

41-05689

PHOENIX
TECHNOLOGY SERVICES



EQT Production - Marcellus

Lewis County, WV

Lewis County 514167

Well #514167

Main Wellbore

API: 47-410-5689

Design: 514167 As Drilled Surveys

Standard Survey Report

12 May, 2015



Where energy meets innovation.

10/16/2015

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Lewis County 514167
Company:	EQT Production - Marcellus	TVD Reference:	KB@23 @ 1179.0usft
Project:	Lewis County, WV	MD Reference:	KB@23 @ 1179.0usft
Site:	Lewis County 514167	North Reference:	Grid
Well:	Well #514167	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	514167 As Drilled Surveys		

Project	Lewis 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	Lewis County 514167				
Site Position:		Northing:	721,821.77 usft	Latitude:	38.98
From:	Map	Easting:	2,132,669.28 usft	Longitude:	-80.53
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.29 °

Well	Well #514167					
Well Position	+N/-S	0.0 usft	Northing:	721,821.77 usft	Latitude:	38° 58' 52.740 N
	+E/-W	0.0 usft	Easting:	2,132,669.28 usft	Longitude:	80° 32' 0.016 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,156.0 usft

Wellbore	Main Wellbore				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	4/14/2015	-8.63	66.42	52,204

Design	514167 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	336.66	

Survey Program	Date	5/12/2015			
From (')	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	5,510.0	514167 VES Outrun (Main Wellbore)	InFlex Gyro-VES 01-12-15	Triaxial Continuous Gyro Model	
0.00	15,712.0	514167 PHX MWD (Main Wellbore)	PHX+MWD+HDGM	PHX+OWSG 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	-1,179.0	0.0	0.0	0.0	0.00	0.00	0.00
110.0	0.21	299.76	110.0	-1,069.0	0.1	-0.2	0.2	0.19	0.19	0.00
210.0	0.35	261.22	210.0	-969.0	0.1	-0.6	0.4	0.23	0.14	-38.54
310.0	0.26	292.33	310.0	-869.0	0.2	-1.1	0.6	0.19	-0.09	31.11
410.0	0.17	259.03	410.0	-769.0	0.2	-1.5	0.8	0.15	-0.09	-33.30
510.0	0.22	281.55	510.0	-669.0	0.3	-1.8	1.0	0.09	0.05	22.52
610.0	0.21	175.18	610.0	-569.0	0.1	-2.0	0.9	0.34	-0.01	-106.37
710.0	0.15	198.93	710.0	-469.0	-0.2	-2.0	0.6	0.09	-0.06	23.75

