



EQT Production - Geneseo Shale

**Wetzel County, WV
Wetzel County 514568
Well #514568**

514568 ST01

Design: 514568 ST01 AS Drilled

Standard Survey Report

09 September, 2014



Phoenix Technology Services
Survey Report



Where energy meets innovation.

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		

Site					
Site Position:		Northing:	386,612.77 usft	Latitude:	39.56
From:	Map	Easting:	1,695,502.62 usft	Longitude:	-80.58
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.59 "

Well						
Well Position	+N-S	0.0 usft	Northing:	386,612.77 usft	Latitude:	39° 33' 23.231 N
	+E-W	0.0 usft	Easting:	1,695,502.62 usft	Longitude:	80° 34' 47.872 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,443.0 usft

Wellbore					
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Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2010_14	8/13/2014	(°)	(°)	(nT)
			-8.68	66.98	52,385

Design					
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Audit Notes:

Version:	1.0	Phase:	ACTUAL	Tie On Depth:	4,900.0
Vertical Section:	Depth From (TVD)	+N-S	+E-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	167.26	

Survey Program		Date	8/8/2014
From	To	Survey (Wellbore)	Tool Name
(l)	(usft)		
0.00	4,900.0	514568 Gyrodata Gyro 07-25-14 (Main We	GYD_DP_MS
0.00	16,780.0	514568 PHX MWD (514568 ST01)	MWD+IGRF
			Description
			Gyrodata gyro-compassing and drop
			MWD+IGRF v3 standard declination

Survey											
Measured Depth	Inclination	Azimuth	Vertical Depth	Subsea Depth	+N-S	+E-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate	
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/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	0.30	165.49	100.0	-1,359.0	-0.3	0.1	0.3	0.30	0.30	0.00	
200.0	0.24	171.96	200.0	-1,259.0	-0.7	0.2	0.7	0.07	0.06	0.47	
300.0	0.25	182.37	300.0	-1,159.0	-1.1	0.2	1.2	0.00	0.00	10.41	
400.0	0.20	187.82	400.0	-1,059.0	-1.5	0.1	1.5	0.05	-0.05	5.45	
500.0	0.14	205.46	500.0	-959.0	-1.8	0.1	1.8	0.08	-0.08	17.64	
600.0	0.05	185.86	600.0	-859.0	-2.0	0.0	1.9	0.09	-0.09	-19.80	
700.0	0.02	203.93	700.0	-759.0	-2.0	0.0	2.0	0.09	0.09	0.00	

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WV Department of
Environmental Protection
COMPASS 5000.1 Build 56



