

97-03813

PHOENIX
TECHNOLOGY SERVICES



EQT Production - Marcellus

Upshur County, WV
Upshur County 511416
Well #511416

Main Wellbore

Design: As Drilled Surveys

Standard Survey Report

10 April, 2014

Received
Office of Oil & Gas
AUG 26 2014



09/19/2014

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Upshur County 511416
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1588.0usft
Project:	Upshur County, WV	MD Reference:	KB @ 1588.0usft
Site:	Upshur County 511416	North Reference:	Grid
Well:	Well #511416	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	As Drilled Surveys		

Project Upshur County, WV

Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia South 4702		Using geodetic scale factor

Site Upshur County 511416

Site Position:		Northing:	724,947.31 usft	Latitude:	38.99
From:	Map	Easting:	2,199,950.60 usft	Longitude:	-80.30
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.43 °

Well Well #511416

Well Position	+N/-S	0.0 usft	Northing:	724,947.31 usft	Latitude:	38° 59' 19.434 N
	+E/-W	0.0 usft	Easting:	2,199,950.60 usft	Longitude:	80° 17' 47.762 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,572.0 usft

Wellbore Main Wellbore

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	3/14/2014	-8.73	66.54	52,110

Design As Drilled Surveys

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	340.00

Survey Program Date 4/10/2014

From (')	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	6,900.0	511416 VES Gyro (Main Wellbore)	GyroFlex	
0.00	15,327.0	511416 MWD (Main Wellbore)	MWD	MWD - Standard

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	-1,588.0	0.0	0.0	0.0	0.00	0.00	0.00
25.0	0.37	225.89	25.0	-1,563.0	-0.1	-0.1	0.0	1.48	1.48	0.00
50.0	0.12	219.47	50.0	-1,538.0	-0.1	-0.1	-0.1	1.00	-1.00	-25.68
75.0	0.11	222.89	75.0	-1,513.0	-0.2	-0.2	-0.1	0.05	-0.04	13.68
100.0	0.14	164.16	100.0	-1,488.0	-0.2	-0.2	-0.1	0.50	0.12	-234.92
125.0	0.13	168.05	125.0	-1,463.0	-0.3	-0.2	-0.2	0.05	-0.04	15.56
150.0	0.12	172.14	150.0	-1,438.0	-0.3	-0.1	-0.3	0.15	0.00	16.36
175.0	0.08	180.56	175.0	-1,413.0	-0.4	-0.1	-0.3	0.17	-0.16	33.68

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Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Upshur County 511416
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1588.0usft
Project:	Upshur County, WV	MD Reference:	KB @ 1588.0usft
Site:	Upshur County 511416	North Reference:	GAG
Well:	Well #511416	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	As Drilled Surveys		

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)
200.0	0.15	190.72	200.0	-1,388.0	-0.4	-0.2	-0.3	0.29	0.28	40.64
225.0	0.26	178.70	225.0	-1,363.0	-0.5	-0.2	-0.4	0.47	0.44	-48.08
250.0	0.24	175.83	250.0	-1,338.0	-0.6	-0.2	-0.5	0.09	-0.08	-11.48
275.0	0.15	171.18	275.0	-1,313.0	-0.7	-0.1	-0.6	0.37	-0.36	-18.60
300.0	0.15	173.65	300.0	-1,288.0	-0.8	-0.1	-0.7	0.03	0.00	9.88
325.0	0.13	175.08	325.0	-1,263.0	-0.8	-0.1	-0.7	0.08	-0.08	5.72
350.0	0.25	177.35	350.0	-1,238.0	-0.9	-0.1	-0.8	0.48	0.48	9.08
375.0	0.23	178.98	375.0	-1,213.0	-1.0	-0.1	-0.9	0.08	-0.08	6.52
400.0	0.22	178.22	400.0	-1,188.0	-1.1	-0.1	-1.0	0.04	-0.04	-3.04
425.0	0.35	180.79	425.0	-1,163.0	-1.2	-0.1	-1.1	0.52	0.52	10.28
450.0	0.29	182.88	450.0	-1,138.0	-1.4	-0.1	-1.3	0.24	-0.24	8.36
475.0	0.28	183.56	475.0	-1,113.0	-1.5	-0.1	-1.4	0.04	-0.04	2.72
500.0	0.17	185.05	500.0	-1,088.0	-1.6	-0.1	-1.5	0.44	-0.44	5.96
525.0	0.19	187.41	525.0	-1,063.0	-1.7	-0.1	-1.5	0.09	0.08	9.44
550.0	0.11	193.74	550.0	-1,038.0	-1.7	-0.2	-1.6	0.33	-0.32	25.32
575.0	0.07	195.43	575.0	-1,013.0	-1.8	-0.2	-1.6	0.16	-0.16	6.76
600.0	0.06	197.43	600.0	-988.0	-1.8	-0.2	-1.6	0.04	-0.04	8.00
625.0	0.08	188.22	625.0	-963.0	-1.8	-0.2	-1.7	0.09	0.08	-36.84
650.0	0.09	183.81	650.0	-938.0	-1.9	-0.2	-1.7	0.05	0.04	-17.64
675.0	0.11	180.64	675.0	-913.0	-1.9	-0.2	-1.7	0.08	0.08	-12.68
700.0	0.14	185.07	700.0	-888.0	-2.0	-0.2	-1.8	0.13	0.12	17.72
725.0	0.23	180.32	725.0	-863.0	-2.1	-0.2	-1.9	0.36	0.36	-19.00
750.0	0.29	177.77	750.0	-838.0	-2.2	-0.2	-2.0	0.24	0.24	-10.20
775.0	0.29	175.52	775.0	-813.0	-2.3	-0.2	-2.1	0.05	0.00	-9.00
800.0	0.43	176.85	800.0	-788.0	-2.4	-0.2	-2.2	0.56	0.56	5.32
825.0	0.47	176.76	825.0	-763.0	-2.6	-0.2	-2.4	0.16	0.16	-0.36
850.0	0.44	173.35	850.0	-738.0	-2.8	-0.1	-2.6	0.16	-0.12	-13.64
875.0	0.30	169.30	875.0	-713.0	-3.0	-0.1	-2.8	0.57	-0.56	-16.20
900.0	0.28	170.57	900.0	-688.0	-3.1	-0.1	-2.9	0.08	-0.08	5.08
925.0	0.39	167.29	925.0	-663.0	-3.3	-0.1	-3.1	0.45	0.44	-13.12
950.0	0.43	162.65	950.0	-638.0	-3.4	0.0	-3.2	0.21	0.16	-18.56
975.0	0.20	152.12	975.0	-613.0	-3.6	0.0	-3.4	0.94	-0.92	-42.12
1,000.0	0.27	156.60	1,000.0	-588.0	-3.7	0.1	-3.5	0.29	0.28	17.92
1,025.0	0.21	144.83	1,025.0	-563.0	-3.8	0.1	-3.6	0.31	-0.24	-47.08
1,050.0	0.21	143.95	1,050.0	-538.0	-3.8	0.2	-3.7	0.01	0.00	-3.52
1,075.0	0.31	144.62	1,075.0	-513.0	-3.9	0.2	-3.8	0.40	0.40	2.68
1,100.0	0.20	146.36	1,100.0	-488.0	-4.0	0.3	-3.9	0.44	-0.44	6.96
1,125.0	0.32	126.09	1,125.0	-463.0	-4.1	0.4	-4.0	0.60	0.48	-81.08
1,150.0	0.24	129.94	1,150.0	-438.0	-4.2	0.5	-4.1	0.33	-0.32	15.40
1,175.0	0.29	135.85	1,175.0	-413.0	-4.2	0.6	-4.2	0.23	0.20	23.64
1,200.0	0.29	123.45	1,200.0	-388.0	-4.3	0.7	-4.3	0.25	0.00	-49.60
1,225.0	0.35	176.30	1,225.0	-363.0	-4.4	0.7	-4.4	1.16	0.24	211.40

