API 47- 103 - 02937

PHOENIX
TECHNOLOGY SERVICES

EQT Production - Marcellus

Wetzel County, WV
Wetzel County 514563
Well #514563

Main Wellbore

Design: As Drilled Surveys

Standard Survey Report

03 November, 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:	386,666.42 usft	Latitude:	39.56
From:	Map	Easting:	1,695,450.21 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:	386,666.42 usft	Latitude:	39° 33' 23.755 N
	+E/-W	0.0 usft	Easting:	1,695,450.21 usft	Longitude:	80° 34' 48.549 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	10/20/2014	-8.69	66.96	52,362

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	165.13

Survey Program — Date 11/3/2014

From ()	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	6,161.0	514563 Gyrodata Gyros (Main Wellbore)	GYD_DP_MS	Gyrodata gyro-compassing and drop
0.00	15,752.0	514563 PHX MWD (Main Wellbore)	MWD+IGRF	MWD+IGRF v3 standard declination

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	0.22	48.32	100.0	-1,359.0	0.1	0.1	-0.1	0.22	0.22	48.32
200.0	0.03	76.48	200.0	-1,259.0	0.3	0.3	-0.2	0.19	-0.19	28.16
300.0	0.04	304.89	300.0	-1,159.0	0.3	0.3	-0.2	0.06	0.01	-131.59
400.0	0.07	37.27	400.0	-1,059.0	0.4	0.3	-0.3	0.05	0.03	92.38
500.0	0.04	105.97	500.0	-959.0	0.4	0.4	-0.3	0.07	-0.03	68.70
600.0	0.06	52.78	600.0	-859.0	0.4	0.5	-0.3	0.05	0.02	-53.19
700.0	0.09	105.91	700.0	-759.0	0.4	0.6	-0.3	0.05	0.03	53.13

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Oil and Gas
JUL 28 2016
WV Department of
Environmental

10/28/2016

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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)
800.0	0.06	123.67	800.0	-659.0	0.4	0.7	-0.2	0.04	-0.03	17.76
900.0	0.12	80.95	900.0	-559.0	0.4	0.8	-0.1	0.09	0.06	-42.72
1,000.0	0.14	107.37	1,000.0	-459.0	0.3	1.1	-0.1	0.06	0.02	26.42
1,100.0	0.09	90.98	1,100.0	-359.0	0.3	1.3	0.0	0.06	-0.05	-16.39
1,200.0	0.16	75.87	1,200.0	-259.0	0.3	1.5	0.1	0.08	0.07	-15.11
1,300.0	0.16	97.46	1,300.0	-159.0	0.4	1.7	0.1	0.06	0.00	21.59
1,400.0	0.13	80.32	1,400.0	-59.0	0.4	2.0	0.2	0.05	-0.03	-17.14
1,500.0	0.17	88.92	1,500.0	41.0	0.4	2.3	0.2	0.05	0.04	8.60
1,600.0	0.19	108.88	1,600.0	141.0	0.3	2.6	0.3	0.07	0.02	19.96
1,700.0	0.12	105.05	1,700.0	241.0	0.2	2.8	0.5	0.07	-0.07	-3.83
1,800.0	0.19	75.39	1,800.0	341.0	0.3	3.1	0.5	0.10	0.07	-29.66
1,900.0	0.27	69.99	1,900.0	441.0	0.4	3.5	0.5	0.08	0.08	-5.40
2,000.0	0.30	65.84	2,000.0	541.0	0.6	3.9	0.5	0.04	0.03	-4.15
2,100.0	0.34	63.79	2,100.0	641.0	0.8	4.4	0.4	0.04	0.04	-2.05
2,200.0	0.24	31.58	2,200.0	741.0	1.1	4.8	0.2	0.19	-0.10	-32.21
2,300.0	0.23	24.08	2,300.0	841.0	1.5	5.0	-0.1	0.03	-0.01	-7.50
2,400.0	0.29	21.40	2,400.0	941.0	1.9	5.2	-0.5	0.06	0.06	-2.68
2,500.0	0.33	37.10	2,500.0	1,041.0	2.4	5.4	-0.9	0.09	0.04	15.70
2,600.0	0.27	38.64	2,600.0	1,141.0	2.8	5.8	-1.2	0.06	-0.06	1.54
2,700.0	0.28	36.23	2,700.0	1,241.0	3.2	6.1	-1.5	0.02	0.01	-2.41
2,800.0	0.28	356.10	2,800.0	1,341.0	3.6	6.2	-1.9	0.19	0.00	-40.13
2,900.0	0.30	341.54	2,900.0	1,441.0	4.1	6.1	-2.4	0.08	0.02	-14.56
3,000.0	0.43	319.52	3,000.0	1,541.0	4.6	5.8	-3.0	0.19	0.13	-22.02
3,100.0	0.52	318.75	3,100.0	1,641.0	5.3	5.2	-3.7	0.09	0.09	-0.77
3,200.0	0.53	320.77	3,200.0	1,741.0	6.0	4.6	-4.6	0.02	0.01	2.02
3,300.0	0.53	321.22	3,300.0	1,841.0	6.7	4.0	-5.4	0.00	0.00	0.45
3,400.0	0.57	325.06	3,400.0	1,941.0	7.4	3.5	-6.3	0.05	0.04	3.84
3,500.0	0.62	328.16	3,500.0	2,041.0	8.3	2.9	-7.3	0.06	0.05	3.10
3,600.0	0.57	326.02	3,600.0	2,141.0	9.2	2.3	-8.3	0.05	-0.05	-2.14
3,700.0	0.64	328.40	3,699.9	2,240.9	10.1	1.8	-9.3	0.07	0.07	2.38
3,800.0	0.66	332.12	3,799.9	2,340.9	11.1	1.2	-10.4	0.05	0.02	3.72
3,900.0	0.60	335.54	3,899.9	2,440.9	12.0	0.7	-11.5	0.07	-0.06	3.42
4,000.0	0.59	330.66	3,999.9	2,540.9	13.0	0.2	-12.5	0.05	-0.01	-4.88
4,100.0	0.58	328.65	4,099.9	2,640.9	13.8	-0.3	-13.5	0.02	-0.01	-2.01
4,200.0	0.61	328.91	4,199.9	2,740.9	14.7	-0.8	-14.4	0.03	0.03	0.26
4,300.0	0.58	329.14	4,299.9	2,840.9	15.6	-1.3	-15.4	0.03	-0.03	0.23
4,400.0	0.58	331.00	4,399.9	2,940.9	16.5	-1.9	-16.4	0.02	0.00	1.86
4,500.0	0.59	320.33	4,499.9	3,040.9	17.3	-2.4	-17.4	0.11	0.01	-10.67
4,600.0	0.63	327.27	4,599.9	3,140.9	18.2	-3.1	-18.4	0.08	0.04	6.94
4,700.0	0.54	332.01	4,699.9	3,240.9	19.1	-3.6	-19.4	0.10	-0.09	4.74
4,800.0	0.50	334.23	4,799.9	3,340.9	19.9	-4.0	-20.2	0.04	-0.04	2.22
4,900.0	0.40	341.69	4,899.9	3,440.9	20.6	-4.3	-21.0	0.12	-0.10	7.46