Phoenix Technology Services

Survey Report



Energy Services Division

Database:	COMPASS 5000.1 Build 56	Local Co-ordinate Reference:	North American Datum 83
Company:	Phoenix Technology Services	TVD Reference:	NA 83 Mean Sea Level
Project:	Wellbore Survey	MD Reference:	NA 83 Mean Sea Level
Site:	Wellbore Survey	North Reference:	NA 83 Mean Sea Level
Well:	Wellbore Survey	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore Survey		
Design:	Wellbore 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	0.08	51.55	800.0	-659.0	-2.0	0.1	2.0	0.10	0.06	-152.38
900.0	0.07	23.91	900.0	-559.0	-1.9	0.1	1.9	0.04	-0.01	-27.64
1,000.0	0.07	36.28	1,000.0	-459.0	-1.8	0.2	1.8	0.02	0.00	12.37
1,100.0	0.09	18.32	1,100.0	-359.0	-1.7	0.3	1.7	0.03	0.02	-17.96
1,200.0	0.11	348.24	1,200.0	-259.0	-1.5	0.3	1.5	0.06	0.02	-30.08
1,300.0	0.21	352.65	1,300.0	-159.0	-1.2	0.2	1.2	0.10	0.10	4.41
1,400.0	0.29	352.16	1,400.0	-59.0	-0.8	0.2	0.8	0.08	0.08	-0.49
1,500.0	0.32	350.35	1,500.0	41.0	-0.3	0.1	0.3	0.03	0.03	-1.81
1,600.0	0.32	351.30	1,600.0	141.0	0.3	0.0	-0.3	0.01	0.00	0.95
1,700.0	0.42	346.68	1,700.0	241.0	0.9	-0.1	-0.9	0.10	0.10	-4.62
1,800.0	0.46	343.71	1,800.0	341.0	1.7	-0.3	-1.7	0.05	0.04	-2.97
1,900.0	0.54	12.95	1,900.0	441.0	2.5	-0.3	-2.5	0.26	0.08	29.24
2,000.0	0.66	23.72	2,000.0	541.0	3.5	0.0	-3.4	0.16	0.12	10.77
2,100.0	0.73	17.07	2,100.0	641.0	4.6	0.4	-4.4	0.11	0.07	-6.85
2,200.0	0.77	13.03	2,200.0	741.0	5.9	0.7	-5.6	0.07	0.04	-4.04
2,300.0	0.81	1.90	2,300.0	841.0	7.2	0.9	-6.9	0.16	0.04	-11.13
2,400.0	0.82	354.52	2,399.9	940.9	8.7	0.9	-8.3	0.11	0.01	-7.38
2,500.0	0.80	353.86	2,499.9	1,040.9	10.1	0.7	-9.7	0.02	-0.02	-0.66
2,600.0	0.79	348.25	2,599.9	1,140.9	11.4	0.5	-11.0	0.08	-0.01	-5.61
2,700.0	0.82	344.17	2,699.9	1,240.9	12.8	0.2	-12.5	0.06	0.03	-4.08
2,800.0	0.85	342.94	2,799.9	1,340.9	14.2	-0.2	-13.9	0.03	0.03	-1.23
2,900.0	0.86	338.52	2,899.9	1,440.9	15.6	-0.7	-15.4	0.07	0.01	-4.42
3,000.0	0.89	325.56	2,999.9	1,540.9	17.0	-1.4	-16.8	0.20	0.03	-12.96
3,100.0	0.89	320.88	3,099.9	1,640.9	18.2	-2.4	-18.3	0.07	0.00	-4.68
3,200.0	0.73	313.89	3,199.9	1,740.9	19.2	-3.3	-19.5	0.19	-0.16	-6.99
3,300.0	0.75	315.70	3,299.8	1,840.8	20.1	-4.2	-20.6	0.03	0.02	1.81
3,400.0	0.86	327.31	3,399.8	1,940.8	21.2	-5.1	-21.8	0.20	0.11	11.61
3,500.0	0.88	329.19	3,499.8	2,040.8	22.5	-5.9	-23.3	0.03	0.02	1.88
3,600.0	0.87	331.06	3,599.8	2,140.8	23.9	-6.6	-24.7	0.03	-0.01	1.87
3,700.0	0.82	332.49	3,699.8	2,240.8	25.2	-7.3	-26.2	0.05	-0.05	1.43
3,800.0	0.90	332.56	3,799.8	2,340.8	26.5	-8.0	-27.6	0.08	0.08	0.07
3,900.0	0.96	330.78	3,899.8	2,440.8	27.9	-8.8	-29.2	0.07	0.06	-1.78
4,000.0	1.00	329.51	3,999.8	2,540.8	29.4	-9.7	-30.8	0.05	0.04	-1.27
4,100.0	0.94	330.06	4,099.8	2,640.8	30.9	-10.5	-32.4	0.06	-0.06	0.55
4,200.0	0.80	333.28	4,199.7	2,740.7	32.2	-11.2	-33.9	0.15	-0.12	3.22
4,300.0	0.68	334.55	4,299.7	2,840.7	33.4	-11.8	-35.1	0.08	0.08	1.27
4,400.0	0.65	332.52	4,399.7	2,940.7	34.4	-12.3	-36.3	0.08	0.08	-2.03
4,500.0	0.65	326.80	4,499.7	3,040.7	35.4	-12.9	-37.4	0.06	0.06	5.62
4,600.0	0.66	324.02	4,599.7	3,140.7	36.3	-13.5	-38.4	0.02	0.02	-2.88
4,700.0	0.69	334.05	4,699.7	3,240.7	37.3	-14.1	-39.5	0.12	0.03	19.04
4,800.0	0.55	351.22	4,799.7	3,340.7	38.3	-14.5	-40.6	0.23	-0.14	17.12
4,900.0	0.28	355.81	4,899.7	3,440.7	39.1	-14.6	-41.3	0.27	0.27	4.59

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Phoenix Technology Services
Survey Report



Database:	COMPASS 5000.1 Build 56	Local Co-ordinate Reference:	North Reference:
Company:	QCT Production Services Inc	TVD Reference:	Survey Calculation Method:
Project:	Wells: Gulluk, W	MD Reference:	
Site:	Wells: Gulluk, W	North Reference:	
Well:	Wells: Gulluk, W	Survey Calculation Method:	
Wellbore:	Wells: Gulluk, W		
Design:	Wells: Gulluk, W		

