PHOENIX
TECHNOLOGY SERVICES

EQT Production - Marcellus

Wetzel County, WV
Wetzel County 514569
Well #514569

Main Wellbore

Design: AS Drilled

Standard Survey Report

05 August, 2014

EQT
Where energy meets innovation.

10/28/2016

PHOENIX TECHNOLOGY SERVICES

Phoenix Technology Services

Survey Report

EQT

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

Project

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		Using geodetic scale factor

Site

Site Position:		Northing:	386,602.04 usft	Latitude:	39.56
From:	Map	Easting:	1,695,513.10 usft	Longitude:	-80.58
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.69 °

Well

Well Position	+N/-S	0.0 usft	Northing:	386,602.04	usft	Latitude:	39° 33' 23.126 N
	+E/-W	0.0 usft	Easting:	1,695,513.10	usft	Longitude:	80° 34' 47.736 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		usft	Ground Level:	1,443.0 usft

Wellbore

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	7/21/2014	-8.68	66.98	52,393

Design

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	155.29

RECEIVED

Survey Program — Date 8/5/2014

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	6,052.0	514569 Gyrodata Gyro (Main Wellbore)	GYD_DP_MS	Gyrodata gyro-compassing and drop
0.00	15,552.0	514569 PHX MWD (Main Wellbore)	MWD+IGRF	MWD+IGRF w/standard declination

Environmental

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	-1,459.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.18	339.93	100.0	-1,359.0	0.1	-0.1	-0.2	0.18	0.18	0.00
200.0	0.05	55.03	200.0	-1,259.0	0.3	-0.1	-0.3	0.17	-0.13	75.10
300.0	0.07	135.64	300.0	-1,159.0	0.3	0.0	-0.3	0.08	0.02	80.61
400.0	0.04	184.70	400.0	-1,059.0	0.2	0.0	-0.2	0.05	-0.03	49.06
500.0	0.06	130.52	500.0	-959.0	0.2	0.1	-0.1	0.05	0.02	-54.18
600.0	0.06	353.62	600.0	-859.0	0.2	0.1	-0.1	0.11	0.00	-136.90
700.0	0.07	346.65	700.0	-759.0	0.3	0.1	-0.2	0.01	0.01	-6.97

10/28/2016

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Well:		Survey Calculation Method:	
Wellbore:			
Design:			

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)
800.0	0.05	315.69	800.0	-659.0	0.4	0.1	-0.3	0.04	-0.02	-30.96
900.0	0.04	320.07	900.0	-559.0	0.4	0.0	-0.4	0.01	-0.01	4.38
1,000.0	0.07	294.55	1,000.0	-459.0	0.5	-0.1	-0.5	0.04	0.03	-25.52
1,100.0	0.08	257.08	1,100.0	-359.0	0.5	-0.2	-0.5	0.05	0.01	-37.47
1,200.0	0.08	238.45	1,200.0	-259.0	0.4	-0.3	-0.5	0.03	0.00	-18.63
