

API 47- 017 - 06385



Where energy meets innovation.

EQT Production - Marcellus

Doddridge County, WV Grid

Doddridge County 514662

Well #514662

Main Wellbore

Design: As Drilled Surveys

Standard Survey Report

20 October, 2014

Received
Office of Oil & Gas
JUL 15 2015



Where energy meets innovation.

10/23/2015



17-06386

Phoenix Technology Services Survey Report



Where energy meets innovation.

Where energy meets innovation.

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 514662
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1224.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB @ 1224.0usft
Site:	Doddridge County 514662	North Reference:	Grid
Well:	Well #514662	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	As Drilled Surveys		

Project	Doddridge County, WV Grid		
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	Doddridge County 514662				
Site Position:		Northing:	277,730.20 usft	Latitude:	39.26
From:	Map	Easting:	1,642,273.20 usft	Longitude:	-80.76
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.81 °

Well	Well #514662					
Well Position	+N/-S	0.0 usft	Northing:	277,730.20 usft	Latitude:	39° 15' 20.260 N
	+E/-W	0.0 usft	Easting:	1,642,273.20 usft	Longitude:	80° 45' 47.882 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,208.0 usft

Wellbore	Main Wellbore				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	10/2/2014	-8.49	66.75	52,238

Design	As Drilled Surveys				
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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	158.44

Survey Program		Date			
From (')	To (usft)	10/20/2014			
		Survey (Wellbore)	Tool Name	Description	
0.00	5,300.0	514662 Gyrodata Gyro (Main Wellbore)	GYD_DP_MS	Gyrodata gyro-compassing and drop	
0.00	15,598.0	514662 Phx MWD (Main Wellbore)	MWD+IGRF	MWD+IGRF v3:standard declination	

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	-1,224.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.33	294.05	100.0	-1,124.0	0.1	-0.3	-0.2	0.33	0.33	0.00
200.0	0.13	176.41	200.0	-1,024.0	0.1	-0.5	-0.3	0.41	-0.20	-117.64
300.0	0.27	158.30	300.0	-924.0	-0.2	-0.4	0.0	0.15	0.14	-18.11
400.0	0.20	162.65	400.0	-824.0	-0.6	-0.3	0.4	0.07	-0.07	4.35
500.0	0.14	102.20	500.0	-724.0	-0.8	-0.1	0.7	0.18	-0.06	-60.45
600.0	0.07	112.98	600.0	-624.0	-0.8	0.1	0.8	0.07	-0.07	10.78
700.0	0.07	128.23	700.0	-524.0	-0.9	0.2	0.9	0.02	0.00	15.25