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)
5,001.0	0.30	14.50	5,000.7	3,541.7	39.6	-14.5	-41.8	0.10	0.02	18.50
5,064.0	0.30	278.10	5,063.7	3,604.7	39.7	-14.6	-42.0	0.71	0.00	-153.02
5,095.0	1.70	261.00	5,094.7	3,635.7	39.7	-15.2	-42.1	4.57	4.52	-55.16
5,127.0	5.70	257.00	5,126.6	3,667.6	39.3	-17.2	-42.1	12.52	12.50	-12.50
5,158.0	9.50	260.60	5,157.3	3,698.3	38.5	-21.2	-42.2	12.35	12.26	11.61
5,190.0	10.70	268.30	5,188.8	3,729.8	38.0	-26.8	-42.9	5.64	3.75	24.06
5,221.0	9.90	272.70	5,219.3	3,760.3	38.0	-32.3	-44.2	3.62	-2.58	14.19
5,253.0	8.20	270.60	5,250.9	3,791.9	38.2	-37.4	-45.5	5.41	-5.31	-6.56
5,285.0	8.60	267.60	5,282.6	3,823.6	38.1	-42.0	-46.4	1.85	1.25	-9.38
5,316.0	8.80	268.70	5,313.2	3,854.2	37.9	-46.7	-47.3	0.84	0.65	3.55
5,348.0	6.30	269.40	5,345.0	3,886.0	37.9	-50.9	-48.2	7.82	-7.81	2.19
5,379.0	4.60	270.00	5,375.8	3,916.8	37.8	-53.9	-48.8	5.49	-5.48	1.94
5,411.0	4.10	270.50	5,407.7	3,948.7	37.9	-56.3	-49.3	1.57	-1.56	1.56
5,443.0	3.60	264.10	5,439.7	3,980.7	37.8	-58.4	-49.7	2.06	-1.56	-20.00
5,474.0	3.50	262.80	5,470.6	4,011.6	37.5	-60.4	-49.9	0.41	-0.32	-4.19
5,506.0	3.70	274.30	5,502.5	4,043.5	37.5	-62.4	-50.3	2.34	0.63	35.94
5,537.0	4.00	289.20	5,533.5	4,074.5	37.9	-64.4	-51.2	3.36	0.97	48.06
5,569.0	4.00	287.50	5,565.4	4,106.4	38.6	-66.5	-52.3	0.37	0.00	-5.31
5,601.0	3.60	288.20	5,597.3	4,138.3	39.3	-68.5	-53.4	1.26	-1.25	2.19
5,632.0	3.40	286.50	5,628.3	4,169.3	39.8	-70.3	-54.4	0.73	-0.85	-5.48
5,664.0	3.50	287.60	5,660.2	4,201.2	40.4	-72.2	-55.3	0.37	0.31	3.44
5,695.0	3.20	281.70	5,691.2	4,232.2	40.9	-73.9	-56.2	1.47	-0.97	-19.03
5,727.0	3.10	282.90	5,723.1	4,264.1	41.2	-75.6	-56.9	0.37	-0.31	3.75
5,759.0	2.40	279.20	5,755.1	4,296.1	41.5	-77.1	-57.5	2.26	-2.19	-11.56
5,790.0	1.50	251.70	5,786.0	4,327.0	41.5	-78.2	-57.7	4.11	-2.90	-88.71
5,822.0	0.60	213.80	5,818.0	4,359.0	41.3	-78.6	-57.6	3.41	-2.81	-118.44
5,854.0	0.20	200.30	5,850.0	4,391.0	41.1	-78.8	-57.4	1.28	-1.25	-42.19
5,917.0	0.10	139.10	5,913.0	4,454.0	40.9	-78.8	-57.3	0.28	-0.16	-97.14
5,980.0	0.50	349.80	5,976.0	4,517.0	41.1	-78.8	-57.5	0.93	0.63	-236.83
6,044.0	1.50	266.50	6,040.0	4,581.0	41.4	-79.7	-57.9	2.38	1.56	-130.31
6,075.0	5.40	274.60	6,071.0	4,612.0	41.5	-81.5	-58.4	12.65	12.58	26.13
6,107.0	8.40	284.00	6,102.7	4,643.7	42.1	-85.3	-59.9	9.99	9.38	29.38
6,139.0	10.10	292.60	6,134.3	4,675.3	43.8	-90.1	-62.6	6.83	5.31	26.88
6,170.0	11.50	294.40	6,164.8	4,705.8	46.1	-95.5	-66.0	4.64	4.52	5.81
6,202.0	13.40	293.80	6,196.0	4,737.0	48.9	-101.8	-70.2	5.95	5.94	-1.88
6,233.0	16.20	293.20	6,226.0	4,767.0	52.1	-109.0	-74.8	9.05	9.03	-1.94
6,265.0	18.80	292.50	6,256.5	4,797.5	55.8	-117.9	-80.4	8.15	8.13	-2.19
6,297.0	22.20	292.90	6,286.5	4,827.5	60.1	-128.2	-86.9	10.63	10.63	1.25
6,328.0	25.50	291.30	6,314.8	4,855.8	64.8	-139.8	-94.1	10.85	10.65	-5.16
6,360.0	29.10	290.70	6,343.3	4,884.3	70.1	-153.5	-102.2	11.28	11.25	-1.88
6,392.0	32.70	290.80	6,370.7	4,911.7	75.9	-168.9	-111.3	11.25	11.25	0.31
6,423.0	36.40	291.80	6,396.2	4,937.2	82.3	-185.3	-121.1	12.07	11.94	3.23