1,300.0	0.08	261.61	1,300.0	-159.0	0.4	-0.5	-0.6	0.03	0.00	23.16
1,400.0	0.06	282.62	1,400.0	-59.0	0.4	-0.6	-0.6	0.03	-0.02	21.01
1,500.0	0.10	330.93	1,500.0	41.0	0.5	-0.7	-0.7	0.07	0.04	48.31
1,600.0	0.13	11.34	1,600.0	141.0	0.7	-0.7	-0.9	0.08	0.03	40.41
1,700.0	0.23	8.86	1,700.0	241.0	1.0	-0.6	-1.2	0.10	0.10	-2.48
1,800.0	0.32	12.29	1,800.0	341.0	1.5	-0.5	-1.5	0.09	0.09	3.43
1,900.0	0.39	20.47	1,900.0	441.0	2.0	-0.4	-2.0	0.09	0.07	8.18
2,000.0	0.54	32.98	2,000.0	541.0	2.8	0.0	-2.5	0.18	0.15	12.51
2,100.0	0.73	38.47	2,100.0	641.0	3.7	0.7	-3.0	0.20	0.19	5.49
2,200.0	0.96	28.97	2,200.0	741.0	4.9	1.5	-3.8	0.27	0.23	-9.50
2,300.0	1.04	19.95	2,300.0	841.0	6.5	2.2	-5.0	0.18	0.08	-9.02
2,400.0	1.15	17.73	2,399.9	940.9	8.3	2.8	-6.4	0.12	0.11	-2.22
2,500.0	1.23	18.84	2,499.9	1,040.9	10.3	3.4	-7.9	0.08	0.08	1.11
2,600.0	1.33	23.40	2,599.9	1,140.9	12.3	4.3	-9.4	0.14	0.10	4.56
2,700.0	1.43	23.44	2,699.9	1,240.9	14.5	5.2	-11.0	0.10	0.10	0.04
2,800.0	1.44	22.57	2,799.8	1,340.8	16.8	6.2	-12.7	0.02	0.01	-0.87
2,900.0	1.23	15.57	2,899.8	1,440.8	19.0	7.0	-14.4	0.27	-0.21	-7.00
3,000.0	0.97	8.40	2,999.8	1,540.8	20.9	7.4	-15.9	0.29	-0.26	-7.17
3,100.0	0.78	2.19	3,099.8	1,640.8	22.4	7.5	-17.2	0.21	-0.19	-6.21
3,200.0	0.71	346.16	3,199.8	1,740.8	23.7	7.4	-18.4	0.22	-0.07	-16.03
3,300.0	0.78	334.56	3,299.8	1,840.8	24.9	7.0	-19.7	0.17	0.07	-11.60
3,400.0	0.87	332.99	3,399.7	1,940.7	26.2	6.3	-21.2	0.09	0.09	-1.57
3,500.0	0.91	332.06	3,499.7	2,040.7	27.6	5.6	-22.7	0.04	0.04	-0.93
3,600.0	0.84	325.08	3,599.7	2,140.7	28.9	4.8	-24.2	0.13	-0.07	-6.98
3,700.0	0.67	329.21	3,699.7	2,240.7	30.0	4.1	-25.5	0.18	-0.17	4.13
3,800.0	0.66	325.73	3,799.7	2,340.7	31.0	3.5	-26.7	0.01	-0.01	-3.48
3,900.0	0.63	327.98	3,899.7	2,440.7	31.9	2.9	-27.8	0.04	-0.03	2.25
4,000.0	0.67	325.34	3,999.7	2,540.7	32.9	2.2	-28.9	0.05	0.04	-2.64
4,100.0	0.69	319.90	4,099.7	2,640.7	33.8	1.5	-30.1	0.07	0.02	-5.44
4,200.0	0.75	321.57	4,199.7	2,740.7	34.8	0.7	-31.3	0.06	0.06	1.67
4,300.0	0.80	322.93	4,299.7	2,840.7	35.9	-0.1	-32.6	0.05	0.05	1.36
4,400.0	0.73	323.06	4,399.7	2,940.7	36.9	-0.9	-33.9	0.07	-0.07	0.13
4,500.0	0.63	319.04	4,499.7	3,040.7	37.8	-1.7	-35.1	0.11	-0.10	-4.02
4,600.0	0.55	323.38	4,599.7	3,140.7	38.6	-2.3	-36.1	0.09	-0.08	4.34
4,700.0	0.54	325.76	4,699.6	3,240.6	39.4	-2.9	-37.0	0.02	-0.01	2.38
4,800.0	0.57	333.81	4,799.6	3,340.6	40.3	-3.3	-38.0	0.08	0.03	8.05
4,900.0	0.32	341.13	4,899.6	3,440.6	41.0	-3.7	-38.7	0.26	-0.25	7.32

