



EQT Production - Marcellus

Doddridge County, WV Grid

Doddridge County 514139

Well #514139

API # 47-1706588

Main Wellbore

Design: 514139 AS Drilled Surveys

Standard Survey Report

16 April, 2015

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PHX
Survey Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 514139
Company:	EQT Production - Marcellus	TVD Reference:	KB@23 @ 1277.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB@23 @ 1277.0usft
Site:	Doddridge County 514139	North Reference:	Grid
Well:	Well #514139	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	514139 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 514139		
Site Position:		Northing:	280,283.80 usft
From:	Map	Easting:	1,649,352.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	39.26
		Longitude:	-80.74
		Grid Convergence:	-0.79 °

Well	Well #514139		
Well Position	+N/-S	0.0 usft	Northing: 280,283.80 usft
	+E/-W	0.0 usft	Easting: 1,649,352.00 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	39° 15' 46.472 N
		Longitude:	80° 44' 18.347 W
		Ground Level:	1,254.0 usft

Wellbore	Main Wellbore		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	3/16/2015	-8.48	66.74	52,171

Design	514139 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	122.92	

Survey Program	Date	4/16/2015			
From (°)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	5,330.0	514139 Gyrodata Gyros (Main Wellbore)	GYD_DP_MS	Gyrodata gyro-compassing and drop	
0.00	12,680.0	514139 PHX MWD (Main Wellbore)	PHX+MWD+HDGM	PHX+OWSG MWD + HDGM	

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	-1,277.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.34	219.59	100.0	-1,177.0	-0.2	-0.2	0.0	0.34	0.34	0.00	
200.0	0.37	239.70	200.0	-1,077.0	-0.6	-0.7	-0.2	0.13	0.03	21.20	
300.0	0.42	260.90	300.0	-977.0	-0.9	-1.3	-0.6	0.15	0.05	17.43	
400.0	0.32	268.32	400.0	-877.0	-0.9	-2.0	-1.1	0.11	-0.10	31.83	
500.0	0.21	300.16	500.0	-777.0	-0.8	-2.4	-1.6	0.18	-0.12	50.25	
600.0	0.18	350.41	600.0	-677.0	-0.6	-2.6	-1.8	0.16	-0.03	16.15	
700.0	0.23	334.25	700.0	-577.0	-0.3	-2.7	-2.1	0.08	0.06		