Phoenix Technology Services

Survey Report



Database: EQT Survey 1000001 Company: Phoenix Technology Services Project: Phoenix Survey 1000001 Site: Phoenix Survey 1000001 Well: Phoenix Survey 1000001 Wellbore: Phoenix Survey 1000001 Design: Phoenix Survey 1000001	Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method:	Phoenix Survey 1000001 Phoenix Survey 1000001 Phoenix Survey 1000001 Phoenix Survey 1000001 Phoenix Survey 1000001
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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)
6,455.0	38.90	293.20	6,421.6	4,962.6	89.8	-203.3	-132.4	8.26	7.81	4.38
6,486.0	40.60	293.70	6,445.4	4,986.4	97.7	-221.5	-144.1	5.58	5.48	1.61
6,550.0	40.60	292.50	6,494.0	5,035.0	114.0	-259.8	-168.5	1.22	0.00	-1.88
6,613.0	38.50	289.70	6,542.6	5,083.6	128.5	-297.2	-190.9	4.37	-3.33	-4.44
6,676.0	37.70	288.50	6,592.1	5,133.1	141.2	-334.0	-211.4	1.73	-1.27	-1.90
6,739.0	41.40	290.50	6,640.7	5,181.7	154.6	-371.8	-232.8	6.21	5.87	3.17
6,771.0	43.60	292.60	6,664.3	5,205.3	162.6	-391.9	-245.0	8.18	6.88	6.56
6,803.0	42.90	292.20	6,687.6	5,228.6	170.9	-412.1	-257.6	2.35	-2.19	-1.25
6,834.0	42.20	291.30	6,710.5	5,251.5	178.7	-431.6	-269.4	2.99	-2.26	-2.90
6,866.0	41.40	290.80	6,734.3	5,275.3	186.4	-451.5	-281.3	2.71	-2.50	-1.56
6,898.0	40.60	287.30	6,758.5	5,299.5	193.2	-471.3	-292.4	7.60	-2.50	-10.94
6,930.0	39.70	280.80	6,782.9	5,323.9	198.2	-491.3	-301.7	13.39	-2.81	-20.31
6,961.0	40.60	274.10	6,806.6	5,347.6	200.8	-511.1	-308.5	14.23	2.90	-21.61
6,993.0	40.50	269.40	6,831.0	5,372.0	201.4	-531.9	-313.7	9.55	-0.31	-14.69
7,024.0	40.10	265.10	6,854.6	5,395.6	200.5	-551.9	-317.2	9.06	-1.29	-13.87
7,056.0	39.10	260.60	6,879.3	5,420.3	197.9	-572.2	-319.2	9.49	-3.13	-14.06
7,087.0	37.00	256.10	6,903.7	5,444.7	194.1	-590.9	-319.6	11.22	-6.77	-14.52
7,119.0	35.90	251.20	6,929.4	5,470.4	188.8	-609.1	-318.4	9.72	-3.44	-15.31
7,150.0	36.00	246.60	6,954.5	5,495.5	182.2	-626.1	-315.8	8.72	0.32	-14.84
7,182.0	35.20	241.80	6,980.6	5,521.6	174.1	-642.8	-311.6	9.08	-2.50	-15.00
7,214.0	34.90	240.70	7,006.8	5,547.8	165.3	-658.9	-306.5	2.19	-0.94	-3.44
7,245.0	33.80	238.10	7,032.3	5,573.3	156.4	-674.0	-301.1	5.91	-3.55	-8.39
7,277.0	33.50	232.20	7,059.0	5,600.0	146.3	-688.5	-294.5	10.26	-0.94	-18.44
7,309.0	34.30	226.60	7,085.6	5,626.6	134.7	-702.1	-286.1	10.07	2.50	-17.50
7,340.0	35.80	222.30	7,110.9	5,651.9	122.0	-714.5	-276.5	9.32	4.64	-13.87
7,372.0	37.40	215.00	7,136.6	5,677.6	107.1	-726.4	-264.6	14.48	5.00	-22.81
7,403.0	38.60	207.70	7,161.1	5,702.1	90.8	-736.3	-250.9	15.00	3.87	-23.55
7,435.0	40.60	201.90	7,185.7	5,726.7	72.3	-744.8	-234.7	13.13	6.25	-18.13
7,467.0	42.50	198.60	7,209.7	5,750.7	52.4	-752.2	-216.9	9.06	5.94	-10.31
7,498.0	44.40	194.00	7,232.2	5,773.2	31.9	-758.1	-198.3	11.90	6.13	-14.84
7,530.0	47.60	190.40	7,254.4	5,795.4	9.4	-763.0	-177.4	12.86	10.00	-11.25
7,561.0	50.20	187.90	7,274.8	5,815.8	-13.6	-766.7	-155.7	10.36	8.39	-8.06
7,593.0	51.50	186.60	7,295.0	5,836.0	-38.3	-769.8	-132.4	5.14	4.06	-4.06
7,624.0	54.00	183.80	7,313.8	5,854.8	-62.8	-772.0	-108.9	10.80	8.06	-9.03
7,656.0	58.30	180.90	7,331.6	5,872.6	-89.4	-773.1	-83.3	15.40	13.44	-9.06
7,687.0	61.70	178.30	7,347.1	5,888.1	-116.2	-772.9	-57.0	13.15	10.97	-8.39
7,719.0	64.80	176.10	7,361.5	5,902.5	-144.7	-771.5	-28.9	11.47	9.69	-6.88
7,751.0	67.60	174.80	7,374.4	5,915.4	-173.9	-769.2	0.1	9.51	8.75	-4.06
7,782.0	69.70	173.20	7,385.7	5,926.7	-202.6	-766.2	28.8	8.31	6.77	-5.16
7,814.0	72.00	171.70	7,396.2	5,937.2	-232.6	-762.2	58.9	8.44	7.19	-4.69
7,845.0	74.40	170.80	7,405.2	5,946.2	-261.9	-757.6	86.5	8.45	7.74	-3.55
7,877.0	75.20	169.60	7,413.6	5,954.6	-292.3	-752.3	119.3	3.92	2.50	-3.13
7,909.0	77.50	168.20	7,421.1	5,962.1	-322.9	-746.3	150.4	8.35	7.19	-4.38



Phoenix Technology Services
Survey Report



Where energy meets innovation.

Database:	COMPASS 5000.1 Build 55	Local Co-ordinate Reference:	WGS 1984 UTM Zone 18N
Company:	EQT Technology Services	TVD Reference:	NA 83 1436 5000
Project:	Reese County, MN	MD Reference:	NA 83 1436 5000
Site:	119022301-10000	North Reference:	NA 83
Well:	119022301-10000	Survey Calculation Method:	Minimum Curvature
Wellbore:	119022301-10000		
Design:	119022301-10000		

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)
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7,940.0	80.20	167.80	7,427.1	5,968.1	-352.6	-740.0	180.8	8.80	8.71	-1.29
7,972.0	82.20	166.20	7,432.0	5,973.0	-383.4	-732.9	212.4	7.97	6.25	-5.00
8,004.0	83.80	165.40	7,435.9	5,978.9	-414.2	-725.1	244.2	5.58	5.00	-2.50

8,067.0	90.00	161.70	7,439.3	5,980.3	-474.5	-707.3	306.9	11.45	9.84	-5.87
8,088.0	91.60	161.40	7,439.0	5,980.0	-494.4	-700.6	327.8	7.75	7.62	-1.43