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Well:		Survey Calculation Method:	
Wellbore:			
Design:			

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)
5,000.0	0.36	348.28	4,999.6	3,540.6	41.5	-3.8	-39.3	0.06	0.04	7.15
5,100.0	0.46	328.04	5,099.6	3,640.6	42.2	-4.1	-40.0	0.17	0.10	-20.24
5,200.0	0.49	315.21	5,199.6	3,740.6	42.8	-4.6	-40.8	0.11	0.03	-12.83
5,300.0	0.47	317.31	5,299.6	3,840.6	43.4	-5.2	-41.6	0.03	-0.02	2.10
5,400.0	0.19	318.77	5,399.6	3,940.6	43.9	-5.6	-42.2	0.28	-0.28	1.46
5,500.0	0.18	305.21	5,499.6	4,040.6	44.1	-5.8	-42.5	0.04	-0.01	-13.56
5,600.0	0.51	306.45	5,599.6	4,140.6	44.4	-6.3	-43.0	0.33	0.33	1.24
5,700.0	0.55	307.98	5,699.6	4,240.6	45.0	-7.0	-43.8	0.04	0.04	1.53
5,800.0	0.73	309.51	5,799.6	4,340.6	45.7	-7.9	-44.8	0.18	0.18	1.53
5,900.0	1.31	307.02	5,899.6	4,440.6	46.8	-9.3	-46.4	0.58	0.58	-2.49
6,000.0	1.69	307.21	5,999.6	4,540.6	48.4	-11.4	-48.7	0.38	0.38	0.19
6,052.0	1.60	305.91	6,051.5	4,592.5	49.3	-12.6	-50.0	0.19	-0.17	-2.50
6,257.0	0.60	329.20	6,256.5	4,797.5	51.9	-15.5	-53.6	0.52	-0.49	11.36
6,288.0	0.30	12.00	6,287.5	4,828.5	52.1	-15.5	-53.8	1.39	-0.97	138.06
6,320.0	3.30	71.70	6,319.5	4,860.5	52.4	-14.6	-53.8	9.87	9.38	186.56
6,351.0	6.90	75.70	6,350.4	4,891.4	53.2	-12.0	-53.3	11.66	11.61	12.90
6,383.0	9.90	73.00	6,382.0	4,923.0	54.5	-7.5	-52.6	9.45	9.38	-8.44
6,414.0	9.90	70.10	6,412.5	4,953.5	56.2	-2.4	-52.0	1.61	0.00	-9.35
6,446.0	11.30	67.80	6,444.0	4,985.0	58.3	3.1	-51.7	4.57	4.38	-7.19
6,477.0	13.70	70.60	6,474.3	5,015.3	60.6	9.3	-51.2	7.98	7.74	9.03
6,509.0	16.50	73.20	6,505.2	5,046.2	63.2	17.3	-50.2	9.00	8.75	8.13
6,540.0	19.50	73.50	6,534.6	5,075.6	66.0	26.4	-48.9	9.68	9.68	0.97
6,572.0	22.00	73.00	6,564.6	5,105.6	69.2	37.3	-47.3	7.83	7.81	-1.56
6,604.0	25.60	72.60	6,593.8	5,134.8	73.0	49.6	-45.6	11.26	11.25	-1.25
6,635.0	28.30	72.30	6,621.5	5,162.5	77.3	63.0	-43.9	8.72	8.71	-0.97
6,667.0	32.10	72.00	6,649.1	5,190.1	82.2	78.3	-42.0	11.88	11.88	-0.94
6,698.0	35.70	73.70	6,674.8	5,215.8	87.3	94.9	-39.7	12.01	11.61	5.48
6,730.0	39.20	73.80	6,700.2	5,241.2	92.7	113.5	-36.8	10.94	10.94	0.31
6,761.0	39.80	73.10	6,724.2	5,265.2	98.4	132.4	-34.0	2.41	1.94	-2.26
6,793.0	38.90	72.30	6,748.9	5,289.9	104.4	151.8	-31.4	3.23	-2.81	-2.50
6,824.0	40.10	73.20	6,772.8	5,313.8	110.2	170.6	-28.8	4.29	3.87	2.90
6,855.0	41.80	72.90	6,796.2	5,337.2	116.2	190.1	-26.1	5.52	5.48	-0.97
6,918.0	41.10	71.40	6,843.5	5,384.5	128.9	229.8	-21.1	1.93	-1.11	-2.38
6,981.0	40.80	71.70	6,891.0	5,432.0	142.0	268.9	-16.6	0.57	-0.48	0.48
7,045.0	39.90	73.60	6,939.8	5,480.8	154.4	308.5	-11.3	2.38	-1.41	2.97
7,108.0	40.70	72.30	6,987.9	5,528.9	166.3	347.4	-5.9	1.84	1.27	-2.06
7,171.0	40.10	72.90	7,035.8	5,576.8	178.5	386.4	-0.7	1.13	-0.95	0.95
7,234.0	39.00	75.40	7,084.4	5,625.4	189.5	425.0	5.5	3.07	-1.75	3.97
7,297.0	39.00	76.70	7,133.4	5,674.4	199.1	463.5	12.9	1.30	0.00	2.06
7,329.0	39.30	76.60	7,158.2	5,699.2	203.7	483.1	16.8	0.96	0.94	-0.31
7,360.0	39.60	78.00	7,182.1	5,723.1	208.1	502.3	20.9	3.03	0.97	4.52