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)
5,000.0	0.34	344.43	4,999.9	3,540.9	21.2	-4.5	-21.7	0.06	-0.06	2.74
5,100.0	0.29	319.57	5,099.9	3,640.9	21.7	-4.7	-22.2	0.14	-0.05	-24.86
5,200.0	0.40	321.05	5,199.9	3,740.9	22.2	-5.1	-22.7	0.11	0.11	1.48
5,300.0	0.39	327.92	5,299.9	3,840.9	22.7	-5.5	-23.4	0.05	-0.01	6.87
5,400.0	0.20	314.09	5,399.9	3,940.9	23.1	-5.8	-23.9	0.20	-0.19	-13.83
5,500.0	0.30	305.62	5,499.9	4,040.9	23.4	-6.1	-24.2	0.11	0.10	-8.47
5,600.0	0.38	327.47	5,599.9	4,140.9	23.8	-6.5	-24.7	0.15	0.08	21.85
5,700.0	0.46	330.54	5,699.9	4,240.9	24.5	-6.9	-25.4	0.08	0.08	3.07
5,800.0	0.38	336.64	5,799.9	4,340.9	25.1	-7.2	-26.1	0.09	-0.08	6.10
5,900.0	0.49	331.90	5,899.9	4,440.9	25.8	-7.6	-26.9	0.12	0.11	-4.74
6,000.0	0.75	331.75	5,999.9	4,540.9	26.8	-8.1	-27.9	0.26	0.26	-0.15
6,100.0	0.61	332.84	6,099.9	4,640.9	27.8	-8.6	-29.1	0.14	-0.14	1.09
[illegible]										
6,161.0	0.38	309.49	6,160.9	4,701.9	28.2	-8.9	-29.6	0.49	-0.38	-38.28
6,193.0	0.60	341.60	6,192.8	4,733.8	28.5	-9.1	-29.8	1.07	0.69	100.34
6,224.0	0.60	354.60	6,223.8	4,764.8	28.8	-9.1	-30.2	0.44	0.00	41.94
6,256.0	0.60	6.70	6,255.8	4,796.8	29.1	-9.1	-30.5	0.40	0.00	37.81
6,287.0	0.70	37.40	6,286.8	4,827.8	29.4	-9.0	-30.7	1.15	0.32	99.03
6,318.0	0.70	38.80	6,317.8	4,858.8	29.7	-8.8	-31.0	0.06	0.00	4.52
[illegible]										
6,350.0	0.60	336.50	6,349.8	4,890.8	30.0	-8.7	-31.3	2.12	-0.31	-194.69
6,382.0	3.90	310.50	6,381.8	4,922.8	30.9	-9.6	-32.3	10.53	10.31	-81.25
6,413.0	7.60	314.90	6,412.7	4,953.7	33.0	-11.9	-35.0	12.01	11.94	14.19
6,445.0	11.20	316.80	6,444.2	4,985.2	36.8	-15.5	-39.5	11.29	11.25	5.94
6,476.0	14.40	316.70	6,474.4	5,015.4	41.8	-20.2	-45.6	10.32	10.32	-0.32
6,508.0	17.60	316.40	6,505.2	5,046.2	48.2	-26.3	-53.3	10.00	10.00	-0.94
6,540.0	20.30	315.80	6,535.5	5,076.5	55.7	-33.5	-62.4	8.46	8.44	-1.88
6,571.0	23.80	315.30	6,564.2	5,105.2	64.0	-41.6	-72.5	11.31	11.29	-1.61
6,603.0	27.00	314.60	6,593.1	5,134.1	73.7	-51.3	-84.4	10.04	10.00	-2.19
6,635.0	30.50	313.90	6,621.1	5,162.1	84.4	-62.4	-97.6	10.99	10.94	-2.19
6,666.0	33.10	313.90	6,647.5	5,188.5	95.7	-74.1	-111.5	8.39	8.39	0.00
6,698.0	36.40	313.20	6,673.8	5,214.8	108.3	-87.4	-127.1	10.39	10.31	-2.19
6,730.0	39.20	311.60	6,699.1	5,240.1	121.5	-101.8	-143.6	9.27	8.75	-5.00
6,761.0	39.30	308.10	6,723.1	5,264.1	134.1	-116.9	-159.6	7.15	0.32	-11.29
6,793.0	37.30	303.20	6,748.2	5,289.2	145.6	-133.0	-174.9	11.36	-6.25	-15.31
6,824.0	34.90	299.70	6,773.2	5,314.2	155.2	-148.6	-188.1	10.20	-7.74	-11.29
6,856.0	32.40	297.20	6,799.9	5,340.9	163.6	-164.1	-200.3	8.93	-7.81	-7.81
6,887.0	30.40	294.50	6,826.3	5,367.3	170.7	-178.7	-210.8	7.89	-6.45	-8.71
6,919.0	28.70	291.70	6,854.2	5,395.2	176.9	-193.2	-220.5	6.84	-5.31	-8.75
6,950.0	27.40	286.00	6,881.5	5,422.5	181.6	-206.9	-228.6	9.61	-4.19	-18.39
6,982.0	26.30	279.20	6,910.1	5,451.1	184.8	-221.0	-235.3	10.19	-3.44	-21.25
7,013.0	25.70	275.30	6,938.0	5,479.0	186.5	-234.5	-240.4	5.84	-1.94	-12.58
7,045.0	24.00	270.90	6,967.0	5,508.0	187.2	-247.9	-244.6	7.85	-5.31	-13.75

