD	Survey Calculation Method:	Minimum Curvature
Wellbore:	MD/6371'		
Design:	11/17/17 24 00000'usft		


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)
8,956.0	90.80	164.30	6,370.7	5,164.7	-1,378.6	3,009.9	3,180.2	0.87	0.84	-0.21
9,050.0	89.20	165.30	6,370.7	5,164.7	-1,469.3	3,034.5	3,258.1	2.01	-1.70	1.06
9,144.0	90.00	165.20	6,371.4	5,165.4	-1,560.2	3,058.4	3,335.5	0.88	0.85	-0.11
9,239.0	87.80	167.00	6,373.2	5,167.2	-1,652.4	3,081.3	3,413.0	2.99	-2.32	1.89
9,333.0	88.10	166.40	6,376.6	5,170.6	-1,743.8	3,102.9	3,489.0	0.71	0.32	-0.64
Deepest Point=9427' MD/6378' TVD										
9,427.0	89.70	166.50	6,378.4	5,172.4	-1,835.2	3,124.9	3,565.3	1.71	1.70	0.11
9,522.0	91.20	165.20	6,377.6	5,171.6	-1,927.3	3,148.1	3,643.0	2.09	1.58	-1.37
9,616.0	92.20	165.20	6,374.8	5,168.8	-2,018.1	3,172.1	3,720.5	1.08	1.08	0.00
9,711.0	90.00	166.40	6,373.0	5,167.0	-2,110.2	3,195.4	3,798.2	2.64	-2.32	1.26
9,805.0	91.40	167.20	6,371.9	5,165.9	-2,201.7	3,216.9	3,874.2	1.72	1.49	0.85
9,900.0	88.80	165.20	6,371.7	5,165.7	-2,293.9	3,239.5	3,951.6	3.45	-2.74	-2.11
9,994.0	90.90	167.40	6,371.9	5,165.9	-2,385.3	3,261.8	4,028.1	3.24	2.23	2.34
10,088.0	90.70	164.30	6,370.6	5,164.6	-2,476.4	3,284.8	4,104.9	3.30	-0.21	-3.30
10,183.0	90.10	160.50	6,370.0	5,164.0	-2,566.9	3,313.5	4,185.8	4.05	-0.63	-4.00
10,277.0	90.90	159.80	6,369.1	5,163.1	-2,655.3	3,345.4	4,267.7	1.13	0.85	-0.74
10,372.0	90.70	162.60	6,367.8	5,161.8	-2,745.2	3,376.0	4,349.5	2.95	-0.21	2.95
10,466.0	91.60	162.80	6,365.9	5,159.9	-2,835.0	3,404.0	4,429.3	0.98	0.96	0.21
Final Survey=10540' MD/6364' TVD										
10,540.0	92.20	162.40	6,363.5	5,157.5	-2,905.5	3,426.1	4,492.1	0.97	0.81	-0.54
PROJ to TD=10592' MD/6362' TVD										
10,592.0	92.20	162.40	6,361.5	5,155.5	-2,955.1	3,441.8	4,536.3	0.00	0.00	0.00

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,155.0	3,154.9	-12.3	11.4	Gyro Tie On=3155' MD
7,729.0	6,371.0	-196.7	2,681.0	LP=7729' MD/6371' TVD
9,427.0	6,378.4	-1,835.2	3,124.9	Deepest Point=9427' MD/6378' TVD
10,540.0	6,363.5	-2,905.5	3,426.1	Final Survey=10540' MD/6364' TVD
10,592.0	6,361.5	-2,955.1	3,441.8	PROJ to TD=10592' MD/6362' TVD

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

Project: Ritchie County, WV  
 Site: PUL96 Pad  
 Well: Well #515977- Marcellus  
 Wellbore: Main Wellbore  
 Design: 515977 As Drilled Surveys



	Azimuths to Grid North
	True North: 0.95° Magnetic North: -6.94°
Magnetic Field	
Strength: 51976.0snT	
Dip Angle: 86.53°	
Date: 1/5/2016	
Model: HDGM	

<b>SITE DETAILS: PUL96 Pad</b>
Grid Convergence: -0.86
North Reference: Grid
Magnetic Declination: -7.60°