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Well:	Well #514139	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	514139 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	0.24	331.46	800.0	-477.0	0.1	-2.9	-2.5	0.01	0.01	-2.80	
900.0	0.27	324.01	900.0	-377.0	0.5	-3.1	-2.9	0.04	0.03	-7.45	
1,000.0	0.23	331.53	1,000.0	-277.0	0.8	-3.3	-3.3	0.05	-0.03	7.52	
1,100.0	0.23	27.07	1,100.0	-177.0	1.2	-3.4	-3.5	0.22	-0.01	55.54	
1,200.0	0.38	50.55	1,200.0	-77.0	1.6	-3.0	-3.4	0.20	0.15	23.48	
1,300.0	0.38	52.59	1,300.0	23.0	2.0	-2.5	-3.2	0.01	0.00	2.05	
1,400.0	0.43	55.23	1,400.0	123.0	2.4	-1.9	-2.9	0.06	0.05	2.63	
1,500.0	0.42	56.91	1,500.0	223.0	2.8	-1.3	-2.6	0.02	-0.01	1.69	
1,600.0	0.34	49.37	1,600.0	323.0	3.2	-0.7	-2.4	0.10	-0.08	-7.54	
1,700.0	0.33	35.56	1,700.0	423.0	3.7	-0.4	-2.3	0.08	-0.01	-13.81	
1,800.0	0.35	43.73	1,800.0	523.0	4.1	0.0	-2.2	0.05	0.02	8.17	
1,900.0	0.21	83.68	1,900.0	623.0	4.4	0.4	-2.0	0.23	-0.13	39.95	
2,000.0	0.16	105.66	2,000.0	723.0	4.3	0.7	-1.7	0.09	-0.05	21.97	
2,100.0	0.12	108.54	2,100.0	823.0	4.3	1.0	-1.5	0.04	-0.04	2.88	
2,200.0	0.09	148.85	2,200.0	923.0	4.2	1.1	-1.3	0.08	-0.03	40.31	
2,300.0	0.11	204.89	2,300.0	1,023.0	4.0	1.1	-1.2	0.10	0.02	56.04	
2,400.0	0.19	240.04	2,400.0	1,123.0	3.8	0.9	-1.3	0.12	0.08	35.15	
2,500.0	0.24	244.06	2,500.0	1,223.0	3.7	0.6	-1.5	0.06	0.05	4.02	
2,600.0	0.31	252.16	2,600.0	1,323.0	3.5	0.2	-1.8	0.08	0.07	8.10	
2,700.0	0.36	260.28	2,700.0	1,423.0	3.3	-0.4	-2.2	0.06	0.04	0.60	
2,800.0	0.40	260.88	2,800.0	1,523.0	3.2	-1.1	-2.7	0.05	0.05	0.60	
2,900.0	0.45	268.72	2,900.0	1,623.0	3.2	-1.8	-3.2	0.08	0.05	7.83	
3,000.0	0.49	265.54	3,000.0	1,723.0	3.1	-2.6	-3.9	0.04	0.03	-3.17	
3,100.0	0.48	266.36	3,100.0	1,823.0	3.1	-3.5	-4.6	0.01	-0.01	0.82	
3,200.0	0.50	273.14	3,200.0	1,923.0	3.1	-4.3	-5.3	0.06	0.02	6.78	
3,300.0	0.48	271.95	3,299.9	2,022.9	3.1	-5.2	-6.0	0.02	-0.02	-1.19	
3,400.0	0.50	274.98	3,399.9	2,122.9	3.2	-6.0	-6.8	0.03	0.02	3.03	
3,500.0	0.50	282.21	3,499.9	2,222.9	3.3	-6.9	-7.6	0.06	0.00	7.22	
3,600.0	0.48	281.29	3,599.9	2,322.9	3.5	-7.7	-8.4	0.02	-0.02	-0.91	
3,700.0	0.54	278.86	3,699.9	2,422.9	3.6	-8.6	-9.2	0.06	0.06	-2.44	
3,800.0	0.57	285.16	3,799.9	2,522.9	3.8	-9.6	-10.1	0.07	0.02	6.30	
3,900.0	0.61	288.05	3,899.9	2,622.9	4.1	-10.5	-11.1	0.05	0.04	2.89	
4,000.0	0.61	289.99	3,999.9	2,722.9	4.5	-11.5	-12.1	0.02	0.00	1.94	
4,100.0	0.67	300.93	4,099.9	2,822.9	4.9	-12.6	-13.2	0.14	0.06	10.94	
4,200.0	0.80	301.26	4,199.9	2,922.9	5.6	-13.6	-14.5	0.13	0.13	0.32	
4,300.0	0.90	310.18	4,299.9	3,022.9	6.5	-14.8	-16.0	0.17	0.10	8.92	
4,400.0	1.00	312.76	4,399.9	3,122.9	7.6	-16.1	-17.6	0.11	0.10	2.58	
4,500.0	1.06	316.18	4,499.9	3,222.9	8.8	-17.4	-19.4	0.09	0.06	3.42	
4,600.0	1.31	317.95	4,599.8	3,322.8	10.3	-18.8	-21.4	0.25	0.25	1.77	
4,700.0	1.58	327.42	4,699.8	3,422.8	12.3	-20.3	-23.7	0.36	0.27	9.47	
4,800.0	1.59	330.34	4,799.8	3,522.8	14.7	-21.7	-26.2	0.08	0.01	2.92	
4,900.0	1.65	329.88	4,899.7	3,622.7	17.2	-23.1	-28.7	0.06	0.06	0.48	