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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	0.14	218.69	810.0	-369.0	-0.4	-0.6	-2.2	0.5	0.05	-0.01
910.0	0.16	197.94	910.0	-269.0	-0.6	-2.3	0.3	0.06	0.02	-20.75
1,010.0	0.19	117.73	1,010.0	-169.0	-0.9	-2.2	0.1	0.23	0.03	-80.21
1,110.0	0.17	127.94	1,110.0	-69.0	-1.0	-1.9	-0.2	0.04	-0.02	10.21
1,210.0	0.20	133.77	1,210.0	31.0	-1.2	-1.7	-0.5	0.04	0.03	5.83
1,310.0	0.26	153.71	1,310.0	131.0	-1.6	-1.4	-0.9	0.10	0.06	19.94
1,410.0	0.45	184.08	1,410.0	231.0	-2.2	-1.4	-1.4	0.26	0.19	30.37
1,510.0	0.46	194.88	1,510.0	331.0	-2.9	-1.5	-2.1	0.09	0.01	10.80
1,610.0	0.42	185.37	1,610.0	431.0	-3.7	-1.6	-2.7	0.08	-0.04	-9.51
1,710.0	0.39	188.46	1,710.0	531.0	-4.4	-1.7	-3.3	0.04	-0.03	3.09
1,810.0	0.42	185.24	1,810.0	631.0	-5.1	-1.8	-4.0	0.04	0.03	-3.22
1,910.0	0.46	175.98	1,910.0	731.0	-5.9	-1.8	-4.7	0.08	0.04	-9.26
2,010.0	0.48	176.91	2,010.0	831.0	-6.7	-1.8	-5.4	0.02	0.02	0.93
2,110.0	0.65	192.80	2,110.0	931.0	-7.6	-1.9	-6.3	0.23	0.17	15.89
2,210.0	0.66	192.74	2,210.0	1,031.0	-8.8	-2.1	-7.2	0.01	0.01	-0.06
2,310.0	0.67	203.89	2,310.0	1,131.0	-9.9	-2.5	-8.1	0.13	0.01	11.15
2,410.0	0.66	206.11	2,409.9	1,230.9	-10.9	-3.0	-8.8	0.03	-0.01	2.22
2,510.0	0.58	198.25	2,509.9	1,330.9	-11.9	-3.4	-9.6	0.12	-0.08	-7.86
2,610.0	0.57	191.27	2,609.9	1,430.9	-12.9	-3.6	-10.4	0.07	-0.01	-6.98
2,710.0	0.57	175.87	2,709.9	1,530.9	-13.9	-3.7	-11.3	0.15	0.00	-15.40
2,810.0	0.58	176.39	2,809.9	1,630.9	-14.9	-3.6	-12.2	0.01	0.01	0.52
2,910.0	0.62	170.77	2,909.9	1,730.9	-15.9	-3.5	-13.2	0.07	0.04	-5.62
3,010.0	0.57	162.64	3,009.9	1,830.9	-16.9	-3.3	-14.2	0.10	-0.05	-8.13
3,110.0	0.58	164.76	3,109.9	1,930.9	-17.9	-3.0	-15.2	0.02	0.01	2.12
3,210.0	0.63	167.70	3,209.9	2,030.9	-18.9	-2.7	-16.3	0.06	0.05	2.94
3,310.0	0.64	166.60	3,309.9	2,130.9	-20.0	-2.5	-17.4	0.02	0.01	-1.10
3,410.0	0.65	158.41	3,409.9	2,230.9	-21.0	-2.2	-18.5	0.09	0.01	-8.19
3,510.0	0.59	155.58	3,509.9	2,330.9	-22.0	-1.7	-19.6	0.07	-0.06	-2.83
3,610.0	0.63	160.52	3,609.9	2,430.9	-23.0	-1.3	-20.6	0.07	0.04	4.94
3,710.0	0.70	145.01	3,709.9	2,530.9	-24.1	-0.8	-21.8	0.19	0.07	-15.51
3,810.0	0.72	132.89	3,809.9	2,630.9	-25.0	0.0	-22.9	0.15	0.02	-12.12
3,910.0	0.84	122.06	3,909.9	2,730.9	-25.8	1.1	-24.1	0.19	0.12	-10.83
4,010.0	1.24	109.98	4,009.8	2,830.8	-26.6	2.7	-25.5	0.45	0.40	-12.08
4,110.0	1.22	107.07	4,109.8	2,930.8	-27.2	4.8	-26.9	0.07	-0.02	-2.91
4,210.0	1.19	102.28	4,209.8	3,030.8	-27.8	6.8	-28.2	0.11	-0.03	-4.79
4,310.0	1.22	93.29	4,309.8	3,130.8	-28.1	8.9	-29.3	0.19	0.03	-8.99
4,410.0	1.31	81.00	4,409.8	3,230.8	-27.9	11.1	-30.0	0.29	0.09	-12.29
4,510.0	1.38	74.91	4,509.7	3,330.7	-27.4	13.4	-30.5	0.16	0.07	-6.09
4,610.0	1.37	73.41	4,609.7	3,430.7	-26.8	15.7	-30.8	0.04	-0.01	-1.50
4,710.0	1.34	66.36	4,709.7	3,530.7	-26.0	17.9	-30.9	0.17	-0.03	-7.05
4,810.0	1.17	63.39	4,809.6	3,630.6	-25.1	19.9	-30.9	0.18	-0.17	-2.97
4,910.0	0.98	73.52	4,909.6	3,730.6	-24.4	21.6	-30.9	0.27	-0.19	10.13

Database: EDM 5000.1 Single User Db	Company: EQT Production - Marcellus	Project: Lewis County, WV	Site: Lewis County 514167	Well: Well #514167	Wellbore: Main Wellbore	Design: 514167 As Drilled Surveys
Local Co-ordinate Reference:	KB@23 @ 1179.0usft	MD Reference: KB@23 @ 1179.0usft	Gnd	North Reference:	Survey Calculation Method:	Minimum Curvature

Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site Lewis County 514167
Company:	EQT Production - Marcellus	TVD Reference:	KB@23 @ 1179.0usft
Project:	Lewis County, WV	MD Reference:	KB@23 @ 1179.0usft
Site:	Lewis County 514167	North Reference:	Grid
Well:	Well #514167	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	514167 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)	
5,010.0	0.80	83.03	5,009.6	3,830.6	-24.0	23.1	-31.2	0.23	-0.18	9.51	
5,110.0	0.64	88.00	5,109.6	3,930.6	-23.9	24.4	-31.6	0.17	-0.16	4.97	
5,210.0	0.52	108.59	5,209.6	4,030.6	-24.0	25.3	-32.1	0.24	-0.12	20.59	
5,310.0	0.45	120.42	5,309.6	4,130.6	-24.4	26.1	-32.7	0.12	-0.07	11.83	
5,410.0	0.43	119.14	5,409.6	4,230.6	-24.8	26.8	-33.4	0.02	-0.02	-1.28	
Gyro Tie In=5510' MD											
5,510.0	0.29	32.24	5,509.6	4,330.6	-24.7	27.2	-33.5	0.51	-0.14	-86.90	
5,554.0	6.80	154.30	5,553.5	4,374.5	-27.0	28.4	-36.0	15.81	14.80	277.41	
5,586.0	9.70	157.50	5,585.2	4,406.2	-31.2	30.3	-40.6	9.17	9.06	10.00	
5,618.0	9.80	154.40	5,616.7	4,437.7	-36.1	32.5	-46.1	1.67	0.31	-9.69	
5,649.0	11.50	152.70	5,647.2	4,468.2	-41.3	35.1	-51.8	5.58	5.48	-5.48	
5,680.0	11.90	159.00	5,677.5	4,498.5	-47.0	37.6	-58.1	4.32	1.29	20.32	
5,712.0	10.60	168.40	5,708.9	4,529.9	-53.0	39.4	-64.2	7.01	-4.06	29.38	
5,744.0	8.40	168.10	5,740.5	4,561.5	-58.1	40.5	-69.4	6.88	-6.88	-0.94	
5,775.0	7.60	160.30	5,771.2	4,592.2	-62.3	41.6	-73.7	4.34	-2.58	-25.16	
5,807.0	7.30	157.60	5,802.9	4,623.9	-66.1	43.1	-77.8	1.44	-0.94	-8.44	
5,839.0	8.80	156.80	5,834.6	4,655.6	-70.3	44.9	-82.3	4.70	4.69	-2.50	
5,870.0	10.60	161.80	5,865.1	4,686.1	-75.2	46.7	-87.5	6.41	5.81	16.13	
5,902.0	12.30	161.80	5,896.5	4,717.5	-81.2	48.7	-93.8	5.31	5.31	0.00	
5,934.0	14.20	159.00	5,927.6	4,748.6	-88.1	51.1	-101.2	6.27	5.94	-8.75	
5,965.0	16.40	158.60	5,957.5	4,778.5	-95.7	54.1	-109.3	7.10	7.10	-1.29	
5,997.0	19.30	160.40	5,988.0	4,809.0	-104.9	57.5	-119.1	9.22	9.06	5.63	
6,028.0	22.20	162.20	6,017.0	4,838.0	-115.3	61.0	-130.1	9.58	9.35	5.81	
6,060.0	23.70	162.60	6,046.4	4,867.4	-127.2	64.8	-142.5	4.71	4.69	1.25	
6,092.0	26.70	162.40	6,075.4	4,896.4	-140.2	68.9	-156.0	9.38	9.38	-0.63	
6,123.0	28.70	163.00	6,102.8	4,923.8	-154.0	73.2	-170.4	6.51	6.45	1.94	
6,155.0	31.30	164.00	6,130.6	4,951.6	-169.3	77.7	-186.2	8.27	8.13	3.13	
6,187.0	33.70	165.10	6,157.5	4,978.5	-185.9	82.3	-203.3	7.72	7.50	3.44	
6,218.0	35.60	164.10	6,183.0	5,004.0	-202.9	87.0	-220.7	6.40	6.13	-3.23	
6,250.0	38.90	164.00	6,208.5	5,029.5	-221.5	92.3	-239.9	10.31	10.31	-0.31	
6,281.0	43.30	164.30	6,231.9	5,052.9	-241.1	97.9	-260.1	14.21	14.19	0.97	
6,313.0	44.90	164.20	6,254.8	5,075.8	-262.5	103.9	-282.2	5.00	5.00	-0.31	
6,345.0	42.40	163.70	6,278.0	5,099.0	-283.7	110.0	-304.1	7.89	-7.81	-1.56	
6,376.0	38.60	163.00	6,301.6	5,122.6	-303.0	115.8	-324.1	12.35	-12.26	-2.26	
6,408.0	35.30	164.00	6,327.1	5,148.1	-321.5	121.2	-343.2	10.48	-10.31	3.13	
6,439.0	32.00	163.90	6,352.9	5,173.9	-338.0	126.0	-360.2	10.65	-10.65	-0.32	
6,471.0	28.30	163.30	6,380.6	5,201.6	-353.4	130.5	-376.2	11.60	-11.56	-1.88	
6,503.0	24.10	163.40	6,409.3	5,230.3	-366.9	134.6	-390.2	13.13	-13.13	0.31	
6,534.0	20.70	163.70	6,438.0	5,259.0	-378.3	137.9	-401.9	10.97	-10.97	0.97	
6,566.0	17.60	165.20	6,468.2	5,289.2	-388.4	140.7	-412.3	9.81	-9.69	4.69	
6,598.0	14.00	166.30	6,499.0	5,320.0	-396.8	142.9	-420.9	11.29	-11.25	3.44	
6,629.0	10.70	167.00	6,529.3	5,350.3	-403.3	144.4	-427.5	10.66	-10.65	2.26	
6,661.0	7.80	161.10	6,560.8	5,381.8	-408.2	145.8	-432.6	9.52	-9.06	-18.44	

