



EQT PRODUCTION

PUL96 Pad

Well #515886- Marcellus - Slot 515886

Main Wellbore

Well License:

API #47-08510217

Design: 515886 As Drilled Surveys

Survey Report

17 February, 2016



Where energy meets innovation.



Phoenix Technology Services

Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Well #515886- Marcellus - Slot 515886
Company:	EQT PRODUCTION	TVD Reference:	KB 23' @ 1206.0usft
Project:	Ritchie County, WV	MD Reference:	KB 23' @ 1206.0usft
Site:	PUL96 Pad	North Reference:	Grid
Well:	Well #515886- Marcellus	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore	Well License:	
Design:	515886 As Drilled Surveys		

Project:	Ritchie 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 North 4701		

Site:	PUL96 Pad				
Site Position:		Northing:	262,406.23 usft	Latitude:	39.21
From:	Map	Easting:	1,578,892.82 usft	Longitude:	-80.99
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.95 °

Well:	Well #515886- Marcellus - Slot 515886					
Well Position	+N/-S	0.0 usft	Northing:	262,485.31 usft	Latitude:	39° 12' 40.015 N
	+E/-W	0.0 usft	Easting:	1,578,935.80 usft	Longitude:	80° 59' 9.767 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	1,183.0 usft

Wellbore:	Main Wellbore				
-----------	---------------	--	--	--	--

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	2/1/2016	-7.68	66.53	51,967

Design:	515886 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	193.46	

Survey Program	Date	2/17/2016			
From (°)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	4,530.0	515886 VES Gyro (Main Wellbore)	VES Spec AVG 04-09-15	Triaxial Continuous Gyro Model	
0.00	14,644.0	515886 PHX MWD (Main Wellbore)	PHX+MWD+HDGM	PHX+QWSG MWD + HDGM	

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	-1,206.0	0.0	0.0	0.0	0.00	0.00	0.00
110.0	0.15	217.01	110.0	-1,096.0	-0.1	-0.1	0.1	0.14	0.14	0.00
210.0	0.15	232.00	210.0	-996.0	-0.3	-0.3	0.4	0.11	0.08	44.99
310.0	0.23	207.47	310.0	-896.0	-0.6	-0.5	0.7	0.11	0.08	24.53
410.0	0.27	211.04	410.0	-796.0	-0.9	-0.7	1.1	0.04	0.04	3.57
510.0	0.28	220.71	510.0	-696.0	-1.3	-1.0	1.9	0.05	0.01	9.67
610.0	0.30	231.31	610.0	-596.0	-1.7	-1.3	1.9	0.06	0.02	10.00
710.0	0.91	298.51	710.0	-496.0	-1.5	-2.2	1.9	0.84	0.61	67.20