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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)
7,392.0	39.40	84.30	7,206.8	5,747.8	211.2	522.4	26.5	12.53	-0.63	19.69
7,418.0	41.00	89.10	7,226.7	5,767.7	212.1	539.2	32.6	13.41	6.15	18.46
7,449.0	42.20	94.80	7,249.9	5,790.9	211.4	559.7	41.9	12.80	3.87	18.39
7,481.0	43.30	97.30	7,273.4	5,814.4	209.1	581.3	53.0	6.32	3.44	7.81
7,512.0	44.00	100.60	7,295.8	5,836.8	205.8	602.4	64.8	7.69	2.26	10.65
7,544.0	44.30	101.60	7,318.8	5,859.8	201.5	624.3	77.9	2.37	0.94	3.13
7,575.0	44.70	102.50	7,340.9	5,881.9	197.0	645.6	90.9	2.41	1.29	2.90
7,607.0	46.20	108.50	7,363.4	5,904.4	190.9	667.5	105.6	14.16	4.69	18.75
7,638.0	48.80	113.60	7,384.3	5,925.3	182.6	688.8	122.0	14.74	8.39	16.45
7,670.0	51.60	118.20	7,404.8	5,945.8	171.9	710.9	141.0	14.09	8.75	14.38
7,701.0	53.80	121.40	7,423.6	5,964.6	159.6	732.3	161.0	10.85	7.10	10.32
7,733.0	55.70	124.40	7,442.1	5,983.1	145.4	754.2	183.1	9.69	5.94	9.38
7,764.0	57.30	126.70	7,459.2	6,000.2	130.4	775.3	205.5	8.06	5.16	7.42
7,796.0	59.20	127.90	7,476.0	6,017.0	113.9	796.9	229.6	6.74	5.94	3.75
7,827.0	61.30	130.40	7,491.4	6,032.4	96.9	817.8	253.7	9.74	6.77	8.06
7,859.0	63.40	133.30	7,506.2	6,047.2	78.0	838.9	279.7	10.37	6.56	9.06
7,890.0	64.70	135.70	7,519.8	6,060.8	58.5	858.7	305.8	8.13	4.19	7.74
7,922.0	65.10	137.50	7,533.4	6,074.4	37.4	878.7	333.2	5.24	1.25	5.63
7,953.0	66.70	139.20	7,546.0	6,087.0	16.3	897.5	360.3	7.19	5.16	5.48
7,985.0	69.50	141.70	7,558.0	6,099.0	-6.6	916.4	389.0	11.36	8.75	7.81
8,016.0	72.00	144.10	7,568.2	6,109.2	-30.0	934.0	417.6	10.88	8.06	7.74
8,045.2	72.91	145.65	7,577.0	6,118.0	-52.7	950.0	445.0	5.95	3.12	5.32
8,048.0	73.00	145.80	7,577.8	6,118.8	-54.9	951.5	447.6	5.95	3.15	5.29
8,079.0	73.50	147.80	7,586.8	6,127.8	-79.8	967.8	477.0	6.38	1.61	6.45
8,111.0	74.80	149.80	7,595.5	6,136.5	-106.1	983.7	507.5	7.26	4.06	6.25
8,142.0	77.50	151.90	7,602.9	6,143.9	-132.4	998.4	537.6	10.91	8.71	6.77
8,174.0	80.40	154.00	7,609.0	6,150.0	-160.4	1,012.7	568.9	11.12	9.06	6.56
8,205.0	83.30	155.80	7,613.4	6,154.4	-188.2	1,025.7	599.6	10.98	9.35	5.81
8,237.0	84.40	157.80	7,616.9	6,157.9	-217.4	1,038.2	631.4	7.10	3.44	6.25
8,269.0	86.70	159.80	7,619.4	6,160.4	-247.1	1,049.7	663.3	9.51	7.19	6.25
8,330.0	90.30	159.70	7,621.0	6,162.0	-304.3	1,070.8	724.0	5.90	5.90	-0.16
8,393.0	90.80	159.30	7,620.3	6,161.3	-363.3	1,092.9	786.9	1.02	0.79	-0.63
8,456.0	88.40	160.40	7,620.8	6,161.8	-422.5	1,114.6	849.7	4.19	-3.81	1.75
8,519.0	88.70	159.80	7,622.4	6,163.4	-481.7	1,136.0	912.4	1.06	0.48	-0.95
8,582.0	89.50	161.90	7,623.4	6,164.4	-541.2	1,156.7	975.1	3.57	1.27	3.33
8,645.0	89.40	163.30	7,624.0	6,165.0	-601.3	1,175.5	1,037.6	2.23	-0.16	2.22
8,709.0	89.30	162.10	7,624.7	6,165.7	-662.4	1,194.6	1,101.1	1.88	-0.16	-1.88
8,772.0	89.00	161.10	7,625.6	6,166.6	-722.2	1,214.5	1,163.7	1.66	-0.48	-1.59
8,835.0	89.40	162.70	7,626.5	6,167.5	-782.1	1,234.0	1,226.2	2.62	0.63	2.54
8,898.0	89.80	163.10	7,627.0	6,168.0	-842.3	1,252.6	1,288.7	0.90	0.63	0.63
8,961.0	89.90	162.40	7,627.1	6,168.1	-902.4	1,271.2	1,351.1	1.12	0.16	-1.11