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Survey Report

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Survey											
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6,693.0	5.80	148.30	6,592.6	5,413.6	-411.6	147.4	-436.3	7.81	-6.25	-40.00	
6,724.0	3.30	139.80	6,623.5	5,444.5	-413.7	148.8	-438.7	8.33	-8.06	-27.42	
6,756.0	1.60	128.80	6,655.5	5,476.5	-414.6	149.7	-440.0	5.49	-5.31	-34.38	
6,788.0	1.20	329.10	6,687.5	5,508.5	-414.6	149.9	-440.1	8.62	-1.25	-499.06	
6,819.0	4.40	328.10	6,718.4	5,539.4	-413.3	149.1	-438.6	10.32	10.32	-3.23	
6,851.0	7.70	333.10	6,750.3	5,571.3	-410.4	147.5	-435.2	10.43	10.31	15.63	
6,882.0	11.90	336.50	6,780.8	5,601.8	-405.6	145.2	-430.0	13.67	13.55	10.97	
6,914.0	15.50	338.30	6,811.9	5,632.9	-398.6	142.3	-422.4	11.33	11.25	5.63	
6,946.0	18.20	337.40	6,842.5	5,663.5	-390.0	138.8	-413.1	8.48	8.44	-2.81	
6,977.0	21.10	335.30	6,871.7	5,692.7	-380.5	134.6	-402.7	9.63	9.35	-6.77	
7,009.0	23.60	335.10	6,901.3	5,722.3	-369.4	129.5	-390.5	7.82	7.81	-0.63	
7,040.0	27.30	336.20	6,929.3	5,750.3	-357.3	124.1	-377.2	12.03	11.94	3.55	
7,072.0	30.50	337.40	6,957.3	5,778.3	-343.1	118.0	-361.7	10.16	10.00	3.75	
7,104.0	33.40	337.70	6,984.4	5,805.4	-327.4	111.5	-344.8	9.08	9.06	0.94	
7,135.0	36.30	336.80	7,009.9	5,830.9	-311.1	104.7	-327.1	9.50	9.35	-2.90	
7,167.0	39.50	336.20	7,035.1	5,856.1	-293.1	96.8	-307.4	10.07	10.00	-1.88	
7,198.0	43.20	335.60	7,058.4	5,879.4	-274.4	88.5	-287.0	12.00	11.94	-1.94	
7,230.0	46.60	335.80	7,081.1	5,902.1	-253.8	79.2	-264.4	10.63	10.63	0.63	
7,261.0	50.20	336.40	7,101.6	5,922.6	-232.6	69.8	-241.2	11.70	11.61	1.94	
7,293.0	53.10	336.70	7,121.5	5,942.5	-209.6	59.8	-216.1	9.09	9.06	0.94	
7,324.0	56.10	337.50	7,139.4	5,960.4	-186.3	50.0	-190.9	9.90	9.68	2.58	
7,356.0	59.70	337.70	7,156.4	5,977.4	-161.2	39.6	-163.8	11.26	11.25	0.63	
7,388.0	63.30	337.70	7,171.7	5,992.7	-135.2	29.0	-135.6	11.25	11.25	0.00	
7,419.0	66.20	337.20	7,184.9	6,005.9	-109.3	18.2	-107.6	9.47	9.35	-1.61	
7,451.0	69.10	336.20	7,197.1	6,018.1	-82.2	6.5	-78.0	9.51	9.06	-3.13	
7,482.0	72.90	336.10	7,207.2	6,028.2	-55.4	-5.3	-48.7	12.26	12.26	-0.32	
7,514.0	76.10	336.80	7,215.7	6,036.7	-27.1	-17.7	-17.9	10.22	10.00	2.19	
7,527.0	77.00	337.30	7,218.8	6,039.8	-15.5	-22.6	-5.2	7.87	6.92	3.85	
7,558.0	79.40	337.60	7,225.1	6,046.1	12.6	-34.2	25.1	7.80	7.74	0.97	
7,590.0	80.70	338.20	7,230.6	6,051.6	41.8	-46.1	56.6	4.46	4.06	1.88	
7,622.0	83.30	338.20	7,235.1	6,056.1	71.2	-57.9	88.3	8.13	8.13	0.00	
7,653.0	89.00	338.40	7,237.2	6,058.2	99.9	-69.3	119.2	18.40	18.39	0.65	
7,685.0	91.40	338.00	7,237.1	6,058.1	129.6	-81.2	151.2	7.60	7.50	-1.25	
7,717.0	89.50	337.80	7,236.8	6,057.8	159.3	-93.2	183.2	5.97	-5.94	-0.63	
7,748.0	87.30	337.60	7,237.7	6,058.7	187.9	-105.0	214.2	7.13	-7.10	-0.65	
7,780.0	86.20	337.40	7,239.5	6,060.5	217.5	-117.2	246.1	3.49	-3.44	-0.63	
7,811.0	85.90	337.60	7,241.6	6,062.6	246.0	-129.0	277.0	1.16	-0.97	0.65	
7,843.0	84.40	337.30	7,244.3	6,065.3	275.5	-141.3	308.9	4.78	-4.69	-0.94	
7,875.0	84.70	337.50	7,247.4	6,068.4	304.9	-153.5	340.8	1.13	0.94	0.63	
7,906.0	85.00	337.50	7,250.1	6,071.1	333.4	-165.3	371.6	0.97	0.97	0.00	
7,938.0	84.80	337.70	7,253.0	6,074.0	362.9	-177.5	403.5	0.88	-0.63	0.63	
7,969.0	85.30	337.80	7,255.7	6,076.7	391.5	-189.2	434.4	1.64	1.61	0.32	
8,032.0	86.10	338.00	7,260.4	6,081.4	449.7	-212.8	497.2	1.31	1.27	0.32	