Oil and Gas
 DEC 06 2016
 WV Department of Environmental Protection



Phoenix Technology Services
Survey Report



Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Well Well #515886- Marcellus - Slot 515886
Company:	EQT PRODUCTION	TVD Reference:	KB 23' @ 1206 0usft
Project:	Ritchie County, WV	MD Reference:	KB 23' @ 1206 0usft
Site:	PUL96 Pad	North Reference:	Grd
Well:	Well #515886- Marcellus	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore	Well License	
Design:	515886 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)
810.0	1.00	299.14	810.0	-396.0	-0.7	-3.7	1.5	0.09	0.09	0.63
910.0	0.99	296.95	910.0	-296.0	0.2	-5.2	1.1	0.04	-0.01	-2.19
1,010.0	0.99	298.78	1,009.9	-196.1	1.0	-6.7	0.6	0.03	0.00	1.83
1,110.0	0.91	298.80	1,109.9	-96.1	1.8	-8.2	0.2	0.08	-0.08	0.02
1,210.0	0.84	299.54	1,209.9	3.9	2.5	-9.5	-0.2	0.07	-0.07	0.74
1,310.0	0.69	291.21	1,309.9	103.9	3.1	-10.7	-0.5	0.19	-0.15	-8.33
1,410.0	0.57	295.86	1,409.9	203.9	3.5	-11.7	-0.7	0.13	-0.12	4.65
1,510.0	0.47	303.93	1,509.9	303.9	4.0	-12.5	-0.9	0.12	-0.10	8.07
1,610.0	0.34	353.81	1,609.9	403.9	4.5	-12.9	-1.4	0.36	-0.13	49.88
1,710.0	0.42	22.09	1,709.9	503.9	5.1	-12.8	-2.0	0.20	0.08	28.28
1,810.0	0.47	78.50	1,809.9	603.9	5.6	-12.3	-2.5	0.42	0.05	56.41
1,910.0	0.67	109.83	1,909.9	703.9	5.4	-11.3	-2.7	0.36	0.20	31.33
2,010.0	0.74	132.62	2,009.9	803.9	4.8	-10.3	-2.3	0.29	0.07	22.79
2,110.0	0.75	134.67	2,109.9	903.9	3.9	-9.3	-1.6	0.03	0.01	2.05
2,210.0	0.74	143.35	2,209.9	1,003.9	2.9	-8.5	-0.9	0.11	-0.01	8.68
2,310.0	0.68	139.29	2,309.9	1,103.9	2.0	-7.7	-0.1	0.08	-0.06	-4.06
2,410.0	0.57	136.11	2,409.9	1,203.9	1.1	-7.0	0.5	0.12	-0.11	-3.18
2,510.0	0.51	141.68	2,509.8	1,303.8	0.4	-6.4	1.1	0.08	-0.06	5.57
2,610.0	0.52	128.76	2,609.8	1,403.8	-0.2	-5.7	1.5	0.12	0.01	-12.92
2,710.0	0.49	128.65	2,709.8	1,503.8	-0.7	-5.0	1.9	0.03	-0.03	-0.11
2,810.0	0.44	124.86	2,809.8	1,603.8	-1.2	-4.4	2.2	0.06	-0.05	-3.79
2,910.0	0.35	144.25	2,909.8	1,703.8	-1.7	-3.9	2.6	0.16	-0.09	19.39
3,010.0	0.30	137.01	3,009.8	1,803.8	-2.1	-3.5	2.9	0.06	-0.05	-7.24
3,110.0	0.30	151.02	3,109.8	1,903.8	-2.6	-3.2	3.2	0.07	0.00	14.01
3,210.0	0.27	136.29	3,209.8	2,003.8	-3.0	-2.9	3.6	0.08	-0.03	-14.73
3,310.0	0.19	136.83	3,309.8	2,103.8	-3.2	-2.7	3.8	0.08	-0.08	0.54
3,410.0	0.18	123.06	3,409.8	2,203.8	-3.5	-2.4	3.9	0.05	-0.01	-13.77
3,510.0	0.22	134.13	3,509.8	2,303.8	-3.7	-2.2	4.1	0.06	0.04	11.07
3,610.0	0.28	136.39	3,609.8	2,403.8	-4.0	-1.9	4.3	0.06	0.06	2.26
3,710.0	0.28	167.48	3,709.8	2,503.8	-4.4	-1.6	4.7	0.15	0.00	31.09
3,810.0	0.28	133.28	3,809.8	2,603.8	-4.8	-1.4	5.0	0.16	0.00	-34.20
3,910.0	0.27	135.38	3,909.8	2,703.8	-5.1	-1.1	5.2	0.01	-0.01	2.10
4,010.0	0.31	125.53	4,009.8	2,803.8	-5.5	-0.7	5.5	0.06	0.04	-9.85
4,110.0	0.25	117.23	4,109.8	2,903.8	-5.7	-0.3	5.6	0.07	-0.06	-8.30
4,210.0	0.28	130.59	4,209.8	3,003.8	-6.0	0.1	5.8	0.07	0.03	13.36
4,310.0	0.30	144.74	4,309.8	3,103.8	-6.4	0.5	6.1	0.07	0.02	14.15
4,410.0	0.35	171.41	4,409.8	3,203.8	-6.9	0.7	6.5	0.16	0.05	26.67
4,510.0	0.36	192.91	4,509.8	3,303.8	-7.5	0.6	7.1	0.13	0.01	21.50
Gyro Tie On=4530' MD										
4,530.0	0.37	184.21	4,529.8	3,323.8	-7.6	0.6	7.3	0.28	0.05	-43.50
4,573.0	0.30	68.20	4,572.8	3,366.8	-7.7	0.7	7.3	1.32	-0.16	-269.79
4,604.0	2.00	36.80	4,603.8	3,397.8	-7.2	1.1	6.8	5.65	5.48	-101.29
4,636.0	4.60	33.20	4,635.8	3,429.8	-5.7	2.1	5.1	8.15	8.13	-11.25

Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Well Well #515886- Marcellus - Slot 515886
Company:	EQT PRODUCTION	TVD Reference:	KB 23' @ 1206 Oustf
Project:	Ritchie County, WV	MD Reference:	KB 23' @ 1206 Oustf
Site:	PUL96 Pad	North Reference:	Grid
Well:	Well #515886- Marcellus	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore	Well License:	
Design:	515886 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)
4,668.0	6.90	34.30	4,667.6	3,461.6	-3.1	3.9	2.1	7.20	7.19	3.44
4,699.0	6.00	29.00	4,698.4	3,492.4	-0.1	5.8	-1.2	3.48	-2.90	-17.10
4,731.0	3.70	2.50	4,730.3	3,524.3	2.4	6.6	-3.9	9.85	-7.19	-82.81
4,762.0	3.30	314.20	4,761.2	3,555.2	4.0	6.0	-5.3	9.31	-1.29	-155.81
4,794.0	5.00	283.90	4,793.1	3,587.1	5.0	4.0	-5.8	8.50	5.31	-94.69
4,825.0	7.30	267.50	4,824.0	3,618.0	5.2	0.7	-5.3	9.27	7.42	-52.90
4,857.0	9.70	258.30	4,855.6	3,649.6	4.6	-3.9	-3.6	8.80	7.50	-28.75
4,888.0	12.00	254.70	4,886.1	3,680.1	3.2	-9.6	-0.9	7.73	7.42	-11.61
4,919.0	14.60	251.80	4,916.2	3,710.2	1.1	-16.4	2.7	8.66	8.39	-9.35
4,951.0	16.80	246.70	4,947.0	3,741.0	-1.9	-24.5	7.6	8.11	6.88	-15.94
4,982.0	19.20	246.60	4,976.5	3,770.5	-5.7	-33.3	13.3	7.74	7.74	-0.32
5,014.0	22.50	247.70	5,006.4	3,800.4	-10.2	-43.8	20.1	10.38	10.31	3.44
5,045.0	25.70	247.30	5,034.7	3,828.7	-15.0	-55.5	27.5	10.34	10.32	-1.29
5,076.0	28.80	246.90	5,062.3	3,856.3	-20.5	-68.6	35.9	10.02	10.00	-1.29
5,108.0	32.00	245.50	5,089.9	3,883.9	-27.1	-83.4	45.7	10.24	10.00	-4.38
5,139.0	35.60	244.80	5,115.6	3,909.6	-34.3	-99.0	56.4	11.68	11.61	-2.26
5,171.0	39.30	244.60	5,141.0	3,935.0	-42.6	-116.6	68.6	11.57	11.56	-0.63
5,202.0	43.50	244.80	5,164.3	3,958.3	-51.4	-135.1	81.4	13.56	13.55	0.65
5,234.0	47.70	245.50	5,186.6	3,980.6	-61.0	-155.9	95.6	13.22	13.13	2.19
5,265.0	50.60	245.80	5,206.9	4,000.9	-70.7	-177.2	110.0	9.38	9.35	0.97
5,297.0	53.80	245.80	5,226.5	4,020.5	-81.0	-200.3	125.4	10.00	10.00	0.00
5,328.0	56.60	245.20	5,244.2	4,038.2	-91.6	-223.5	141.1	9.17	9.03	-1.94
5,360.0	59.90	244.30	5,261.1	4,055.1	-103.2	-248.1	158.1	10.59	10.31	-2.81
5,391.0	63.20	243.40	5,275.8	4,069.8	-115.2	-272.5	175.5	10.95	10.65	-2.90
5,423.0	66.30	242.60	5,289.5	4,083.5	-128.3	-298.3	194.2	9.95	9.69	-2.50
5,454.0	68.90	242.80	5,301.3	4,095.3	-141.5	-323.8	212.9	8.41	8.39	0.65
5,486.0	71.80	242.70	5,312.0	4,106.0	-155.3	-350.6	232.6	9.07	9.06	-0.31
5,548.0	73.80	242.20	5,330.4	4,124.4	-182.7	-403.1	271.5	3.32	3.23	-0.81
5,643.0	74.70	242.00	5,356.2	4,150.2	-225.5	-483.9	331.9	0.97	0.95	-0.21
5,737.0	74.00	241.90	5,381.5	4,175.5	-268.0	-563.8	391.9	0.75	-0.74	-0.11
5,831.0	72.60	241.80	5,408.5	4,202.5	-310.5	-643.1	451.6	1.49	-1.49	-0.11
5,926.0	71.10	241.90	5,438.1	4,232.1	-353.1	-722.7	511.6	1.58	-1.58	0.11
6,020.0	70.80	241.90	5,468.8	4,262.8	-394.9	-801.1	570.5	0.32	-0.32	0.00
6,114.0	70.30	242.40	5,500.1	4,294.1	-436.3	-879.5	629.0	0.73	-0.53	0.53
6,208.0	70.30	242.50	5,531.8	4,325.8	-477.3	-957.9	687.1	0.10	0.00	0.11
6,303.0	71.70	243.10	5,562.7	4,356.7	-518.3	-1,037.8	745.6	1.59	1.47	0.63
6,397.0	73.50	243.20	5,590.8	4,384.8	-558.8	-1,117.9	803.6	1.92	1.91	0.11
6,492.0	73.50	243.30	5,617.8	4,411.8	-599.8	-1,199.2	862.4	0.10	0.00	0.11
6,586.0	73.30	243.20	5,644.7	4,438.7	-640.4	-1,279.6	920.6	0.24	-0.21	-0.11
6,680.0	73.40	243.00	5,671.6	4,465.6	-681.1	-1,360.0	978.9	0.23	0.11	-0.21
6,774.0	73.40	242.60	5,698.5	4,492.5	-722.3	-1,440.1	1,037.6	0.41	0.00	-0.43
6,869.0	73.10	242.90	5,725.5	4,519.5	-764.0	-1,521.0	1,096.9	0.44	-0.32	0.32



Phoenix Technology Services

Survey Report



Database: EDM 5000 1 Single User Db Company: EQT PRODUCTION Project: Ritchie County, WV Site: PUL86 Pad Well: Well #515886- Marcellus Wellbore: Main Wellbore Design: 515886 As Drilled Surveys	Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method: Well License:	Well Well #515886- Marcellus - Slot 515886 KB 23' @ 1206 Gusft KB 23' @ 1206 Gusft Gnd Minimum Curvature
--	--	---