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Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Upshur County 511418
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1588 Gusht
Project:	Upshur County, WV	MD Reference:	KB @ 1588 Gusht
Site:	Upshur County 511418	North Reference:	Grid
Well:	Well #511418	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	A&D Drilled Surveys		

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)	
1,250.0	0.25	122.90	1,250.0	-338.0	-4.5	0.8	-4.5	1.14	-0.40	-213.60	
1,275.0	0.26	123.89	1,275.0	-313.0	-4.6	0.9	-4.6	0.04	0.04	3.96	
1,300.0	0.23	109.03	1,300.0	-288.0	-4.7	1.0	-4.7	0.28	-0.12	-59.44	
1,325.0	0.18	98.35	1,325.0	-263.0	-4.7	1.0	-4.7	0.25	-0.20	-42.72	
1,350.0	0.17	98.21	1,350.0	-238.0	-4.7	1.1	-4.8	0.04	-0.04	-0.56	
1,375.0	0.18	109.06	1,375.0	-213.0	-4.7	1.2	-4.8	0.14	0.04	43.40	
1,400.0	0.15	100.90	1,400.0	-188.0	-4.7	1.3	-4.9	0.15	-0.12	-32.64	
1,425.0	0.18	93.60	1,425.0	-163.0	-4.7	1.3	-4.9	0.15	0.12	-29.20	
1,450.0	0.13	94.05	1,450.0	-138.0	-4.7	1.4	-4.9	0.20	-0.20	1.80	
1,475.0	0.05	90.61	1,475.0	-113.0	-4.7	1.4	-4.9	0.32	-0.32	-13.76	
1,500.0	0.08	84.36	1,500.0	-88.0	-4.7	1.5	-5.0	0.12	0.12	-25.00	
1,525.0	0.15	84.00	1,525.0	-63.0	-4.7	1.5	-5.0	0.28	0.28	-1.44	
1,550.0	0.21	85.25	1,550.0	-38.0	-4.7	1.6	-5.0	0.24	0.24	5.00	
1,575.0	0.12	88.40	1,575.0	-13.0	-4.7	1.7	-5.0	0.36	-0.36	12.60	
1,600.0	0.23	88.66	1,600.0	12.0	-4.7	1.7	-5.0	0.44	0.44	1.04	
1,625.0	0.10	82.75	1,625.0	37.0	-4.7	1.8	-5.0	0.52	-0.52	-23.64	
1,650.0	0.13	86.49	1,650.0	62.0	-4.7	1.9	-5.1	0.12	0.12	14.96	
1,675.0	0.10	87.96	1,675.0	87.0	-4.7	1.9	-5.1	0.12	-0.12	5.88	
1,700.0	0.03	92.15	1,700.0	112.0	-4.7	1.9	-5.1	0.28	-0.28	16.76	
1,725.0	0.18	111.59	1,725.0	137.0	-4.7	2.0	-5.1	0.61	0.60	77.76	
1,750.0	0.21	116.84	1,750.0	162.0	-4.8	2.1	-5.2	0.14	0.12	21.00	
1,775.0	0.10	115.20	1,775.0	187.0	-4.8	2.1	-5.2	0.44	-0.44	-6.56	
1,800.0	0.02	119.07	1,800.0	212.0	-4.8	2.1	-5.2	0.32	-0.32	15.48	
1,825.0	0.13	97.23	1,825.0	237.0	-4.8	2.2	-5.3	0.45	0.44	-87.36	
1,850.0	0.11	93.20	1,850.0	262.0	-4.8	2.2	-5.3	0.09	-0.08	-16.12	
1,875.0	0.05	111.15	1,875.0	287.0	-4.8	2.3	-5.3	0.26	-0.24	71.80	
1,900.0	0.16	122.65	1,900.0	312.0	-4.8	2.3	-5.3	0.45	0.44	46.00	
1,925.0	0.11	123.88	1,925.0	337.0	-4.9	2.4	-5.4	0.20	-0.20	4.92	
1,950.0	0.11	126.44	1,950.0	362.0	-4.9	2.4	-5.4	0.02	0.00	10.24	
1,975.0	0.12	128.68	1,975.0	387.0	-4.9	2.4	-5.5	0.04	0.04	6.96	
2,000.0	0.16	133.02	2,000.0	412.0	-5.0	2.5	-5.5	0.17	0.16	17.36	
2,025.0	0.22	135.07	2,025.0	437.0	-5.0	2.5	-5.6	0.24	0.24	8.20	
2,050.0	0.20	136.20	2,050.0	462.0	-5.1	2.6	-5.7	0.08	-0.08	4.52	
2,075.0	0.25	137.39	2,075.0	487.0	-5.2	2.7	-5.8	0.20	0.20	4.76	
2,100.0	0.10	136.29	2,100.0	512.0	-5.2	2.7	-5.8	0.60	-0.60	-4.40	
2,125.0	0.23	130.17	2,125.0	537.0	-5.3	2.8	-5.9	0.52	0.52	-24.48	
2,150.0	0.34	134.21	2,150.0	562.0	-5.3	2.9	-6.0	0.45	0.44	16.16	
2,175.0	0.19	132.23	2,175.0	587.0	-5.4	3.0	-6.1	0.60	-0.60	-7.92	
2,200.0	0.22	136.08	2,200.0	612.0	-5.5	3.0	-6.2	0.13	0.12	15.40	
2,225.0	0.22	134.08	2,225.0	637.0	-5.6	3.1	-6.3	0.03	0.00	-8.00	
2,250.0	0.20	135.43	2,250.0	662.0	-5.6	3.1	-6.4	0.08	-0.08	5.40	
2,275.0	0.42	134.50	2,275.0	687.0	-5.7	3.2	-6.5	0.88	0.88	-3.72	
2,300.0	0.22	136.32	2,300.0	712.0	-5.8	3.3	-6.6	0.80	0.80	7.28	

Received
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AUG 26 2014



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Phoenix Technology Services

Survey Report



Database:	EDM 5000 Single User Db	Local Co-ordinate Reference:	Site Upshur County 511415
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1568.0usft
Project:	Upshur County, WV	MD Reference:	KB @ 1588.0usft
Site:	Upshur County 511415	North Reference:	Grid
Well:	Well #511415	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	As Drilled Surveys		

