

API 47-085-10136

PHOENIX
TECHNOLOGY SERVICES



EQT Production - Marcellus

Ritchie County, WV
Ritchie County 513760
Well #513760

Main Wellbore

Design: 513760 As Drilled Surveys

Standard Survey Report

15 July, 2015

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EQT
WV Department
Environmental Protection
Where energy meets innovation.

02/05/2016

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Ritchie County 513760
Company:	EQT Production - Marcellus	TVD Reference:	KB@16 @ 1175.0usft
Project:	Ritchie County, WV	MD Reference:	KB@16 @ 1175.0usft
Site:	Ritchie County 513760	North Reference:	Grid
Well:	Well #513760	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513760 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		Using geodetic scale factor

Site	Ritchie County 513760				
Site Position:		Northing:	234,456.00 usft	Latitude:	39.14
From:	Map	Easting:	1,619,086.00 usft	Longitude:	-80.84
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.86 °

Well	Well #513760					
Well Position	+N/-S	0.0 usft	Northing:	234,456.00 usft	Latitude:	39° 8' 9.250 N
	+E/-W	0.0 usft	Easting:	1,619,086.00 usft	Longitude:	80° 50' 34.402 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,159.0 usft

Wellbore	Main Wellbore				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/22/2015	-7.72	66.57	52,059

Design	513760 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	171.87	

Survey Program	Date	7/15/2015			
From (')	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	4,571.0	513760 Gyrodata Gyros (Main Wellbore)	GYD_DP_MS	Gyrodata gyro-compassing and drop	
0.00	14,819.0	513760 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	-1,175.0	0.0	0.0	0.0	0.00	0.00	0.00
103.0	0.36	110.32	103.0	-1,072.0	-0.1	0.3	0.2	0.35	0.35	0.00
203.0	0.35	105.39	203.0	-972.0	-0.3	0.9	0.4	0.03	0.01	0.33
303.0	0.36	105.89	303.0	-872.0	-0.5	1.5	0.7	0.01	0.01	0.50
403.0	0.28	122.38	403.0	-772.0	-0.7	2.0	1.0	0.12	-0.08	16.49
503.0	0.25	116.78	503.0	-672.0	-0.9	2.4	1.2	0.04	-0.03	-5.60
603.0	0.21	125.34	603.0	-572.0	-1.1	2.7	1.5	0.05	-0.04	8.56
703.0	0.17	132.40	703.0	-472.0	-1.3	3.0	1.7	0.05	-0.04	7.06

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Well:	Well #513760	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513760 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)	
803.0	0.16	71.36	803.0	-372.0	-1.4	3.2	1.8	0.17	-0.01	-61.04	
903.0	0.15	73.67	903.0	-272.0	-1.3	3.5	1.8	0.01	-0.01	2.31	
1,003.0	0.17	78.72	1,003.0	-172.0	-1.2	3.8	1.8	0.02	0.02	5.05	
1,103.0	0.37	78.32	1,103.0	-72.0	-1.1	4.2	1.7	0.20	0.20	-0.40	