10/23/2015



17-06386

Phoenix Technology Services
Survey Report



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Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 514662
Company:	EQT Production - Marcellus	TVD Reference:	KB @ -1224.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB @ -1224.0usft
Site:	Doddridge County 514662	North Reference:	Grid
Well:	Well #514662	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)	
800.0	0.05	224.39	800.0	-424.0	-1.0	0.2	1.0	0.09	-0.02	96.16	
900.0	0.12	254.07	900.0	-324.0	-1.0	0.1	1.0	0.08	0.07	29.68	
1,000.0	0.12	246.82	1,000.0	-224.0	-1.1	-0.1	1.0	0.02	0.00	-7.25	
1,100.0	0.30	115.78	1,100.0	-124.0	-1.3	0.0	1.2	0.39	0.18	-131.04	
1,200.0	0.55	101.55	1,200.0	-24.0	-1.5	0.7	1.6	0.27	0.25	-14.23	
1,300.0	0.76	90.44	1,300.0	76.0	-1.6	1.8	2.1	0.24	0.21	-11.11	
1,400.0	0.85	86.20	1,400.0	176.0	-1.5	3.2	2.6	0.11	0.09	-4.24	
1,500.0	0.82	95.85	1,500.0	276.0	-1.5	4.7	3.2	0.14	-0.03	9.65	
1,600.0	0.88	99.27	1,600.0	376.0	-1.7	6.2	3.9	0.08	0.06	3.42	
1,700.0	0.83	106.25	1,699.9	475.9	-2.1	7.6	4.7	0.12	-0.05	6.98	
1,800.0	0.79	119.64	1,799.9	575.9	-2.6	8.9	5.7	0.19	-0.04	13.39	
1,900.0	0.61	128.40	1,899.9	675.9	-3.3	9.9	6.7	0.21	-0.18	8.76	
2,000.0	0.61	131.64	1,999.9	775.9	-4.0	10.7	7.6	0.03	0.00	3.24	
2,100.0	0.52	140.05	2,099.9	875.9	-4.7	11.4	8.5	0.12	-0.09	8.41	
2,200.0	0.54	146.79	2,199.9	975.9	-5.4	12.0	9.4	0.07	0.02	6.74	
2,300.0	0.46	141.57	2,299.9	1,075.9	-6.1	12.5	10.3	0.09	-0.08	-5.22	
2,400.0	0.31	149.67	2,399.9	1,175.9	-6.7	12.9	10.9	0.16	-0.15	8.10	
2,500.0	0.34	146.50	2,499.9	1,275.9	-7.1	13.2	11.5	0.03	0.03	-3.17	
2,600.0	0.24	155.53	2,599.9	1,375.9	-7.6	13.4	12.0	0.11	-0.10	9.03	
2,700.0	0.31	166.30	2,699.9	1,475.9	-8.0	13.6	12.5	0.09	0.07	10.77	
2,800.0	0.27	153.61	2,799.9	1,575.9	-8.5	13.7	13.0	0.08	-0.04	-12.69	
2,900.0	0.30	173.51	2,899.9	1,675.9	-9.0	13.9	13.5	0.10	0.03	19.90	
3,000.0	0.37	158.65	2,999.9	1,775.9	-9.5	14.0	14.0	0.11	0.07	-14.86	
3,100.0	0.41	174.24	3,099.9	1,875.9	-10.2	14.2	14.7	0.11	0.04	15.59	
3,200.0	0.44	171.47	3,199.9	1,975.9	-10.9	14.3	15.4	0.04	0.03	-2.77	
3,300.0	0.46	162.24	3,299.9	2,075.9	-11.7	14.4	16.2	0.08	0.02	-9.23	
3,400.0	0.46	170.50	3,399.9	2,175.9	-12.5	14.6	17.0	0.07	0.00	8.26	
3,500.0	0.57	165.27	3,499.9	2,275.9	-13.4	14.8	17.9	0.12	0.11	-5.23	
3,600.0	0.54	166.65	3,599.9	2,375.9	-14.3	15.1	18.8	0.03	-0.03	1.38	
3,700.0	0.56	174.50	3,699.9	2,475.9	-15.2	15.2	19.8	0.08	0.02	7.85	
3,800.0	0.64	161.74	3,799.9	2,575.9	-16.3	15.4	20.8	0.16	0.08	-12.76	
3,900.0	0.56	171.58	3,899.9	2,675.9	-17.3	15.7	21.8	0.13	-0.08	9.84	
4,000.0	0.71	180.83	3,999.9	2,775.9	-18.4	15.8	22.9	0.18	0.11	-9.25	
4,100.0	0.75	200.40	4,099.8	2,875.8	-19.6	15.5	23.9	0.25	0.04	15.59	
4,200.0	1.01	217.77	4,199.8	2,975.8	-20.9	14.7	24.9	0.37	0.26	17.37	
4,300.0	1.08	228.45	4,299.8	3,075.8	-22.2	13.5	25.6	0.21	0.07	0.00	
4,400.0	1.08	239.16	4,399.8	3,175.8	-23.3	12.0	26.1	0.20	0.00	10.71	
4,500.0	1.23	257.60	4,499.8	3,275.8	-24.1	10.1	26.1	0.40	0.15	18.44	
4,600.0	1.43	267.26	4,599.8	3,375.8	-24.4	7.8	25.5	0.30	0.20	9.66	
4,700.0	1.50	276.24	4,699.7	3,475.7	-24.3	5.3	24.5	0.24	0.07	8.98	
4,800.0	1.45	282.67	4,799.7	3,575.7	-23.8	2.8	23.2	0.17	-0.05	6.43	
4,900.0	1.49	290.76	4,899.7	3,675.7	-23.1	0.3	21.6	0.21	0.04	8.09	