8,151.0	90.20	161.00	7,438.0	5,979.0	-554.0	-680.3	390.4	2.31	-2.22	-0.83
8,215.0	89.90	160.90	7,438.0	5,979.0	-614.5	-659.4	454.0	0.49	-0.47	-0.16
8,278.0	89.50	160.80	7,438.3	5,979.3	-674.1	-638.8	516.6	0.65	-0.63	-0.16
8,341.0	88.60	162.00	7,439.3	5,980.3	-733.7	-618.7	579.3	2.38	-1.43	1.90
8,404.0	87.70	161.50	7,441.4	5,982.4	-793.5	-599.0	642.0	1.63	-1.43	-0.79

8,467.0	88.40	161.50	7,443.5	5,984.5	-853.3	-579.0	704.6	1.11	1.11	0.00
8,530.0	89.50	162.30	7,444.7	5,985.7	-913.1	-559.4	767.3	2.16	1.75	1.27
8,593.0	89.50	161.90	7,445.2	5,986.2	-973.1	-540.1	830.1	0.63	0.00	-0.63
8,657.0	88.40	162.20	7,446.4	5,987.4	-1,034.0	-520.3	893.8	1.78	-1.72	0.47
8,720.0	87.80	162.30	7,448.5	5,989.5	-1,093.9	-501.1	956.5	0.97	-0.95	0.16

8,783.0	87.70	162.40	7,451.0	5,992.0	-1,153.9	-482.1	1,019.2	0.22	-0.16	0.16
8,846.0	87.60	162.30	7,453.5	5,994.5	-1,213.9	-463.0	1,082.0	0.22	-0.16	-0.16
8,909.0	87.30	162.30	7,456.3	5,997.3	-1,273.8	-443.8	1,144.7	0.48	-0.48	0.00
8,972.0	87.10	162.20	7,459.4	6,000.4	-1,333.8	-424.6	1,207.3	0.35	-0.32	-0.16
9,035.0	87.40	163.20	7,462.4	6,003.4	-1,393.9	-405.9	1,270.1	1.66	0.48	1.59

9,098.0	89.40	164.20	7,464.2	6,005.2	-1,454.3	-388.3	1,332.9	3.55	3.17	1.59
9,161.0	89.30	164.80	7,464.9	6,005.9	-1,515.0	-371.4	1,395.8	0.97	-0.16	0.95
9,224.0	89.80	165.40	7,465.4	6,006.4	-1,575.9	-355.2	1,458.8	1.24	0.79	0.95
9,288.0	89.80	164.60	7,465.6	6,006.6	-1,637.7	-338.7	1,522.7	1.25	0.00	-1.25
9,351.0	89.80	164.20	7,465.9	6,006.9	-1,698.4	-321.7	1,585.7	0.63	0.00	-0.63

9,413.0	88.50	162.10	7,466.8	6,007.8	-1,757.7	-303.8	1,647.5	3.98	-2.10	-3.39
9,477.0	88.50	161.20	7,468.4	6,009.4	-1,818.4	-283.6	1,711.2	1.41	0.00	-1.41
9,540.0	89.10	161.70	7,469.8	6,010.8	-1,878.1	-263.6	1,773.8	1.24	0.95	0.79
9,602.0	91.40	162.20	7,469.5	6,010.5	-1,937.1	-244.4	1,835.6	3.80	3.71	0.81
9,665.0	91.20	161.30	7,468.1	6,009.1	-1,996.9	-224.6	1,898.2	1.46	-0.32	-1.43

9,728.0	91.00	161.30	7,466.9	6,007.9	-2,056.6	-204.4	1,960.9	0.32	-0.32	0.00
9,792.0	91.30	160.70	7,465.6	6,008.6	-2,117.1	-183.6	2,024.5	1.05	0.47	-0.94
9,855.0	91.20	160.70	7,464.2	6,005.2	-2,176.5	-162.8	2,087.1	0.16	-0.16	0.00
9,918.0	91.00	160.60	7,463.0	6,004.0	-2,235.9	-141.9	2,149.6	0.35	-0.32	-0.16
9,981.0	89.70	161.00	7,462.6	6,003.6	-2,295.4	-121.2	2,212.2	2.16	-2.08	0.63

10,044.0	89.20	161.40	7,463.2	6,004.2	-2,355.1	-100.9	2,274.9	1.02	-0.79	0.63
10,107.0	89.20	161.80	7,464.1	6,005.1	-2,414.8	-81.0	2,337.6	0.63	-0.00	0.63
10,170.0	88.80	161.70	7,465.2	6,006.2	-2,474.7	-61.3	2,400.0	0.65	-0.63	-0.16
10,233.0	88.40	161.40	7,466.7	6,007.7	-2,534.4	-41.4	2,462.9	0.78	-0.63	-0.48
10,296.0	88.10	161.40	7,468.7	6,009.7	-2,594.1	-21.3	2,525.6	0.48	-0.48	0.00

10,359.0	88.60	160.90	7,470.5	6,011.5	-2,653.7	-0.9	2,588.2	1.12	-0.79	0.63
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Phoenix Technology Services
Survey Report



Energy Services International

Database:	COMPASS 5000.1 Build 56	Local Co-ordinate Reference:	NA 83 North
Company:	Phoenix Technology Services	TVD Reference:	NA 83 North
Project:	NA 83 North	MD Reference:	NA 83 North
Site:	NA 83 North	North Reference:	NA 83 North
Well:	NA 83 North	Survey Calculation Method:	Minimum Curvature
Wellbore:	NA 83 North		
Design:	NA 83 North		