1,203.0	0.57	90.50	1,203.0	28.0	-1.1	5.0	1.8	0.22	0.20	12.18	
1,303.0	0.71	94.11	1,303.0	128.0	-1.1	6.2	2.0	0.15	0.14	3.61	
1,403.0	0.77	96.72	1,403.0	228.0	-1.3	7.4	2.3	0.07	0.06	2.61	
1,503.0	0.87	96.65	1,503.0	328.0	-1.4	8.9	2.7	0.10	0.10	-0.07	
1,603.0	0.95	99.39	1,602.9	427.9	-1.6	10.4	3.1	0.09	0.08	2.74	
1,703.0	1.14	105.08	1,702.9	527.9	-2.0	12.2	3.7	0.22	0.19	5.69	
1,803.0	1.48	114.23	1,802.9	627.9	-2.8	14.4	4.8	0.40	0.34	9.15	
1,903.0	1.54	114.93	1,902.9	727.9	-3.9	16.8	6.2	0.06	0.06	0.70	
2,003.0	1.56	117.19	2,002.8	827.8	-5.1	19.2	7.8	0.06	0.02	2.26	
2,103.0	1.61	116.92	2,102.8	927.8	-6.4	21.6	9.4	0.05	0.05	-0.27	
2,203.0	1.67	117.97	2,202.8	1,027.8	-7.7	24.2	11.0	0.07	0.06	1.05	
2,303.0	1.69	118.20	2,302.7	1,127.7	-9.1	26.8	12.8	0.02	0.02	0.23	
2,403.0	1.58	119.47	2,402.7	1,227.7	-10.4	29.3	14.5	0.12	-0.11	1.27	
2,503.0	1.52	121.52	2,502.6	1,327.6	-11.8	31.6	16.2	0.08	-0.06	2.05	
2,603.0	1.39	119.87	2,602.6	1,427.6	-13.1	33.8	17.8	0.14	-0.13	-1.65	
2,703.0	1.33	120.66	2,702.6	1,527.6	-14.3	35.8	19.2	0.06	-0.06	0.79	
2,803.0	1.31	119.99	2,802.5	1,627.5	-15.5	37.8	20.7	0.03	-0.02	-0.67	
2,903.0	1.29	121.24	2,902.5	1,727.5	-16.6	39.8	22.1	0.03	-0.02	1.25	
3,003.0	1.20	125.21	3,002.5	1,827.5	-17.8	41.6	23.5	0.12	-0.09	3.97	
3,103.0	1.14	134.60	3,102.5	1,927.5	-19.1	43.2	25.0	0.20	-0.06	9.39	
3,203.0	1.03	135.79	3,202.5	2,027.5	-20.5	44.5	26.5	0.11	-0.11	1.19	
3,303.0	0.88	137.01	3,302.4	2,127.4	-21.7	45.6	27.9	0.15	-0.15	1.22	
3,403.0	0.67	138.82	3,402.4	2,227.4	-22.7	46.6	29.0	0.21	-0.21	1.81	
3,503.0	0.52	142.62	3,502.4	2,327.4	-23.5	47.2	29.9	0.16	-0.15	3.80	
3,603.0	0.45	145.17	3,602.4	2,427.4	-24.1	47.7	30.6	0.07	-0.07	2.55	
3,703.0	0.37	128.43	3,702.4	2,527.4	-24.7	48.2	31.2	0.14	-0.08	-16.74	
3,803.0	0.30	129.45	3,802.4	2,627.4	-25.0	48.6	31.7	0.07	-0.07	1.02	
3,903.0	0.07	112.36	3,902.4	2,727.4	-25.2	48.9	31.9	0.23	-0.23	-17.09	
4,003.0	0.16	341.34	4,002.4	2,827.4	-25.1	48.9	31.8	0.21	0.09	-131.02	
4,103.0	0.33	330.94	4,102.4	2,927.4	-24.7	48.7	31.4	0.18	0.17	-10.40	
4,203.0	0.70	339.09	4,202.4	3,027.4	-23.9	48.4	30.5	0.38	0.37	8.15	
4,303.0	0.70	335.95	4,302.4	3,127.4	-22.8	47.9	29.3	0.24	0.23	-3.14	
4,403.0	0.91	333.83	4,402.4	3,227.4	-21.5	47.3	28.0	0.21	0.21	2.12	
4,503.0	1.14	330.26	4,502.4	3,327.4	-19.9	46.5	26.3	0.24	0.23	-3.57	
4,571.0	1.41	322.82	4,570.4	3,395.4	-18.7	45.6	24.9	0.46	0.40	-10.94	
Gyro Tie On=4571' MD											
4,571.3	1.41	322.82	4,570.7	3,395.7	-18.7	45.6	24.9	0.00	0.00	0.00	
4,655.0	1.60	316.80	4,654.3	3,479.3	-17.0	44.2	23.1	0.39	0.23	7.19	
4,686.0	3.20	274.70	4,685.3	3,510.3	-16.6	43.0	22.5	7.36	5.18	-135.81	