10/28/2016

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

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)
9,024.0	89.80	161.40	7,627.3	6,168.3	-962.3	1,290.8	1,413.7	1.60	-0.16	-1.59
9,088.0	89.70	162.20	7,627.6	6,168.6	-1,023.1	1,310.8	1,477.3	1.26	-0.16	1.25
9,151.0	89.50	161.80	7,628.0	6,169.0	-1,083.0	1,330.3	1,539.9	0.71	-0.32	-0.63
9,214.0	89.80	163.40	7,628.4	6,169.4	-1,143.1	1,349.1	1,602.4	2.58	0.48	2.54
9,277.0	89.60	163.20	7,628.7	6,169.7	-1,203.5	1,367.2	1,664.8	0.45	-0.32	-0.32
9,340.0	89.50	162.60	7,629.2	6,170.2	-1,263.7	1,385.7	1,727.2	0.97	-0.16	-0.95
9,403.0	89.50	161.70	7,629.8	6,170.8	-1,323.7	1,405.0	1,789.7	1.43	0.00	-1.43
9,466.0	89.50	161.80	7,630.3	6,171.3	-1,383.5	1,424.8	1,852.3	0.16	0.00	0.16
9,529.0	89.40	161.20	7,630.9	6,171.9	-1,443.2	1,444.8	1,915.0	0.97	-0.16	-0.95
9,592.0	90.30	162.40	7,631.1	6,172.1	-1,503.1	1,464.4	1,977.6	2.38	1.43	1.90
9,656.0	90.70	163.20	7,630.5	6,171.5	-1,564.2	1,483.4	2,041.0	1.40	0.63	1.25
9,719.0	90.80	163.30	7,629.7	6,170.7	-1,624.5	1,501.5	2,103.4	0.22	0.16	0.16
9,782.0	90.20	164.10	7,629.1	6,170.1	-1,685.0	1,519.2	2,165.7	1.59	-0.95	1.27
9,845.0	89.10	164.30	7,629.5	6,170.5	-1,745.6	1,536.3	2,228.0	1.77	-1.75	0.32
9,908.0	89.00	164.20	7,630.6	6,171.6	-1,806.2	1,553.4	2,290.2	0.22	-0.16	-0.16
9,971.0	89.80	162.50	7,631.2	6,172.2	-1,866.6	1,571.5	2,352.6	2.98	1.27	-2.70
10,035.0	89.50	158.70	7,631.6	6,172.6	-1,927.0	1,592.7	2,416.3	5.96	-0.47	-5.94
10,098.0	89.00	158.80	7,632.5	6,173.5	-1,985.7	1,615.6	2,479.1	0.81	-0.79	0.16
10,125.6	88.74	158.84	7,633.0	6,174.0	-2,011.4	1,625.5	2,506.7	0.97	-0.95	0.16
10,161.0	88.40	158.90	7,633.9	6,174.9	-2,044.4	1,638.3	2,542.0	0.97	-0.96	0.16
10,224.0	88.70	159.80	7,635.5	6,176.5	-2,103.3	1,660.5	2,604.8	1.48	0.48	1.43
10,287.0	89.80	162.30	7,636.3	6,177.3	-2,162.9	1,681.0	2,667.5	4.34	1.75	3.97
10,351.0	90.50	163.00	7,636.1	6,177.1	-2,224.0	1,700.1	2,731.0	1.55	1.09	1.09
10,414.0	89.90	162.90	7,635.9	6,176.9	-2,284.2	1,718.5	2,793.4	0.97	-0.95	-0.16
10,477.0	90.00	162.50	7,636.0	6,177.0	-2,344.4	1,737.3	2,855.9	0.65	0.16	-0.63
10,541.0	89.40	162.40	7,636.3	6,177.3	-2,405.4	1,756.6	2,919.4	0.95	-0.94	-0.16
10,604.0	88.30	161.60	7,637.6	6,178.6	-2,465.3	1,776.0	2,981.9	2.18	-1.75	-1.27
10,667.0	88.20	159.60	7,639.5	6,180.5	-2,524.7	1,796.9	3,044.6	3.18	-0.16	-3.17
10,730.0	88.60	162.20	7,641.3	6,182.3	-2,584.2	1,817.5	3,107.3	4.17	0.63	4.13
10,794.0	89.10	163.90	7,642.5	6,183.5	-2,645.4	1,836.2	3,170.7	2.77	0.78	2.66
10,857.0	89.00	163.00	7,643.6	6,184.6	-2,705.8	1,854.1	3,233.1	1.44	-0.16	-1.43
10,920.0	89.20	163.70	7,644.6	6,185.6	-2,766.1	1,872.2	3,295.4	1.16	0.32	1.11
10,984.0	89.70	163.70	7,645.2	6,186.2	-2,827.6	1,890.1	3,358.7	0.78	0.78	0.00
11,047.0	89.80	163.70	7,645.5	6,186.5	-2,888.0	1,907.8	3,421.1	0.16	0.16	0.00
11,110.0	90.30	163.90	7,645.4	6,186.4	-2,948.5	1,925.4	3,483.4	0.85	0.79	0.32
11,174.0	89.60	162.80	7,645.5	6,186.5	-3,009.8	1,943.7	3,546.7	2.04	-1.09	-1.72
11,237.0	89.30	162.10	7,646.1	6,187.1	-3,069.9	1,962.7	3,609.2	1.21	-0.48	-1.11
11,300.0	88.90	161.00	7,647.1	6,188.1	-3,129.7	1,982.7	3,671.9	1.86	-0.63	-1.75
11,363.0	88.10	161.10	7,648.7	6,189.7	-3,189.2	2,003.1	3,734.5	1.28	-1.27	0.16
11,427.0	87.80	160.80	7,651.0	6,192.0	-3,249.7	2,024.0	3,798.2	0.66	-0.47	-0.47
11,490.0	89.10	162.20	7,652.7	6,193.7	-3,309.4	2,044.0	3,860.8	3.03	2.06	2.22
11,553.0	89.70	163.00	7,653.4	6,194.4	-3,369.5	2,062.8	3,923.3	1.59	0.95	1.27