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)
2,325.0	0.23	131.73	2,325.0	737.0	-5.9	3.4	-6.7	0.08	0.04	-18.36
2,350.0	0.31	132.45	2,350.0	762.0	-6.0	3.5	-6.8	0.32	0.32	2.88
2,375.0	0.36	135.68	2,375.0	787.0	-6.1	3.6	-6.9	0.21	0.20	12.92
2,400.0	0.14	135.27	2,400.0	812.0	-6.1	3.7	-7.0	0.88	-0.68	-1.64
2,425.0	0.28	131.88	2,425.0	837.0	-6.2	3.7	-7.1	0.56	0.56	-13.56
2,450.0	0.14	134.17	2,450.0	862.0	-6.3	3.8	-7.2	0.56	-0.56	9.16
2,475.0	0.17	131.92	2,475.0	887.0	-6.3	3.9	-7.3	0.12	0.12	-9.00
2,500.0	0.25	134.64	2,500.0	912.0	-6.4	3.9	-7.3	0.32	0.32	10.88
2,525.0	0.25	137.52	2,525.0	937.0	-6.5	4.0	-7.4	0.05	0.00	11.52
2,550.0	0.21	134.33	2,550.0	962.0	-6.5	4.1	-7.5	0.17	-0.16	-12.76
2,575.0	0.11	136.00	2,575.0	987.0	-6.6	4.1	-7.6	0.40	-0.40	6.68
2,600.0	0.23	138.45	2,600.0	1,012.0	-6.6	4.2	-7.7	0.48	0.48	9.80
2,625.0	0.24	135.57	2,625.0	1,037.0	-6.7	4.2	-7.8	0.06	0.04	-11.52
2,650.0	0.37	142.54	2,650.0	1,062.0	-6.8	4.3	-7.9	0.54	0.52	27.88
2,675.0	0.24	139.89	2,675.0	1,087.0	-6.9	4.4	-8.0	0.52	-0.52	-10.60
2,700.0	0.20	135.22	2,700.0	1,112.0	-7.0	4.5	-8.1	0.18	-0.16	-18.68
2,725.0	0.31	133.80	2,725.0	1,137.0	-7.1	4.6	-8.2	0.44	0.44	-5.68
2,750.0	0.39	138.20	2,750.0	1,162.0	-7.2	4.7	-8.3	0.34	0.32	17.60
2,775.0	0.26	139.29	2,775.0	1,187.0	-7.3	4.8	-8.5	0.52	-0.52	4.36
2,800.0	0.14	140.20	2,800.0	1,212.0	-7.3	4.8	-8.5	0.48	-0.48	3.64
2,825.0	0.17	144.51	2,825.0	1,237.0	-7.4	4.9	-8.6	0.13	0.12	17.24
2,850.0	0.23	143.16	2,850.0	1,262.0	-7.5	4.9	-8.7	0.24	0.24	-5.40
2,875.0	0.41	156.22	2,875.0	1,287.0	-7.6	5.0	-8.8	0.77	0.72	52.24
2,900.0	0.26	154.63	2,900.0	1,312.0	-7.7	5.0	-9.0	0.60	-0.60	-6.36
2,925.0	0.14	142.35	2,925.0	1,337.0	-7.8	5.1	-9.1	0.51	-0.48	-49.12
2,950.0	0.21	141.41	2,950.0	1,362.0	-7.9	5.1	-9.1	0.28	0.28	-3.76
2,975.0	0.24	141.34	2,975.0	1,387.0	-7.9	5.2	-9.2	0.12	0.12	-0.28
3,000.0	0.34	135.06	3,000.0	1,412.0	-8.0	5.3	-9.3	0.42	0.40	-25.12
3,025.0	0.15	143.86	3,025.0	1,437.0	-8.1	5.3	-9.4	0.77	-0.76	35.20
3,050.0	0.11	144.54	3,050.0	1,462.0	-8.2	5.4	-9.5	0.16	-0.16	2.72
3,075.0	0.14	140.76	3,075.0	1,487.0	-8.2	5.4	-9.6	0.12	0.12	-15.12
3,100.0	0.25	166.00	3,100.0	1,512.0	-8.3	5.4	-9.6	0.55	0.44	100.96
3,125.0	0.28	164.04	3,125.0	1,537.0	-8.4	5.5	-9.8	0.13	0.12	-7.84
3,150.0	0.25	165.20	3,150.0	1,562.0	-8.5	5.5	-9.9	0.12	-0.12	4.64
3,175.0	0.26	167.17	3,175.0	1,587.0	-8.6	5.5	-10.0	0.05	0.04	7.88
3,200.0	0.37	168.67	3,200.0	1,612.0	-8.7	5.6	-10.1	0.44	0.44	6.00
3,225.0	0.47	162.08	3,225.0	1,637.0	-8.9	5.6	-10.3	0.44	0.40	-26.36
3,250.0	0.56	172.20	3,250.0	1,662.0	-9.1	5.7	-10.5	0.51	0.36	40.48
3,275.0	0.42	173.86	3,275.0	1,687.0	-9.3	5.7	-10.7	0.56	-0.56	6.64
3,300.0	0.39	170.80	3,300.0	1,712.0	-9.5	5.7	-10.9	0.15	-0.12	-12.24
3,325.0	0.33	185.47	3,325.0	1,737.0	-9.7	5.7	-11.0	0.44	-0.24	58.68
3,350.0	0.84	183.24	3,350.0	1,762.0	-9.9	5.7	-11.3	2.04	2.04	-8.92

Received
Office of Oil & Gas

AUG 26 2014

09/19/2014

Database:	EDM 5000.1 Single User DB	Local Co-ordinate Reference:	Site Upshur County 511416
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1588.0usft
Project:	Upshur County, WV	MD Reference:	KB @ 1588.0usft
Site:	Upshur County 511416	North Reference:	Grid
Well:	Well #511416	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	As Drilled Surveys		

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)	
3,375.0	0.43	192.40	3,375.0	1,787.0	-10.2	5.7	-11.5	1.68	-1.64	36.64	
3,400.0	0.38	193.25	3,400.0	1,812.0	-10.4	5.6	-11.7	0.20	-0.20	3.40	
3,425.0	0.36	190.06	3,425.0	1,837.0	-10.5	5.6	-11.8	0.11	-0.08	-12.76	
3,450.0	0.30	189.68	3,450.0	1,862.0	-10.7	5.6	-11.9	0.24	-0.24	-1.52	
3,475.0	0.31	190.70	3,475.0	1,887.0	-10.8	5.5	-12.1	0.05	0.04	4.08	
3,500.0	0.23	192.82	3,500.0	1,912.0	-10.9	5.5	-12.2	0.32	-0.32	8.48	
3,525.0	0.09	194.98	3,525.0	1,937.0	-11.0	5.5	-12.2	0.58	-0.56	8.64	
3,550.0	0.29	189.64	3,550.0	1,962.0	-11.1	5.5	-12.3	0.80	0.80	-21.36	
3,575.0	0.29	188.35	3,575.0	1,987.0	-11.2	5.5	-12.4	0.03	0.00	-5.16	
3,600.0	0.62	100.09	3,600.0	2,012.0	-11.3	5.6	-12.5	2.71	1.32	-353.04	
3,625.0	1.03	103.27	3,625.0	2,037.0	-11.4	5.9	-12.7	1.65	1.64	12.72	
3,650.0	1.33	104.67	3,650.0	2,062.0	-11.5	6.4	-13.0	1.21	1.20	5.60	
3,675.0	1.34	103.85	3,675.0	2,087.0	-11.6	7.0	-13.3	0.09	0.04	-3.28	
3,700.0	1.28	113.32	3,699.9	2,111.9	-11.8	7.5	-13.7	0.90	-0.24	37.88	
3,725.0	1.39	114.44	3,724.9	2,136.9	-12.0	8.1	-14.1	0.45	0.44	4.48	
3,750.0	1.54	130.52	3,749.9	2,161.9	-12.4	8.6	-14.6	1.74	0.60	64.32	
3,760.0	1.64	127.53	3,759.9	2,171.9	-12.6	8.8	-14.8	1.30	1.00	-29.90	
3,775.0	1.41	128.32	3,774.9	2,186.9	-12.8	9.1	-15.2	1.54	-1.53	5.27	
3,800.0	1.48	131.03	3,799.9	2,211.9	-13.2	9.6	-15.7	0.39	0.28	10.84	
3,825.0	1.69	134.54	3,824.9	2,236.9	-13.7	10.1	-16.3	0.93	0.84	14.04	
3,850.0	1.48	133.99	3,849.9	2,261.9	-14.2	10.6	-16.9	0.84	-0.84	-2.20	
3,875.0	1.62	138.85	3,874.9	2,286.9	-14.7	11.1	-17.6	0.77	0.56	19.44	
3,900.0	1.64	139.59	3,899.9	2,311.9	-15.2	11.6	-18.2	0.12	0.08	2.96	
3,925.0	1.66	138.83	3,924.9	2,336.9	-15.7	12.0	-18.9	0.12	0.08	-3.04	
3,950.0	1.77	137.13	3,949.9	2,361.9	-16.3	12.5	-19.6	0.48	0.44	-6.80	
3,975.0	1.61	135.79	3,974.8	2,386.8	-16.8	13.0	-20.3	0.66	-0.64	-5.36	
4,000.0	1.53	138.37	3,999.8	2,411.8	-17.3	13.5	-20.9	0.43	-0.32	10.32	
4,025.0	1.62	139.68	4,024.8	2,436.8	-17.9	14.0	-21.5	0.39	0.36	5.24	
4,050.0	1.74	140.12	4,049.8	2,461.8	-18.4	14.4	-22.2	0.48	0.46	1.76	
4,075.0	1.64	134.87	4,074.8	2,486.8	-19.0	14.9	-22.9	0.74	-0.40	-21.00	
4,100.0	1.69	136.46	4,099.8	2,511.8	-19.5	15.4	-23.6	0.27	0.20	6.36	
4,125.0	1.49	136.17	4,124.8	2,536.8	-20.0	15.9	-24.2	0.80	-0.80	-1.16	
4,150.0	1.71	131.83	4,149.8	2,561.8	-20.5	16.4	-24.8	1.00	0.88	-17.36	
4,175.0	1.71	129.59	4,174.8	2,586.8	-20.9	17.0	-25.5	0.27	0.00	-8.96	
4,200.0	1.65	130.62	4,199.7	2,611.7	-21.4	17.5	-26.1	0.27	-0.24	4.12	
4,225.0	1.80	131.61	4,224.7	2,636.7	-21.9	18.1	-26.8	0.61	0.60	3.96	
4,250.0	1.64	132.96	4,249.7	2,661.7	-22.4	18.7	-27.4	0.66	-0.64	5.40	
4,275.0	1.90	128.89	4,274.7	2,686.7	-22.9	19.2	-28.1	1.15	1.04	-16.28	
4,300.0	2.07	127.01	4,299.7	2,711.7	-23.5	19.9	-28.9	0.73	0.68	-7.52	
4,325.0	2.01	117.93	4,324.7	2,736.7	-23.9	20.7	-29.6	1.31	-0.24	-36.32	
4,350.0	2.20	117.18	4,349.7	2,761.7	-24.4	21.5	-30.2	0.77	0.76	-3.00	
4,375.0	2.23	116.90	4,374.6	2,786.6	-24.8	22.3	-30.9	0.13	0.12	-1.12	
4,400.0	2.16	110.21	4,399.6	2,811.6	-25.2	23.2	-31.6	1.06	-0.28	-26.76	

Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site Upshur County 511418
Company:	EQT Production - Miscoullis	TVD Reference:	KB @ 1588 Just
Project:	Upshur County, WV	MD Reference:	KB @ 1588 Just
Site:	Upshur County 511418	North Reference:	Grid
Well:	Well #511418	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	As Drilled Surveys		

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)
4,425.0	2.14	110.57	4,424.6	2,836.6	-25.5	24.1	-32.2	0.10	-0.08	1.44
4,450.0	2.11	109.59	4,449.6	2,861.6	-25.8	25.0	-32.8	0.19	-0.12	-3.92
4,475.0	2.20	113.86	4,474.6	2,886.6	-26.2	25.8	-33.4	0.74	0.36	17.08
4,500.0	2.05	118.05	4,499.6	2,911.6	-26.6	26.7	-34.1	0.86	-0.60	16.76
4,525.0	2.22	118.32	4,524.5	2,936.5	-27.0	27.5	-34.8	0.68	0.68	1.08
4,550.0	2.28	115.58	4,549.5	2,961.5	-27.5	28.4	-35.5	0.49	0.24	-10.96
4,575.0	1.73	120.38	4,574.5	2,986.5	-27.9	29.2	-36.2	2.30	-2.20	19.20
4,600.0	1.93	124.13	4,599.5	3,011.5	-28.3	29.8	-36.8	0.93	0.80	15.00
4,625.0	2.19	119.68	4,624.5	3,036.5	-28.8	30.6	-37.5	1.22	1.04	-17.80
4,650.0	1.84	122.11	4,649.5	3,061.5	-29.2	31.3	-38.2	1.44	-1.40	9.72
4,675.0	2.30	111.00	4,674.4	3,086.4	-29.6	32.2	-38.8	2.43	1.84	-44.44
4,700.0	2.48	114.30	4,699.4	3,111.4	-30.0	33.1	-39.5	0.91	0.72	13.20
4,725.0	2.00	121.35	4,724.4	3,136.4	-30.5	34.0	-40.2	2.21	-1.92	28.20
4,750.0	2.09	121.31	4,749.4	3,161.4	-30.9	34.7	-40.9	0.36	0.36	-0.16
4,775.0	2.65	117.63	4,774.4	3,186.4	-31.4	35.6	-41.7	2.32	2.24	-14.72
4,800.0	2.12	120.34	4,799.3	3,211.3	-31.9	36.6	-42.5	2.17	-2.12	10.84
4,825.0	2.48	115.84	4,824.3	3,236.3	-32.4	37.4	-43.2	1.61	1.44	-18.00
4,850.0	2.10	118.79	4,849.3	3,261.3	-32.9	38.3	-44.0	1.59	-1.52	11.80
4,875.0	1.91	112.63	4,874.3	3,286.3	-33.2	39.1	-44.6	1.15	-0.76	-24.64
4,900.0	1.81	117.46	4,899.3	3,311.3	-33.6	39.8	-45.2	0.74	-0.40	19.32
4,925.0	2.13	109.84	4,924.3	3,336.3	-33.9	40.6	-45.8	1.65	1.28	-30.48
4,950.0	1.96	110.73	4,949.2	3,361.2	-34.2	41.5	-46.3	0.69	-0.68	3.56
4,975.0	1.77	110.02	4,974.2	3,386.2	-34.5	42.2	-46.9	0.77	-0.76	-2.84
5,000.0	2.01	106.62	4,999.2	3,411.2	-34.8	43.0	-47.4	1.06	0.96	-13.60
5,025.0	1.67	109.30	5,024.2	3,436.2	-35.0	43.8	-47.9	1.40	-1.36	10.72
5,050.0	1.96	114.02	5,049.2	3,461.2	-35.3	44.5	-48.4	1.30	1.16	18.88
5,075.0	2.20	118.69	5,074.2	3,486.2	-35.7	45.3	-49.1	1.17	0.96	18.68
5,100.0	1.91	119.53	5,099.2	3,511.2	-36.1	46.1	-49.7	1.17	-1.16	3.36
5,125.0	2.42	105.10	5,124.1	3,536.1	-36.5	47.0	-50.4	2.97	2.04	-57.72
5,150.0	2.29	108.55	5,149.1	3,561.1	-36.8	48.0	-51.0	0.77	-0.52	13.80
5,175.0	2.16	111.11	5,174.1	3,586.1	-37.1	48.9	-51.6	0.65	-0.52	10.24
5,200.0	1.81	105.43	5,199.1	3,611.1	-37.4	49.7	-52.1	1.60	-1.40	-22.72
5,225.0	1.40	96.90	5,224.1	3,636.1	-37.5	50.4	-52.5	1.89	-1.64	-34.12
5,250.0	1.59	97.20	5,249.1	3,661.1	-37.6	51.0	-52.8	0.76	0.76	1.20
5,275.0	0.92	108.54	5,274.1	3,686.1	-37.7	51.6	-53.1	2.85	-2.68	45.36
5,300.0	0.82	105.22	5,299.1	3,711.1	-37.8	51.9	-53.3	0.45	-0.40	-13.28
5,325.0	1.44	96.82	5,324.1	3,736.1	-37.9	52.4	-53.6	2.56	2.48	-33.60
5,350.0	1.25	90.84	5,349.1	3,761.1	-38.0	53.0	-53.8	0.94	-0.76	-23.92
5,375.0	1.64	93.42	5,374.0	3,786.0	-38.0	53.6	-54.0	1.58	1.56	10.32
5,400.0	1.80	105.53	5,399.0	3,811.0	-38.1	54.4	-54.4	1.58	0.64	48.44
5,425.0	2.20	99.83	5,424.0	3,836.0	-38.3	55.2	-54.8	1.79	1.60	-22.80
5,450.0	2.11	86.37	5,449.0	3,861.0	-38.3	56.1	-55.2	2.05	-0.36	-53.84