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Survey Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Lewis County 514167
Company:	EQT Production - Marcellus	TVD Reference:	KB@23 @ 1179.0usft
Project:	Lewis County, WV	MD Reference:	KB@23 @ 1179.0usft
Site:	Lewis County 514167	North Reference:	Grid
Well:	Well #514167	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	514167 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)
8,064.0	86.00	337.90	7,262.6	6,083.6	479.3	-224.8	529.1	0.44	-0.31	-0.31
8,127.0	87.40	336.20	7,266.2	6,087.2	537.2	-249.3	592.0	3.49	2.22	-2.70
8,159.0	87.40	335.90	7,267.7	6,088.7	566.4	-262.3	624.0	0.94	0.00	-0.94
8,254.0	87.70	335.80	7,271.7	6,092.7	653.0	-301.1	718.9	0.33	0.32	-0.11
8,285.0	87.70	335.60	7,273.0	6,094.0	681.2	-313.9	749.8	0.64	0.00	-0.65
LP=8349' MD/7274' TVD										
8,349.0	89.70	335.40	7,274.4	6,095.4	739.4	-340.4	813.8	3.14	3.13	-0.31
8,444.0	89.90	334.60	7,274.8	6,095.8	825.5	-380.5	908.7	0.87	0.21	-0.84
8,539.0	89.90	335.70	7,274.9	6,095.9	911.7	-420.5	1,003.7	1.16	0.00	
8,634.0	90.60	336.60	7,274.5	6,095.5	998.6	-458.9	1,098.7	1.20	0.74	0.95
8,728.0	90.20	337.30	7,273.9	6,094.9	1,085.1	-495.7	1,192.7	0.86	-0.43	0.74
8,823.0	89.30	337.90	7,274.3	6,095.3	1,173.0	-531.9	1,287.7	1.14	-0.95	0.63
8,918.0	87.40	338.00	7,277.0	6,098.0	1,261.0	-567.5	1,382.6	2.00	-2.00	0.11
9,013.0	87.60	337.40	7,281.2	6,102.2	1,348.8	-603.5	1,477.5	0.67	0.21	-0.63
9,108.0	88.00	337.10	7,284.8	6,105.8	1,436.3	-640.2	1,572.4	0.53	0.42	-0.32
9,202.0	88.50	336.50	7,287.7	6,108.7	1,522.7	-677.3	1,666.4	0.83	0.53	-0.64
9,297.0	88.90	335.70	7,289.8	6,110.8	1,609.5	-715.7	1,761.4	0.94	0.42	-0.84
9,392.0	88.90	335.30	7,291.6	6,112.6	1,695.9	-755.1	1,856.3	0.42	0.00	-0.42
Deepest Point of Well=9487' MD/ 7293' TVD										
9,487.0	89.80	337.20	7,292.7	6,113.7	1,782.9	-793.4	1,951.3	2.21	0.95	2.00
9,582.0	90.50	337.90	7,292.5	6,113.5	1,870.7	-829.7	2,046.3	1.04	0.74	0.74
9,677.0	90.80	337.30	7,291.4	6,112.4	1,958.5	-865.9	2,141.3	0.71	0.32	-0.63
9,772.0	91.10	336.90	7,289.8	6,110.8	2,046.0	-902.8	2,236.3	0.53	0.32	-0.42
9,867.0	91.50	336.50	7,287.7	6,108.7	2,133.2	-940.4	2,331.2	0.60	0.42	-0.42
9,961.0	90.20	337.50	7,286.3	6,107.3	2,219.8	-977.1	2,425.2	1.74	-1.38	1.06
10,056.0	91.30	337.40	7,285.0	6,106.0	2,307.5	-1,013.5	2,520.2	1.16	1.16	-0.11
10,151.0	92.10	337.30	7,282.2	6,103.2	2,395.1	-1,050.1	2,615.2	0.85	0.84	-0.11
10,246.0	91.00	337.40	7,279.6	6,100.6	2,482.8	-1,086.7	2,710.1	1.16	-1.16	0.11
10,341.0	89.80	337.40	7,279.0	6,100.0	2,570.5	-1,123.2	2,805.1	1.26	-1.26	0.00
10,436.0	89.80	337.50	7,279.3	6,100.3	2,658.2	-1,159.6	2,900.1	0.11	0.00	0.11
10,531.0	90.10	337.50	7,279.4	6,100.4	2,746.0	-1,196.0	2,995.1	0.32	0.32	0.00
10,626.0	90.70	336.60	7,278.7	6,099.7	2,833.4	-1,233.0	3,090.1	1.14	0.63	-0.95
10,721.0	89.70	337.80	7,278.4	6,099.4	2,921.0	-1,269.8	3,185.1	1.64	-1.05	1.26
10,816.0	90.60	337.10	7,278.2	6,099.2	3,008.7	-1,306.3	3,280.1	1.20	0.95	-0.74
10,911.0	91.10	337.10	7,276.7	6,097.7	3,096.2	-1,343.2	3,375.0	0.53	0.53	0.00
11,006.0	89.40	337.80	7,276.3	6,097.3	3,184.0	-1,379.6	3,470.0	1.94	-1.79	0.74
11,101.0	90.20	337.40	7,276.7	6,097.7	3,271.8	-1,415.8	3,565.0	0.94	0.84	-0.42
11,196.0	91.00	337.10	7,275.7	6,096.7	3,359.4	-1,452.6	3,660.0	0.90	0.84	-0.32
11,291.0	91.80	337.20	7,273.3	6,094.3	3,446.9	-1,489.5	3,755.0	0.85	0.84	0.11
11,386.0	92.50	336.40	7,269.8	6,090.8	3,534.2	-1,526.9	3,849.9	1.12	0.74	-0.84
11,481.0	91.00	337.30	7,266.9	6,087.9	3,621.5	-1,564.2	3,944.9	1.84	-1.58	0.95
11,576.0	91.70	337.00	7,264.6	6,085.6	3,709.0	-1,601.1	4,039.8	0.80	0.74	-0.32