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Survey

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5,000.0	1.70	330.60	4,999.7	3,722.7	19.7	-24.6	-31.3	0.05	0.04	0.72
5,100.0	1.70	329.82	5,099.6	3,822.6	22.3	-26.0	-34.0	0.02	0.00	-0.79
5,200.0	1.92	331.59	5,199.6	3,922.6	25.0	-27.6	-36.8	0.22	0.22	1.77
5,300.0	1.85	334.18	5,299.5	4,022.5	28.0	-29.1	-39.6	0.11	-0.07	2.59
Gyro Tie In= 5330' MD										
5,330.0	2.00	334.68	5,329.5	4,052.5	28.9	-29.5	-40.5	0.50	0.50	1.67
5,400.0	2.34	346.91	5,399.5	4,122.5	31.4	-30.4	-42.5	0.82	0.48	17.47
KOP=5411' MD										
5,411.0	2.40	348.50	5,410.5	4,133.5	31.8	-30.5	-42.9	0.82	0.56	14.45
5,500.0	12.24	30.33	5,498.7	4,221.7	42.0	-26.6	-45.2	11.88	11.06	47.00
5,600.0	22.20	57.34	5,593.8	4,316.8	62.9	-4.9	-38.3	12.52	9.95	27.01
5,700.0	27.74	74.28	5,684.6	4,407.6	78.3	33.8	-14.2	9.00	5.54	16.94
5,800.0	37.74	72.93	5,768.6	4,491.6	94.6	85.3	20.2	10.02	10.00	-1.35
5,900.0	47.80	71.95	5,841.8	4,564.8	114.1	150.4	64.2	10.08	10.06	-0.98
6,000.0	57.91	71.59	5,902.2	4,625.2	139.4	225.8	113.8	10.11	10.11	-0.36
6,100.0	68.60	71.18	5,946.9	4,669.9	167.8	310.4	169.4	10.70	10.69	-0.41
6,200.0	70.94	70.23	5,981.3	4,704.3	198.9	399.0	226.8	2.50	2.34	-0.95
6,300.0	72.72	69.78	6,012.0	4,735.0	231.5	488.4	284.2	1.83	1.78	-0.45
6,400.0	72.27	69.65	6,041.7	4,764.7	264.7	577.9	341.3	0.47	-0.45	-0.14
6,500.0	70.79	69.70	6,073.4	4,796.4	297.6	666.9	398.1	1.47	-1.47	0.05
6,600.0	69.99	69.98	6,107.2	4,830.2	330.2	755.2	454.5	0.85	-0.80	0.28
6,700.0	69.84	69.89	6,141.6	4,864.6	362.2	843.5	511.2	0.17	-0.15	0.08
6,800.0	69.60	70.16	6,176.2	4,899.2	394.5	931.6	567.6	0.35	-0.24	0.27
6,900.0	69.36	69.90	6,211.3	4,934.3	426.2	1,019.7	624.3	0.35	-0.24	-0.41
7,000.0	71.83	70.94	6,245.1	4,968.1	458.1	1,108.2	681.3	2.66	2.48	1.04
7,100.0	72.60	71.46	6,275.2	4,998.2	488.6	1,198.5	740.6	0.92	0.77	0.53
7,200.0	73.04	71.41	6,304.8	5,027.8	519.0	1,289.1	800.1	0.44	0.44	-0.05
7,300.0	71.71	70.57	6,334.9	5,057.9	550.0	1,379.3	858.9	1.55	-1.33	-0.85
7,400.0	70.52	68.84	6,367.3	5,090.3	582.8	1,468.0	915.6	2.02	-1.19	-1.73
7,500.0	70.70	68.63	6,400.5	5,123.5	617.0	1,555.9	970.8	0.26	0.18	-0.21
7,600.0	70.72	69.54	6,433.5	5,156.5	650.7	1,644.1	1,026.5	0.86	0.02	0.91
7,700.0	70.93	70.04	6,466.4	5,189.4	683.3	1,732.7	1,083.2	0.52	0.21	0.50
7,800.0	71.18	70.30	6,498.9	5,221.9	715.3	1,821.7	1,140.5	0.35	0.25	0.26
7,900.0	71.33	70.16	6,530.8	5,253.8	747.3	1,910.9	1,198.0	0.21	0.15	-0.14
8,000.0	70.44	69.20	6,563.5	5,286.5	780.0	1,999.6	1,254.7	1.26	-0.89	-0.95
8,100.0	69.41	68.24	6,597.9	5,320.9	814.5	2,086.9	1,309.2	1.37	-1.04	-0.96
8,200.0	70.20	76.94	6,632.2	5,355.2	843.4	2,176.1	1,368.4	8.20	0.79	8.70
8,300.0	70.33	86.91	6,666.5	5,389.5	857.1	2,269.0	1,438.9	9.39	0.13	9.97
8,400.0	72.55	98.40	6,698.6	5,421.6	852.4	2,363.4	1,520.7	11.11	2.22	11.49
8,500.0	73.42	108.52	6,728.9	5,451.9	830.8	2,456.1	1,610.2	9.72	0.86	10.12
8,600.0	74.40	119.54	6,756.0	5,479.0	791.5	2,543.8	1,705.2	10.63	0.98	11.01
8,700.0	73.53	129.08	6,783.8	5,506.8	737.6	2,623.2	1,801.1	9.21	-0.86	9.51
8,800.0	78.72	137.34	6,808.6	5,531.6	671.3	2,693.7	1,896.4	9.54	5.18	8.26