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)
10,422.0	89.80	161.00	7,471.3	6,012.3	-2,713.2	19.6	2,650.8	1.91	1.90	0.16
10,486.0	90.10	160.70	7,471.4	6,012.4	-2,773.7	40.6	2,714.4	0.66	0.47	-0.47
10,548.0	89.80	160.80	7,471.5	6,012.5	-2,832.2	61.1	2,776.0	0.51	-0.48	0.16
10,612.0	89.40	161.10	7,471.9	6,012.9	-2,892.7	81.9	2,839.6	0.78	-0.63	0.47
10,675.0	88.90	160.40	7,472.8	6,013.8	-2,952.2	102.7	2,902.2	1.37	-0.79	-1.11
10,738.0	89.70	161.20	7,473.6	6,014.6	-3,011.7	123.4	2,964.8	1.80	1.27	1.27
10,801.0	90.30	161.10	7,473.6	6,014.6	-3,071.3	143.8	3,027.4	0.97	0.95	-0.16
10,864.0	90.20	161.60	7,473.3	6,014.3	-3,131.0	163.9	3,090.1	0.81	-0.16	0.79
10,927.0	89.90	161.90	7,473.3	6,014.3	-3,190.8	183.7	3,152.8	0.67	-0.48	0.48
10,990.0	89.30	161.70	7,473.7	6,014.7	-3,250.7	203.3	3,215.5	1.00	-0.95	-0.32
11,053.0	88.90	161.50	7,474.7	6,015.7	-3,310.4	223.2	3,278.2	0.71	-0.63	-0.32
11,117.0	89.60	162.30	7,475.5	6,016.5	-3,371.3	243.1	3,341.9	1.66	1.09	1.25
11,180.0	89.80	162.90	7,475.9	6,016.9	-3,431.4	261.9	3,404.7	1.00	0.32	0.95
11,243.0	89.50	162.60	7,476.3	6,017.3	-3,491.5	280.6	3,467.5	0.67	-0.48	-0.48
11,305.0	89.40	162.40	7,476.9	6,017.9	-3,550.7	299.3	3,529.3	0.36	-0.16	-0.32
11,368.0	89.80	163.20	7,477.3	6,018.3	-3,610.9	317.9	3,592.1	1.42	0.63	1.27
11,431.0	89.40	163.00	7,477.7	6,018.7	-3,671.1	336.2	3,654.9	0.71	-0.63	-0.32
11,494.0	89.20	162.20	7,478.5	6,019.5	-3,731.2	355.0	3,717.7	1.31	-0.32	-1.27
11,557.0	90.30	162.00	7,478.8	6,019.8	-3,791.2	374.4	3,780.5	1.77	1.75	-0.32
11,621.0	90.40	161.70	7,478.4	6,019.4	-3,852.0	394.3	3,844.2	0.49	0.16	-0.47
11,684.0	90.30	161.00	7,478.0	6,019.0	-3,911.7	414.5	3,906.8	1.12	-0.16	-1.11
11,747.0	90.40	161.10	7,477.6	6,018.6	-3,971.3	435.0	3,969.5	0.22	0.16	0.16
11,810.0	88.80	161.70	7,478.1	6,019.1	-4,031.0	455.0	4,032.1	2.71	-2.54	0.95
11,873.0	88.80	163.10	7,479.4	6,020.4	-4,091.0	474.1	4,094.9	2.22	0.00	2.22
11,936.0	88.90	163.50	7,480.6	6,021.6	-4,151.4	492.2	4,157.7	0.65	0.16	0.63
11,999.0	88.00	163.50	7,482.3	6,023.3	-4,211.7	510.1	4,220.6	1.43	-1.43	0.00
12,062.0	87.30	163.40	7,484.9	6,025.9	-4,272.1	528.0	4,283.4	1.12	-1.11	-0.16
12,125.0	87.30	163.50	7,487.9	6,028.9	-4,332.4	545.9	4,346.2	0.16	0.00	0.16
12,188.0	88.70	163.40	7,490.1	6,031.1	-4,392.8	563.9	4,409.0	2.23	2.22	-0.16
12,251.0	89.20	163.70	7,491.3	6,032.3	-4,453.2	581.7	4,471.8	0.93	0.79	0.48
12,315.0	88.80	164.10	7,492.4	6,033.4	-4,514.6	599.5	4,535.7	0.88	-0.63	0.63
12,378.0	88.50	164.10	7,493.9	6,034.9	-4,575.2	616.7	4,598.6	0.48	-0.48	0.00
12,441.0	88.60	164.20	7,495.4	6,036.4	-4,635.8	633.9	4,661.5	0.22	0.16	0.16
12,504.0	88.80	162.60	7,496.9	6,037.9	-4,696.2	651.9	4,724.3	2.56	0.32	-2.54
12,567.0	88.70	160.80	7,498.3	6,039.3	-4,756.0	671.7	4,787.0	2.86	-0.16	2.86
12,630.0	88.70	160.40	7,499.7	6,040.7	-4,815.4	692.6	4,849.6	0.63	0.00	-0.63
12,693.0	90.10	160.50	7,500.3	6,041.3	-4,874.7	713.7	4,912.1	2.22	0.66	2.22
12,757.0	90.20	160.00	7,500.2	6,041.2	-4,935.0	735.3	4,975.6	0.80	0.16	-0.78
12,819.0	90.00	158.60	7,500.1	6,041.1	-4,993.0	757.2	5,037.0	2.22	-0.32	2.22
12,883.0	90.00	159.40	7,500.1	6,041.1	-5,052.7	780.2	5,100.4	1.25	0.00	1.25
12,946.0	90.20	160.00	7,500.0	6,041.0	-5,111.8	802.0	5,162.8	1.00	0.32	0.95
13,009.0	89.20	158.70	7,500.3	6,041.3	-5,170.7	824.2	5,225.2	2.60	-1.59	2.60
13,072.0	89.00	158.90	7,501.3	6,042.3	-5,229.5	847.0	5,287.5	0.48	0.32	0.48