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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)
7,076.0	22.50	264.90	6,995.5	5,536.5	186.8	-260.1	-247.3	9.04	-4.84	-19.35
7,108.0	22.10	258.00	7,025.1	5,566.1	185.0	-272.1	-248.6	8.27	-1.25	-21.56
7,139.0	22.20	251.40	7,053.8	5,594.8	181.9	-283.4	-248.5	8.03	0.32	-21.29
7,171.0	23.20	245.00	7,083.3	5,624.3	177.3	-294.8	-247.0	8.32	3.13	-20.00
7,202.0	24.20	238.00	7,111.7	5,652.7	171.4	-305.7	-244.1	9.63	3.23	-22.58
7,233.0	26.00	229.00	7,139.8	5,680.8	163.5	-316.3	-239.2	13.60	5.81	-29.03
7,265.0	28.00	223.20	7,168.3	5,709.3	153.5	-326.7	-232.1	10.33	6.25	-18.13
7,297.0	28.70	218.80	7,196.5	5,737.5	142.0	-336.7	-223.6	6.88	2.19	-13.75
7,328.0	29.00	213.50	7,223.6	5,764.6	129.9	-345.5	-214.2	8.30	0.97	-17.10
7,360.0	31.10	206.40	7,251.3	5,792.3	116.0	-353.4	-202.8	12.89	6.56	-22.19
7,391.0	34.10	200.90	7,277.5	5,818.5	100.8	-360.1	-189.8	13.59	9.68	-17.74
7,423.0	35.90	198.50	7,303.7	5,844.7	83.5	-366.3	-174.7	7.08	5.63	-7.50
7,454.0	38.30	193.60	7,328.4	5,869.4	65.5	-371.4	-158.6	12.28	7.74	-15.81
7,486.0	40.40	189.80	7,353.2	5,894.2	45.6	-375.5	-140.5	9.99	6.56	-11.88
7,517.0	42.70	187.70	7,376.4	5,917.4	25.3	-378.6	-121.6	8.67	7.42	-6.77
7,549.0	45.00	184.50	7,399.4	5,940.4	3.3	-381.0	-100.9	9.98	7.19	-10.00
7,581.0	46.90	182.40	7,421.7	5,962.7	-19.7	-382.4	-79.1	7.58	5.94	-6.56
7,612.0	49.90	181.40	7,442.3	5,983.3	-42.8	-383.1	-56.9	9.97	9.68	-3.23
7,644.0	52.70	180.80	7,462.3	6,003.3	-67.8	-383.6	-32.9	8.87	8.75	-1.88
7,676.0	55.30	178.60	7,481.1	6,022.1	-93.7	-383.5	-7.8	9.85	8.13	-6.88
7,707.0	57.70	175.80	7,498.2	6,039.2	-119.5	-382.2	17.4	10.80	7.74	-9.03
7,739.0	60.40	173.20	7,514.6	6,055.6	-146.8	-379.5	44.5	10.94	8.44	-8.13
7,770.0	63.30	172.10	7,529.3	6,070.3	-173.9	-376.0	71.6	9.66	9.35	-3.55
7,802.0	66.60	171.70	7,542.8	6,083.8	-202.6	-372.0	100.4	10.37	10.31	-1.25
7,833.0	69.10	170.60	7,554.5	6,095.5	-231.0	-367.5	128.9	8.71	8.06	-3.55
7,865.0	71.90	170.10	7,565.2	6,106.2	-260.7	-362.5	159.0	8.87	8.75	-1.56
7,877.7	73.13	169.98	7,569.0	6,110.0	-272.6	-360.4	171.0	9.72	9.68	-0.98
7,896.0	74.90	169.80	7,574.0	6,115.0	-290.0	-357.3	188.6	9.72	9.68	-0.96
7,928.0	76.80	169.30	7,581.9	6,122.9	-320.5	-351.7	219.5	6.13	5.94	-1.56
7,960.0	78.50	168.40	7,588.7	6,129.7	-351.1	-345.8	250.7	5.98	5.31	-2.81
7,991.0	80.50	166.70	7,594.4	6,135.4	-380.9	-339.1	281.2	8.41	6.45	-5.48
8,023.0	83.10	164.00	7,598.9	6,139.9	-411.5	-331.0	312.8	11.65	8.13	-8.44
8,054.0	84.30	162.50	7,602.3	6,143.3	-441.0	-322.2	343.6	6.17	3.87	-4.84
8,086.0	86.80	161.40	7,604.8	6,145.8	-471.4	-312.3	375.5	8.53	7.81	-3.44
8,117.0	90.60	162.00	7,605.5	6,146.5	-500.8	-302.5	406.4	12.41	12.26	1.94
8,181.0	89.80	161.30	7,605.3	6,146.3	-561.5	-282.4	470.3	1.66	-1.25	-1.09
8,244.0	88.90	161.40	7,606.0	6,147.0	-621.2	-262.3	533.1	1.44	-1.43	0.16
8,308.0	88.20	161.80	7,607.6	6,148.6	-681.9	-242.1	597.0	1.26	-1.09	0.63
8,371.0	88.10	162.10	7,609.7	6,150.7	-741.8	-222.5	659.9	0.50	-0.16	0.48
8,434.0	87.50	161.70	7,612.1	6,153.1	-801.6	-203.0	722.7	1.14	-0.95	-0.63
8,497.0	88.30	162.20	7,614.4	6,155.4	-861.5	-183.5	785.6	1.50	1.27	0.79