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)
6,963.0	73.20	242.80	5,753.1	4,547.1	-805.0	-1,601.0	1,155.5	0.15	0.11	-0.11
7,057.0	73.60	241.90	5,779.9	4,573.9	-846.8	-1,680.8	1,214.7	1.01	0.43	-0.96
7,152.0	73.60	241.40	5,806.8	4,600.8	-890.1	-1,761.0	1,275.4	0.50	0.00	-0.53
7,246.0	74.20	242.10	5,832.8	4,626.8	-932.8	-1,840.6	1,335.5	0.96	0.84	0.74
7,340.0	72.20	241.60	5,860.0	4,654.0	-975.3	-1,919.9	1,395.3	2.19	-2.13	-0.53
7,435.0	72.00	241.70	5,889.2	4,683.2	-1,018.2	-1,999.5	1,455.5	0.23	-0.21	0.11
7,529.0	72.50	242.10	5,917.9	4,711.9	-1,060.4	-2,078.4	1,514.9	0.67	0.53	0.43
7,624.0	73.20	241.40	5,945.9	4,739.9	-1,103.4	-2,158.4	1,575.3	1.02	0.74	-0.74
7,718.0	73.70	241.40	5,972.6	4,766.6	-1,146.5	-2,237.5	1,635.7	0.53	0.53	0.00
7,812.0	72.30	242.20	6,000.1	4,794.1	-1,189.0	-2,316.7	1,695.4	1.70	-1.49	0.85
7,907.0	73.00	241.80	6,028.5	4,822.5	-1,231.5	-2,396.8	1,755.4	0.84	0.74	-0.42
8,001.0	71.20	242.10	6,057.3	4,851.3	-1,273.6	-2,475.7	1,814.7	1.94	-1.91	0.32
8,095.0	71.80	242.00	6,087.2	4,881.2	-1,315.4	-2,554.5	1,873.7	0.65	0.64	-0.11
8,190.0	72.20	241.60	6,116.5	4,910.5	-1,358.1	-2,634.1	1,933.7	0.58	0.42	-0.42
8,284.0	73.00	242.10	6,144.6	4,938.6	-1,400.4	-2,713.2	1,993.3	0.99	0.85	0.53
8,379.0	73.60	241.90	6,171.9	4,965.9	-1,443.1	-2,793.5	2,053.5	0.66	0.63	-0.21
8,442.0	73.00	242.60	6,190.0	4,984.0	-1,471.2	-2,846.9	2,093.3	1.43	-0.95	1.11
8,473.0	73.00	242.80	6,199.1	4,993.1	-1,484.8	-2,873.3	2,112.6	0.62	0.00	0.65
8,504.0	73.40	242.00	6,208.1	5,002.1	-1,498.6	-2,899.6	2,132.1	2.79	1.29	-2.58
8,536.0	72.30	239.50	6,217.5	5,011.5	-1,513.5	-2,926.2	2,152.9	8.22	-3.44	-7.81
8,567.0	72.50	235.70	6,226.9	5,020.9	-1,529.3	-2,951.2	2,174.1	11.70	0.65	-12.26
8,599.0	73.70	232.90	6,236.2	5,030.2	-1,547.2	-2,976.0	2,197.2	9.17	3.75	-8.75
8,630.0	74.20	229.40	6,244.8	5,038.8	-1,565.9	-2,999.2	2,220.8	10.97	1.61	-11.29
8,662.0	74.90	226.40	6,253.3	5,047.3	-1,586.6	-3,022.1	2,246.2	9.30	2.19	-9.38
8,693.0	74.70	221.60	6,261.4	5,055.4	-1,608.1	-3,042.9	2,272.0	14.96	-0.65	-15.48
8,725.0	75.50	217.50	6,269.8	5,063.6	-1,631.9	-3,062.6	2,299.7	12.63	2.50	-12.81
8,756.0	76.10	214.60	6,277.3	5,071.3	-1,656.2	-3,080.3	2,327.5	9.27	1.94	-9.35
8,787.0	76.10	211.60	6,284.7	5,078.7	-1,681.4	-3,096.7	2,355.8	9.39	0.00	-9.68
8,819.0	75.10	208.50	6,292.7	5,086.7	-1,708.2	-3,112.2	2,385.5	9.89	-3.13	-9.69
8,850.0	75.60	205.30	6,300.5	5,094.5	-1,735.0	-3,125.8	2,414.7	10.12	1.61	-10.32
8,882.0	77.60	202.30	6,307.9	5,101.9	-1,763.4	-3,138.3	2,445.3	11.06	6.25	-9.38
8,914.0	79.20	198.90	6,314.4	5,108.4	-1,792.8	-3,149.4	2,476.4	11.12	4.52	-10.63
8,945.0	80.80	195.70	6,319.8	5,113.8	-1,821.9	-3,158.4	2,506.9	11.12	4.52	-10.32
8,976.0	81.90	193.50	6,324.5	5,118.5	-1,851.6	-3,166.2	2,537.5	8.17	4.19	-7.10
9,008.0	83.30	190.10	6,328.6	5,122.6	-1,882.6	-3,172.6	2,569.2	11.11	4.38	-10.63
9,039.0	82.90	186.70	6,332.4	5,126.4	-1,913.1	-3,177.1	2,599.9	10.96	-1.29	-10.97
9,071.0	81.30	184.20	6,336.8	5,130.8	-1,944.6	-3,180.2	2,631.2	9.21	-5.00	-7.81
9,102.0	81.40	181.60	6,341.4	5,135.4	-1,975.2	-3,181.8	2,661.8	9.21	-5.00	-7.74
9,133.0	82.50	178.90	6,345.8	5,139.8	-2,005.9	-3,181.9	2,691.3	9.92	3.55	-9.38
9,165.0	83.50	175.90	6,349.7	5,143.7	-2,037.6	-3,180.5	2,721.8	9.82	3.13	-9.38
9,196.0	84.80	172.10	6,352.8	5,146.8	-2,068.3	-3,177.3	2,750.9	12.89	4.19	-12.26
9,228.0	86.00	169.50	6,355.4	5,149.4	-2,099.8	-3,172.2	2,780.3	8.92	3.75	-8.13
9,259.0	86.90	166.50	6,357.3	5,151.3	-2,130.0	-3,165.7	2,808.2	10.09	2.90	-8.68