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4,718.0	6.30	262.70	4,717.2	3,542.2	-16.8	40.4	22.3	10.12	9.69	-37.50
4,749.0	9.10	255.70	4,747.9	3,572.9	-17.6	36.3	22.5	9.51	9.03	-22.58
4,781.0	12.00	250.80	4,779.4	3,604.4	-19.3	30.7	23.5	9.48	9.06	-15.31
4,812.0	14.60	250.60	4,809.5	3,634.5	-21.7	24.0	24.8	8.39	8.39	-0.65
4,844.0	17.80	249.20	4,840.3	3,665.3	-24.7	15.6	26.7	10.07	10.00	-4.38
4,875.0	20.60	248.00	4,869.5	3,694.5	-28.5	6.1	29.1	9.12	9.03	-3.87
4,907.0	24.00	245.80	4,899.1	3,724.1	-33.2	-5.0	32.2	10.94	10.63	-6.88
4,938.0	27.10	244.90	4,927.1	3,752.1	-38.8	-17.2	36.0	10.08	10.00	-2.90
4,969.0	30.40	244.10	4,954.3	3,779.3	-45.3	-30.6	40.5	10.72	10.65	-2.58
5,001.0	33.40	243.90	4,981.4	3,806.4	-52.7	-45.8	45.7	9.38	9.38	-0.63
5,032.0	36.70	243.50	5,006.8	3,831.8	-60.6	-61.8	51.2	10.67	10.65	-1.29
5,064.0	40.00	244.10	5,031.9	3,856.9	-69.3	-79.6	57.4	10.38	10.31	1.88
5,127.0	42.80	244.70	5,079.2	3,904.2	-87.3	-117.1	69.9	4.49	4.44	0.95
5,190.0	42.80	244.30	5,125.4	3,950.4	-105.7	-155.8	82.7	0.43	0.00	-0.63
5,253.0	39.10	243.00	5,173.0	3,998.0	-124.0	-192.8	95.6	6.03	-5.87	-2.06
5,316.0	39.70	243.50	5,221.6	4,046.6	-142.0	-228.5	108.3	1.08	0.95	0.79
5,379.0	42.70	245.70	5,269.0	4,094.0	-159.8	-266.0	120.6	5.29	4.76	3.49
5,442.0	43.50	246.50	5,315.0	4,140.0	-177.3	-305.3	132.3	1.54	1.27	1.27
5,505.0	42.20	244.60	5,361.2	4,186.2	-195.0	-344.3	144.4	2.91	-2.06	-3.02
5,568.0	42.20	243.50	5,407.9	4,232.9	-213.5	-382.4	157.3	1.17	0.00	-1.75
5,631.0	43.10	244.30	5,454.2	4,279.2	-232.3	-420.7	170.5	1.67	1.43	1.27
5,694.0	42.40	244.20	5,500.5	4,325.5	-250.8	-459.2	183.4	1.12	-1.11	-0.16
5,757.0	41.10	245.20	5,547.5	4,372.5	-268.8	-497.2	195.8	2.32	-2.06	1.59
5,820.0	40.30	247.10	5,595.3	4,420.3	-285.4	-534.7	206.9	2.34	-1.27	3.02
5,883.0	40.90	247.10	5,643.1	4,468.1	-301.3	-572.5	217.4	0.95	0.95	0.00
5,946.0	40.00	246.40	5,691.0	4,516.0	-317.5	-610.0	228.1	1.60	-1.43	-1.11
6,009.0	40.40	247.00	5,739.2	4,564.2	-333.6	-647.4	238.7	0.88	0.63	0.95
6,072.0	41.60	248.60	5,786.7	4,611.7	-349.2	-685.7	248.8	2.53	1.90	2.54
6,135.0	40.50	247.80	5,834.2	4,659.2	-364.5	-724.1	258.5	1.93	-1.75	-1.27
6,198.0	40.60	246.10	5,882.1	4,707.1	-380.6	-761.8	269.1	1.76	0.16	-2.70
6,261.0	41.20	245.60	5,929.7	4,754.7	-397.4	-799.4	280.5	1.08	0.95	-0.79
6,324.0	40.50	243.80	5,977.4	4,802.4	-415.1	-836.7	292.6	2.17	-1.11	-2.86
6,387.0	40.20	245.20	6,025.4	4,850.4	-432.6	-873.5	304.8	1.52	-0.48	3.22
6,451.0	40.80	244.90	6,074.0	4,899.0	-450.1	-911.1	316.8	0.98	-0.94	-0.47
6,514.0	40.70	243.50	6,121.8	4,946.8	-468.0	-948.2	329.3	1.45	0.16	2.22
6,545.0	40.80	242.20	6,145.3	4,970.3	-477.3	-966.2	335.9	2.76	0.32	1.19
6,577.0	41.70	237.70	6,169.3	4,994.3	-487.8	-984.4	343.8	9.69	-2.81	-14.06
6,608.0	42.90	232.40	6,192.3	5,017.3	-499.8	-1,001.5	353.2	12.14	3.87	-17.10
6,640.0	44.00	228.30	6,215.5	5,040.5	-513.8	-1,018.4	364.7	9.46	-3.44	-22.84
6,671.0	44.80	224.90	6,237.6	5,062.6	-528.7	-1,034.2	377.3	8.10	-2.58	-10.97
6,703.0	44.30	221.00	6,260.5	5,085.5	-545.2	-1,049.5	391.3	8.69	-1.56	-12.19
6,734.0	44.70	216.50	6,282.6	5,107.6	-562.1	-1,063.1	406.2	10.25	1.29	-14.52