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)
8,560.0	88.00	160.60	7,616.4	6,157.4	-921.2	-163.4	848.4	2.58	-0.48	-2.54
8,624.0	88.80	161.10	7,618.2	6,159.2	-981.6	-142.4	912.2	1.47	1.25	0.78
8,687.0	89.80	161.40	7,619.0	6,160.0	-1,041.3	-122.2	975.1	1.66	1.59	0.48
8,750.0	89.50	161.30	7,619.4	6,160.4	-1,100.9	-102.0	1,037.9	0.50	-0.48	-0.16
8,813.0	89.10	161.70	7,620.1	6,161.1	-1,160.7	-82.0	1,100.8	0.90	-0.63	0.63
8,876.0	88.80	161.40	7,621.3	6,162.3	-1,220.4	-62.1	1,163.7	0.67	-0.48	-0.48
8,940.0	89.70	162.20	7,622.1	6,163.1	-1,281.2	-42.1	1,227.5	1.88	1.41	1.25
9,003.0	90.80	162.70	7,621.8	6,162.8	-1,341.3	-23.1	1,290.5	1.92	1.75	0.79
9,066.0	90.40	161.90	7,621.2	6,162.2	-1,401.3	-4.0	1,353.4	1.42	-0.63	-1.27
9,129.0	89.20	158.90	7,621.4	6,162.4	-1,460.6	17.2	1,416.2	5.13	-1.90	-4.76
9,192.0	88.80	159.20	7,622.5	6,163.5	-1,519.5	39.7	1,478.8	0.79	-0.63	0.48
9,256.0	88.60	160.90	7,624.0	6,165.0	-1,579.6	61.5	1,542.5	2.67	-0.31	2.66
9,307.9	89.09	161.97	7,625.0	6,166.0	-1,628.8	78.0	1,594.3	2.27	0.95	2.06
9,319.0	89.20	162.20	7,625.2	6,166.2	-1,639.4	81.5	1,605.4	2.27	0.95	2.06
9,382.0	89.50	163.90	7,625.9	6,166.9	-1,699.6	99.8	1,668.3	2.74	0.48	2.70
9,445.0	89.40	164.70	7,626.5	6,167.5	-1,760.3	116.9	1,731.3	1.28	-0.16	1.27
9,509.0	89.10	165.40	7,627.3	6,168.3	-1,822.1	133.4	1,795.3	1.19	-0.47	1.09
9,572.0	88.60	165.20	7,628.6	6,169.6	-1,883.0	149.4	1,858.3	0.85	-0.79	-0.32
9,635.0	89.50	164.50	7,629.6	6,170.6	-1,943.8	165.8	1,921.3	1.81	1.43	-1.11
9,698.0	90.40	163.70	7,629.7	6,170.7	-2,004.4	183.1	1,984.3	1.91	1.43	-1.27
9,762.0	90.10	163.00	7,629.4	6,170.4	-2,065.7	201.4	2,048.3	1.19	-0.47	-1.09
9,825.0	89.80	163.70	7,629.5	6,170.5	-2,126.1	219.5	2,111.2	1.21	-0.48	1.11
9,889.0	89.80	164.40	7,629.7	6,170.7	-2,187.6	237.1	2,175.2	1.09	0.00	1.09
9,952.0	89.50	164.90	7,630.1	6,171.1	-2,248.4	253.7	2,238.2	0.93	-0.48	0.79
10,015.0	89.80	163.60	7,630.5	6,171.5	-2,309.0	270.8	2,301.2	2.12	0.48	-2.06
10,078.0	89.70	162.90	7,630.7	6,171.7	-2,369.3	289.0	2,364.2	1.12	-0.16	-1.11
10,141.0	89.20	162.60	7,631.3	6,172.3	-2,429.5	307.7	2,427.1	0.93	-0.79	-0.48
10,204.0	88.70	162.40	7,632.5	6,173.5	-2,489.6	326.6	2,490.0	0.85	-0.79	-0.32
10,268.0	89.10	161.60	7,633.7	6,174.7	-2,550.4	346.4	2,553.9	1.40	0.63	-1.25
10,331.0	90.40	160.40	7,634.0	6,175.0	-2,610.0	366.9	2,616.8	2.81	2.06	-1.90
10,394.0	89.00	157.60	7,634.3	6,175.3	-2,668.8	389.5	2,679.4	4.97	-2.22	-4.44
10,457.0	88.60	156.10	7,635.6	6,176.6	-2,726.7	414.2	2,741.7	2.46	-0.63	-2.38
10,520.0	89.30	156.50	7,636.8	6,177.8	-2,784.4	439.6	2,804.0	1.28	1.11	0.63
10,583.0	89.50	156.80	7,637.5	6,178.5	-2,842.2	464.5	2,866.3	0.57	0.32	0.48
10,646.0	90.00	158.50	7,637.7	6,178.7	-2,900.5	488.5	2,928.7	2.81	0.79	2.70
10,710.0	89.30	156.80	7,638.1	6,179.1	-2,959.7	512.8	2,992.2	2.87	-1.09	-2.66
10,773.0	88.50	159.10	7,639.3	6,180.3	-3,018.1	536.5	3,054.7	3.86	-1.27	3.65
10,836.0	88.80	161.70	7,640.8	6,181.8	-3,077.4	557.6	3,117.4	4.15	0.48	4.13
10,899.0	88.50	162.60	7,642.3	6,183.3	-3,137.3	576.9	3,180.3	1.51	-0.48	1.43
10,962.0	88.30	162.50	7,644.1	6,185.1	-3,197.4	595.8	3,243.2	0.35	-0.32	-0.16
11,025.0	89.20	162.70	7,645.4	6,186.4	-3,257.5	614.6	3,306.2	1.46	1.43	0.32
11,088.0	90.30	164.90	7,645.7	6,186.7	-3,318.0	632.2	3,369.1	3.90	1.75	3.49