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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)
11,671.0	92.40	337.00	7,261.2	6,082.2	3,796.4	-1,638.2	4,134.8	0.74	0.74	0.00
11,765.0	90.10	337.80	7,259.2	6,080.2	3,883.2	-1,674.3	4,228.7	2.59	-2.45	0.85
11,860.0	90.20	337.50	7,258.9	6,079.9	3,971.0	-1,710.4	4,323.7	0.33	0.11	-0.32
11,955.0	90.70	336.70	7,258.2	6,079.2	4,058.5	-1,747.4	4,418.7	0.99	0.53	-0.84
12,050.0	91.30	336.50	7,256.5	6,077.5	4,145.7	-1,785.1	4,513.7	0.67	0.63	-0.21
12,145.0	89.80	336.60	7,255.6	6,076.6	4,232.9	-1,822.9	4,608.7	1.58	-1.58	0.11
12,240.0	90.40	336.30	7,255.5	6,076.5	4,319.9	-1,860.8	4,703.7	0.71	0.63	-0.32
12,335.0	88.90	336.80	7,256.0	6,077.0	4,407.1	-1,898.6	4,798.7	1.66	-1.58	0.53
12,430.0	89.90	336.70	7,257.0	6,078.0	4,494.4	-1,936.1	4,893.7	1.06	1.05	-0.11
12,524.0	90.40	336.50	7,256.8	6,077.8	4,580.6	-1,973.5	4,987.7	0.57	0.53	-0.21
12,619.0	90.90	336.80	7,255.7	6,076.7	4,667.8	-2,011.1	5,082.7	0.61	0.53	0.32
12,714.0	91.20	336.10	7,254.0	6,075.0	4,754.9	-2,049.1	5,177.6	0.80	0.32	-0.74
12,809.0	89.60	337.30	7,253.3	6,074.3	4,842.2	-2,086.7	5,272.6	2.11	-1.68	1.26
12,904.0	90.10	336.80	7,253.6	6,074.6	4,929.6	-2,123.7	5,367.6	0.74	0.53	-0.53
13,000.0	91.10	337.80	7,252.6	6,073.6	5,017.3	-2,160.4	5,462.6	1.49	1.05	1.05
13,094.0	91.90	337.30	7,250.1	6,071.1	5,105.1	-2,196.6	5,557.6	0.99	0.84	-0.53
13,189.0	92.50	337.20	7,246.4	6,067.4	5,192.6	-2,233.3	5,652.5	0.64	0.63	-0.11
13,284.0	92.70	335.90	7,242.1	6,063.1	5,279.7	-2,271.1	5,747.4	1.38	0.21	-1.37
13,379.0	93.80	336.10	7,236.7	6,057.7	5,366.3	-2,309.7	5,842.2	1.18	1.16	0.21
13,474.0	94.50	336.10	7,229.9	6,050.9	5,452.9	-2,348.1	5,937.0	0.74	0.74	0.00
13,569.0	92.60	336.10	7,224.0	6,045.0	5,539.6	-2,386.5	6,031.8	2.00	-2.00	0.00
13,663.0	91.40	337.30	7,220.7	6,041.7	5,625.9	-2,423.6	6,125.7	1.80	-1.28	1.28
13,758.0	90.70	339.40	7,219.0	6,040.0	5,714.2	-2,458.7	6,220.7	2.33	-0.74	2.21
13,853.0	90.90	340.70	7,217.6	6,038.6	5,803.5	-2,491.1	6,315.5	1.38	0.21	1.37
13,948.0	89.90	337.80	7,217.0	6,038.0	5,892.3	-2,524.7	6,410.4	3.23	-1.05	-3.05
14,043.0	90.70	337.00	7,216.5	6,037.5	5,980.0	-2,561.2	6,505.4	1.19	0.84	-0.84
14,138.0	88.40	337.10	7,217.2	6,038.2	6,067.5	-2,598.3	6,600.4	2.42	-2.42	0.11
14,233.0	88.80	336.70	7,219.5	6,040.5	6,154.8	-2,635.5	6,695.3	0.60	0.42	-0.42
14,328.0	89.30	336.60	7,221.1	6,042.1	6,242.0	-2,673.2	6,790.3	0.54	0.53	-0.11
14,423.0	89.80	336.40	7,221.9	6,042.9	6,329.1	-2,711.1	6,885.3	0.57	0.53	-0.21
14,518.0	90.30	336.30	7,221.8	6,042.8	6,416.2	-2,749.2	6,980.3	0.54	0.53	-0.11
14,613.0	91.00	336.10	7,220.7	6,041.7	6,503.1	-2,787.5	7,075.3	0.77	0.74	-0.21
14,708.0	91.90	335.80	7,218.3	6,039.3	6,589.8	-2,826.2	7,170.3	1.00	0.95	-0.32
14,803.0	90.20	335.70	7,216.5	6,037.5	6,676.4	-2,865.2	7,265.2	1.79	-1.79	-0.11
14,898.0	89.10	336.50	7,217.1	6,038.1	6,763.2	-2,903.7	7,360.2	1.43	-1.16	0.84
14,993.0	87.70	335.10	7,219.8	6,040.8	6,849.9	-2,942.6	7,455.2	2.08	-1.47	-1.47
15,087.0	88.20	334.70	7,223.1	6,044.1	6,934.9	-2,982.5	7,549.1	0.68	0.53	-0.43
15,180.0	88.40	335.60	7,225.9	6,046.9	7,019.3	-3,021.5	7,642.0	0.99	0.22	0.97
15,274.0	88.20	336.40	7,228.7	6,049.7	7,105.1	-3,059.8	7,735.9	0.88	-0.21	0.85
15,368.0	88.70	335.70	7,231.2	6,052.2	7,191.0	-3,097.9	7,829.9	0.91	0.53	-0.74
15,462.0	89.30	337.10	7,232.9	6,053.9	7,277.1	-3,135.5	7,923.9	1.62	0.64	1.49
15,556.0	90.00	336.80	7,233.5	6,054.5	7,363.6	-3,172.3	8,017.9	0.81	0.74	-0.32
15,650.0	90.90	336.60	7,232.7	6,053.7	7,449.9	-3,209.5	8,111.9	0.98	0.96	-0.21