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Survey Report



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6,766.0	45.60	212.60	6,305.1	5,130.1	-580.8	-1,075.9	422.9	9.09	2.81	-12.19
6,797.0	46.30	208.90	6,326.7	5,151.7	-599.9	-1,087.3	440.2	8.87	2.26	-11.94
6,829.0	48.00	205.70	6,348.5	5,173.5	-620.8	-1,098.1	459.3	9.05	5.31	-10.00
6,860.0	50.20	202.20	6,368.8	5,193.8	-642.2	-1,107.6	479.2	11.10	7.10	-11.29
6,892.0	51.90	199.90	6,388.9	5,213.9	-665.4	-1,116.5	500.9	7.71	5.31	-7.19
6,923.0	54.10	198.00	6,407.5	5,232.5	-688.8	-1,124.5	523.0	8.62	7.10	-6.13
6,955.0	56.40	195.90	6,425.8	5,250.8	-714.0	-1,132.2	546.8	8.98	7.19	-6.56
6,986.0	59.10	193.70	6,442.3	5,267.3	-739.3	-1,138.9	570.9	10.58	8.71	-7.10
7,017.0	61.90	192.60	6,457.6	5,282.6	-765.6	-1,145.0	596.1	9.55	9.03	-3.55
7,049.0	64.50	190.50	6,472.0	5,297.0	-793.6	-1,150.7	622.9	10.02	8.13	-6.56
7,080.0	66.40	188.10	6,484.9	5,309.9	-821.4	-1,155.3	649.9	9.34	6.13	-7.74
7,111.0	68.30	185.90	6,496.8	5,321.8	-849.8	-1,158.8	677.5	8.97	6.13	-7.10
7,143.0	69.90	182.90	6,508.3	5,333.3	-879.6	-1,161.0	706.6	10.08	5.00	-9.38
7,174.0	72.30	180.00	6,518.3	5,343.3	-908.9	-1,161.8	735.6	11.76	7.74	-9.35
7,206.0	73.50	178.10	6,527.7	5,352.7	-939.5	-1,161.3	765.9	6.80	3.75	-5.94
7,238.0	75.50	176.10	6,536.3	5,361.3	-970.3	-1,159.7	796.6	8.68	6.25	-6.25
7,269.0	78.20	173.60	6,543.3	5,368.3	-1,000.3	-1,157.0	826.7	11.73	8.71	-8.06
7,300.0	81.70	171.60	6,548.7	5,373.7	-1,030.6	-1,153.1	857.3	12.95	11.29	-6.45
7,332.0	84.50	169.30	6,552.6	5,377.6	-1,061.9	-1,147.8	889.0	11.29	8.75	-7.19
7,363.0	87.20	166.50	6,554.8	5,379.8	-1,092.1	-1,141.3	919.9	12.53	8.71	-9.03
LP/Deepest Point=7394' MD/6556' TVD										
7,394.0	90.00	164.40	6,555.6	5,380.6	-1,122.1	-1,133.5	950.6	11.29	9.03	-6.77
513760 Plat LP*										
7,405.7	90.57	163.78	6,555.5	5,380.5	-1,133.4	-1,130.3	962.2	7.19	4.85	-5.31
7,458.0	93.10	161.00	6,553.8	5,378.8	-1,183.2	-1,114.5	1,013.8	7.19	4.84	-5.31
7,520.0	93.10	160.70	6,550.5	5,375.5	-1,241.7	-1,094.2	1,074.6	0.48	0.00	-0.48
7,583.0	91.80	160.30	6,547.8	5,372.8	-1,301.0	-1,073.2	1,136.3	2.16	-2.06	-0.63
7,646.0	89.00	161.20	6,547.3	5,372.3	-1,360.5	-1,052.4	1,198.1	4.67	-4.44	1.43
7,709.0	88.00	161.40	6,549.0	5,374.0	-1,420.1	-1,032.2	1,260.0	1.62	-1.59	0.32
7,772.0	88.60	161.10	6,550.9	5,375.9	-1,479.8	-1,012.0	1,321.9	1.06	0.95	-0.48
7,835.0	88.90	160.80	6,552.2	5,377.2	-1,539.3	-991.4	1,383.7	0.67	0.48	-0.48
7,898.0	89.70	161.50	6,553.0	5,378.0	-1,598.9	-971.1	1,445.6	1.69	1.27	1.11
7,961.0	90.60	163.60	6,552.8	5,377.8	-1,659.0	-952.2	1,507.8	3.63	1.43	3.33
8,024.0	90.90	163.30	6,552.0	5,377.0	-1,719.4	-934.2	1,570.1	0.67	0.48	-0.48
8,087.0	91.20	163.50	6,550.9	5,375.9	-1,779.8	-916.2	1,632.4	0.57	0.48	0.32
8,149.0	91.70	162.90	6,549.3	5,374.3	-1,839.1	-898.3	1,693.7	2.60	0.48	-0.97
8,212.0	91.70	161.90	6,547.4	5,372.4	-1,899.1	-879.3	1,755.8	1.59	0.00	-1.59
8,275.0	90.90	160.80	6,546.0	5,371.0	-1,958.8	-859.1	1,817.7	2.16	-1.27	-1.75
8,338.0	89.90	159.50	6,545.6	5,370.6	-2,018.0	-837.8	1,879.4	2.60	-1.59	-2.06
8,401.0	89.20	160.20	6,546.1	5,371.1	-2,077.2	-816.1	1,941.0	1.42	1.27	1.11
513760 Point to avoid										
8,464.0	91.00	162.50	6,545.9	5,370.9	-2,136.9	-795.9	2,002.9	4.64	2.86	3.85
8,527.0	90.20	162.90	6,545.3	5,370.3	-2,197.0	-777.2	2,065.1	1.42	1.27	0.63