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

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)
11,616.0	89.80	163.10	7,653.6	6,194.6	-3,429.8	2,081.2	3,985.7	0.22	0.16	0.16
11,680.0	90.10	163.10	7,653.7	6,194.7	-3,491.0	2,099.8	4,049.1	0.47	0.47	0.00
11,743.0	90.30	163.00	7,653.5	6,194.5	-3,551.3	2,118.2	4,111.5	0.35	0.32	-0.16
11,806.0	90.60	162.40	7,653.0	6,194.0	-3,611.4	2,136.9	4,174.0	1.06	0.48	-0.95
11,869.0	90.30	163.70	7,652.5	6,193.5	-3,671.7	2,155.3	4,236.4	2.12	-0.48	2.06
11,932.0	90.60	164.40	7,652.0	6,193.0	-3,732.3	2,172.6	4,298.7	1.21	0.48	1.11
11,995.0	89.80	161.50	7,651.8	6,192.8	-3,792.5	2,191.0	4,361.1	4.78	-1.27	-4.60
12,058.0	88.50	158.50	7,652.7	6,193.7	-3,851.7	2,212.6	4,423.9	5.19	-2.06	-4.76
12,121.0	88.30	157.60	7,654.5	6,195.5	-3,910.1	2,236.1	4,486.8	1.46	-0.32	-1.43
12,185.0	89.00	158.00	7,656.0	6,197.0	-3,969.3	2,260.3	4,550.7	1.26	1.09	0.63
12,248.0	89.60	159.50	7,656.7	6,197.7	-4,028.0	2,283.1	4,613.6	2.56	0.95	2.38
12,311.0	90.00	159.40	7,657.0	6,198.0	-4,087.0	2,305.2	4,676.4	0.65	0.63	-0.16
12,374.0	90.40	159.60	7,656.7	6,197.7	-4,146.0	2,327.3	4,739.2	0.71	0.63	0.32
12,437.0	90.90	161.00	7,656.0	6,197.0	-4,205.3	2,348.5	4,802.0	2.36	0.79	2.22
12,501.0	90.90	160.30	7,655.0	6,196.0	-4,265.7	2,369.7	4,865.7	1.09	0.00	-1.09
12,564.0	90.70	159.30	7,654.1	6,195.1	-4,324.8	2,391.5	4,928.5	1.62	-0.32	-1.59
12,628.0	90.30	161.60	7,653.6	6,194.6	-4,385.1	2,412.9	4,992.2	3.65	-0.63	3.59
12,691.0	89.80	161.10	7,653.5	6,194.5	-4,444.8	2,433.1	5,054.9	1.12	-0.79	-0.79
12,754.0	88.70	161.90	7,654.3	6,195.3	-4,504.6	2,453.0	5,117.5	2.16	-1.75	1.27
12,817.0	89.60	165.40	7,655.3	6,196.3	-4,565.0	2,470.8	5,179.8	5.74	1.43	5.56
12,881.0	89.00	166.50	7,656.1	6,197.1	-4,627.1	2,486.3	5,242.7	1.96	-0.94	1.72
12,944.0	89.20	167.10	7,657.1	6,198.1	-4,688.4	2,500.7	5,304.4	1.00	0.32	0.95
13,007.0	88.00	165.40	7,658.6	6,199.6	-4,749.6	2,515.7	5,366.3	3.20	-1.90	-2.70
13,070.0	87.90	164.60	7,660.8	6,201.8	-4,810.4	2,532.0	5,428.3	1.28	-0.16	-1.27
13,133.0	88.60	165.30	7,662.8	6,203.8	-4,871.2	2,548.3	5,490.4	1.57	1.11	1.11
13,196.0	89.20	164.50	7,664.0	6,205.0	-4,932.0	2,564.7	5,552.5	1.59	0.95	-1.27
13,259.0	89.40	163.70	7,664.8	6,205.8	-4,992.6	2,582.0	5,614.8	1.31	0.32	-1.27
13,322.0	89.50	162.80	7,665.4	6,206.4	-5,052.9	2,600.1	5,677.2	1.44	0.16	-1.43
13,385.0	88.60	163.00	7,666.4	6,207.4	-5,113.1	2,618.7	5,739.6	1.46	-1.43	0.32
13,449.0	88.60	162.90	7,668.0	6,209.0	-5,174.3	2,637.4	5,803.0	0.16	0.00	-0.16
13,512.0	89.70	161.60	7,668.9	6,209.9	-5,234.3	2,656.6	5,865.5	2.70	1.75	-2.06
13,575.0	90.30	161.10	7,668.9	6,209.9	-5,294.0	2,676.8	5,928.2	1.24	0.95	-0.79
13,638.0	90.60	160.50	7,668.4	6,209.4	-5,353.5	2,697.5	5,990.9	1.06	0.48	-0.95
13,702.0	90.30	161.40	7,667.9	6,208.9	-5,414.0	2,718.4	6,054.6	1.48	-0.47	1.41
13,765.0	90.20	161.10	7,667.6	6,208.6	-5,473.6	2,738.6	6,117.2	0.50	-0.16	-0.48
13,828.0	90.40	161.20	7,667.3	6,208.3	-5,533.2	2,759.0	6,179.9	0.35	0.32	0.16
13,891.0	88.90	160.50	7,667.7	6,208.7	-5,592.8	2,779.6	6,242.6	2.63	-2.38	-1.11
13,955.0	88.60	160.10	7,669.1	6,210.1	-5,653.0	2,801.2	6,306.3	0.78	-0.47	-0.63
14,018.0	88.60	159.90	7,670.6	6,211.6	-5,712.2	2,822.7	6,369.1	0.32	0.00	-0.32
14,081.0	88.40	159.30	7,672.3	6,213.3	-5,771.2	2,844.7	6,431.9	1.00	-0.32	-0.95
14,144.0	88.80	159.80	7,673.8	6,214.8	-5,830.2	2,866.7	6,494.7	1.02	0.63	0.79
14,207.0	89.50	160.10	7,674.7	6,215.7	-5,889.4	2,888.3	6,557.5	1.21	1.11	0.48

Database:		Local Co-ordinate Reference:	
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Project:		MD Reference:	
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Well:		Survey Calculation Method:	
Wellbore:			
Design:			