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)
5,475.0	2.30	90.12	5,474.0	3,886.0	-38.3	57.1	-55.5	0.95	0.76	15.00
5,500.0	2.67	95.63	5,499.0	3,911.0	-38.4	58.2	-56.0	1.43	1.08	22.04
5,525.0	2.96	81.09	5,523.9	3,935.9	-38.3	59.4	-56.3	3.20	1.56	-58.16
5,600.0	3.27	90.61	5,598.8	4,010.8	-38.1	63.4	-57.4	0.80	0.41	12.69
5,700.0	2.82	103.45	5,698.7	4,110.7	-38.7	68.7	-59.9	0.77	-0.35	12.84
5,800.0	2.83	109.84	5,798.5	4,210.5	-40.1	73.5	-62.8	0.33	-0.09	6.39
5,900.0	2.43	111.75	5,898.4	4,310.4	-41.7	77.8	-65.8	0.41	-0.40	1.91
6,000.0	2.51	119.28	5,998.3	4,410.3	-43.6	81.7	-68.9	0.33	0.08	7.53
6,100.0	2.66	127.00	6,098.2	4,510.2	-46.1	85.5	-72.5	0.38	0.15	7.72
6,200.0	2.27	133.29	6,198.2	4,610.2	-48.8	88.8	-76.2	0.47	-0.39	6.29
6,300.0	2.19	130.20	6,298.1	4,710.1	-51.4	91.7	-79.7	0.14	-0.08	-3.09
6,400.0	2.10	126.15	6,398.0	4,810.0	-53.7	94.6	-82.8	0.18	-0.09	-4.05
6,500.0	2.38	111.17	6,497.9	4,909.9	-55.5	98.0	-85.7	0.65	0.28	-14.98
6,600.0	2.79	104.98	6,597.8	5,009.8	-56.9	102.3	-88.5	0.50	0.41	-6.19
6,700.0	4.18	92.18	6,697.6	5,109.6	-57.7	108.3	-91.3	1.58	1.39	-12.80
6,800.0	5.53	93.50	6,797.3	5,209.3	-58.1	116.8	-94.5	1.35	1.35	1.32
Gyro Tie In=500' MD										
6,900.0	6.11	95.23	6,896.8	5,308.8	-58.9	126.9	-98.7	0.61	0.58	1.73
KOP=4915' MD										
6,915.0	5.80	75.30	6,911.7	5,323.7	-58.8	128.4	-99.1	13.87	-2.07	-132.87
6,941.0	7.30	53.10	6,937.5	5,349.5	-57.5	131.0	-98.8	11.21	5.77	-85.38
6,946.0	7.90	49.00	6,942.5	5,354.5	-57.0	131.5	-98.6	16.17	12.00	-82.00
6,977.0	9.20	59.80	6,973.1	5,385.1	-54.4	135.2	-97.4	6.65	4.19	34.84
7,009.0	13.50	71.40	7,004.5	5,416.5	-51.9	141.0	-97.0	15.15	13.44	36.25
7,040.0	16.70	61.40	7,034.5	5,446.5	-48.8	148.1	-96.5	10.77	7.10	-32.26
7,072.0	16.30	44.00	7,065.3	5,477.3	-43.5	155.0	-93.9	15.05	1.88	-54.38
7,103.0	18.40	31.10	7,094.9	5,506.9	-36.1	160.6	-88.9	14.10	6.77	-41.61
7,135.0	19.60	21.60	7,126.2	5,537.2	-26.8	165.2	-81.7	10.35	3.75	-29.69
7,166.0	19.20	12.70	7,154.4	5,566.4	-17.0	168.2	-73.5	9.61	-1.29	-28.71
7,198.0	19.60	1.90	7,184.6	5,596.6	-6.5	169.6	-64.1	11.21	0.94	-33.75
7,230.0	19.60	352.20	7,214.8	5,626.8	4.1	169.0	-53.9	10.14	0.31	-30.31
7,261.0	20.00	343.80	7,243.9	5,655.9	14.4	166.8	-43.5	9.26	1.29	-27.10
7,292.0	21.60	341.30	7,272.9	5,684.9	24.9	163.5	-32.5	5.90	5.16	-8.06
7,324.0	24.60	339.10	7,302.3	5,714.3	36.7	159.2	-20.0	9.75	9.38	-6.88
7,355.0	27.60	337.70	7,330.2	5,742.2	49.4	154.2	-6.4	9.88	9.68	-4.52
7,387.0	31.20	335.80	7,358.1	5,770.1	63.8	148.0	9.3	11.62	11.25	-5.94
7,418.0	34.50	335.40	7,384.1	5,796.1	79.1	141.1	26.1	10.67	10.65	-1.29
7,450.0	38.00	337.20	7,409.9	5,821.9	96.4	133.5	45.0	11.43	10.94	5.63
7,481.0	41.00	339.10	7,433.8	5,845.8	114.7	126.1	64.7	10.43	9.68	6.13
7,513.0	45.40	340.60	7,457.1	5,869.1	135.3	118.6	86.6	14.12	13.75	4.69
7,544.0	49.20	339.20	7,478.2	5,890.2	156.7	110.8	109.3	12.70	12.26	-4.52
7,575.0	53.10	338.70	7,497.6	5,909.6	179.2	102.1	133.5	12.04	12.98	-1.61
7,607.0	56.70	338.90	7,516.0	5,928.0	203.6	92.6	159.6	11.26	11.25	0.63

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)
5,475.0	2.30	90.12	5,474.0	3,886.0	-38.3	57.1	-55.5	0.95	0.76	15.00	
5,500.0	2.67	95.63	5,499.0	3,911.0	-38.4	58.2	-56.0	1.43	1.08	22.04	
5,525.0	2.96	81.09	5,523.9	3,935.9	-38.3	59.4	-56.3	3.20	1.56	-58.16	
5,600.0	3.27	90.61	5,598.8	4,010.8	-38.1	63.4	-57.4	0.80	0.41	12.69	
5,700.0	2.82	103.45	5,698.7	4,110.7	-38.7	68.7	-59.9	0.77	-0.35	12.84	
5,800.0	2.83	109.84	5,798.5	4,210.5	-40.1	73.5	-62.8	0.33	-0.09	6.39	
5,900.0	2.43	111.75	5,898.4	4,310.4	-41.7	77.8	-65.8	0.41	-0.40	1.91	
6,000.0	2.51	119.28	5,998.3	4,410.3	-43.6	81.7	-68.9	0.33	0.08	7.53	
6,100.0	2.66	127.00	6,098.2	4,510.2	-46.1	85.5	-72.5	0.38	0.15	7.72	
6,200.0	2.27	133.29	6,198.2	4,610.2	-48.8	88.8	-76.2	0.47	-0.39	6.29	
6,300.0	2.19	130.20	6,298.1	4,710.1	-51.4	91.7	-79.7	0.14	-0.08	-3.09	
6,400.0	2.10	126.15	6,398.0	4,810.0	-53.7	94.6	-82.8	0.18	-0.09	-4.05	
6,500.0	2.38	111.17	6,497.9	4,909.9	-55.5	98.0	-85.7	0.65	0.28	-14.98	
6,600.0	2.79	104.98	6,597.8	5,009.8	-56.9	102.3	-88.5	0.50	0.41	-6.19	
6,700.0	4.18	92.18	6,697.6	5,109.6	-57.7	108.3	-91.3	1.58	1.39	-12.80	
6,800.0	5.53	93.50	6,797.3	5,209.3	-58.1	116.8	-94.5	1.35	1.35	1.32	
Gyro Tie In=500' MD											
6,900.0	6.11	95.23	6,896.8	5,308.8	-58.9	126.9	-98.7	0.61	0.58	1.73	
KOP=4915' MD											
6,915.0	5.80	75.30	6,911.7	5,323.7	-58.8	128.4	-99.1	13.87	-2.07	-132.87	
6,941.0	7.30	53.10	6,937.5	5,349.5	-57.5	131.0	-98.8	11.21	5.77	-85.38	
6,946.0	7.90	49.00	6,942.5	5,354.5	-57.0	131.5	-98.6	16.17	12.00	-82.00	
6,977.0	9.20	59.80	6,973.1	5,385.1	-54.4	135.2	-97.4	6.65	4.19	34.84	
7,009.0	13.50	71.40	7,004.5	5,416.5	-51.9	141.0	-97.0	15.15	13.44	36.25	
7,040.0	16.70	61.40	7,034.5	5,446.5	-48.8	148.1	-96.5	10.77	7.10	-32.26	
7,072.0	16.30	44.00	7,065.3	5,477.3	-43.5	155.0	-93.9	15.05	1.88	-54.38	
7,103.0	18.40	31.10	7,094.9	5,506.9	-36.1	160.6	-88.9	14.10	6.77	-41.61	
7,135.0	19.60	21.60	7,126.2	5,537.2	-26.8	165.2	-81.7	10.35	3.75	-29.69	
7,166.0	19.20	12.70	7,154.4	5,566.4	-17.0	168.2	-73.5	9.61	-1.29	-28.71	
7,198.0	19.60	1.90	7,184.6	5,596.6	-6.5	169.6	-64.1	11.21	0.94	-33.75	
7,230.0	19.60	352.20	7,214.8	5,626.8	4.1	169.0	-53.9	10.14	0.31	-30.31	
7,261.0	20.00	343.80	7,243.9	5,655.9	14.4	166.8	-43.5	9.26	1.29	-27.10	
7,292.0	21.60	341.30	7,272.9	5,684.9	24.9	163.5	-32.5	5.90	5.16	-8.06	
7,324.0	24.60	339.10	7,302.3	5,714.3	36.7	159.2	-20.0	9.75	9.38	-6.88	
7,355.0	27.60	337.70	7,330.2	5,742.2	49.4	154.2	-6.4	9.88	9.68	-4.52	
7,387.0	31.20	335.80	7,358.1	5,770.1	63.8	148.0	9.3	11.62	11.25	-5.94	
7,418.0	34.50	335.40	7,384.1	5,796.1	79.1	141.1	26.1	10.67	10.65	-1.29	
7,450.0	38.00	337.20	7,409.9	5,821.9	96.4	133.5	45.0	11.43	10.94	5.63	
7,481.0	41.00	339.10	7,433.8	5,845.8	114.7	126.1	64.7	10.43	9.68	6.13	
7,513.0	45.40	340.60	7,457.1	5,869.1	135.3	118.6	86.6	14.12	13.75	4.69	
7,544.0	49.20	339.20	7,478.2	5,890.2	156.7	110.8	109.3	12.70	12.26	-4.52	
7,575.0	53.10	338.70	7,497.6	5,909.6	179.2	102.1	133.5	12.04	12.98	-1.61	
7,607.0	56.70	338.90	7,516.0	5,928.0	203.6	92.6	159.6	11.26	11.25	0.63	