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Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Ritchie County 513760
Company:	EQT Production - Marcellus	TVD Reference:	KB@16 @ 1175.0usft
Project:	Ritchie County, WV	MD Reference:	KB@16 @ 1175.0usft
Site:	Ritchie County 513760	North Reference:	Grid
Well:	Well #513760	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513760 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)
8,590.0	89.80	162.20	6,545.3	5,370.3	-2,257.1	-758.3	2,127.3	1.28	-0.63	-1.11
8,653.0	91.10	162.70	6,544.8	5,369.8	-2,317.2	-739.3	2,189.4	2.21	2.06	0.79
8,716.0	91.20	162.00	6,543.5	5,368.5	-2,377.2	-720.2	2,251.5	1.12	0.16	-1.11
8,779.0	88.70	160.70	6,543.6	5,368.6	-2,436.9	-700.0	2,313.5	4.47	-3.97	-2.06
8,842.0	91.30	163.00	6,543.6	5,368.6	-2,496.7	-680.4	2,375.5	5.51	4.13	3.65
8,905.0	92.40	162.60	6,541.5	5,366.5	-2,556.9	-661.8	2,437.7	1.86	1.75	-0.63
8,967.0	90.50	162.90	6,540.0	5,365.0	-2,616.1	-643.4	2,498.9	3.10	-3.06	0.48
9,031.0	89.10	163.60	6,540.2	5,365.2	-2,677.4	-625.0	2,562.2	2.45	-2.19	1.09
9,093.0	89.40	163.40	6,541.0	5,366.0	-2,736.8	-607.4	2,623.5	0.58	0.48	-0.32
9,157.0	90.90	164.30	6,540.8	5,365.8	-2,798.3	-589.6	2,686.9	2.73	2.34	1.41
9,220.0	90.10	161.30	6,540.3	5,365.3	-2,858.5	-570.9	2,749.1	4.93	-1.27	-4.76
9,283.0	87.90	159.40	6,541.4	5,366.4	-2,917.8	-549.8	2,810.8	4.61	-3.49	-3.02
9,346.0	88.00	159.80	6,543.6	5,368.6	-2,976.8	-527.8	2,872.3	0.65	0.16	0.63
9,409.0	88.00	159.30	6,545.8	5,370.8	-3,035.8	-505.8	2,933.8	0.79	0.00	-0.79
9,472.0	88.40	159.30	6,547.8	5,372.8	-3,094.7	-483.6	2,995.3	0.63	0.63	0.00
9,534.0	89.30	159.20	6,549.1	5,374.1	-3,152.6	-461.6	3,055.7	1.46	1.45	-0.16
9,597.0	90.70	159.60	6,549.1	5,374.1	-3,211.6	-439.4	3,117.3	2.31	2.22	0.63
9,660.0	93.90	158.60	6,546.5	5,371.5	-3,270.4	-417.0	3,178.6	5.32	5.08	-1.59
9,723.0	94.50	157.80	6,541.9	5,366.9	-3,328.8	-393.7	3,239.7	1.58	0.95	-1.27
9,786.0	93.80	159.50	6,537.4	5,362.4	-3,387.3	-370.8	3,300.9	2.91	-1.11	2.70
9,849.0	92.20	160.80	6,534.1	5,359.1	-3,446.4	-349.4	3,362.5	3.27	-2.54	2.06
9,912.0	91.30	163.20	6,532.1	5,357.1	-3,506.3	-330.0	3,424.5	4.07	-1.43	3.81
9,975.0	90.50	163.60	6,531.2	5,356.2	-3,566.7	-312.0	3,486.8	1.42	-1.27	0.63
10,038.0	87.90	163.10	6,532.0	5,357.0	-3,627.0	-293.9	3,549.1	4.20	-4.13	-0.79
10,101.0	88.80	163.70	6,533.8	5,358.8	-3,687.4	-275.9	3,611.4	1.72	1.43	0.95
10,164.0	91.30	163.40	6,533.8	5,358.8	-3,747.8	-258.1	3,673.7	4.00	3.97	-0.48
10,227.0	91.10	163.00	6,532.5	5,357.5	-3,808.1	-239.9	3,736.0	0.71	-0.32	-0.63
10,290.0	90.30	164.30	6,531.7	5,356.7	-3,868.6	-222.2	3,798.3	2.42	-1.27	2.06
10,353.0	90.80	164.00	6,531.1	5,356.1	-3,929.2	-204.9	3,860.7	0.93	0.79	-0.48
10,416.0	90.40	164.40	6,530.4	5,355.4	-3,989.8	-187.8	3,923.2	0.90	-0.63	0.63
10,479.0	89.70	165.10	6,530.4	5,355.4	-4,050.6	-171.2	3,985.7	1.57	-1.11	1.11
10,542.0	90.20	165.90	6,530.4	5,355.4	-4,111.5	-155.4	4,048.3	1.50	0.79	1.27
10,605.0	90.40	164.80	6,530.1	5,355.1	-4,172.5	-139.5	4,110.9	1.77	0.32	-1.75
10,668.0	90.90	164.30	6,529.4	5,354.4	-4,233.2	-122.7	4,173.4	1.12	0.79	-0.79
10,731.0	91.70	164.20	6,528.0	5,353.0	-4,293.8	-105.6	4,235.8	0.28	1.27	-0.16
10,795.0	91.00	163.50	6,526.5	5,351.5	-4,355.3	-87.8	4,299.1	1.55	-1.09	-1.09
10,858.0	89.80	163.30	6,526.0	5,351.0	-4,415.7	-69.8	4,361.5	1.98	1.30	0.32
10,920.0	90.50	164.40	6,525.9	5,350.9	-4,475.2	-52.6	4,422.8	2.10	1.13	1.77
10,983.0	90.50	165.00	6,525.3	5,350.3	-4,536.0	-36.0	4,485.4	0.95	0.00	0.95
11,046.0	88.70	162.10	6,525.7	5,350.7	-4,596.4	-18.1	4,547.7	5.42	-2.86	-0.60
11,109.0	88.60	160.10	6,527.2	5,352.2	-4,656.0	2.3	4,609.5	3.18	-0.16	-3.17
11,172.0	88.90	160.00	6,528.6	5,353.6	-4,715.2	23.8	4,671.2	0.50	0.48	-0.16
11,235.0	89.40	159.70	6,529.5	5,354.5	-4,774.3	45.5	4,732.8	0.93	0.79	-0.48