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Database:		Local Co-ordinate Reference:	
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Site:		North Reference:	
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Wellbore:			
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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)
11,151.0	90.10	163.90	7,645.5	6,186.5	-3,378.7	649.1	3,432.1	1.62	-0.32	-1.59
11,214.0	89.70	164.00	7,645.6	6,186.6	-3,439.2	666.5	3,495.1	0.65	-0.63	0.16
11,277.0	89.50	164.50	7,646.0	6,187.0	-3,499.9	683.6	3,558.1	0.85	-0.32	0.79
11,340.0	89.40	164.30	7,646.6	6,187.6	-3,560.5	700.6	3,621.1	0.35	-0.16	-0.32
11,404.0	89.10	165.10	7,647.5	6,188.5	-3,622.3	717.5	3,685.1	1.33	-0.47	1.25
11,467.0	89.10	164.70	7,648.5	6,189.5	-3,683.1	733.9	3,748.1	0.63	0.00	-0.63
11,530.0	88.90	166.60	7,649.6	6,190.6	-3,744.1	749.5	3,811.1	3.03	-0.32	3.02
11,593.0	88.70	165.60	7,650.9	6,191.9	-3,805.2	764.6	3,874.0	1.62	-0.32	-1.59
11,656.0	88.90	165.50	7,652.2	6,193.2	-3,866.2	780.3	3,937.0	0.35	0.32	-0.16
11,720.0	89.80	165.10	7,652.9	6,193.9	-3,928.1	796.6	4,001.0	1.54	1.41	-0.63
11,783.0	90.10	163.70	7,653.0	6,194.0	-3,988.8	813.5	4,064.0	2.27	0.48	-2.22
11,846.0	89.80	164.10	7,653.0	6,194.0	-4,049.3	831.0	4,127.0	0.79	-0.48	0.63
11,909.0	89.50	162.80	7,653.4	6,194.4	-4,109.7	848.9	4,190.0	2.12	-0.48	-2.06
11,972.0	89.60	162.00	7,653.9	6,194.9	-4,169.8	868.0	4,252.9	1.28	0.16	-1.27
12,035.0	89.10	162.20	7,654.6	6,195.6	-4,229.7	887.3	4,315.8	0.85	-0.79	0.32
12,098.0	89.60	161.30	7,655.4	6,196.4	-4,289.5	907.1	4,378.7	1.63	0.79	-1.43
12,161.0	89.80	161.90	7,655.7	6,196.7	-4,349.3	927.0	4,441.6	1.00	0.32	0.95
12,224.0	89.30	161.30	7,656.2	6,197.2	-4,409.1	946.8	4,504.4	1.24	-0.79	-0.95
12,287.0	89.20	162.40	7,657.0	6,198.0	-4,469.0	966.5	4,567.3	1.75	-0.16	1.75
12,350.0	89.10	161.90	7,657.9	6,198.9	-4,528.9	985.8	4,630.2	0.81	-0.16	-0.79
12,413.0	89.30	161.50	7,658.8	6,199.8	-4,588.7	1,005.6	4,693.1	0.71	0.32	-0.63
12,476.0	88.90	162.20	7,659.8	6,200.8	-4,648.6	1,025.2	4,756.0	1.28	-0.63	1.11
12,539.0	89.30	161.40	7,660.8	6,201.8	-4,708.4	1,044.9	4,818.9	1.42	0.63	-1.27
12,602.0	89.00	159.60	7,661.7	6,202.7	-4,767.8	1,065.9	4,881.7	2.90	-0.48	-2.86
12,665.0	89.00	162.00	7,662.8	6,203.8	-4,827.3	1,086.6	4,944.5	3.81	0.00	3.81
12,728.0	88.70	160.70	7,664.1	6,205.1	-4,887.0	1,106.7	5,007.3	2.12	-0.48	-2.06
12,792.0	88.00	160.00	7,665.9	6,206.9	-4,947.2	1,128.2	5,071.1	1.55	-1.09	-1.09
12,855.0	88.20	160.90	7,668.0	6,209.0	-5,006.5	1,149.3	5,133.8	1.46	0.32	1.43
12,918.0	91.00	162.20	7,668.5	6,209.5	-5,066.3	1,169.3	5,196.7	4.90	4.44	2.06
12,981.0	90.60	161.70	7,667.6	6,208.6	-5,126.2	1,188.8	5,259.6	1.02	-0.63	-0.79
13,044.0	90.30	161.80	7,667.1	6,208.1	-5,186.0	1,208.5	5,322.5	0.50	-0.48	0.16
13,107.0	89.80	162.00	7,667.0	6,208.0	-5,245.9	1,228.1	5,385.4	0.85	-0.79	0.32
13,170.0	89.20	161.70	7,667.6	6,208.6	-5,305.8	1,247.7	5,448.3	1.06	-0.95	-0.48
13,233.0	88.50	161.10	7,668.9	6,209.9	-5,365.5	1,267.8	5,511.1	1.46	-1.11	-0.95
13,297.0	89.10	161.20	7,670.2	6,211.2	-5,426.0	1,288.5	5,575.0	0.95	0.94	0.16
13,360.0	90.00	161.50	7,670.7	6,211.7	-5,485.7	1,308.6	5,637.8	1.51	1.43	0.48
13,423.0	90.90	161.80	7,670.2	6,211.2	-5,545.5	1,328.4	5,700.7	1.51	1.43	0.48
13,486.0	90.30	161.40	7,669.5	6,210.5	-5,605.3	1,348.3	5,763.6	1.14	-0.95	-0.63
13,549.0	90.30	162.90	7,669.2	6,210.2	-5,665.2	1,367.6	5,826.5	2.38	0.00	2.38
13,612.0	90.50	161.80	7,668.8	6,209.8	-5,725.3	1,386.7	5,889.4	1.77	0.32	-1.75
13,675.0	89.90	160.40	7,668.5	6,209.5	-5,784.9	1,407.1	5,952.3	2.42	-0.95	-2.22
13,738.0	89.60	159.60	7,668.8	6,209.8	-5,844.1	1,428.7	6,015.0	1.36	-0.48	-1.27