Survey													
Database:	EDM 5000.1 Single User Db	Company:	EQT Production - Marcellus	Project:	Lewis County, WV	Site:	Lewis County 514167	Well:	Well #514167	Wellbore:	Main Wellbore	Design:	514167 As Drilled Surveys
Local Co-ordinate Reference:	KB@23 @ 1179.0usft	TVD Reference:	KB@23 @ 1179.0usft	MD Reference:	KB@23 @ 1179.0usft	North Reference:	Gnd	Survey Calculation Method:	Minimum Curvature				



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10/16/2015

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Lewis County 514167
Company:	EQT Production - Marcellus	TVD Reference:	KB@23 @ 1179.0usft
Project:	Lewis County, WV	MD Reference:	KB@23 @ 1179.0usft
Site:	Lewis County 514167	North Reference:	Grid
Well:	Well #514167	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	514167 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)	Buld Rate (°/100usft)	Turn Rate (°/100usft)
Final Survey=15659' MD/ 7233' TVD										
15,659.0	90.90	336.80	7,232.6	6,053.6	7,458.2	-3,213.1	8,120.9	2.22	0.00	2.22
Projection to TD=15712' MD/ 7232' TVD										
15,712.0	90.90	336.80	7,231.7	6,052.7	7,506.9	-3,234.0	8,173.9	0.00	0.00	0.00

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
5,510.0	5,509.6	-24.7	27.2	Gyro Tie In=5510' MD	
8,349.0	7,274.4	739.4	-340.4	LP=8349' MD/ 7274' TVD	
9,487.0	7,292.7	1,782.9	-793.4	Deepest Point of Well=9487' MD/ 7293' TVD	
15,659.0	7,232.6	7,458.2	-3,213.1	Final Survey=15659' MD/ 7233' TVD	
15,712.0	7,231.7	7,506.9	-3,234.0	Projection to TD=15712' MD/ 7232' TVD	