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Phoenix Technology Services Survey Report



Database:	Phoenix Technology Services	Local Co-ordinate Reference:	North American Datum 83
Company:	QEP Production Services, Inc.	TVD Reference:	NA 83 Mean Sea Level
Project:	Wash County, TX	MD Reference:	NA 83 Mean Sea Level
Site:	Wash County, TX	North Reference:	NA 83 Mean Sea Level
Well:	Wash County, TX	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wash County, TX		
Design:	Wash County, TX		

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)
13,135.0	90.30	159.40	7,501.7	6,042.7	-5,288.3	869.4	5,349.9	2.21	2.06	0.79
13,198.0	90.40	160.50	7,501.3	6,042.3	-5,347.5	891.0	5,412.4	1.75	0.16	1.75
13,262.0	90.80	160.80	7,500.6	6,041.6	-5,407.9	912.2	5,476.0	0.78	0.63	0.47
13,325.0	90.20	162.40	7,500.1	6,041.1	-5,467.7	932.1	5,538.6	2.71	-0.95	2.54
13,388.0	90.50	163.70	7,499.7	6,040.7	-5,527.9	950.5	5,601.5	2.12	0.48	2.06
13,451.0	89.80	163.00	7,499.5	6,040.5	-5,588.3	968.5	5,664.3	1.57	-1.11	-1.11
13,514.0	89.40	163.00	7,499.9	6,040.9	-5,648.5	986.9	5,727.1	0.63	-0.63	0.00
13,577.0	89.10	162.30	7,500.8	6,041.8	-5,708.7	1,005.7	5,789.9	1.21	-0.48	-1.11
13,640.0	88.80	162.00	7,501.9	6,042.9	-5,768.6	1,025.0	5,852.7	0.67	-0.48	-0.48
13,703.0	88.60	162.00	7,503.4	6,044.4	-5,828.5	1,044.5	5,915.4	0.32	-0.32	0.00
13,766.0	89.40	163.00	7,504.5	6,045.5	-5,888.6	1,063.4	5,978.2	2.03	1.27	1.59
13,829.0	90.20	163.80	7,504.7	6,045.7	-5,949.0	1,081.4	6,041.0	1.80	1.27	1.27
13,892.0	89.70	163.30	7,504.7	6,045.7	-6,009.4	1,099.3	6,103.9	1.12	-0.79	-0.79
13,955.0	89.50	163.00	7,505.2	6,046.2	-6,069.7	1,117.5	6,166.7	0.57	-0.32	-0.48
14,019.0	90.00	163.50	7,505.4	6,046.4	-6,131.0	1,136.0	6,230.6	1.10	0.78	0.78
14,082.0	89.40	163.00	7,505.8	6,046.8	-6,191.3	1,154.1	6,293.4	1.24	-0.95	-0.79
14,144.0	89.10	162.50	7,506.6	6,047.6	-6,250.5	1,172.5	6,355.2	0.94	-0.48	-0.81
14,207.0	89.10	162.10	7,507.6	6,048.6	-6,310.5	1,191.7	6,418.0	0.63	0.00	-0.63
14,270.0	88.70	161.80	7,508.8	6,049.8	-6,370.4	1,211.2	6,480.7	0.79	-0.63	-0.48
14,333.0	88.30	161.20	7,510.4	6,051.4	-6,430.1	1,231.2	6,543.3	1.14	-0.63	-0.95
14,397.0	89.30	162.00	7,511.8	6,052.8	-6,490.8	1,251.4	6,607.0	2.00	1.56	1.25
14,460.0	90.20	162.30	7,512.0	6,053.0	-6,550.8	1,270.7	6,669.8	1.51	1.43	0.48
14,523.0	90.10	161.70	7,511.9	6,052.9	-6,610.7	1,290.2	6,732.5	0.97	-0.16	-0.95
14,586.0	89.70	162.00	7,512.0	6,053.0	-6,670.6	1,309.8	6,795.2	0.79	-0.63	0.48
14,649.0	89.00	161.30	7,512.7	6,053.7	-6,730.4	1,329.6	6,857.9	1.57	-1.11	-1.11
14,713.0	89.60	161.80	7,513.5	6,054.5	-6,791.1	1,349.9	6,921.6	1.22	0.94	0.78
14,775.0	90.20	162.30	7,513.6	6,054.6	-6,850.1	1,369.0	6,983.3	1.26	0.97	0.81
14,838.0	90.20	161.80	7,513.4	6,054.4	-6,910.0	1,388.5	7,046.1	1.11	0.00	-1.11
14,901.0	89.70	160.40	7,513.4	6,054.4	-6,969.5	1,409.0	7,108.7	2.06	-0.79	-1.90
14,964.0	90.40	161.50	7,513.4	6,054.4	-7,029.1	1,429.6	7,171.3	2.07	1.11	1.75
15,028.0	90.50	162.20	7,512.9	6,053.9	-7,089.9	1,449.5	7,235.0	1.10	0.16	1.09
15,091.0	90.70	162.20	7,512.2	6,053.2	-7,149.9	1,468.8	7,297.8	0.32	0.32	0.00
15,154.0	90.80	162.80	7,511.4	6,052.4	-7,210.0	1,487.7	7,360.5	0.97	0.16	0.95
15,218.0	90.00	163.00	7,510.9	6,051.9	-7,271.1	1,506.5	7,424.4	1.29	-1.25	0.31
15,281.0	89.90	162.90	7,511.0	6,052.0	-7,331.4	1,525.0	7,487.2	0.22	-0.16	-0.16
15,344.0	90.00	162.40	7,511.1	6,052.1	-7,391.5	1,543.8	7,550.0	0.81	0.16	0.79
15,407.0	90.20	162.50	7,510.9	6,051.9	-7,451.6	1,562.8	7,612.7	0.25	0.32	0.16
15,471.0	90.20	162.50	7,510.7	6,051.7	-7,512.6	1,582.0	7,676.5	0.00	0.00	0.00
15,534.0	90.00	162.40	7,510.8	6,051.6	-7,572.7	1,601.0	7,739.2	0.35	-0.32	-0.16
15,597.0	89.60	162.70	7,510.8	6,051.8	-7,632.8	1,619.9	7,802.1	0.83	0.48	0.48
15,659.0	89.50	162.90	7,511.3	6,052.3	-7,692.0	1,638.2	7,863.9	0.36	-0.16	0.16
15,722.0	89.70	163.00	7,511.8	6,052.8	-7,752.2	1,656.7	7,926.7	0.99	0.32	0.16