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Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1224.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB @ 1224.0usft
Site:	Doddridge County 514662	North Reference:	Grid
Well:	Well #514662	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)	Bulld Rate (°/100usft)	Turn Rate (°/100usft)	
5,000.0	1.37	298.96	4,999.6	3,775.6	-22.1	-2.0	19.8	0.24	-0.12	8.20	
5,100.0	1.52	298.73	5,099.6	3,875.6	-20.9	-4.2	17.9	0.15	0.15	-0.23	
5,200.0	1.67	301.54	5,199.6	3,975.6	-19.5	-6.6	15.7	0.17	0.15	2.81	
Gyro Tie In=5300' MD											
5,300.0	1.97	307.37	5,299.5	4,075.5	-17.6	-9.2	13.0	0.35	0.30	5.83	
5,430.0	2.10	313.20	5,429.4	4,205.4	-14.7	-12.7	9.0	0.19	0.10	4.48	
5,461.0	2.30	314.90	5,460.4	4,236.4	-13.8	-13.5	7.9	0.68	0.65	5.48	
5,493.0	2.10	312.40	5,492.4	4,268.4	-13.0	-14.4	6.8	0.69	-0.63	-7.81	
5,525.0	1.80	310.00	5,524.4	4,300.4	-12.3	-15.3	5.8	0.97	-0.94	-7.50	
5,556.0	2.10	309.30	5,555.3	4,331.3	-11.6	-16.1	4.9	0.97	0.97	-2.26	
5,588.0	3.60	310.10	5,587.3	4,363.3	-10.6	-17.3	3.5	4.69	4.69	2.50	
5,619.0	5.60	305.90	5,618.2	4,394.2	-9.1	-19.3	1.3	6.54	6.45	-13.55	
5,651.0	7.00	304.70	5,650.0	4,426.0	-7.0	-22.1	-1.6	4.39	4.38	-3.75	
5,682.0	8.10	298.60	5,680.7	4,456.7	-4.9	-25.6	-4.8	4.39	3.55	-19.68	
5,745.0	10.70	290.70	5,742.9	4,518.9	-0.7	-35.0	-12.2	4.60	4.13	-12.54	
5,777.0	12.90	291.10	5,774.2	4,550.2	1.6	-41.1	-16.6	6.88	6.88	1.25	
5,808.0	15.00	290.90	5,804.3	4,580.3	4.3	-48.1	-21.7	6.78	6.77	-0.65	
5,840.0	16.20	289.30	5,835.1	4,611.1	7.2	-56.1	-27.4	3.98	3.75	-5.00	
5,871.0	18.10	290.10	5,864.7	4,640.7	10.3	-64.7	-33.4	6.18	6.13	2.58	
5,903.0	20.30	290.50	5,895.0	4,671.0	14.0	-74.6	-40.4	6.89	6.88	1.25	
5,935.0	22.40	293.70	5,924.8	4,700.8	18.4	-85.4	-48.5	7.50	6.56	10.00	
5,966.0	23.50	296.30	5,953.3	4,729.3	23.5	-96.3	-57.3	4.82	3.55	8.39	
5,998.0	25.80	294.90	5,982.4	4,758.4	29.2	-108.4	-67.0	7.42	7.19	-4.38	
6,029.0	28.70	293.60	6,009.9	4,785.9	35.1	-121.3	-77.2	9.55	9.35	-4.19	
6,061.0	31.20	293.40	6,037.7	4,813.7	41.4	-136.0	-88.5	7.82	7.81	-0.63	
6,092.0	33.50	293.30	6,063.9	4,839.9	48.0	-151.2	-100.2	7.42	7.42	-0.32	
6,124.0	36.50	289.90	6,090.1	4,866.1	54.7	-168.3	-112.8	11.18	9.38	-10.63	
6,155.0	39.00	283.90	6,114.6	4,890.6	60.2	-186.4	-124.5	14.33	8.06	-19.35	
6,187.0	38.90	275.90	6,139.5	4,915.5	63.7	-206.2	-135.0	15.71	-0.31	-25.00	
6,218.0	37.90	268.60	6,163.8	4,939.8	64.5	-225.4	-142.8	14.97	-3.23	-23.55	
6,250.0	35.80	260.20	6,189.4	4,965.4	62.6	-244.5	-148.1	17.04	-6.56	-26.25	
6,281.0	33.70	255.80	6,214.9	4,990.9	59.0	-261.7	-151.0	10.55	-6.77	-14.19	
6,313.0	31.60	249.40	6,241.8	5,017.8	53.8	-278.2	-152.3	12.62	-6.56	-20.00	
6,345.0	30.60	244.70	6,269.2	5,045.2	47.4	-293.4	-151.9	8.20	-3.13	-14.69	
6,376.0	29.50	237.70	6,296.1	5,072.1	40.0	-307.0	-150.0	11.84	0.00	-12.58	
6,408.0	29.50	232.70	6,323.9	5,099.9	31.0	-319.9	-146.4	7.69	0.00	-6.66	
6,440.0	30.10	228.00	6,351.7	5,127.7	20.8	-332.2	-141.4	7.53	1.88	-1.59	
6,471.0	30.80	223.00	6,378.4	5,154.4	9.8	-343.4	-135.3	8.48	1.16	-16.13	
6,503.0	32.20	217.10	6,405.7	5,181.7	-3.0	-354.1	-127.4	10.58	4.38	-18.44	
6,534.0	34.00	211.40	6,431.7	5,207.7	-17.0	-363.6	-117.8	11.59	5.81	-18.39	
6,566.0	36.40	206.90	6,457.9	5,233.9	-33.1	-372.6	-106.2	11.04	7.50	-14.06	
6,597.0	39.00	202.60	6,482.4	5,258.4	-50.3	-380.5	-93.1	11.92	8.39	-13.87	
6,629.0	41.70	200.30	6,506.8	5,282.8	-69.6	-388.0	-77.9	9.63	8.44	-7.19	