RECEIVED
 Office of Oil and Gas
 DEC 06 2016
 WV Department of Environmental Protection



Phoenix Technology Services
Survey Report



Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Well Well #515886- Marcellus - Slot 515886
Company:	EQT PRODUCTION	TVD Reference:	KB 23' @ 1206 0usft
Project:	Ritchie County, WV	MD Reference:	KB 23' @ 1206 0usft
Site:	PUL96 Pad	North Reference:	Grd
Well:	Well #515886- Marcellus	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore	Well License:	
Design:	515886 As Drilled Surveys		

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Deg/leg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
515886 LP 2821' VS p6										
9,270.7	86.97	166.46	6,357.9	5,151.9	-2,141.4	-3,163.0	2,818.6	0.70	0.62	-0.31
515886 LP 2821' VS										
9,274.5	87.00	166.45	6,358.1	5,152.1	-2,145.1	-3,162.1	2,822.1	0.70	0.62	-0.31
9,291.0	87.10	166.40	6,359.0	5,153.0	-2,161.1	-3,158.3	2,836.7	0.70	0.63	-0.31
9,322.0	87.20	166.50	6,360.5	5,154.5	-2,191.2	-3,151.0	2,864.3	0.46	0.32	0.32
9,385.0	87.50	166.30	6,363.4	5,157.4	-2,252.4	-3,136.2	2,920.3	0.57	0.48	-0.32
9,417.0	87.80	166.20	6,364.8	5,158.8	-2,283.4	-3,128.6	2,948.8	0.99	0.94	-0.31
9,448.0	88.10	166.30	6,365.9	5,159.9	-2,313.5	-3,121.2	2,976.3	1.02	0.97	0.32
9,511.0	88.50	166.50	6,367.7	5,161.7	-2,374.7	-3,106.4	3,032.4	0.71	0.63	0.32
9,605.0	89.40	167.10	6,369.5	5,163.5	-2,466.2	-3,085.0	3,116.4	1.15	0.96	0.64
LP=9700' MD/6370' TVD										
9,700.0	89.90	163.80	6,370.0	5,164.0	-2,558.2	-3,061.1	3,200.2	3.51	0.53	-3.47
9,794.0	91.10	163.80	6,369.2	5,163.2	-2,648.4	-3,034.9	3,281.9	1.28	1.28	0.00
9,889.0	92.30	164.20	6,366.4	5,160.4	-2,739.7	-3,008.7	3,364.6	1.33	1.26	0.42
9,983.0	90.00	163.50	6,364.5	5,158.5	-2,830.0	-2,982.6	3,446.3	2.56	-2.45	-0.74
10,078.0	89.30	164.50	6,365.1	5,159.1	-2,921.3	-2,956.4	3,529.0	1.28	-0.74	1.05
10,172.0	90.50	164.80	6,365.3	5,159.3	-3,011.9	-2,931.5	3,611.4	1.32	1.28	0.32
10,266.0	91.50	164.70	6,363.6	5,157.6	-3,102.6	-2,906.8	3,693.8	1.07	1.06	-0.11
10,361.0	88.30	164.10	6,363.6	5,157.8	-3,194.1	-2,881.2	3,776.9	3.43	-3.37	-0.63
10,456.0	89.30	164.30	6,365.8	5,159.8	-3,285.5	-2,855.4	3,859.7	1.07	1.05	0.21
10,550.0	90.10	164.90	6,366.3	5,160.3	-3,376.1	-2,830.4	3,942.1	1.06	0.85	0.64
10,644.0	88.50	164.50	6,367.4	5,161.4	-3,466.8	-2,805.6	4,024.5	1.75	-1.70	-0.43
10,739.0	88.90	164.60	6,369.6	5,163.6	-3,558.3	-2,780.3	4,107.6	0.43	0.42	0.11
10,833.0	88.80	165.20	6,371.4	5,165.4	-3,649.0	-2,755.8	4,190.1	0.65	-0.11	0.64
10,927.0	89.40	164.40	6,372.9	5,166.9	-3,739.7	-2,731.2	4,272.6	1.08	0.64	-0.85
11,021.0	90.10	166.10	6,373.3	5,167.3	-3,830.6	-2,707.3	4,355.5	1.96	0.74	1.81
11,116.0	89.90	163.50	6,373.3	5,167.3	-3,922.3	-2,682.4	4,438.8	2.74	-0.21	-2.74
11,210.0	89.60	161.40	6,373.7	5,167.7	-4,011.9	-2,654.0	4,519.4	2.26	-0.32	-2.23
11,304.0	90.30	162.30	6,373.8	5,167.8	-4,101.3	-2,624.7	4,599.4	1.21	0.74	0.96
11,399.0	90.10	159.90	6,373.5	5,167.5	-4,191.1	-2,594.0	4,679.7	2.54	-0.21	-2.53
11,493.0	90.00	162.70	6,373.4	5,167.4	-4,280.2	-2,563.8	4,759.2	2.98	-0.11	2.98
11,588.0	90.20	163.30	6,373.2	5,167.2	-4,371.0	-2,536.1	4,841.1	0.67	0.21	0.63
11,682.0	90.30	163.80	6,372.8	5,166.8	-4,461.2	-2,509.4	4,922.6	0.54	0.11	0.53
11,776.0	89.80	164.70	6,372.8	5,166.8	-4,551.6	-2,483.9	5,004.7	1.10	-0.53	0.96
11,870.0	90.00	165.30	6,372.9	5,166.9	-4,642.4	-2,459.6	5,087.3	0.67	0.21	0.64
11,965.0	90.30	166.50	6,372.7	5,166.7	-4,734.6	-2,436.4	5,171.5	1.30	0.32	1.26
12,059.0	90.30	166.10	6,372.2	5,166.2	-4,825.9	-2,414.2	5,255.2	0.43	0.00	-0.43
12,154.0	90.30	165.10	6,371.7	5,165.7	-4,917.9	-2,390.6	5,339.2	1.05	0.00	-1.05
12,204.0	90.30	165.10	6,371.4	5,165.4	-4,966.2	-2,377.7	5,383.2	0.00	0.00	0.00
12,248.0	90.20	165.10	6,371.2	5,165.2	-5,008.7	-2,366.4	5,421.9	0.23	-0.23	0.00
12,343.0	90.50	165.10	6,370.6	5,164.6	-5,100.5	-2,342.0	5,505.5	0.32	0.32	0.00
12,437.0	90.20	164.50	6,370.1	5,164.1	-5,191.2	-2,317.3	5,588.0	0.71	-0.32	-0.64