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Environmental Protection



Phoenix Technology Services
Survey Report



Where accuracy counts (tmh.com)

Database:	1676001 Survey Data TX	Local Co-ordinate Reference:	1676001 Survey 11/15/14
Company:	EQT Production - International	TVD Reference:	1676001 Survey
Project:	Wells, County, WY	MD Reference:	1676001 Survey
Site:	Wells County, WY	North Reference:	1676001 Survey
Well:	1676001	Survey Calculation Method:	Minimum Variance
Wellbore:	1676001		
Design:	1676001		

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)
15,785.0	89.60	163.00	7,512.1	6,053.1	-7,812.5	1,675.1	7,989.5	0.16	-0.16	0.00
15,848.0	89.30	162.80	7,512.7	6,053.7	-7,872.7	1,693.7	8,052.4	0.57	-0.48	-0.32
15,911.0	89.40	162.50	7,513.5	6,054.5	-7,932.8	1,712.4	8,115.1	0.50	0.16	-0.48
15,975.0	88.90	161.90	7,514.4	6,055.4	-7,993.7	1,732.0	8,178.9	1.22	-0.78	-0.94
16,038.0	88.80	161.90	7,515.8	6,056.8	-8,053.6	1,751.6	8,241.6	0.48	-0.48	0.00
16,101.0	88.20	161.60	7,517.5	6,058.5	-8,113.4	1,771.3	8,304.3	0.79	-0.63	-0.48
16,164.0	88.20	161.70	7,519.5	6,060.5	-8,173.2	1,791.1	8,366.9	0.16	0.00	0.16
16,227.0	89.20	161.00	7,521.0	6,062.0	-8,232.8	1,811.3	8,429.6	1.94	1.59	-1.11
16,291.0	90.10	160.40	7,521.3	6,062.3	-8,293.2	1,832.4	8,493.2	1.69	1.41	-0.94
16,354.0	89.90	159.90	7,521.3	6,062.3	-8,352.5	1,853.8	8,555.7	0.85	-0.32	-0.79
16,417.0	89.80	160.40	7,521.5	6,062.5	-8,411.8	1,875.2	8,618.2	0.81	-0.16	0.79
16,481.0	89.50	160.00	7,521.9	6,062.9	-8,472.0	1,896.9	8,681.7	0.78	-0.47	-0.63
16,544.0	88.90	160.00	7,522.8	6,063.8	-8,531.2	1,918.4	8,744.2	0.95	-0.95	0.00
16,607.0	89.10	160.70	7,523.9	6,064.9	-8,590.5	1,939.6	8,806.7	1.16	0.32	1.11
16,670.0	89.50	161.40	7,524.7	6,065.7	-8,650.1	1,960.1	8,869.4	1.28	0.63	1.11
16,707.0	89.60	161.70	7,524.9	6,065.9	-8,685.2	1,971.8	8,906.2	0.85	0.27	0.81
16,760.0	89.60	161.70	7,525.3	6,066.3	-8,735.5	1,988.4	8,958.9	0.00	0.00	0.00

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,900.0	4,899.7	39.1	-14.6	Gyro Tie In=4900' MD
8,067.0	7,439.3	-474.5	-707.3	LP=8067' MD/ 7439' TVD
16,707.0	7,524.9	-8,685.2	1,971.8	Final Survey=16707' MD/ 7525' TVD
16,760.0	7,525.3	-8,735.5	1,988.4	Projection to TD=16760' MD/7525' TVD

Checked By: _____ Approved By: _____ Date: _____



EQT Production - Geneseo Shale

Project: Wetzel County, WV
Site: Wetzel County 514568
Well: Well #514568
Wellbore: 514568 ST01
Design: 514568 ST01 AS Drilled