Received
Office of Oil & Gas
JUL 15 2015

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 514862
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1224.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB @ 1224.0usft
Site:	Doddridge County 514862	North Reference:	Grid
Well:	Well #514862	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)	
6,660.0	45.00	196.80	6,529.3	5,305.3	-89.8	-394.8	-61.6	13.16	10.65	-11.29	
6,692.0	48.40	193.20	6,551.3	5,327.3	-112.2	-400.8	-42.9	13.41	10.63	-11.25	
6,724.0	50.70	189.00	6,572.0	5,348.0	-136.1	-405.5	-22.4	12.30	7.19	-13.13	
6,755.0	53.00	185.10	6,591.2	5,367.2	-160.3	-408.4	-1.0	12.36	7.42	-12.58	
6,787.0	54.20	181.00	6,610.2	5,386.2	-186.0	-409.8	22.4	10.97	3.75	-12.81	
6,818.0	56.40	177.90	6,627.8	5,403.8	-211.5	-409.5	46.2	10.86	7.10	-10.00	
6,850.0	58.20	173.90	6,645.1	5,421.1	-238.4	-407.6	71.9	11.93	5.63	-12.50	
6,881.0	59.80	171.00	6,661.1	5,437.1	-264.7	-404.1	97.6	9.54	5.16	-9.35	
6,913.0	64.10	170.40	6,676.1	5,452.1	-292.6	-399.6	125.2	13.54	13.44	-1.88	
6,945.0	67.80	171.00	6,689.2	5,465.2	-321.4	-394.8	153.8	11.69	11.56	1.88	
6,976.0	72.40	170.70	6,699.7	5,475.7	-350.2	-390.2	182.2	14.87	14.84	-0.97	
7,008.0	76.70	169.00	6,708.2	5,484.2	-380.5	-384.8	212.5	14.38	13.44	-5.31	
7,039.0	79.80	166.30	6,714.6	5,490.6	-410.1	-378.3	242.4	13.14	10.00	-8.71	
7,070.0	83.60	163.90	6,719.0	5,495.0	-439.8	-370.4	272.9	14.45	12.26	-7.74	
7,100.0	88.20	162.60	6,721.2	5,497.2	-468.4	-361.8	302.7	15.93	15.33	-4.33	
LP=7132' MD/ 6721' TVD											
7,132.0	91.20	159.80	6,721.3	5,497.3	-498.7	-351.4	334.6	12.82	9.38	-8.75	
7,195.0	90.30	152.20	6,720.5	5,495.5	-556.2	-325.8	397.5	12.15	-1.43	-12.06	
7,257.0	90.90	150.80	6,719.9	5,495.9	-610.7	-296.3	459.1	2.46	0.97	-2.26	
7,318.0	91.50	151.20	6,718.6	5,494.6	-664.0	-266.7	519.6	1.18	0.98	0.66	
7,380.0	90.40	154.20	6,717.6	5,493.6	-719.1	-238.3	581.2	5.15	-1.77	4.84	
7,443.0	90.20	155.20	6,717.2	5,493.2	-776.1	-211.3	644.1	1.62	-0.32	1.59	
7,506.0	90.50	156.00	6,716.8	5,492.8	-833.4	-185.3	707.0	1.36	0.48	1.27	
7,569.0	91.20	156.60	6,715.9	5,491.9	-891.1	-160.0	770.0	1.46	1.11	0.95	
7,633.0	91.20	156.00	6,714.6	5,490.6	-949.7	-134.3	833.9	0.94	0.00	-0.94	
7,695.0	91.40	156.90	6,713.2	5,489.2	-1,006.5	-109.5	895.8	1.49	0.32	1.45	
7,758.0	91.40	154.70	6,711.6	5,487.6	-1,064.0	-83.7	958.8	3.49	0.00	-3.49	
7,821.0	91.70	152.30	6,709.9	5,485.9	-1,120.3	-55.6	1,021.5	3.84	0.48	-3.81	
7,884.0	92.20	152.10	6,707.8	5,483.8	-1,176.0	-26.2	1,084.1	0.85	0.79	-0.32	
7,946.0	91.60	152.10	6,705.7	5,481.7	-1,230.8	2.8	1,145.7	0.97	-0.97	0.00	
8,009.0	91.30	151.30	6,704.1	5,480.1	-1,286.2	32.6	1,208.2	1.36	-0.48	-1.27	
8,072.0	90.80	152.40	6,703.0	5,479.0	-1,341.8	62.3	1,270.8	1.92	-0.79	1.75	
8,134.0	90.00	153.30	6,702.5	5,478.5	-1,397.0	90.6	1,332.5	1.94	-1.29	1.45	
8,197.0	90.40	155.00	6,702.3	5,478.3	-1,453.6	118.1	1,395.3	2.77	0.63	2.70	
8,260.0	90.20	155.10	6,702.0	5,478.0	-1,510.8	144.7	1,458.2	0.35	-0.32	0.16	
8,322.0	90.30	155.00	6,701.7	5,477.7	-1,567.0	170.8	1,520.1	0.23	0.16	-0.16	
8,385.0	90.50	154.90	6,701.3	5,477.3	-1,624.1	197.5	1,583.0	0.35	0.32	0.32	
8,448.0	90.80	154.60	6,700.6	5,476.6	-1,681.0	224.4	1,645.8	0.67	0.48	0.48	
8,511.0	91.20	156.30	6,699.5	5,475.5	-1,738.3	250.5	1,708.7	0.63	0.79	0.79	
8,575.0	91.00	157.60	6,698.2	5,474.2	-1,797.2	275.6	1,772.7	2.05	0.00	0.00	
8,638.0	91.00	157.20	6,697.1	5,473.1	-1,855.4	299.8	1,835.7	0.63	0.00	-0.63	
8,700.0	90.80	156.60	6,696.2	5,472.2	-1,912.4	324.1	1,897.7	1.02	-0.32	-0.97	
8,763.0	90.60	155.50	6,695.4	5,471.4	-1,969.9	349.7	1,960.6	1.77	-0.32	-1.75	