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Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Ritchie County 513760
Company:	EQT Production - Marcellus	TVD Reference:	KB@16 @ 1175.0usft
Project:	Ritchie County, WV	MD Reference:	KB@16 @ 1175.0usft
Site:	Ritchie County 513760	North Reference:	Grid
Well:	Well #513760	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513760 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)	
11,298.0	90.50	160.30	6,529.6	5,354.6	-4,833.5	67.0	4,794.5	1.99	1.75	0.95	
11,361.0	91.80	161.30	6,528.3	5,353.3	-4,893.0	87.7	4,856.3	2.60	2.06	1.59	
11,423.0	92.70	160.70	6,525.9	5,350.9	-4,951.6	107.9	4,917.1	1.74	1.45	-0.97	
11,486.0	90.40	160.20	6,524.2	5,349.2	-5,010.9	129.0	4,978.8	3.74	-3.65	-0.79	
11,549.0	90.70	160.60	6,523.6	5,348.6	-5,070.3	150.1	5,040.6	0.79	0.48	0.63	
11,612.0	89.90	161.50	6,523.3	5,348.3	-5,129.8	170.5	5,102.4	1.91	-1.27	1.43	
11,675.0	90.40	162.20	6,523.1	5,348.1	-5,189.7	190.2	5,164.5	1.37	0.79	1.11	
11,738.0	91.00	162.80	6,522.3	5,347.3	-5,249.8	209.1	5,226.6	1.35	0.95	0.95	
11,801.0	91.10	161.90	6,521.2	5,346.2	-5,309.8	228.2	5,288.8	1.44	0.16	-1.43	
11,864.0	90.10	159.70	6,520.5	5,345.5	-5,369.3	248.9	5,350.6	3.84	-1.59	-3.49	
11,927.0	88.00	159.90	6,521.6	5,346.6	-5,428.4	270.7	5,412.2	3.35	-3.33	0.32	
11,990.0	88.40	160.00	6,523.5	5,348.5	-5,487.6	292.3	5,473.8	0.65	0.63	0.16	
12,052.0	89.10	160.20	6,524.9	5,349.9	-5,545.8	313.4	5,534.5	1.17	1.13	0.32	
12,115.0	90.30	159.10	6,525.2	5,350.2	-5,604.9	335.3	5,596.0	2.58	1.90	-1.75	
12,178.0	91.30	159.40	6,524.3	5,349.3	-5,663.8	357.6	5,657.5	1.66	1.59	0.48	
12,242.0	92.40	161.00	6,522.3	5,347.3	-5,724.0	379.3	5,720.1	3.03	1.72	2.50	
12,304.0	92.00	160.40	6,519.9	5,344.9	-5,782.5	399.7	5,780.9	1.16	-0.65	-0.97	
12,367.0	91.40	160.70	6,518.0	5,343.0	-5,841.9	420.7	5,842.7	1.06	-0.95	0.48	
12,430.0	91.60	160.80	6,516.4	5,341.4	-5,901.3	441.5	5,904.5	0.35	0.32	0.16	
12,492.0	90.10	162.00	6,515.5	5,340.5	-5,960.1	461.2	5,965.4	3.10	-2.42	1.94	
12,555.0	89.90	162.20	6,515.5	5,340.5	-6,020.0	480.6	6,027.5	0.45	-0.32	0.32	
12,618.0	89.00	162.80	6,516.1	5,341.1	-6,080.1	499.5	6,089.7	1.72	-1.43	0.95	
12,681.0	89.10	163.10	6,517.1	5,342.1	-6,140.3	518.0	6,151.9	0.50	0.16	0.48	
12,744.0	89.80	162.90	6,517.7	5,342.7	-6,200.6	536.4	6,214.1	1.16	1.11	-0.32	
12,807.0	90.40	163.10	6,517.6	5,342.6	-6,260.8	554.9	6,276.4	1.00	0.95	0.32	
12,870.0	89.70	164.90	6,517.5	5,342.5	-6,321.4	572.2	6,338.8	3.07	-1.11	2.86	
12,933.0	90.10	164.90	6,517.6	5,342.6	-6,382.2	588.6	6,401.3	0.63	0.63	0.00	
12,996.0	90.00	165.50	6,517.6	5,342.6	-6,443.1	604.7	6,463.9	0.97	-0.16	0.95	
13,059.0	87.90	164.70	6,518.7	5,343.7	-6,504.0	620.9	6,526.4	3.57	-3.33	-1.27	
13,122.0	89.80	167.20	6,520.0	5,345.0	-6,565.1	636.2	6,589.1	4.98	3.02	3.97	
13,185.0	91.10	169.40	6,519.5	5,344.5	-6,626.7	649.0	6,651.9	4.06	2.06	3.49	
13,248.0	89.90	165.70	6,519.0	5,344.0	-6,688.2	662.6	6,714.7	6.17	-1.90	-5.87	
13,311.0	88.50	163.00	6,519.8	5,344.8	-6,748.9	679.5	6,777.2	4.83	-2.22	-4.29	
13,374.0	89.90	163.80	6,520.7	5,345.7	-6,809.3	697.5	6,839.5	2.56	2.22	1.27	
13,438.0	90.30	164.20	6,520.6	5,345.6	-6,870.8	715.2	6,902.9	0.88	0.63	0.63	
13,501.0	89.60	163.10	6,520.7	5,345.7	-6,931.2	732.9	6,965.2	2.07	-1.11	-1.75	
13,564.0	89.90	162.20	6,520.9	5,345.9	-6,991.4	751.7	7,027.4	1.51	0.48	-1.43	
13,626.0	90.40	159.90	6,520.8	5,345.8	-7,050.0	771.8	7,088.3	3.80	0.81	-3.71	
13,690.0	88.50	156.80	6,521.4	5,346.4	-7,109.5	795.4	7,150.5	5.68	-2.92	-4.84	
13,754.0	89.40	156.90	6,522.6	5,347.6	-7,168.3	820.6	7,212.3	1.41	1.41	0.16	
13,817.0	89.10	155.50	6,523.4	5,348.4	-7,225.9	846.0	7,273.0	2.27	-0.48	-2.22	
13,880.0	90.60	157.10	6,523.6	5,348.6	-7,283.6	871.3	7,333.7	3.78	2.38	2.54	

