



Where energy meets innovation.

EQT PRODUCTION

Ritchie County, WV

PEN54

Well #514480 - Slot 514480

Main Wellbore

Design: Surveys Main Wellbore

Standard Survey Report

06 September, 2016

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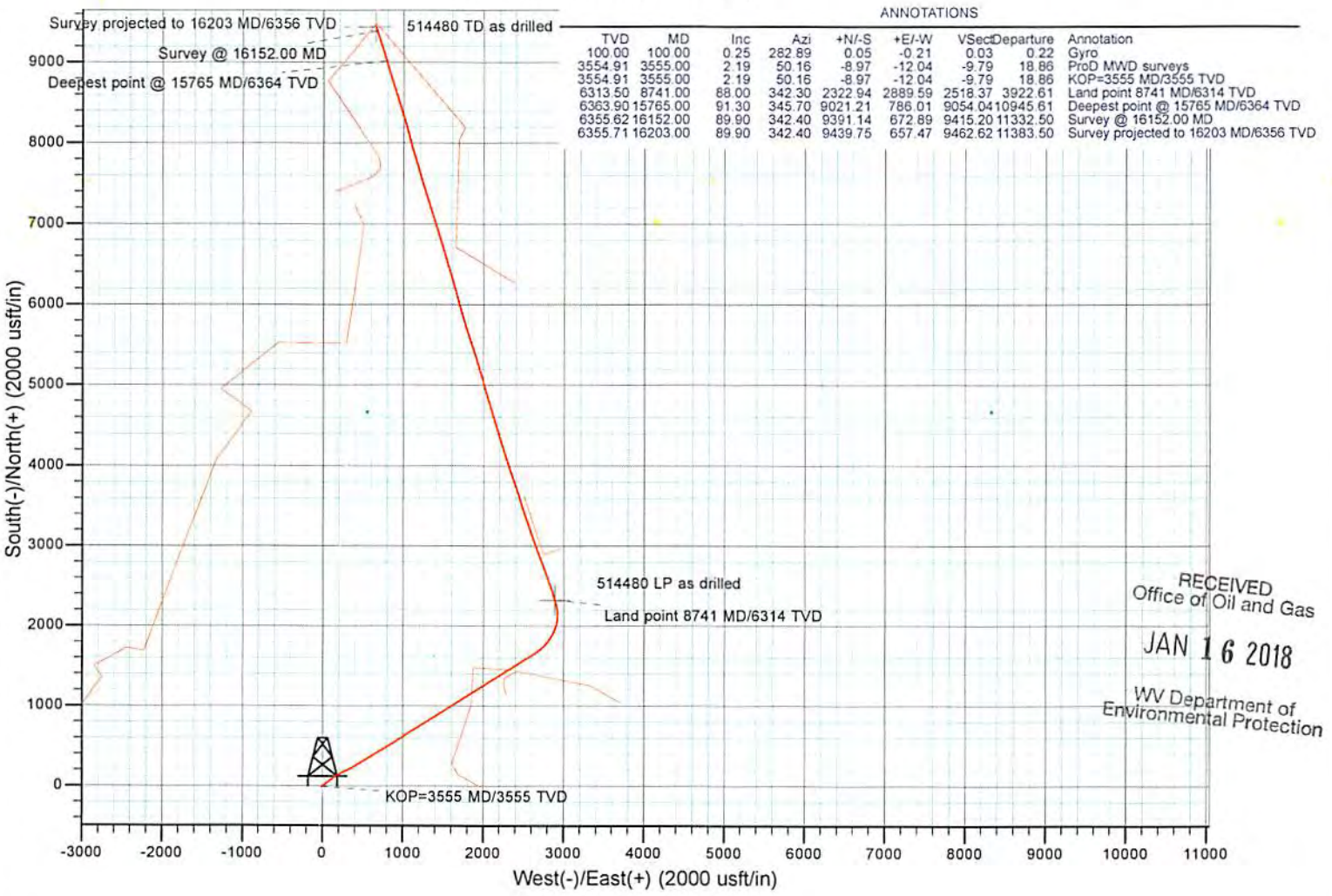
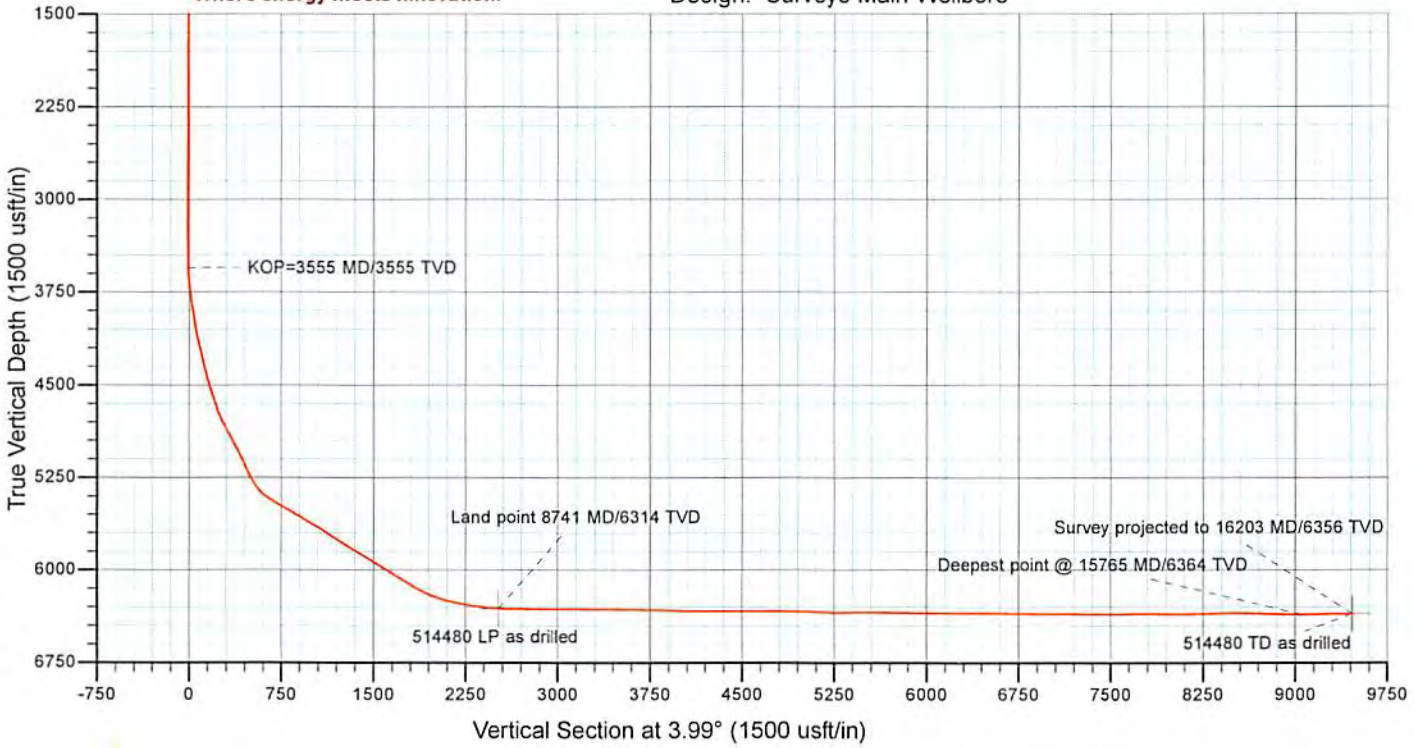