Received
Office of Oil & Gas
JUL 15 2015



17-06386

Phoenix Technology Services
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 514662
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1224.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB @ 1224.0usft
Site:	Doddridge County 514662	North Reference:	Grid
Well:	Well #514662	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)
8,826.0	90.40	154.30	6,694.8	5,470.8	-2,027.0	376.4	2,023.5	1.93	-0.32	-1.90
8,889.0	90.50	153.70	6,694.3	5,470.3	-2,083.6	404.0	2,086.3	0.97	0.16	-0.95
8,952.0	90.20	154.50	6,694.0	5,470.0	-2,140.3	431.6	2,149.1	1.36	-0.48	1.27
9,015.0	90.20	158.10	6,693.7	5,469.7	-2,198.0	456.9	2,212.0	5.71	0.00	5.71
9,078.0	90.50	159.40	6,693.4	5,469.4	-2,256.7	479.7	2,275.0	2.12	0.48	2.06
9,141.0	91.20	161.00	6,692.4	5,468.4	-2,315.9	501.0	2,338.0	2.77	1.11	2.54
9,204.0	91.20	159.70	6,691.1	5,467.1	-2,375.3	522.2	2,401.0	2.06	0.00	-2.06
9,267.0	90.00	156.40	6,690.4	5,466.4	-2,433.7	545.8	2,463.9	5.57	-1.90	-5.24
9,330.0	90.40	156.60	6,690.2	5,466.2	-2,491.5	570.9	2,526.9	0.71	0.63	0.32
9,393.0	90.50	158.20	6,689.7	5,465.7	-2,549.6	595.1	2,589.9	2.54	0.16	2.54
9,456.0	91.20	158.00	6,688.8	5,464.8	-2,608.1	618.6	2,652.9	1.16	1.11	-0.32
9,519.0	91.50	155.40	6,687.3	5,463.3	-2,665.9	643.5	2,715.8	4.15	0.48	-4.13
9,582.0	91.30	154.70	6,685.8	5,461.8	-2,723.0	670.1	2,778.7	1.16	-0.32	-1.11
9,645.0	91.00	153.80	6,684.5	5,460.5	-2,779.7	697.4	2,841.5	1.51	-0.48	-1.43
9,708.0	91.30	152.90	6,683.2	5,459.2	-2,836.0	725.7	2,904.3	1.51	0.48	-1.43
9,771.0	91.50	152.60	6,681.7	5,457.7	-2,892.0	754.5	2,966.9	0.57	0.32	-0.48
9,834.0	90.50	154.30	6,680.6	5,456.6	-2,948.4	782.7	3,029.7	3.13	-1.59	2.70
9,897.0	90.50	155.50	6,680.1	5,456.1	-3,005.4	809.4	3,092.6	1.90	0.00	1.90
9,960.0	90.90	155.20	6,679.3	5,455.3	-3,062.7	835.7	3,155.5	0.79	0.63	-0.48
10,024.0	91.00	154.70	6,678.2	5,454.2	-3,120.6	862.8	3,219.3	0.80	0.16	-0.78
10,087.0	88.80	152.50	6,678.3	5,454.3	-3,177.1	890.8	3,282.1	4.94	-3.49	-3.49
10,150.0	88.30	152.60	6,679.9	5,455.9	-3,233.0	919.8	3,344.7	0.81	-0.79	0.16
10,213.0	88.50	153.50	6,681.7	5,457.7	-3,289.1	948.3	3,407.4	1.46	0.32	1.43
10,276.0	88.40	153.20	6,683.4	5,459.4	-3,345.4	976.6	3,470.2	0.50	-0.16	-0.48
10,339.0	88.50	153.30	6,685.1	5,461.1	-3,401.6	1,004.9	3,532.9	0.22	0.16	0.16
10,402.0	88.30	153.00	6,686.9	5,462.9	-3,457.8	1,033.4	3,595.6	0.57	-0.32	-0.48
10,466.0	90.40	153.20	6,687.6	5,463.6	-3,514.9	1,062.3	3,659.3	3.30	3.28	0.31
10,529.0	91.20	153.20	6,686.7	5,462.7	-3,571.1	1,090.7	3,722.0	1.27	1.27	0.00
10,592.0	90.90	152.50	6,685.5	5,461.5	-3,627.1	1,119.5	3,784.7	1.21	-0.48	-1.11
10,655.0	90.80	152.50	6,684.6	5,460.6	-3,683.0	1,148.6	3,847.4	0.16	-0.16	0.00
10,718.0	91.20	151.80	6,683.5	5,459.5	-3,738.7	1,178.0	3,910.0	1.28	0.63	-1.11
10,781.0	91.20	152.20	6,682.2	5,458.2	-3,794.3	1,207.6	3,972.6	0.63	0.00	0.63
10,844.0	91.40	152.00	6,680.8	5,456.8	-3,850.0	1,237.0	4,035.2	0.45	0.32	-0.32
10,907.0	91.40	151.70	6,679.2	5,455.2	-3,905.5	1,266.8	4,097.7	0.48	0.00	-0.48
10,971.0	91.60	151.60	6,677.5	5,453.5	-3,961.8	1,297.1	4,161.3	0.35	0.31	-0.16
11,034.0	92.10	152.60	6,675.5	5,451.5	-4,017.5	1,326.6	4,223.9	1.77	0.79	1.59
11,097.0	92.00	153.30	6,673.3	5,449.3	-4,073.5	1,355.2	4,286.5	1.12	-0.16	0.31
11,160.0	91.20	154.70	6,671.5	5,447.5	-4,130.1	1,382.8	4,349.3	2.56	-1.27	2.22
11,223.0	89.80	155.30	6,670.9	5,446.9	-4,187.2	1,409.5	4,412.2	2.09	0.95	0.95
11,286.0	88.70	154.70	6,671.8	5,447.8	-4,244.3	1,436.1	4,475.1	1.99	-1.75	-0.95
11,349.0	87.00	155.20	6,674.1	5,450.1	-4,301.4	1,462.7	4,537.9	2.81	-2.77	2.77
11,412.0	86.70	154.60	6,677.6	5,453.6	-4,358.3	1,489.4	4,600.7	1.06	-0.48	-0.95