Phoenix Technology Services Survey Report

Phoenix Technology Services

97-03813

PHOENIX TECHNOLOGY SERVICES

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EDM 5000 v Single User Do

Company: EOT Production - Maryland

Project: Upper County, WV

Site: Upper County 511416

Well: Well 511416

Wellbore: Main Wellbore

Design: As Drilled Surveys

Local Co-ordinate Reference: Site / Upper County 511416

TVD Reference: KB @ 1588 Quasi

MD Reference: KB @ 1588 Quasi

North Reference: EOT

Survey Calculation Method: Minimum Curvature





97-03813

Phoenix Technology Services
Survey Report



Database:	EDM 3000.1 Single User Db	Local Co-ordinate Reference:	Site Upshur County 511416
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1580.0usft
Project:	Upshur County, WV	MD Reference:	KB @ 1580.0usft
Site:	Upshur County 511416	North Reference:	Grid
Well:	Well #511416	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	As Directed Surveys		

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)	
7,638.0	61.00	339.20	7,532.0	5,944.0	228.4	83.1	186.2	13.90	13.87	0.97	
7,670.0	64.40	340.60	7,546.7	5,958.7	255.1	73.4	214.6	11.31	10.63	4.38	
7,701.0	67.50	340.60	7,559.3	5,971.3	281.8	64.0	242.9	10.00	10.00	0.00	
7,733.0	70.30	340.20	7,570.9	5,982.9	309.9	54.0	272.7	8.83	8.75	-1.25	
7,764.0	73.50	339.90	7,580.5	5,992.5	337.6	43.9	302.2	10.36	10.32	-0.97	
7,796.0	75.90	338.90	7,588.9	6,000.9	366.5	33.0	333.1	8.08	7.50	-3.13	
7,827.0	78.20	337.00	7,595.9	6,007.9	394.5	21.7	363.3	9.52	7.42	-6.13	
7,859.0	80.80	337.60	7,601.7	6,013.7	423.5	9.6	394.7	8.33	8.13	1.88	
7,890.0	83.00	338.00	7,606.1	6,018.1	451.9	-2.0	425.4	7.21	7.10	1.29	
7,922.0	85.50	337.90	7,609.3	6,021.3	481.4	-14.0	457.2	7.82	7.81	-0.31	
LP=7953' MD/7811' TVD											
7,953.0	87.90	337.20	7,611.1	6,023.1	510.0	-25.8	488.1	8.06	7.74	-2.26	
8,016.0	88.40	337.30	7,613.1	6,025.1	568.1	-50.2	551.0	0.81	0.79	0.16	
8,079.0	87.40	337.10	7,615.4	6,027.4	626.1	-74.5	613.9	1.62	-1.59	-0.32	
8,142.0	86.50	336.30	7,618.6	6,030.8	683.9	-99.4	676.7	1.91	-1.43	-1.27	
8,206.0	86.90	336.30	7,622.4	6,034.4	742.4	-125.1	740.4	0.63	0.63	0.00	
8,269.0	87.10	336.70	7,625.7	6,037.7	800.1	-150.2	803.2	0.71	0.32	0.63	
8,332.0	86.80	337.30	7,629.1	6,041.1	858.0	-174.8	866.0	1.06	-0.48	0.95	
8,395.0	86.60	337.80	7,632.7	6,044.7	916.1	-198.8	928.9	0.85	-0.32	0.79	
8,458.0	87.20	337.60	7,636.1	6,048.1	974.3	-222.7	991.7	1.00	0.95	-0.32	
8,521.0	87.70	337.10	7,638.9	6,050.9	1,032.4	-246.9	1,054.6	1.12	0.79	-0.79	
8,584.0	89.10	337.20	7,640.7	6,052.7	1,090.5	-271.4	1,117.5	2.23	2.22	0.16	
8,647.0	89.50	337.00	7,641.5	6,053.5	1,148.5	-295.9	1,180.4	0.71	0.63	-0.32	
8,710.0	89.60	336.90	7,642.0	6,054.0	1,206.5	-320.5	1,243.3	0.22	0.16	-0.16	
8,773.0	90.70	337.60	7,641.8	6,053.8	1,264.6	-344.9	1,306.3	2.07	1.75	1.11	
8,836.0	90.70	337.00	7,641.0	6,053.0	1,322.7	-369.2	1,369.2	0.95	0.00	-0.95	
8,899.0	90.90	336.50	7,640.1	6,052.1	1,380.5	-394.1	1,432.1	0.85	0.32	-0.79	
8,962.0	91.80	336.90	7,638.7	6,050.7	1,438.4	-419.0	1,495.0	1.56	1.43	0.63	
9,025.0	91.50	337.00	7,636.8	6,048.8	1,496.3	-443.6	1,557.8	0.50	-0.48	0.16	
9,088.0	91.80	338.40	7,635.0	6,047.0	1,554.6	-467.5	1,620.8	2.27	0.48	2.22	
9,151.0	91.20	339.90	7,633.4	6,045.4	1,613.5	-490.0	1,683.7	2.56	-0.95	2.38	
9,214.0	89.70	339.80	7,632.9	6,044.9	1,672.6	-511.7	1,746.7	2.39	-2.38	-0.16	
9,277.0	88.70	340.10	7,633.8	6,045.8	1,731.8	-533.3	1,809.7	1.66	-1.59	0.48	
9,340.0	88.30	339.40	7,635.4	6,047.4	1,790.9	-555.1	1,872.7	1.28	-0.63	-1.11	
9,403.0	87.80	339.20	7,637.6	6,049.6	1,849.8	-577.3	1,935.7	0.85	-0.79	-0.32	
9,466.0	87.30	338.50	7,640.2	6,052.2	1,908.5	-600.0	1,998.6	1.36	-0.79	-1.11	
9,530.0	87.50	339.10	7,643.2	6,055.2	1,968.1	-623.1	2,062.5	0.99	0.31	0.94	
9,592.0	87.70	338.10	7,645.7	6,057.7	2,025.7	-645.7	2,124.4	1.64	0.32	-1.61	
9,655.0	87.20	337.50	7,648.6	6,060.6	2,084.0	-669.5	2,187.3	1.24	-0.79	-0.95	
9,718.0	87.40	337.50	7,651.5	6,063.5	2,142.1	-693.6	2,250.2	0.32	0.32	0.00	
9,781.0	89.40	338.40	7,653.3	6,065.3	2,200.5	-717.2	2,313.1	3.48	3.17	1.43	
9,844.0	89.30	338.10	7,654.0	6,066.0	2,259.0	-740.6	2,376.1	0.50	-0.16	-0.48	
9,907.0	89.40	338.10	7,654.7	6,066.7	2,317.5	-764.1	2,439.0	0.16	0.16	0.00	