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8,900.0	85.10	147.12	6,821.4	5,544.4	593.4	2,754.7	1,989.9	11.60	6.38	9.79
9,000.0	88.47	152.72	6,827.7	5,550.7	506.7	2,804.1	2,078.5	6.53	3.38	5.60
LP=9015' MD/ 6828' TVD										
9,015.0	89.20	153.30	6,828.0	5,551.0	493.4	2,810.9	2,091.5	6.20	4.84	3.87
9,100.0	89.29	154.73	6,829.2	5,552.2	417.0	2,848.2	2,164.2	1.69	0.11	1.68
9,200.0	90.44	153.48	6,829.5	5,552.5	326.9	2,891.6	2,249.7	1.70	1.15	-1.25
9,300.0	89.70	154.80	6,829.3	5,552.3	237.0	2,935.3	2,335.2	1.51	-0.74	1.32
9,400.0	89.47	153.31	6,830.1	5,553.1	147.2	2,979.3	2,421.0	1.50	-0.23	-1.49
9,500.0	90.70	157.05	6,829.8	5,552.8	56.3	3,020.9	2,505.3	3.94	1.23	3.74
9,600.0	90.58	156.43	6,828.6	5,551.6	-35.7	3,060.2	2,588.3	0.63	-0.12	-0.62
9,700.0	89.80	154.77	6,828.2	5,551.2	-126.7	3,101.6	2,672.4	1.84	-0.78	-1.66
9,800.0	89.46	153.93	6,829.3	5,552.3	-216.7	3,145.3	2,758.0	0.91	-0.35	-0.84
9,900.0	90.33	154.28	6,829.2	5,552.2	-306.8	3,188.5	2,843.3	0.95	0.88	0.35
10,000.0	90.35	153.73	6,828.7	5,551.7	-396.4	3,232.9	2,929.2	0.55	0.02	-0.55
10,100.0	90.51	154.60	6,827.8	5,550.8	-486.6	3,276.1	3,014.6	0.88	0.16	0.87
10,200.0	90.40	155.91	6,827.1	5,550.1	-577.1	3,318.6	3,099.4	1.31	-0.11	1.31
10,300.0	90.29	157.30	6,826.4	5,549.4	-669.2	3,357.7	3,182.2	1.40	-0.11	1.39
10,400.0	90.20	157.77	6,826.0	5,549.0	-761.5	3,396.1	3,264.6	0.48	-0.09	0.47
10,500.0	90.46	157.59	6,825.5	5,548.5	-854.1	3,433.7	3,346.6	0.32	0.26	-0.16
10,600.0	89.63	156.26	6,825.1	5,548.1	-946.2	3,472.8	3,429.4	1.57	-0.83	-1.33