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)
14,271.0	89.70	160.20	7,675.2	6,216.2	-5,949.6	2,910.0	6,621.3	0.35	0.31	0.16
14,334.0	89.90	160.50	7,675.4	6,216.4	-6,008.9	2,931.2	6,684.0	0.57	0.32	0.48
14,397.0	90.20	160.80	7,675.4	6,216.4	-6,068.4	2,952.1	6,746.7	0.67	0.48	0.48
14,460.0	90.10	160.10	7,675.2	6,216.2	-6,127.7	2,973.2	6,809.5	1.12	-0.16	-1.11
14,523.0	90.10	158.30	7,675.1	6,216.1	-6,186.6	2,995.5	6,872.3	2.86	0.00	-2.86
14,586.0	88.80	158.10	7,675.7	6,216.7	-6,245.1	3,018.9	6,935.3	2.09	-2.06	-0.32
14,649.0	88.40	158.20	7,677.2	6,218.2	-6,303.6	3,042.4	6,998.2	0.65	-0.63	0.16
14,712.0	89.40	160.40	7,678.4	6,219.4	-6,362.5	3,064.6	7,061.0	3.84	1.59	3.49
14,775.0	90.10	162.00	7,678.7	6,219.7	-6,422.1	3,084.9	7,123.7	2.77	1.11	2.54
14,838.0	90.60	162.70	7,678.3	6,219.3	-6,482.2	3,104.0	7,186.2	1.37	0.79	1.11
14,901.0	90.60	162.30	7,677.7	6,218.7	-6,542.2	3,123.0	7,248.7	0.63	0.00	-0.63
14,964.0	90.50	163.20	7,677.1	6,218.1	-6,602.4	3,141.7	7,311.1	1.44	-0.16	1.43
15,027.0	90.20	162.60	7,676.7	6,217.7	-6,662.6	3,160.2	7,373.6	1.06	-0.48	-0.95
15,090.0	90.20	163.80	7,676.5	6,217.5	-6,722.9	3,178.4	7,436.0	1.90	0.00	1.90
15,154.0	90.20	165.20	7,676.2	6,217.2	-6,784.6	3,195.5	7,499.2	2.19	0.00	2.19
15,216.0	89.80	164.80	7,676.2	6,217.2	-6,844.5	3,211.6	7,560.3	0.91	-0.65	-0.65
15,279.0	88.90	166.10	7,676.9	6,217.9	-6,905.4	3,227.4	7,622.3	2.51	-1.43	2.06
15,342.0	89.10	165.70	7,678.0	6,219.0	-6,966.5	3,242.7	7,684.2	0.71	0.32	-0.63
15,405.0	89.10	165.30	7,679.0	6,220.0	-7,027.5	3,258.5	7,746.2	0.63	0.00	-0.63
15,468.0	89.00	165.50	7,680.1	6,221.1	-7,088.5	3,274.4	7,808.2	0.35	-0.16	0.32
15,497.0	89.00	165.50	7,680.6	6,221.6	-7,116.6	3,281.6	7,836.7	0.00	0.00	0.00
15,552.0	89.00	165.50	7,681.5	6,222.5	-7,169.8	3,295.4	7,890.9	0.00	0.00	0.00

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
8,045.2	7,577.0	Top of Marcellus@7577' TVD		0.00	
10,125.6	7,633.0	Top of Onondaga@7633' TVD		0.00	

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
6,052.0	6,051.5	49.3	-12.6	Gyro Tie In=6052' MD
6,288.0	6,287.5	52.1	-15.5	KOP=6288' MD
8,330.0	7,621.0	-304.3	1,070.8	LP=8330' MD/ 7621' TVD
15,497.0	7,680.6	-7,116.6	3,281.6	Last Survey=15497' MD/ 7681' TVD
15,552.0	7,681.5	-7,169.8	3,295.4	Projection to TD/Deepest Point of Well=15552' MD/ 7682' TVD

10/28/2016

Database:		Local Co-ordinate Reference:	
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Well:		Survey Calculation Method:	
Wellbore:			
Design:			

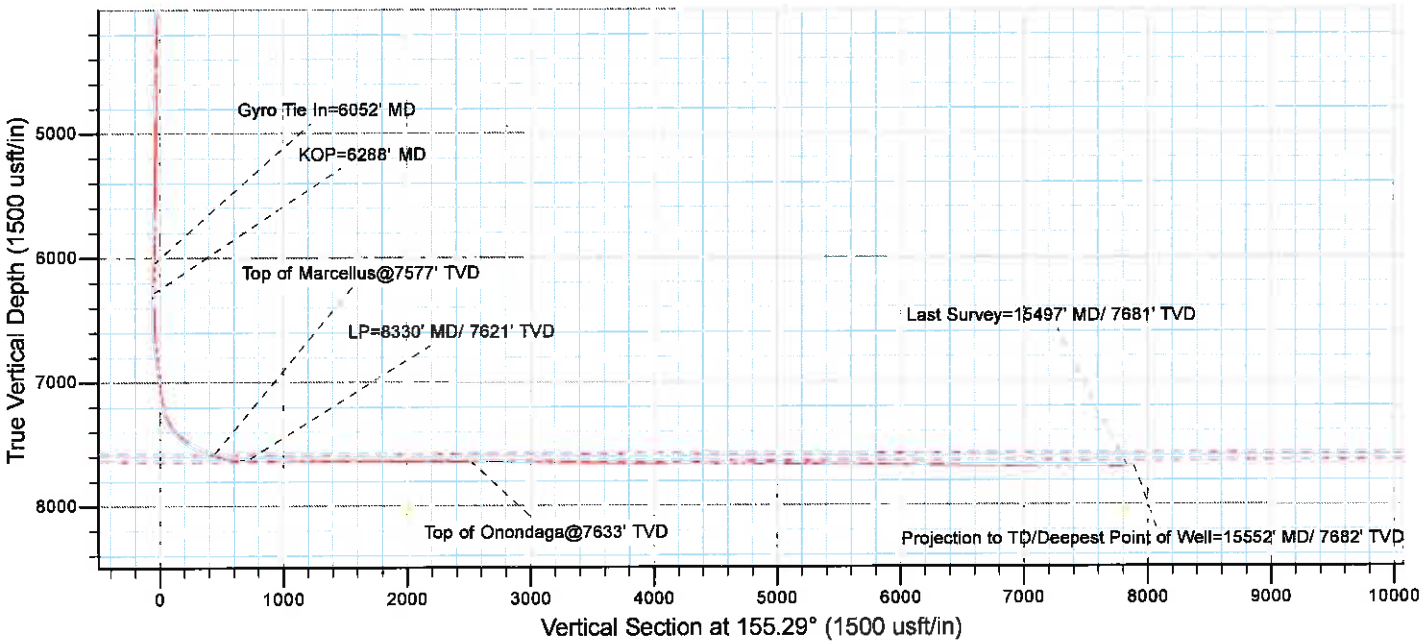
Checked By: _____ Approved By: _____ Date: _____