97.03813

Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Upshur County 511419
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1568 Duff
Project:	Upshur County, WV	MD Reference:	KB @ 1568 Duff
Site:	Upshur County 511419	North Reference:	Grid
Well:	Well #511419	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	As Drilled Surveys		

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)
9,970.0	91.10	339.90	7,654.4	6,066.4	2,376.3	-786.7	2,502.0	3.93	2.70	2.86
10,033.0	90.70	339.60	7,653.4	6,065.4	2,435.4	-808.5	2,565.0	0.79	-0.63	-0.48
10,096.0	91.40	340.30	7,652.3	6,064.3	2,494.6	-830.1	2,628.0	1.57	1.11	1.11
10,159.0	92.50	343.00	7,650.1	6,062.1	2,554.3	-849.9	2,690.9	4.63	1.75	4.29
10,222.0	91.10	342.40	7,648.2	6,060.2	2,614.4	-868.6	2,753.8	2.42	-2.22	-0.95
10,285.0	90.10	342.10	7,647.5	6,059.5	2,674.4	-887.8	2,816.8	1.66	-1.59	-0.48
10,348.0	89.90	341.50	7,647.5	6,059.5	2,734.3	-907.5	2,879.8	1.00	-0.32	-0.95
10,410.0	89.50	341.30	7,647.8	6,059.8	2,793.0	-927.3	2,941.7	0.72	-0.65	-0.32
10,473.0	89.10	340.20	7,648.6	6,060.6	2,852.5	-948.0	3,004.7	1.86	-0.63	-1.75
10,536.0	89.20	340.80	7,649.5	6,061.5	2,911.9	-969.1	3,067.7	0.97	0.16	0.95
10,599.0	88.50	340.60	7,650.8	6,062.8	2,971.3	-989.9	3,130.7	1.16	-1.11	-0.32
10,662.0	89.50	342.90	7,651.9	6,063.9	3,031.1	-1,009.6	3,193.7	3.98	1.59	3.65
10,725.0	89.80	344.30	7,652.3	6,064.3	3,091.6	-1,027.4	3,256.5	2.27	0.48	2.22
10,788.0	90.20	346.30	7,652.3	6,064.3	3,152.5	-1,043.4	3,319.3	3.24	0.63	3.17
10,851.0	89.80	346.70	7,652.3	6,064.3	3,213.8	-1,058.1	3,381.8	0.90	-0.63	0.63
10,914.0	88.70	342.80	7,653.1	6,065.1	3,274.5	-1,074.6	3,444.6	6.43	-1.75	-6.19
10,977.0	89.20	344.10	7,654.3	6,066.3	3,334.9	-1,092.6	3,507.5	2.21	0.79	2.06
11,040.0	89.70	344.30	7,654.9	6,066.9	3,395.5	-1,109.7	3,570.3	0.85	0.79	0.32
11,103.0	90.20	342.00	7,654.9	6,066.9	3,455.8	-1,128.0	3,633.2	3.74	0.79	-3.65
11,166.0	89.60	340.60	7,655.0	6,067.0	3,515.5	-1,146.2	3,696.2	2.42	-0.95	-2.22
11,229.0	88.00	338.80	7,656.4	6,068.4	3,574.2	-1,171.1	3,759.2	6.54	-2.54	-6.03
11,291.0	89.20	337.60	7,657.9	6,069.9	3,631.3	-1,195.1	3,821.1	2.33	1.94	1.29
11,354.0	89.10	337.70	7,658.8	6,070.8	3,689.6	-1,219.0	3,884.0	0.22	-0.16	0.16
11,418.0	89.40	338.10	7,659.6	6,071.6	3,748.9	-1,243.1	3,948.0	0.78	0.47	0.63
11,480.0	89.10	337.70	7,660.5	6,072.5	3,806.3	-1,266.4	4,009.9	0.81	-0.48	-0.65
11,543.0	88.40	337.30	7,661.8	6,073.8	3,864.5	-1,290.5	4,072.8	1.28	-1.11	-0.63
11,606.0	88.50	338.10	7,663.5	6,075.5	3,922.8	-1,314.4	4,135.8	1.28	0.16	1.27
11,669.0	88.00	337.30	7,665.5	6,077.5	3,981.0	-1,338.3	4,198.7	1.50	-0.79	-1.27
11,732.0	89.40	336.20	7,666.9	6,078.9	4,038.9	-1,363.2	4,261.6	2.83	2.22	-1.75
11,795.0	90.40	335.80	7,667.0	6,079.0	4,096.4	-1,388.8	4,324.4	1.71	1.59	-0.63
11,858.0	89.50	335.00	7,667.0	6,079.0	4,153.7	-1,415.0	4,387.2	1.91	-1.43	-1.27
11,921.0	88.50	334.50	7,668.1	6,080.1	4,210.7	-1,441.9	4,449.9	1.77	-1.59	-0.79
11,984.0	90.30	334.00	7,668.8	6,080.8	4,267.4	-1,469.3	4,512.6	2.97	2.86	-0.79
12,047.0	91.20	334.40	7,668.0	6,080.0	4,324.1	-1,496.7	4,575.3	1.56	1.43	0.63
12,110.0	90.60	333.70	7,667.0	6,079.0	4,380.8	-1,524.3	4,637.9	1.46	-0.95	-1.11
12,173.0	91.00	334.30	7,666.1	6,078.1	4,437.4	-1,551.9	4,700.6	1.14	0.63	0.95
12,236.0	90.70	336.00	7,665.2	6,077.2	4,494.6	-1,578.4	4,763.3	2.74	-0.48	2.70
12,299.0	90.60	336.60	7,664.5	6,076.5	4,552.2	-1,603.7	4,826.2	0.97	-0.16	0.95
12,362.0	89.50	336.30	7,664.4	6,076.4	4,610.0	-1,628.8	4,889.1	1.81	-1.75	-0.48
12,425.0	87.40	337.20	7,666.1	6,078.1	4,667.8	-1,653.7	4,951.9	3.63	-3.33	1.43
12,488.0	87.60	338.30	7,668.9	6,080.9	4,726.1	-1,677.5	5,014.8	1.77	0.32	1.75
12,551.0	87.40	338.00	7,671.6	6,083.6	4,784.5	-1,701.0	5,077.7	0.57	-0.32	-0.48



97-03813

Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Upshur County 511416
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1588.0usft
Project:	Upshur County, WV	MD Reference:	KB @ 1586.0usft
Site:	Upshur County 511416	North Reference:	Ghd
Well:	Well #511416	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	As Drilled Surveys		