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Project: Ritchie County, WV
 Site: PEN54
 Well: Well #514480
 Wellbore: Main Wellbore
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Company:	EQT PRODUCTION	Local Co-ordinate Reference:	Well Well #514480 - Slot 514480
Project:	Ritchie County, WV	TVD Reference:	KB@23 @ 1039.00usft (Savanna 803)
Site:	PEN54	MD Reference:	KB@23 @ 1039.00usft (Savanna 803)
Well:	Well #514480	North Reference:	Grid
Wellbore:	Main Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Main Wellbore	Database:	DB Jul2216dt

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	PEN54				
Site Position:		Northing:	279,215.27 usft	Latitude:	39° 15' 28.0545 N
From:	Map	Easting:	1,595,775.03 usft	Longitude:	80° 55' 39.2330 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.91 °

Well	Well #514480 - Slot 514480					
Well Position	+N/-S	0.00 usft	Northing:	279,133.71 usft	Latitude:	39° 15' 27.2544 N
	+E/-W	0.00 usft	Easting:	1,595,813.09 usft	Longitude:	80° 55' 38.7327 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	1,016.00 usft

Wellbore	Main Wellbore				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	8/20/2016	-7.80	66.57	51,978

Design	Surveys Main Wellbore				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	3.99	

Survey Program	Date	9/6/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	3,515.00	Gyro (Main Wellbore)	NS-GYRO-MS	North sensing gyrocompassing m/s	
3,555.00	16,203.00	MWD (Main Wellbore)	MWD - OWSG	MWD - OWSG	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.25	282.89	100.00	0.05	-0.21	0.03	0.25	0.25	0.00	
Gyro										
200.00	0.15	257.17	200.00	0.07	-0.55	0.03	0.13	-0.10	-25.72	
300.00	0.13	184.32	300.00	-0.07	-0.69	-0.12	0.17	-0.02	-72.85	
400.00	0.12	182.17	400.00	-0.29	-0.70	-0.34	0.01	-0.01	-2.15	
500.00	0.15	171.68	500.00	-0.53	-0.69	-0.57	0.04	0.03	-10.49	
600.00	0.13	171.78	600.00	-0.77	-0.65	-0.81	0.02	-0.02	0.10	
700.00	0.23	162.71	700.00	-1.07	-0.58	-1.11	0.10	0.10	-9.07	
800.00	0.23	174.46	800.00	-1.46	-0.50	-1.49	0.05	0.00	11.75	