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Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Ritchie County 513760
Company:	EQT Production - Marcellus	TVD Reference:	KB@16 @ 1175.0usft
Project:	Ritchie County, WV	MD Reference:	KB@16 @ 1175.0usft
Site:	Ritchie County 513760	North Reference:	Grid
Well:	Well #513760	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513760 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)
13,943.0	91.30	158.70	6,522.5	5,347.5	-7,342.0	895.0	7,394.8	2.77	1.11	2.54
14,006.0	90.80	160.00	6,521.4	5,346.4	-7,400.9	917.3	7,456.3	2.21	-0.79	2.06
14,069.0	89.10	160.60	6,521.4	5,346.4	-7,460.2	938.5	7,518.0	2.86	-2.70	0.95
14,132.0	89.20	161.10	6,522.4	5,347.4	-7,519.8	959.2	7,579.8	0.81	0.16	0.79
14,194.0	89.30	163.00	6,523.2	5,348.2	-7,578.7	978.3	7,640.9	3.07	0.16	3.06
14,257.0	89.60	163.00	6,523.8	5,348.8	-7,639.0	996.7	7,703.2	0.48	0.48	0.00
14,320.0	90.20	163.40	6,523.9	5,348.9	-7,699.3	1,014.9	7,765.4	1.14	0.95	0.63
14,383.0	90.50	163.30	6,523.5	5,348.5	-7,759.6	1,032.9	7,827.7	0.50	0.48	-0.16
14,446.0	90.80	163.20	6,522.8	5,347.8	-7,820.0	1,051.1	7,890.0	0.50	0.48	-0.16
14,509.0	90.90	163.30	6,521.8	5,346.8	-7,880.3	1,069.2	7,952.3	0.22	0.16	0.16
14,572.0	88.90	163.80	6,522.0	5,347.0	-7,940.7	1,087.1	8,014.6	3.27	-3.17	0.79
14,635.0	89.40	163.70	6,522.9	5,347.9	-8,001.2	1,104.7	8,077.0	0.81	0.79	-0.16
14,698.0	88.40	164.30	6,524.1	5,349.1	-8,061.7	1,122.1	8,139.4	1.85	-1.59	0.95
Final Survey=14761' MD/6526' TVD										
14,761.0	87.90	164.40	6,526.1	5,351.1	-8,122.4	1,139.1	8,201.8	0.81	-0.79	0.16
PROJ to Bit=14819' MD/6528' TVD - 513760 Plat TD 4"										
14,819.0	87.90	164.40	6,528.3	5,353.3	-8,178.2	1,154.6	8,259.3	0.00	0.00	0.00