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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)
13,801.0	89.70	161.50	7,669.2	6,210.2	-5,903.5	1,449.7	6,077.8	3.02	0.16	3.02
13,864.0	89.80	163.00	7,669.5	6,210.5	-5,963.5	1,468.9	6,140.7	2.39	0.16	2.38
13,927.0	88.90	163.00	7,670.2	6,211.2	-6,023.7	1,487.3	6,203.7	1.43	-1.43	0.00
13,990.0	89.30	162.80	7,671.2	6,212.2	-6,083.9	1,505.8	6,266.6	0.71	0.63	-0.32
14,053.0	91.30	162.90	7,670.9	6,211.9	-6,144.1	1,524.4	6,329.6	3.18	3.17	0.16
14,116.0	91.60	162.40	7,669.3	6,210.3	-6,204.2	1,543.2	6,392.5	0.93	0.48	-0.79
14,179.0	91.30	162.90	7,667.7	6,208.7	-6,264.3	1,561.9	6,455.4	0.93	-0.48	0.79
14,243.0	90.60	161.80	7,666.6	6,207.6	-6,325.3	1,581.3	6,519.3	2.04	-1.09	-1.72
14,306.0	89.70	160.60	7,666.4	6,207.4	-6,385.0	1,601.6	6,582.2	2.38	-1.43	-1.90
14,369.0	89.20	158.90	7,667.0	6,208.0	-6,444.1	1,623.5	6,644.9	2.81	-0.79	-2.70
14,432.0	89.90	159.10	7,667.5	6,208.5	-6,502.9	1,646.0	6,707.5	1.16	1.11	0.32
14,495.0	90.20	160.40	7,667.5	6,208.5	-6,562.0	1,667.8	6,770.2	2.12	0.48	2.06
14,559.0	90.20	161.70	7,667.3	6,208.3	-6,622.5	1,688.6	6,834.1	2.03	0.00	2.03
14,622.0	89.50	160.80	7,667.4	6,208.4	-6,682.2	1,708.9	6,896.9	1.81	-1.11	-1.43
14,685.0	88.60	160.00	7,668.5	6,209.5	-6,741.5	1,730.0	6,959.7	1.91	-1.43	-1.27
14,748.0	88.50	160.00	7,670.1	6,211.1	-6,800.7	1,751.5	7,022.4	0.16	-0.16	0.00
14,811.0	89.80	162.10	7,671.0	6,212.0	-6,860.3	1,772.0	7,085.3	3.92	2.06	3.33
14,875.0	89.20	161.50	7,671.6	6,212.6	-6,921.1	1,792.0	7,149.2	1.33	-0.94	-0.94
14,938.0	89.00	161.70	7,672.5	6,213.5	-6,980.8	1,811.9	7,212.0	0.45	-0.32	0.32
15,001.0	88.50	160.20	7,673.9	6,214.9	-7,040.4	1,832.4	7,274.8	2.51	-0.79	-2.38
15,064.0	89.00	160.60	7,675.3	6,216.3	-7,099.7	1,853.5	7,337.6	1.02	0.79	0.63
15,128.0	90.10	163.80	7,675.8	6,216.8	-7,160.6	1,873.1	7,401.5	5.29	1.72	5.00
15,191.0	89.90	164.80	7,675.8	6,216.8	-7,221.3	1,890.2	7,464.5	1.62	-0.32	1.59
15,254.0	89.80	166.60	7,676.0	6,217.0	-7,282.3	1,905.7	7,527.5	2.86	-0.16	2.86
15,318.0	89.50	167.30	7,676.4	6,217.4	-7,344.7	1,920.2	7,591.5	1.19	-0.47	1.09
15,381.0	89.00	167.30	7,677.2	6,218.2	-7,406.1	1,934.0	7,654.4	0.79	-0.79	0.00
15,444.0	88.40	166.70	7,678.6	6,219.6	-7,467.5	1,948.2	7,717.4	1.35	-0.95	-0.95
15,507.0	89.30	166.60	7,679.9	6,220.9	-7,528.8	1,962.7	7,780.3	1.44	1.43	-0.16
15,570.0	90.80	166.30	7,679.8	6,220.8	-7,590.0	1,977.5	7,843.3	2.43	2.38	-0.48
15,633.0	90.20	165.60	7,679.3	6,220.3	-7,651.1	1,992.8	7,906.3	1.46	-0.95	-1.11
15,694.0	89.80	165.40	7,679.3	6,220.3	-7,710.2	2,008.1	7,967.3	0.73	-0.66	-0.33
15,752.0	89.80	165.40	7,679.5	6,220.5	-7,766.3	2,022.7	8,025.3	0.00	0.00	0.00