Received
Office of Oil & Gas
JUL 15 2015

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 514862
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1224.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB @ 1224.0usft
Site:	Doddridge County 514862	North Reference:	Grid
Well:	Well #514862	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)
11,475.0	86.70	154.50	6,681.2	5,457.2	-4,415.1	1,516.4	4,663.5	0.16	0.00	-0.16
11,539.0	87.00	154.70	6,684.7	5,460.7	-4,472.8	1,543.9	4,727.2	0.56	0.47	0.31
11,602.0	87.40	153.80	6,687.8	5,463.8	-4,529.5	1,571.2	4,790.0	1.56	0.63	-1.43
11,665.0	87.40	153.80	6,690.7	5,466.7	-4,586.0	1,599.0	4,852.7	0.00	0.00	0.00
11,728.0	89.30	154.90	6,692.5	5,468.5	-4,642.8	1,626.2	4,915.5	3.48	3.02	1.75
11,791.0	90.70	156.10	6,692.5	5,468.5	-4,700.1	1,652.4	4,978.4	2.93	2.22	1.90
11,854.0	90.50	155.70	6,691.8	5,467.8	-4,757.6	1,678.1	5,041.4	0.71	-0.32	-0.63
11,917.0	90.60	156.90	6,691.2	5,467.2	-4,815.3	1,703.4	5,104.3	1.91	0.16	1.90
11,980.0	89.10	155.90	6,691.4	5,467.4	-4,873.0	1,728.6	5,167.3	2.86	-2.38	-1.59
12,043.0	85.60	156.20	6,694.3	5,470.3	-4,930.5	1,754.2	5,230.1	5.58	-5.56	0.48
12,107.0	85.20	155.60	6,699.4	5,475.4	-4,988.7	1,780.2	5,293.9	1.12	-0.63	-0.94
12,170.0	86.80	156.80	6,703.8	5,479.8	-5,046.2	1,805.6	5,356.7	3.17	2.54	1.90
12,233.0	87.30	156.80	6,707.1	5,483.1	-5,104.1	1,830.4	5,419.5	0.79	0.79	0.00
12,296.0	87.80	156.90	6,709.8	5,485.8	-5,161.9	1,855.1	5,482.5	0.81	0.79	0.16
12,360.0	89.70	156.40	6,711.2	5,487.2	-5,220.7	1,880.5	5,546.4	3.07	2.97	-0.78
12,422.0	89.20	155.70	6,711.8	5,487.8	-5,277.3	1,905.6	5,608.4	1.39	-0.81	-1.13
12,485.0	88.10	154.30	6,713.2	5,489.2	-5,334.4	1,932.2	5,671.2	2.83	-1.75	-2.22
12,548.0	88.60	154.30	6,715.1	5,491.1	-5,391.2	1,959.6	5,734.0	0.79	0.79	0.00
12,612.0	91.40	156.60	6,715.1	5,491.1	-5,449.4	1,986.1	5,797.9	5.66	4.38	3.59
12,675.0	91.50	156.00	6,713.5	5,489.5	-5,507.0	2,011.5	5,860.9	0.97	0.16	-0.95