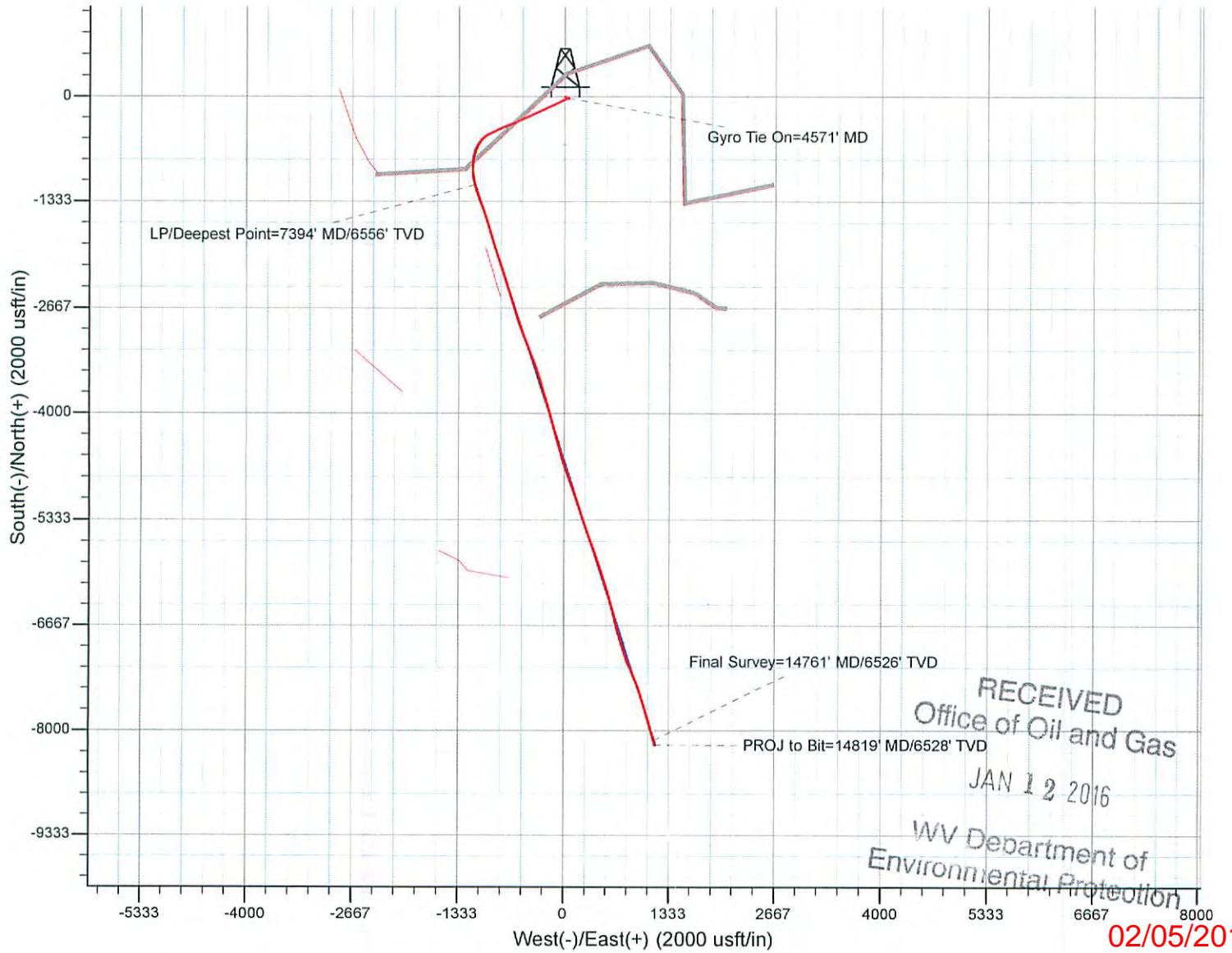
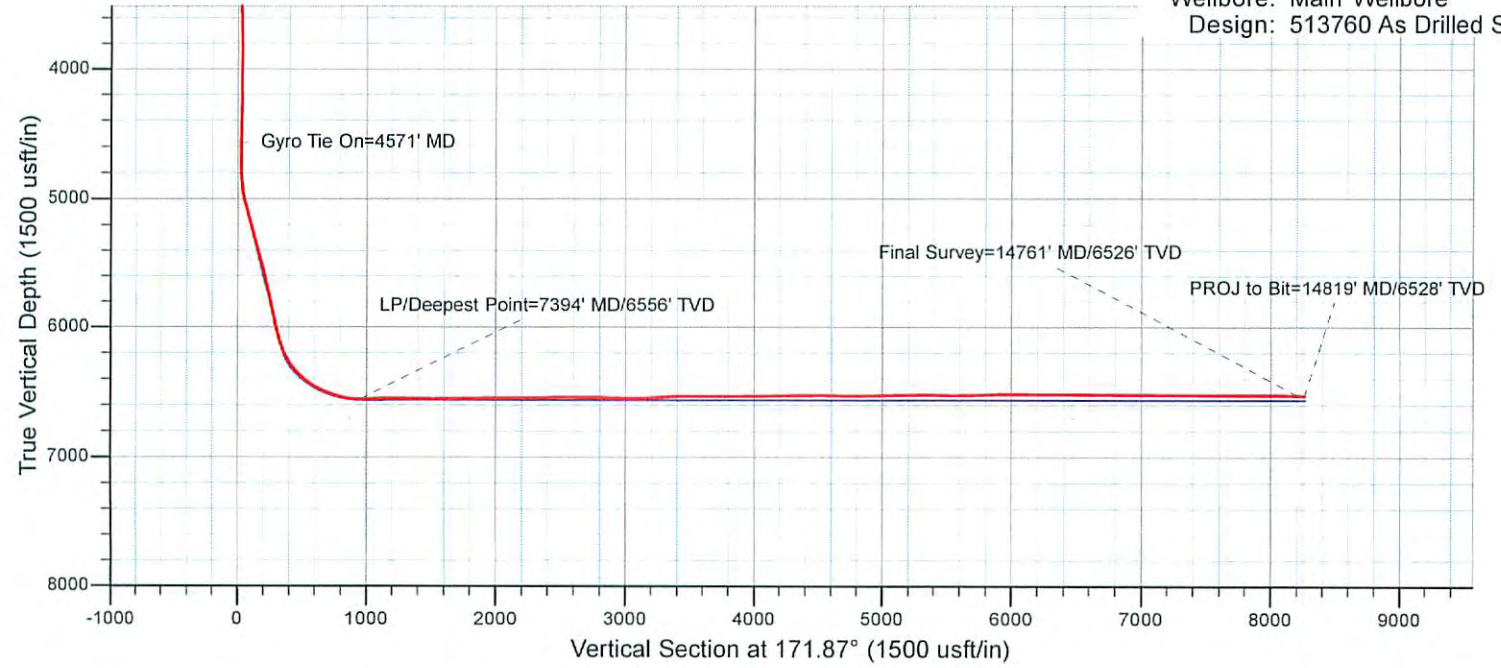
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,571.3	4,570.7	-18.7	45.6	Gyro Tie On=4571' MD
7,394.0	6,555.6	-1,122.1	-1,133.5	LP/Deepest Point=7394' MD/6556' TVD
14,761.0	6,526.1	-8,122.4	1,139.1	Final Survey=14761' MD/6526' TVD
14,819.0	6,528.3	-8,178.2	1,154.6	PROJ to Bit=14819' MD/6528' TVD

Checked By: _____ Approved By: _____ Date: _____

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Environmental Protection



Project: Ritchie County, WV
 Site: Ritchie County 513760
 Well: Well #513760
 Wellbore: Main Wellbore
 Design: 513760 As Drilled Surveys



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02/05/2016