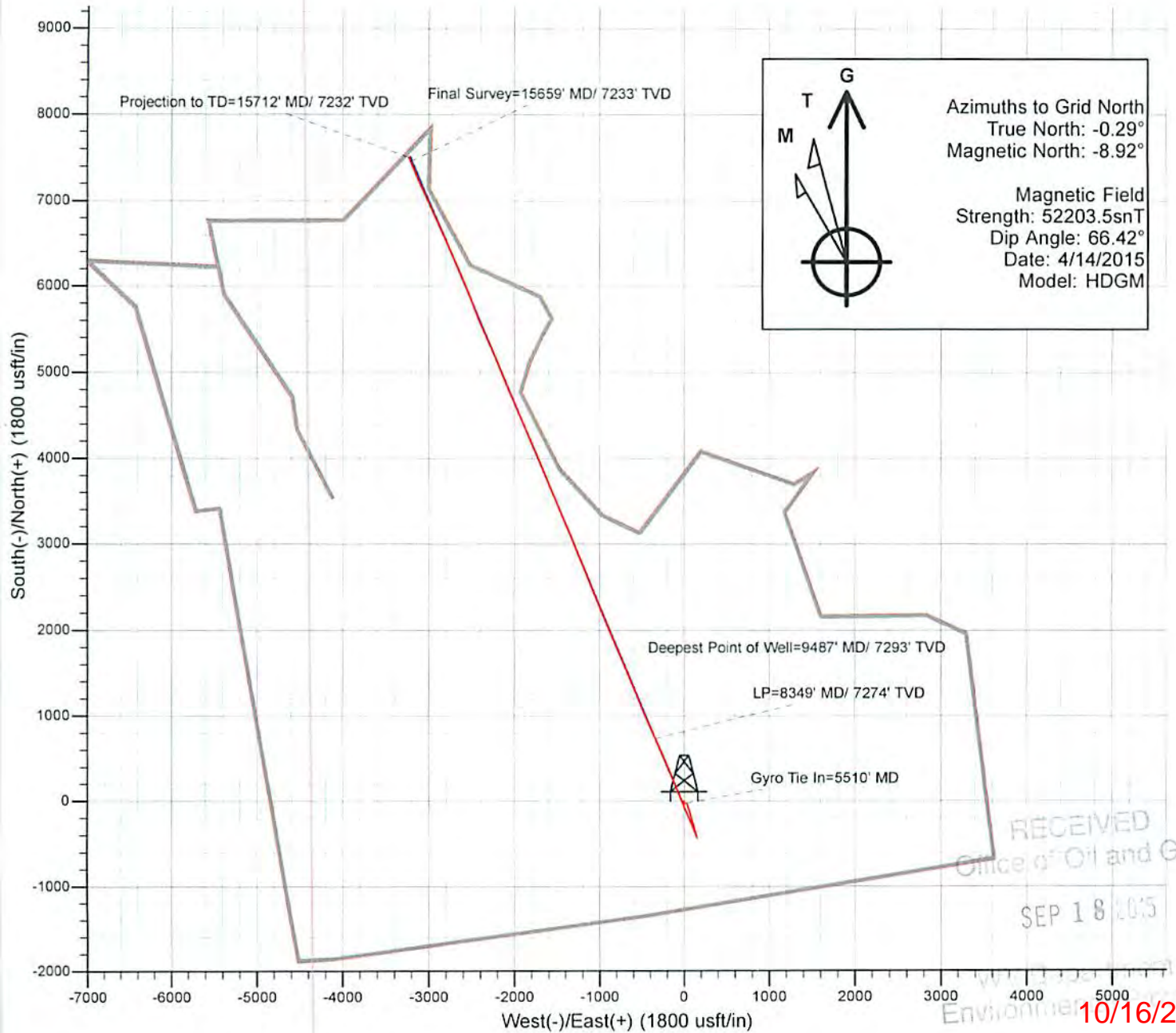
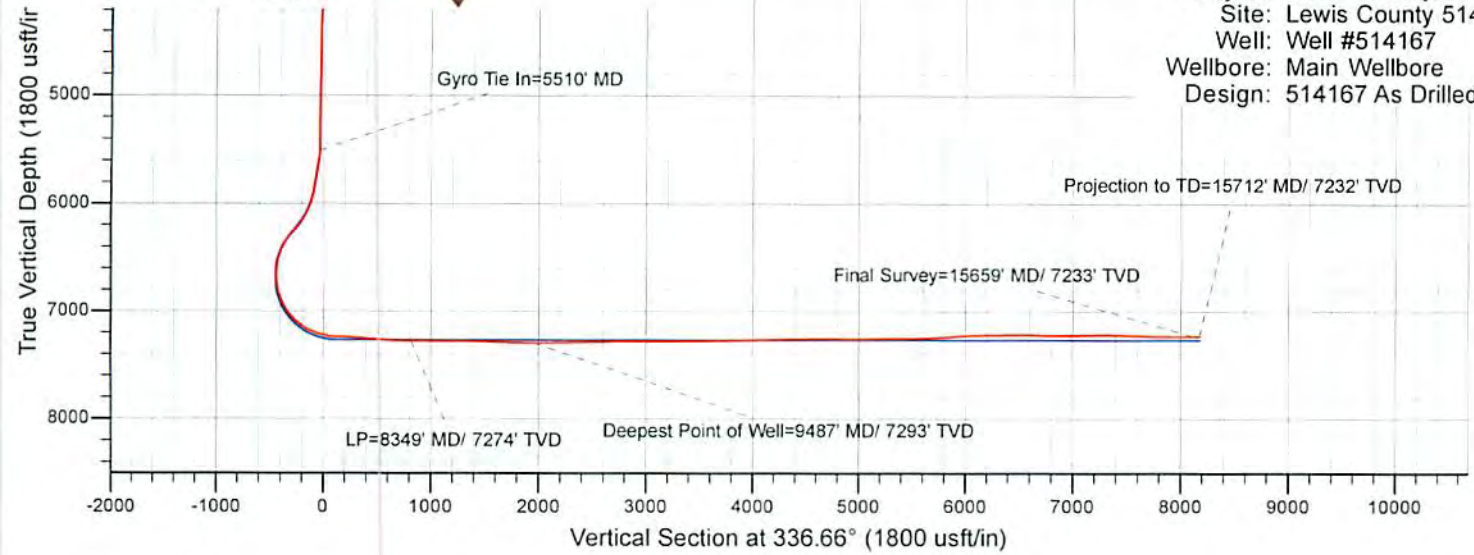
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41-05689

Project: Lewis County, WV
 Site: Lewis County 514167
 Well: Well #514167
 Wellbore: Main Wellbore
 Design: 514167 As Drilled Surveys



Azimuths to Grid North
 True North: -0.29°
 Magnetic North: -8.92°

Magnetic Field
 Strength: 52203.5snT
 Dip Angle: 66.42°
 Date: 4/14/2015
 Model: HDGM

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Environmental Protection
 10/16/2015