12,738.0	92.00	156.20	6,711.5	5,487.5	-5,564.6	2,037.0	5,923.8	0.85	0.79	0.32
12,801.0	91.10	156.90	6,709.8	5,485.8	-5,622.4	2,062.0	5,986.7	1.81	-1.43	1.11
12,864.0	89.40	157.00	6,709.6	5,485.6	-5,680.3	2,086.7	6,049.7	2.70	-2.70	0.16
12,927.0	88.40	156.70	6,710.8	5,486.8	-5,738.3	2,111.5	6,112.7	1.66	-1.59	-0.48
12,990.0	87.80	156.10	6,712.9	5,488.9	-5,796.0	2,136.7	6,175.6	1.35	-0.95	-0.95
13,053.0	87.50	156.20	6,715.4	5,491.4	-5,853.5	2,162.1	6,238.5	0.50	-0.48	0.16
13,115.0	88.00	156.10	6,717.9	5,493.9	-5,910.2	2,187.2	6,300.4	0.82	0.81	-0.16
13,178.0	88.80	156.90	6,719.6	5,495.6	-5,967.9	2,212.3	6,363.3	1.80	1.27	1.27
13,241.0	89.60	158.10	6,720.5	5,496.5	-6,026.1	2,236.4	6,426.3	2.29	1.27	1.90
13,304.0	89.90	158.40	6,720.8	5,496.8	-6,084.7	2,259.7	6,489.3	0.67	0.48	0.48
13,367.0	90.60	159.40	6,720.5	5,496.5	-6,143.4	2,282.4	6,552.3	1.94	1.11	1.59
13,430.0	90.50	158.10	6,719.9	5,495.9	-6,202.1	2,305.2	6,615.3	2.07	-0.16	-2.06
13,494.0	90.10	158.50	6,719.6	5,495.6	-6,261.6	2,328.9	6,679.3	0.88	-0.63	0.63
13,557.0	89.80	158.10	6,719.6	5,495.6	-6,320.1	2,352.2	6,742.3	0.79	-0.48	-0.63
13,620.0	88.00	158.60	6,720.8	5,496.8	-6,378.7	2,375.4	6,805.3	2.97	-2.86	0.79
13,683.0	87.60	157.90	6,723.3	5,499.3	-6,437.2	2,398.8	6,868.2	1.28	-0.63	-1.11
13,746.0	87.40	157.90	6,726.0	5,502.0	-6,495.5	2,422.4	6,931.2	0.32	-0.32	0.00
13,809.0	87.70	157.70	6,728.7	5,504.7	-6,553.7	2,446.2	6,994.1	0.57	0.48	-0.32
13,872.0	87.10	157.40	6,731.6	5,507.6	-6,611.9	2,470.3	7,057.0	1.06	-0.95	-0.48
13,935.0	86.40	157.10	6,735.1	5,511.1	-6,669.9	2,494.6	7,119.9	1.21	-1.11	-0.48
13,998.0	87.50	156.50	6,738.5	5,514.5	-6,727.7	2,519.4	7,182.8	1.99	1.75	-0.95
14,061.0	88.70	157.10	6,740.6	5,516.6	-6,785.6	2,544.2	7,245.8	2.13	1.90	0.95
14,124.0	91.80	156.90	6,740.3	5,516.3	-6,843.6	2,568.8	7,308.7	4.93	4.92	-0.32



17-06386

Phoenix Technology Services
Survey Report



Where energy meets innovation.