Phoenix Technology Services
Survey Report



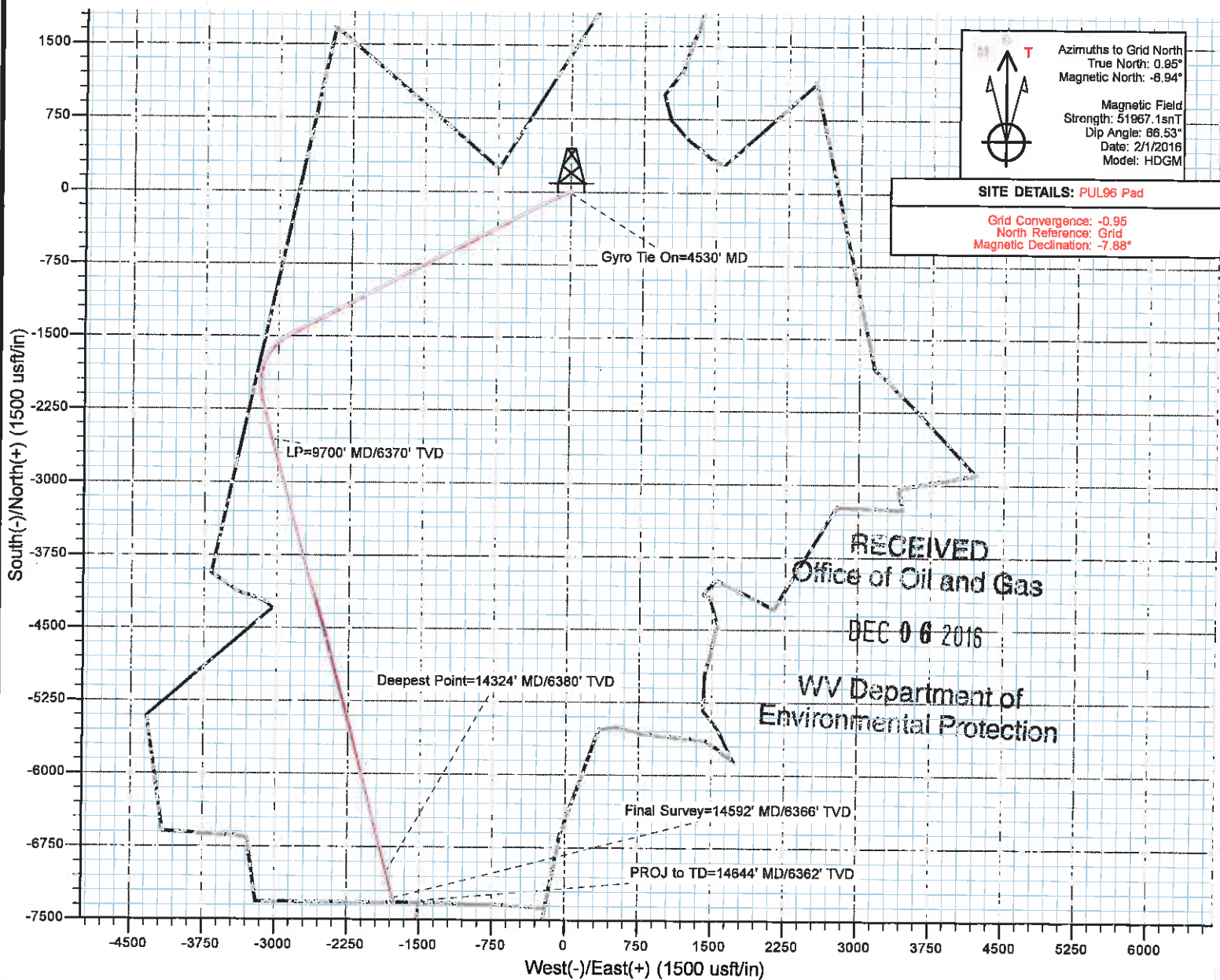
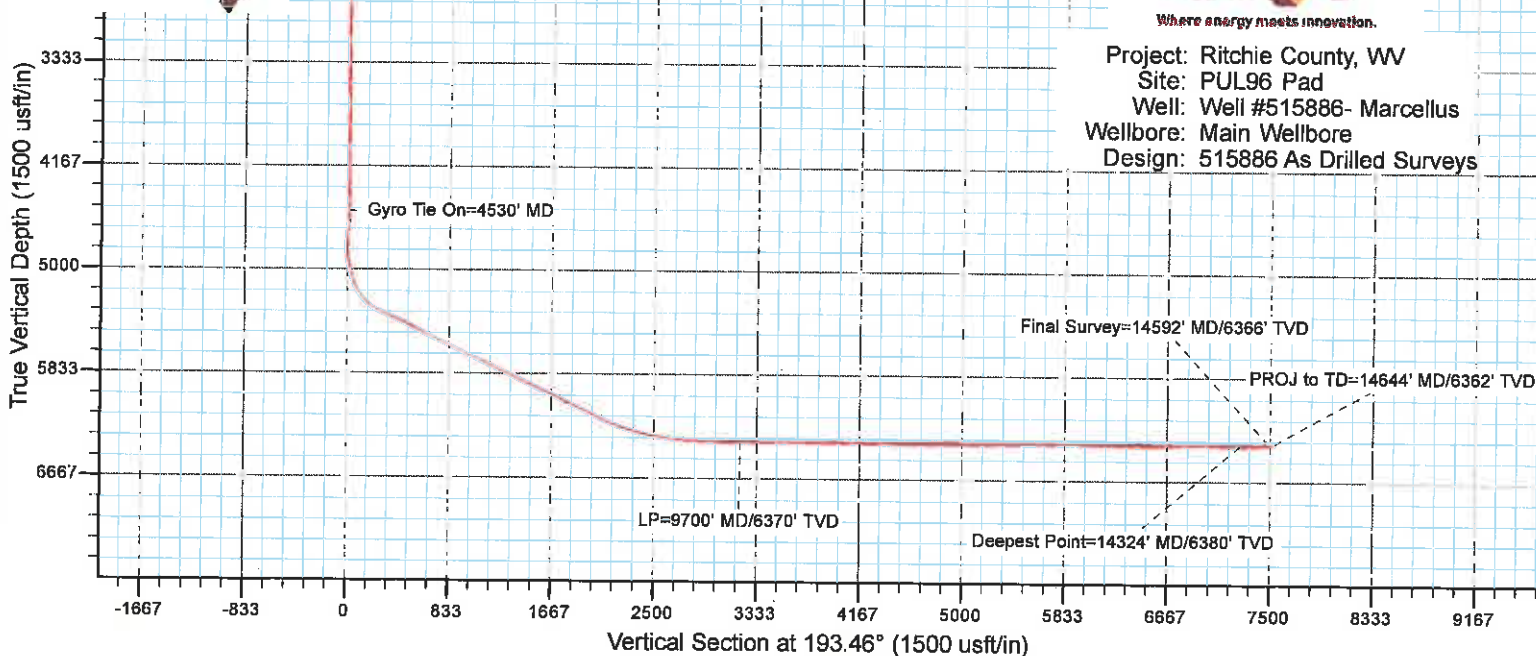
Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Well Well #515886- Marcellus - Slot 515886
Company:	EQT PRODUCTION	TVD Reference:	KB 23' @ 1206 Ousft
Project:	Ritchie County WV	MD Reference:	KB 23' @ 1206 Ousft
Site:	PUL86 Pad	North Reference:	Grnd
Well:	Well #515886- Marcellus	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore	Well License	
Design:	515886 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)
12,532.0	90.20	165.30	6,369.7	5,163.7	-5,283.0	-2,292.6	5,671.4	0.84	0.00	0.84
12,626.0	90.70	165.50	6,369.0	5,163.0	-5,373.9	-2,268.9	5,754.4	0.57	0.53	0.21
12,720.0	91.30	165.80	6,367.4	5,161.4	-5,465.0	-2,245.6	5,837.5	0.71	0.64	0.32
12,815.0	88.50	165.00	6,367.5	5,161.5	-5,556.9	-2,221.6	5,921.3	3.07	-2.95	-0.84
12,909.0	89.30	164.90	6,369.3	5,163.3	-5,647.7	-2,197.2	6,003.9	0.86	0.85	-0.11
13,003.0	89.50	166.00	6,370.3	5,164.3	-5,738.6	-2,173.6	6,086.9	1.19	0.21	1.17
13,098.0	90.00	165.90	6,370.7	5,164.7	-5,830.8	-2,150.6	6,171.2	0.54	0.53	-0.11