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Survey Report



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Wellbore:	Main Wellbore	Survey Calculation Method:	Minimum Curvature
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Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
900.00	0.31	239.45	900.00	-1.80	-0.71	-1.85	0.30	0.08	64.99
1,000.00	0.33	254.91	999.99	-2.01	-1.22	-2.09	0.09	0.02	15.46
1,100.00	0.53	233.07	1,099.99	-2.37	-1.87	-2.49	0.26	0.20	-21.84
1,200.00	0.65	229.43	1,199.99	-3.01	-2.67	-3.19	0.13	0.12	-3.64
1,300.00	0.69	230.34	1,299.98	-3.77	-3.56	-4.00	0.04	0.04	0.91
1,400.00	0.65	228.13	1,399.97	-4.53	-4.45	-4.83	0.05	-0.04	-2.21
1,500.00	0.69	237.91	1,499.97	-5.23	-5.38	-5.59	0.12	0.04	9.78
1,600.00	0.80	242.76	1,599.96	-5.87	-6.51	-6.31	0.13	0.11	4.85
1,700.00	0.79	242.47	1,699.95	-6.50	-7.75	-7.03	0.01	-0.01	-0.29
1,800.00	0.68	250.03	1,799.94	-7.03	-8.91	-7.63	0.15	-0.11	7.56
1,900.00	0.66	249.48	1,899.93	-7.43	-10.01	-8.11	0.02	-0.02	-0.55
2,000.00	0.49	233.60	1,999.93	-7.89	-10.89	-8.63	0.23	-0.17	-15.88
2,100.00	0.22	189.86	2,099.93	-8.33	-11.27	-9.09	0.36	-0.27	-43.74
2,200.00	0.22	269.47	2,199.93	-8.52	-11.50	-9.30	0.28	0.00	79.61
2,300.00	0.21	217.54	2,299.92	-8.67	-11.80	-9.47	0.19	-0.01	-51.93
2,400.00	0.17	215.68	2,399.92	-8.93	-12.00	-9.75	0.04	-0.04	-1.86
2,500.00	0.15	226.37	2,499.92	-9.14	-12.18	-9.97	0.04	-0.02	10.69
2,600.00	0.12	204.58	2,599.92	-9.33	-12.32	-10.16	0.06	-0.03	-21.79
2,700.00	0.11	254.51	2,699.92	-9.45	-12.45	-10.29	0.10	-0.01	49.93
2,800.00	0.09	244.65	2,799.92	-9.51	-12.62	-10.36	0.03	-0.02	-9.86
2,900.00	0.06	248.75	2,899.92	-9.56	-12.74	-10.43	0.03	-0.03	4.10
3,000.00	0.06	291.54	2,999.92	-9.56	-12.84	-10.43	0.04	0.00	42.79
3,100.00	0.04	209.01	3,099.92	-9.57	-12.90	-10.45	0.07	-0.02	-82.53
3,200.00	0.03	198.06	3,199.92	-9.63	-12.93	-10.50	0.01	-0.01	-10.95
3,300.00	0.04	85.50	3,299.92	-9.65	-12.90	-10.52	0.06	0.01	-112.56
3,400.00	0.06	81.93	3,399.92	-9.64	-12.81	-10.51	0.02	0.02	-3.57
3,500.00	0.13	25.41	3,499.92	-9.53	-12.71	-10.39	0.11	0.07	-56.52
3,515.00	0.20	54.93	3,514.92	-9.50	-12.68	-10.36	0.72	0.47	196.80
3,555.00	2.19	50.16	3,554.91	-8.97	-12.04	-9.79	4.98	4.98	-11.93
ProD MWD surveys - KOP=3555 MD/3555 TVD									
3,586.00	3.82	47.17	3,585.87	-7.89	-10.83	-8.62	5.28	5.26	-9.05
3,618.00	5.67	46.40	3,617.76	-6.07	-8.90	-6.68	5.78	5.78	-2.41
3,649.00	7.44	47.00	3,648.55	-3.65	-6.32	-4.08	5.71	5.71	1.94
3,680.00	8.98	48.82	3,679.23	-0.69	-3.03	-0.90	5.04	4.97	5.87
3,712.00	10.12	49.84	3,710.79	2.77	0.99	2.83	3.60	3.56	3.19
3,744.00	10.98	51.56	3,742.25	6.48	5.53	6.85	2.86	2.69	5.38
3,775.00	11.43	51.96	3,772.66	10.21	10.26	10.90	1.47	1.45	1.29
3,807.00	11.81	53.56	3,804.00	14.11	15.39	15.14	1.56	1.19	5.00
3,838.00	12.51	53.43	3,834.31	17.99	20.64	19.38	2.26	2.26	-0.42
3,869.00	13.12	53.62	3,864.53	22.08	26.17	23.85	1.97	1.97	0.61
3,901.00	13.65	53.11	3,895.67	26.50	32.11	28.67	1.70	1.66	-1.59
3,932.00	13.37	54.80	3,925.81	30.76	37.97	33.33	1.56	-0.90	5.45
3,964.00	13.66	54.63	3,956.92	35.08	44.07	38.06	0.91	0.91	-0.53