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Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 514662
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1224.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB @ 1224.0usft
Site:	Doddridge County 514662	North Reference:	Grid
Well:	Well #514662	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)
14,187.0	92.00	156.40	6,738.2	5,514.2	-6,901.4	2,593.7	7,371.7	0.85	0.32	-0.79
14,250.0	91.50	156.70	6,736.3	5,512.3	-6,959.2	2,618.8	7,434.6	0.93	-0.79	0.48
14,313.0	91.30	156.90	6,734.7	5,510.7	-7,017.1	2,643.6	7,497.6	0.45	-0.32	0.32
14,376.0	90.70	156.30	6,733.6	5,509.6	-7,074.9	2,668.6	7,560.5	1.35	-0.95	-0.95
14,439.0	90.40	156.10	6,733.0	5,509.0	-7,132.5	2,694.0	7,623.5	0.57	-0.48	-0.32
14,502.0	89.30	154.00	6,733.2	5,509.2	-7,189.6	2,720.6	7,686.3	3.76	-1.75	-3.33
14,565.0	89.40	153.90	6,733.9	5,509.9	-7,246.2	2,748.3	7,749.1	0.22	0.16	-0.16
14,629.0	89.10	153.70	6,734.8	5,510.8	-7,303.6	2,776.5	7,812.9	0.56	-0.47	-0.31
14,692.0	88.70	153.20	6,736.0	5,512.0	-7,360.0	2,804.7	7,875.7	1.02	-0.63	-0.79
14,755.0	88.70	153.80	6,737.4	5,513.4	-7,416.4	2,832.8	7,938.4	0.95	0.00	0.95
14,818.0	89.10	156.10	6,738.6	5,514.6	-7,473.4	2,859.5	8,001.3	3.70	0.63	3.65
14,881.0	88.50	154.20	6,739.9	5,515.9	-7,530.6	2,885.9	8,064.2	3.16	-0.95	-3.02
14,944.0	88.80	154.50	6,741.4	5,517.4	-7,587.3	2,913.2	8,127.0	0.67	0.48	0.48
15,007.0	89.80	155.40	6,742.2	5,518.2	-7,644.4	2,939.9	8,189.9	2.14	1.59	1.43
15,070.0	90.50	155.70	6,742.0	5,518.0	-7,701.8	2,965.9	8,252.8	1.21	1.11	0.48
15,133.0	90.60	156.30	6,741.4	5,517.4	-7,759.3	2,991.6	8,315.7	0.97	0.16	0.95
15,195.0	90.10	155.30	6,741.0	5,517.0	-7,815.9	3,017.0	8,377.7	1.80	-0.81	-1.61
15,258.0	89.70	154.30	6,741.1	5,517.1	-7,872.9	3,043.8	8,440.5	1.71	-0.63	-1.59
15,321.0	89.10	153.10	6,741.8	5,517.8	-7,929.3	3,071.7	8,503.3	2.13	-0.95	-1.90
15,383.0	89.00	153.80	6,742.8	5,518.8	-7,984.8	3,099.4	8,565.1	1.14	-0.16	1.13
15,446.0	89.10	152.90	6,743.9	5,519.9	-8,041.1	3,127.7	8,627.8	1.44	0.16	-1.43
15,509.0	89.20	151.80	6,744.8	5,520.8	-8,096.9	3,156.9	8,690.5	1.75	0.16	-1.75
Final Survey=15547' MD/ 6745' TVD										
15,547.0	90.20	152.50	6,745.0	5,521.0	-8,130.5	3,174.7	8,728.2	3.21	2.63	1.84
Projection to TD=15598' MD/ 6745' TVD										
15,598.0	90.20	152.50	6,744.8	5,520.8	-8,175.7	3,198.2	8,779.0	0.00	0.00	0.00

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/S (usft)	+E/W (usft)	
5,300.0	5,299.5	-17.6	-9.2	Gyro Tie In=5300' MD
7,132.0	6,721.3	-498.7	-351.4	LP=7132' MD/ 6721' TVD
15,547.0	6,745.0	-8,130.5	3,174.7	Final Survey=15547' MD/ 6745' TVD
15,598.0	6,744.8	-8,175.7	3,198.2	Projection to TD=15598' MD/ 6745' TVD

Checked By: _____ Approved By: _____ Date: _____



EQT Production - Marcellus

Project: Doddridge County, WV Grid
Site: Doddridge County 514662
Well: Well #514662
Wellbore: Main Wellbore
Design: As Drilled Surveys