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,877.7	7,569.0	Top of Marcellus@7569' TVD		0.00	
9,307.9	7,625.0	Top of Onondaga@7625' TVD		0.00	

Database:		Local Co-ordinate Reference:	
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Wellbore:			
Design:			

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
6,161.0	6,160.9	28.2	-8.9	Gyro Tie In=6161' MD
6,350.0	6,349.8	30.0	-8.7	KOP=6350' MD
8,117.0	7,605.5	-500.8	-302.5	LP=8117' MD/ 7606' TVD
15,507.0	7,679.9	-7,528.8	1,962.7	Deepest Point of Well=15507' MD/ 7680' TVD
15,694.0	7,679.3	-7,710.2	2,008.1	Final Survey=15694' MD/ 7679' TVD
15,752.0	7,679.5	-7,766.3	2,022.7	Projection to TD=15752' MD/ 7680' TVD

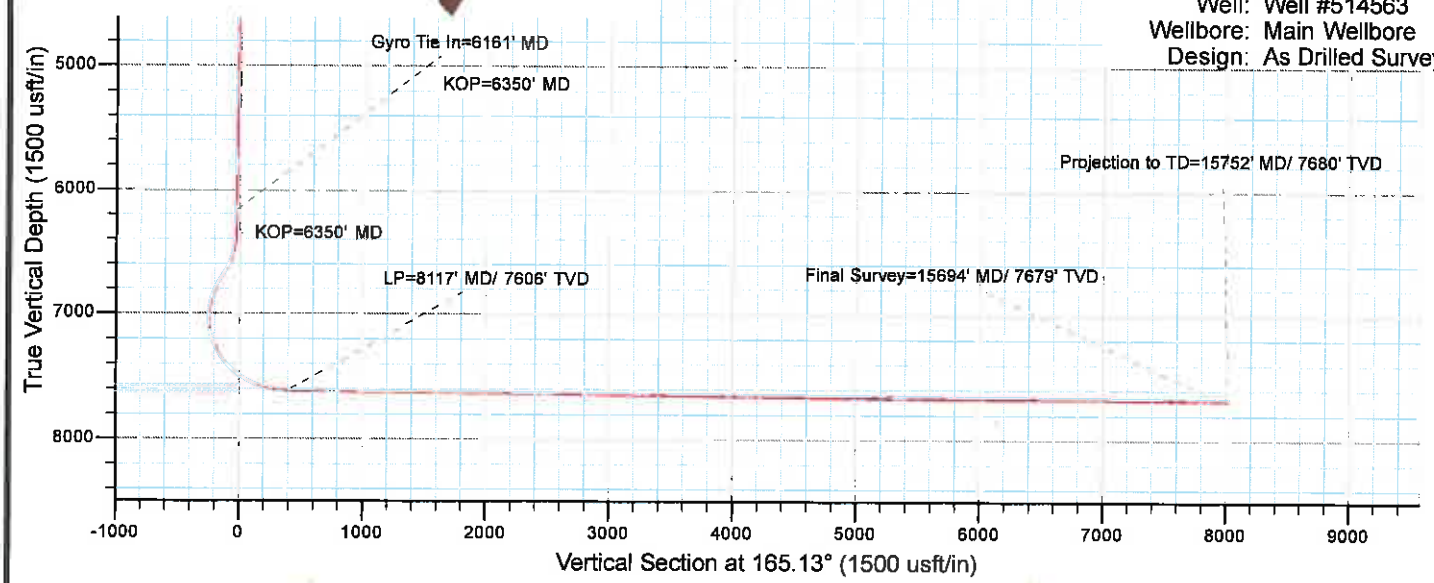
Checked By: _____ Approved By: _____ Date: _____