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Survey

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3,995.00	14.02	55.21	3,987.02	39.34	50.14	42.74	1.24	1.16	1.87
4,027.00	15.05	53.76	4,018.00	44.01	56.68	47.85	3.41	3.22	-4.53
4,058.00	16.20	52.07	4,047.85	49.05	63.33	53.34	3.99	3.71	-5.45
4,090.00	17.01	51.37	4,078.52	54.71	70.51	59.49	2.61	2.53	-2.19
4,121.00	17.74	50.21	4,108.10	60.57	77.68	65.83	2.61	2.35	-3.74
4,152.00	18.16	50.05	4,137.59	66.69	85.02	72.45	1.36	1.35	-0.52
4,184.00	18.76	50.54	4,167.95	73.16	92.81	79.44	1.94	1.88	1.53
4,215.00	18.93	52.17	4,197.28	79.42	100.63	86.23	1.78	0.55	5.26
4,247.00	19.56	53.08	4,227.50	85.82	109.01	93.19	2.18	1.97	2.84
4,278.00	20.19	54.29	4,256.65	92.06	117.51	100.01	2.43	2.03	3.90
4,310.00	20.67	54.48	4,286.64	98.56	126.59	107.13	1.51	1.50	0.59
4,341.00	21.43	54.68	4,315.57	105.01	135.66	114.20	2.46	2.45	0.65
4,373.00	22.16	56.44	4,345.28	111.73	145.46	121.58	3.06	2.28	5.50
4,404.00	22.99	57.98	4,373.91	118.17	155.47	128.70	3.29	2.68	4.97
4,435.00	24.16	59.15	4,402.32	124.64	166.04	135.89	4.06	3.77	3.77
4,467.00	25.59	59.79	4,431.35	131.47	177.64	143.51	4.55	4.47	2.00
4,498.00	27.25	58.49	4,459.11	138.55	189.48	151.40	5.67	5.35	-4.19
4,530.00	28.32	57.83	4,487.42	146.42	202.15	160.13	3.48	3.34	-2.06
4,561.00	29.07	57.07	4,514.61	154.43	214.69	168.99	2.69	2.42	-2.45
4,593.00	29.77	58.79	4,542.49	162.77	228.01	178.24	3.43	2.19	5.38
4,624.00	30.64	61.40	4,569.28	170.54	241.53	186.94	5.08	2.81	8.42
4,656.00	31.30	64.14	4,596.72	178.07	256.17	195.47	4.86	2.06	8.56
4,687.00	32.46	65.44	4,623.04	185.04	270.99	203.45	4.35	3.74	4.19
4,719.00	34.10	65.74	4,649.79	192.30	286.98	211.80	5.15	5.13	0.94
4,750.00	35.46	65.86	4,675.25	199.55	303.10	220.15	4.39	4.39	0.39
4,782.00	36.98	65.90	4,701.07	207.27	320.36	229.08	4.75	4.75	0.13
4,813.00	38.32	65.44	4,725.61	215.07	337.61	238.05	4.42	4.32	-1.48
4,845.00	39.20	62.75	4,750.57	223.83	355.63	248.03	5.94	2.75	-8.41
4,876.00	40.01	59.78	4,774.45	233.33	372.95	258.72	6.64	2.61	-9.58
4,908.00	40.88	56.80	4,798.81	244.24	390.60	270.83	6.62	2.72	-9.31
4,939.00	41.79	55.85	4,822.09	255.60	407.64	283.34	3.57	2.94	-3.06
4,971.00	42.26	56.60	4,845.86	267.51	425.45	296.46	2.15	1.47	2.34
5,002.00	42.49	57.67	4,868.76	278.84	443.00	308.99	2.44	0.74	3.45
5,033.00	42.77	59.48	4,891.57	289.79	460.91	321.16	4.06	0.90	5.84
5,065.00	42.67	60.13	4,915.08	300.71	479.68	333.36	1.41	-0.31	2.03
5,096.00	42.38	60.16	4,937.92	311.14	497.85	345.03	0.94	-0.94	0.10
5,128.00	42.75	59.92	4,961.49	321.95	516.60	357.11	1.26	1.16	-0.75
5,159.00	43.06	60.51	4,984.20	332.43	534.92	368.85	1.64	1.00	1.90
5,191.00	43.66	61.25	5,007.46	343.12	554.11	380.85	2.46	1.88	2.31
5,222.00	44.87	61.23	5,029.66	353.53	573.08	392.55	3.90	3.90	-0.06
5,253.00	43.80	60.09	5,051.84	364.15	591.96	404.45	4.30	-3.45	-3.68
5,348.00	39.37	57.56	5,122.88	396.72	645.92	440.70	4.99	-4.66	2.66
5,379.00	38.27	57.45	5,147.03	407.16	662.31	452.26	3.58	-3.55	-0.35
5,470.00	38.70	59.30	5,218.27	436.85	710.53	485.23	1.35	0.47	2.03