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)	
12,614.0	87.80	338.50	7,674.2	6,086.2	4,843.0	-1,724.3	5,140.7	1.02	0.63	0.79	
12,677.0	87.60	340.60	7,676.8	6,088.8	4,902.0	-1,746.3	5,203.6	3.35	-0.32	3.33	
12,740.0	88.30	339.90	7,679.0	6,091.0	4,961.2	-1,767.6	5,266.6	1.57	1.11	-1.11	
12,803.0	89.60	340.90	7,680.2	6,092.2	5,020.6	-1,788.7	5,329.5	2.60	2.06	1.59	
12,866.0	89.90	341.30	7,680.5	6,092.5	5,080.2	-1,809.1	5,392.5	0.79	0.48	0.63	
12,928.0	89.40	341.60	7,680.8	6,092.8	5,138.9	-1,828.8	5,454.5	0.94	-0.81	0.48	
12,991.0	88.90	340.80	7,681.8	6,093.8	5,198.6	-1,849.1	5,517.5	1.50	-0.79	-1.27	
13,054.0	89.00	341.30	7,682.9	6,094.9	5,258.1	-1,869.6	5,580.5	0.81	0.16	0.79	
13,117.0	91.10	342.10	7,682.9	6,094.9	5,318.0	-1,889.3	5,643.4	3.57	3.33	1.27	
13,179.0	91.20	341.40	7,681.6	6,093.6	5,376.8	-1,908.8	5,705.4	1.14	0.16	-1.13	
13,241.0	90.50	340.60	7,680.7	6,092.7	5,435.4	-1,928.9	5,767.4	1.71	-1.13	-1.29	
13,304.0	89.20	339.80	7,680.9	6,092.9	5,494.7	-1,950.3	5,830.4	2.42	-2.06	-1.27	
13,366.0	88.70	339.90	7,682.0	6,094.0	5,552.9	-1,971.6	5,892.4	0.82	-0.81	0.16	
13,429.0	89.30	339.70	7,683.1	6,095.1	5,612.0	-1,993.4	5,955.4	1.00	0.95	-0.32	
13,492.0	89.20	339.20	7,683.9	6,095.9	5,671.0	-2,015.5	6,018.3	0.81	-0.16	-0.79	
13,554.0	90.20	339.50	7,684.3	6,096.3	5,729.0	-2,037.4	6,080.3	1.68	1.61	0.48	
13,617.0	90.60	339.00	7,683.8	6,095.8	5,787.9	-2,059.7	6,143.3	1.02	0.63	-0.79	
13,679.0	90.40	338.40	7,683.3	6,095.3	5,845.7	-2,082.2	6,205.3	1.02	-0.32	-0.97	
13,741.0	91.30	337.70	7,682.4	6,094.4	5,903.2	-2,105.4	6,267.3	1.84	1.45	-1.13	
13,804.0	91.40	337.00	7,680.9	6,092.9	5,961.3	-2,129.6	6,330.2	1.12	0.16	-1.11	
13,867.0	90.90	337.00	7,679.6	6,091.6	6,019.3	-2,154.2	6,393.1	0.79	-0.79	0.00	
13,929.0	90.40	336.60	7,678.9	6,090.9	6,076.3	-2,178.7	6,455.0	1.03	-0.81	-0.65	
13,992.0	90.40	336.40	7,678.5	6,090.5	6,134.1	-2,203.8	6,517.9	0.32	0.00	-0.32	
14,054.0	89.90	336.10	7,678.3	6,090.3	6,190.8	-2,228.8	6,579.7	0.94	-0.81	-0.48	
14,117.0	90.50	336.70	7,678.1	6,090.1	6,248.5	-2,254.0	6,642.6	1.35	0.95	0.95	
14,179.0	90.50	336.40	7,677.5	6,089.5	6,305.4	-2,278.6	6,704.5	0.48	0.00	-0.48	
14,241.0	91.70	337.80	7,676.4	6,088.4	6,362.5	-2,302.8	6,766.4	2.97	1.94	2.26	
14,304.0	90.90	337.70	7,674.9	6,086.9	6,420.8	-2,326.6	6,829.3	1.28	-1.27	-0.16	
14,366.0	89.00	337.10	7,675.0	6,087.0	6,478.0	-2,350.4	6,891.3	3.21	-3.06	-0.97	
14,429.0	89.20	338.70	7,676.0	6,088.0	6,536.4	-2,374.1	6,954.2	2.56	0.32	2.54	
14,491.0	89.30	338.90	7,676.8	6,088.8	6,594.2	-2,398.6	7,016.2	0.36	0.16	0.32	
14,553.0	89.50	338.80	7,677.4	6,089.4	6,652.0	-2,418.9	7,078.2	0.36	0.32	-0.16	
14,616.0	89.90	338.90	7,677.8	6,089.8	6,710.8	-2,441.7	7,141.2	0.65	0.63	0.16	
14,678.0	89.70	339.40	7,678.0	6,090.0	6,768.7	-2,463.7	7,203.2	0.87	-0.32	0.81	
14,741.0	89.30	338.40	7,678.5	6,090.5	6,827.5	-2,486.4	7,266.1	1.71	-0.63	-1.59	
14,803.0	88.40	336.90	7,679.8	6,091.8	6,884.8	-2,510.0	7,328.1	2.82	-1.45	-2.42	
14,866.0	88.40	337.80	7,681.5	6,093.5	6,942.9	-2,534.2	7,391.0	1.43	0.00	1.43	
14,929.0	87.70	337.70	7,683.7	6,095.7	7,001.2	-2,558.1	7,453.9	1.12	-1.11	-0.16	
14,991.0	87.00	337.00	7,686.5	6,098.5	7,058.4	-2,581.9	7,515.8	1.60	-1.13	-1.13	
15,054.0	88.20	336.40	7,689.2	6,101.2	7,116.2	-2,606.8	7,578.6	2.13	1.90	-0.95	
15,117.0	88.40	336.50	7,691.0	6,103.0	7,173.9	-2,632.0	7,641.5	0.35	0.32	0.16	
15,179.0	89.10	336.20	7,692.4	6,104.4	7,230.7	-2,656.8	7,703.3	1.23	1.13	-0.48	
15,242.0	89.70	335.80	7,693.1	6,105.1	7,288.3	-2,682.4	7,766.2	1.06	0.95	-0.48	

Received
Office of Oil & Gas
AUG 26 2014

Checked By: _____ Approved By: _____ Date: _____

Measured Depth (usft)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Local Coordinates	Comment
6,900.0	6,896.8	-58.9	126.9	Gyro Tie In=6900 MD	
6,915.0	6,911.7	-58.8	128.4	KOP=6915 MD	
7,953.0	7,611.1	510.0	-25.8	LP=7953 MD/ 7611 TVD	
15,270.0	7,693.2	7,313.8	-2,693.9	Last Survey=15270 MD/ 7693 TVD	
15,327.0	7,693.6	7,365.8	-2,717.2	Projection to TD=15327 MD/ 7694 TVD	

Measured Depth (usft)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Local Coordinates	Comment					
15,270.0	89.60	335.80	7,693.2	6,105.2	7,313.8	-2,693.9	7,794.1	0.51	-0.36	-0.36
15,327.0	89.60	335.80	7,693.6	6,105.6	7,365.8	-2,717.2	7,850.9	0.00	0.00	0.00

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)		
15,270.0			89.60	335.80	7,693.2	6,105.2	7,313.8	-2,693.9	7,794.1	0.51	-0.36	-0.36
15,327.0			89.60	335.80	7,693.6	6,105.6	7,365.8	-2,717.2	7,850.9	0.00	0.00	0.00

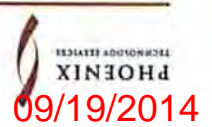
Database: EDM 5000 1 Single User DB
 Company: EOT Production - Miracibus
 Project: Upshur County, WV
 Site: Upshur County 511418
 Well: Well #511418
 Wellbore: Main Wellbore
 Design: As Drilled Surveys

Local Co-ordinate Reference:
 TD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:
 Minimum Curvature
 GMD
 KB @ 1588.0usft
 KB @ 1588.0usft
 Site: Upshur County 511418



Phoenix Technology Services
 Survey Report

97-03813





Project: Upshur County, WV
Site: Upshur County 511416
Well: Well #511416
Wellbore: Main Wellbore
Design: As Drilled Surveys