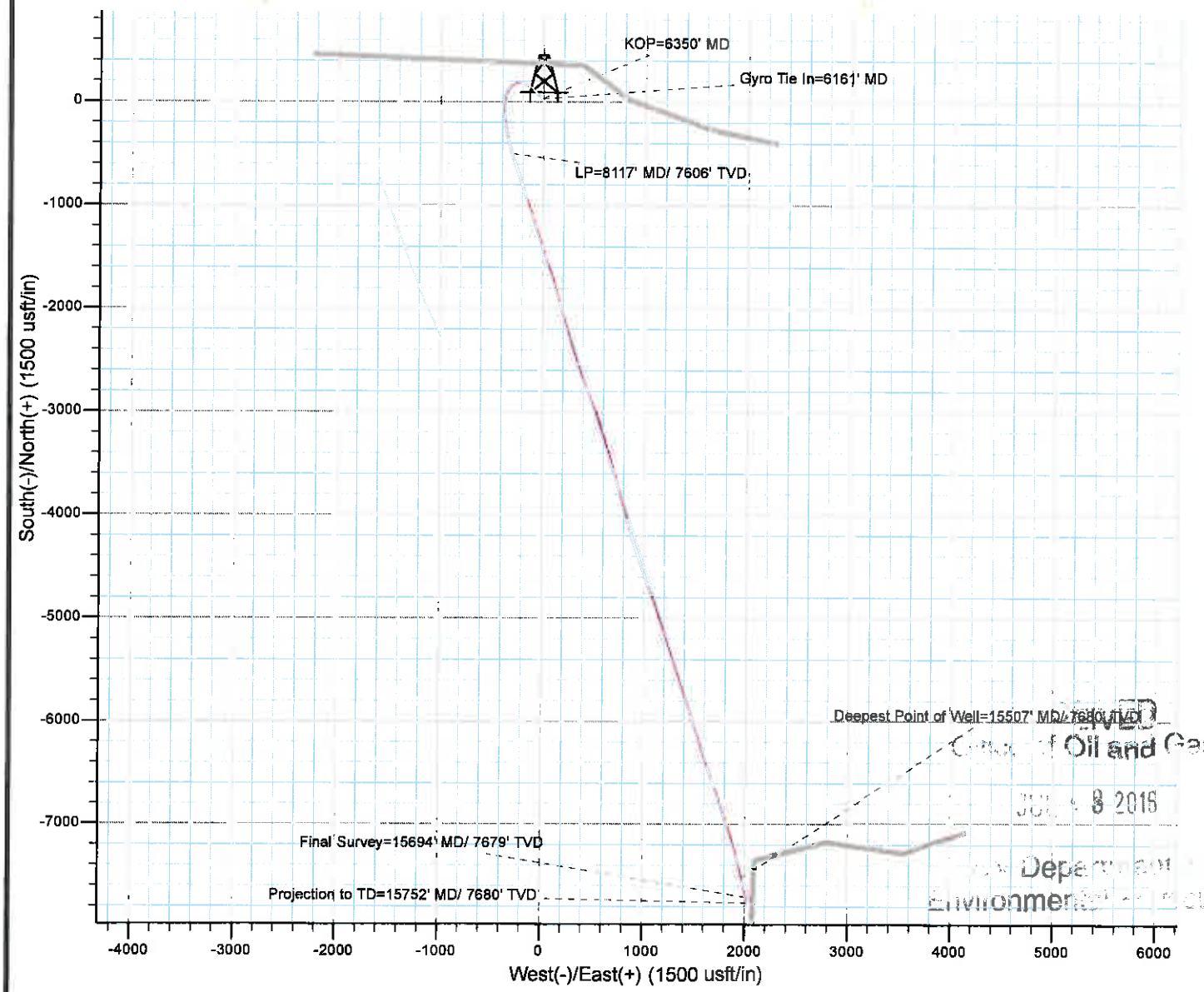
10/28/2016

PHOENIX
TECHNOLOGY SERVICES

EQT Production - Marcellus

Project: Wetzel County, WV
Site: Wetzel County 514563
Well: Well #514563
Wellbore: Main Wellbore
Design: As Drilled Surveys





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