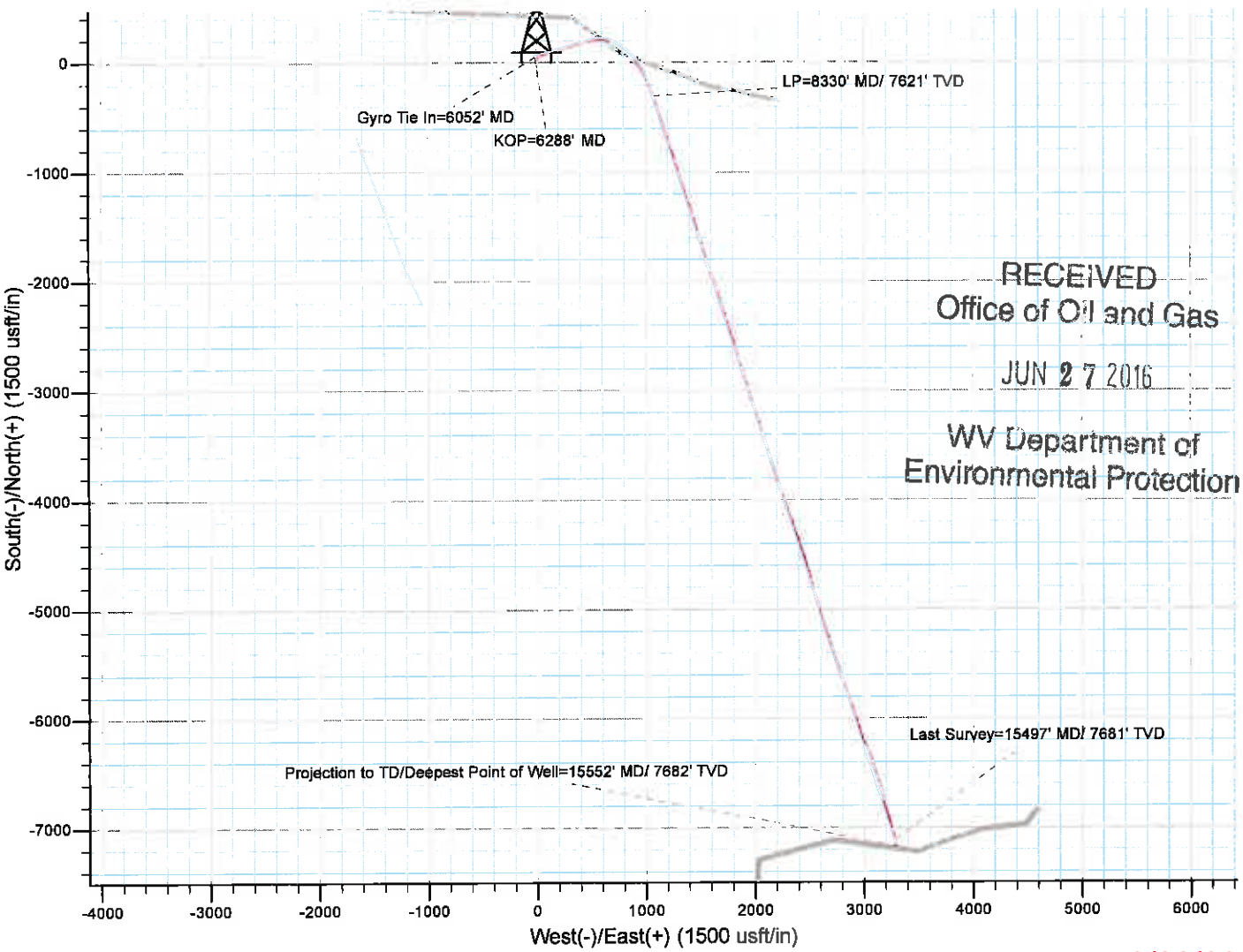
PHOENIX
TECHNOLOGY SERVICES

EQT Production - Marcellus

Project: Wetzel County, WV
Site: Wetzel County 514569
Well: Well #514569
Wellbore: Main Wellbore
Design: AS Drilled

KB Elevation=1459 FT
Ground Elevation= 1443 FT
All measurements were taken from KB Elevation





10/28/2016