13,192.0	87.80	165.70	6,372.5	5,166.5	-5,921.9	-2,127.5	6,254.4	2.35	-2.34	-0.21
13,286.0	88.50	165.40	6,375.6	5,169.6	-6,012.9	-2,104.1	6,337.4	0.81	0.74	-0.32
13,381.0	88.80	165.90	6,377.8	5,171.8	-6,104.9	-2,080.5	6,421.4	0.61	0.32	0.53
13,475.0	90.80	166.10	6,378.1	5,172.1	-6,196.1	-2,057.8	6,504.8	2.14	2.13	0.21
13,569.0	91.90	166.80	6,375.9	5,169.9	-6,287.4	-2,035.8	6,588.6	1.39	1.17	0.74
13,664.0	91.90	166.10	6,372.8	5,166.8	-6,379.7	-2,013.5	6,673.2	0.74	0.00	-0.74
13,758.0	92.50	166.00	6,369.2	5,163.2	-6,470.9	-1,990.9	6,756.5	0.85	0.64	-0.11
13,852.0	92.40	166.00	6,365.1	5,159.1	-6,562.0	-1,968.2	6,839.9	0.11	-0.11	0.00
13,946.0	90.50	165.50	6,362.8	5,156.8	-6,653.1	-1,945.0	6,923.1	2.09	-2.02	-0.53
14,041.0	85.30	165.20	6,366.2	5,160.2	-6,744.9	-1,921.0	7,006.8	5.48	-5.47	-0.32
14,135.0	85.50	165.30	6,373.8	5,167.8	-6,835.5	-1,897.2	7,089.4	0.24	0.21	0.11
14,229.0	87.70	164.40	6,379.4	5,173.4	-6,926.1	-1,872.8	7,171.7	2.53	2.34	-0.96
Deepest Point=14324' MD/6380' TVD										
14,324.0	92.00	165.30	6,379.6	5,173.6	-7,017.8	-1,847.8	7,255.1	4.62	4.53	0.95