10,700.0	88.68	154.60	6,826.7	5,549.7	-1,037.1	3,514.4	3,513.7	1.91	-0.95	-1.65
10,800.0	88.10	153.96	6,829.5	5,552.5	-1,127.1	3,557.9	3,599.2	0.86	-0.58	-0.64
10,900.0	89.11	154.84	6,832.2	5,555.2	-1,217.1	3,601.3	3,684.5	1.34	1.01	0.88
11,000.0	88.93	155.00	6,833.8	5,556.8	-1,307.8	3,643.6	3,769.3	0.24	-0.17	0.16
11,100.0	90.15	154.14	6,834.7	5,557.7	-1,398.1	3,686.5	3,854.4	1.49	1.21	-0.86
11,200.0	89.99	153.90	6,834.5	5,557.5	-1,488.0	3,730.3	3,940.0	0.28	-0.16	-0.23
11,300.0	89.31	154.17	6,835.2	5,558.2	-1,577.9	3,774.1	4,025.6	0.73	-0.68	0.26
11,400.0	89.37	154.90	6,836.3	5,559.3	-1,668.2	3,817.0	4,110.7	0.74	0.07	0.73
11,500.0	89.22	154.20	6,837.6	5,560.6	-1,758.4	3,860.0	4,195.9	0.72	-0.16	-0.70
11,600.0	89.25	153.92	6,838.8	5,561.8	-1,848.4	3,903.6	4,281.4	0.28	0.04	-0.28
11,700.0	89.24	153.26	6,840.3	5,563.3	-1,937.8	3,948.4	4,367.6	0.67	-0.01	-0.67
11,800.0	89.73	154.64	6,841.2	5,564.2	-2,027.5	3,992.5	4,453.4	1.47	0.49	1.39
11,900.0	90.20	156.06	6,841.2	5,564.2	-2,118.6	4,033.8	4,537.5	1.49	0.46	1.42
12,000.0	90.23	155.33	6,840.6	5,563.6	-2,209.9	4,074.7	4,621.4	0.73	0.03	-0.73
12,100.0	89.06	154.25	6,841.0	5,564.0	-2,300.3	4,117.5	4,706.5	1.59	-1.17	-1.08
12,200.0	88.26	154.28	6,843.7	5,566.7	-2,390.2	4,161.1	4,792.0	0.80	-0.80	0.02
12,300.0	87.75	154.19	6,847.0	5,570.0	-2,480.3	4,204.3	4,877.2	0.51	-0.50	-0.08
12,400.0	87.33	153.73	6,851.5	5,574.5	-2,570.1	4,248.2	4,962.8	0.62	-0.42	-0.46
12,500.0	87.59	154.24	6,856.0	5,579.0	-2,659.7	4,292.2	5,048.5	0.57	0.25	0.51
12,600.0	87.93	154.58	6,859.9	5,582.9	-2,749.9	4,335.3	5,133.7	0.48	0.34	0.33