14,418.0	92.60	164.70	6,375.8	5,169.8	-7,108.5	-1,823.5	7,337.7	0.90	0.64	-0.64
14,512.0	93.60	164.20	6,370.8	5,164.8	-7,198.9	-1,798.4	7,419.8	1.19	1.06	-0.53
Final Survey=14592' MD/6366' TVD										
14,592.0	93.90	164.70	6,365.5	5,159.5	-7,275.8	-1,777.0	7,489.6	0.73	0.38	0.63
PROJ to TD=14644' MD/6362' TVD - 515886 TD2 - 515886 TD2 p6										
14,644.0	93.90	164.70	6,362.0	5,156.0	-7,325.9	-1,763.3	7,535.1	0.00	0.00	0.00

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,530.0	4,529.8	-7.6	0.6	Gyro Tie On=4530' MD
9,700.0	6,370.0	-2,558.2	-3,061.1	LP=9700' MD/6370' TVD
14,324.0	6,379.6	-7,017.8	-1,847.8	Deepest Point=14324' MD/6380' TVD
14,592.0	6,365.5	-7,275.8	-1,777.0	Final Survey=14592' MD/6366' TVD
14,644.0	6,362.0	-7,325.9	-1,763.3	PROJ to TD=14644' MD/6362' TVD

Checked By: _____ Approved By: _____ Date: _____

Project: Ritchie County, WV
 Site: PUL96 Pad
 Well: Well #515886- Marcellus
 Wellbore: Main Wellbore
 Design: 515886 As Drilled Surveys



RECEIVED
 Office of Oil and Gas
 DEC 06 2016
 WV Department of
 Environmental Protection