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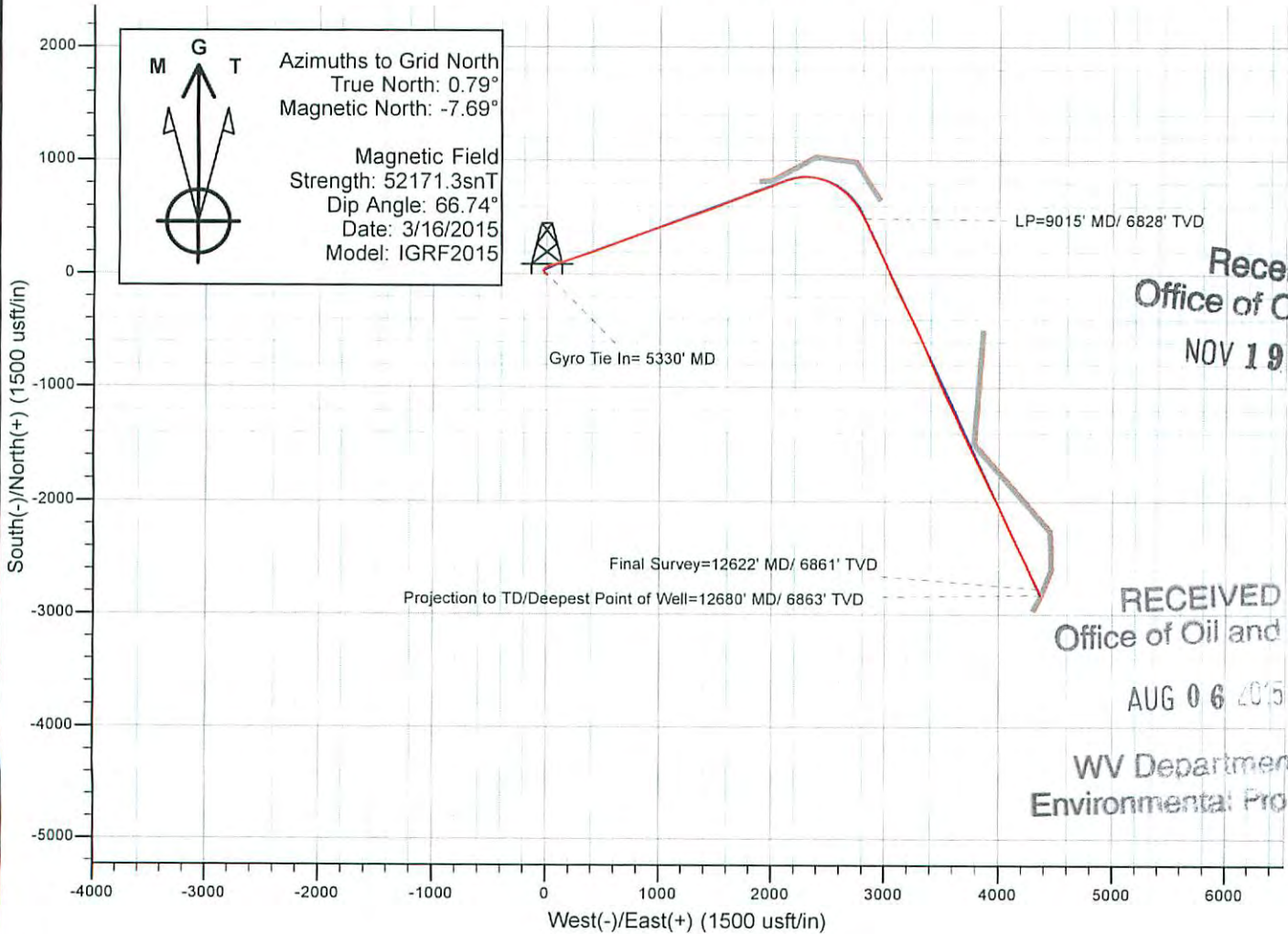
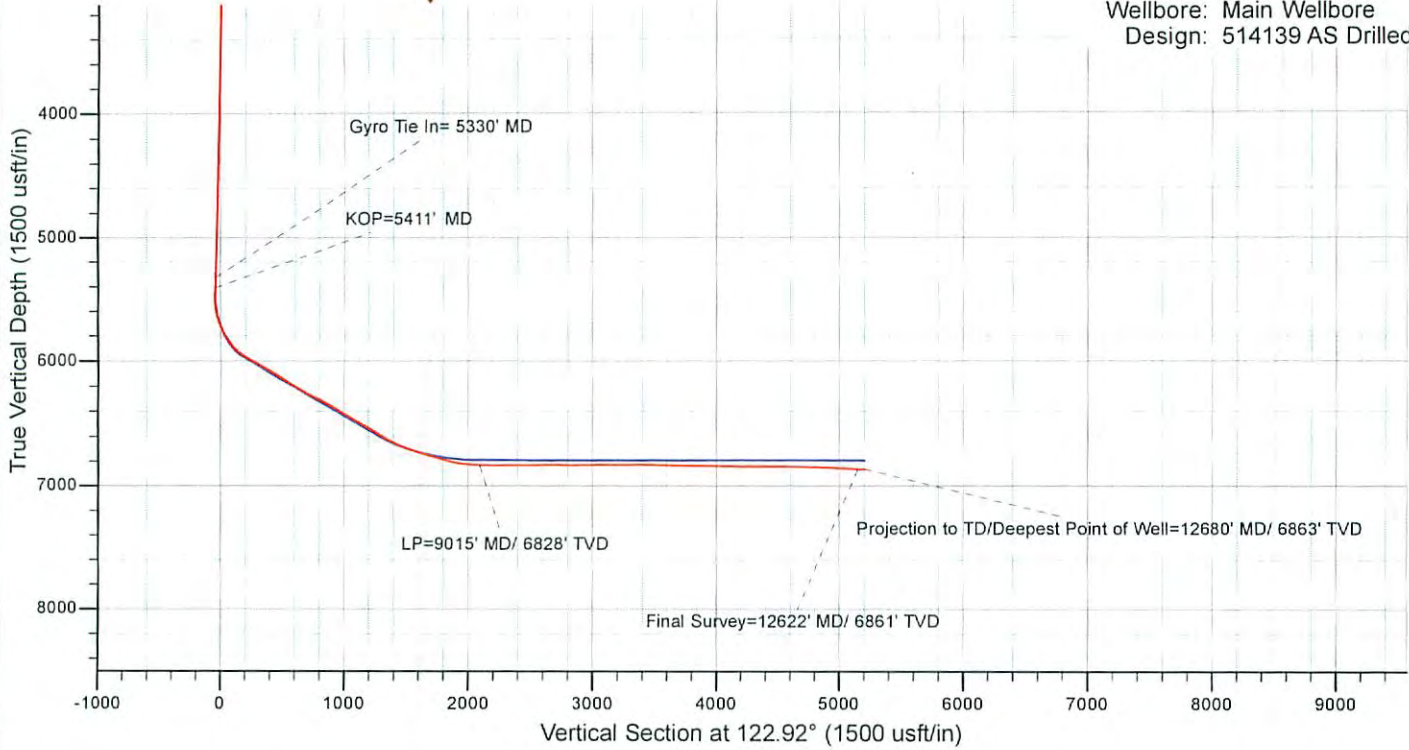
Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 514139
Company:	EQT Production - Marcellus	TVD Reference:	KB@23 @ 1277.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB@23 @ 1277.0usft
Site:	Doddridge County 514139	North Reference:	Grid
Well:	Well #514139	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	514139 AS Drilled Surveys		

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
5,330.0	5,329.5	28.9	-29.5	Gyro Tie In= 5330' MD	
5,411.0	5,410.5	31.8	-30.5	KOP=5411' MD	
9,015.0	6,828.0	493.4	2,810.9	LP=9015' MD/ 6828' TVD	
12,622.0	6,860.7	-2,769.8	4,344.7	Final Survey=12622' MD/ 6861' TVD	
12,680.0	6,862.7	-2,822.1	4,369.6	Projection to TD/Deepest Point of Well=12680' MD/ 6863' TVD	

Checked By: _____ Approved By: _____ Date: _____

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COMPASS 5000.1 Build 73



	Azimuths to Grid North
	True North: 0.79° Magnetic North: -7.69°
Magnetic Field	
Strength: 52171.3snT	
Dip Angle: 66.74°	
Date: 3/16/2015	
Model: IGRF2015	

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