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5,502.00	39.90	59.30	5,243.03	447.20	727.96	496.76	3.75	3.75	0.00
5,533.00	43.40	59.80	5,266.19	457.63	745.72	508.41	11.34	11.29	1.61
5,564.00	46.20	59.90	5,288.19	468.60	764.60	520.67	9.04	9.03	0.32
5,596.00	49.00	59.50	5,309.76	480.52	785.00	533.98	8.80	8.75	-1.25
5,627.00	52.00	58.70	5,329.48	492.81	805.52	547.67	9.88	9.68	-2.58
5,659.00	55.80	58.10	5,348.33	506.36	827.54	562.71	11.97	11.88	-1.88
5,690.00	59.30	58.30	5,364.96	520.14	849.77	578.01	11.30	11.29	0.65
5,722.00	62.30	56.70	5,380.57	535.15	873.32	594.62	10.34	9.38	-5.00
5,753.00	65.10	56.80	5,394.30	550.39	896.56	611.44	9.04	9.03	0.32
5,847.00	70.50	56.40	5,429.81	598.28	959.19	664.27	5.76	5.74	-0.43
5,942.00	72.30	56.00	5,460.11	648.37	1,044.01	719.44	1.94	1.89	-0.42
6,036.00	70.90	58.20	5,489.78	696.82	1,118.88	772.98	2.67	-1.49	2.34
6,130.00	70.40	58.40	5,520.93	743.42	1,194.34	824.73	0.57	-0.53	0.21
6,225.00	71.70	58.50	5,551.78	790.44	1,270.91	876.95	1.37	1.37	0.11
6,319.00	69.10	58.00	5,583.31	837.03	1,346.21	928.67	2.81	-2.77	-0.53
6,413.00	70.90	57.40	5,615.46	884.23	1,420.86	980.95	2.01	1.91	-0.64
6,508.00	71.80	57.60	5,645.84	932.59	1,496.78	1,034.48	0.97	0.95	0.21
6,602.00	68.10	57.20	5,678.06	980.15	1,571.16	1,087.10	3.96	-3.94	-0.43
6,696.00	68.30	56.80	5,712.97	1,027.69	1,644.36	1,139.62	0.45	0.21	-0.43
6,790.00	68.70	56.40	5,747.42	1,075.83	1,717.37	1,192.72	0.58	0.43	-0.43
6,885.00	70.00	58.80	5,780.92	1,123.45	1,792.42	1,245.45	2.73	1.37	2.53
6,979.00	70.10	59.00	5,813.00	1,169.09	1,868.08	1,296.25	0.23	0.11	0.21
7,073.00	70.50	57.70	5,844.68	1,215.53	1,943.42	1,347.81	1.37	0.43	-1.38
7,168.00	71.70	57.70	5,875.45	1,263.56	2,019.38	1,401.01	1.26	1.26	0.00
7,262.00	69.60	58.20	5,906.60	1,310.62	2,094.55	1,453.19	2.29	-2.23	0.53
7,357.00	70.30	58.70	5,939.17	1,357.31	2,170.60	1,505.06	0.89	0.74	0.53
7,451.00	69.50	57.30	5,971.47	1,404.09	2,245.46	1,556.93	1.64	-0.85	-1.49
7,546.00	71.00	56.70	6,003.58	1,452.79	2,320.45	1,610.73	1.69	1.58	-0.63
7,640.00	69.00	57.60	6,035.72	1,500.70	2,394.64	1,663.69	2.31	-2.13	0.96
7,735.00	69.70	57.50	6,069.23	1,548.40	2,469.66	1,716.49	0.74	0.74	-0.11
7,829.00	70.90	57.70	6,100.91	1,595.82	2,544.38	1,768.99	1.29	1.28	0.21
7,923.00	70.70	57.40	6,131.83	1,643.45	2,619.29	1,821.72	0.37	-0.21	-0.32
7,955.00	70.60	57.50	6,142.43	1,659.69	2,644.74	1,839.70	0.43	-0.31	0.31
7,986.00	70.30	54.90	6,152.80	1,675.94	2,669.01	1,857.60	7.96	-0.97	-8.39
8,018.00	70.80	52.00	6,163.46	1,693.91	2,693.25	1,877.21	8.69	1.56	-9.06
8,049.00	71.40	49.30	6,173.51	1,712.51	2,715.93	1,897.34	8.46	1.94	-8.71
8,081.00	71.40	46.70	6,183.71	1,732.80	2,738.46	1,919.15	7.70	0.00	-8.13
8,112.00	71.80	43.70	6,193.50	1,753.52	2,759.33	1,941.27	9.27	1.29	-9.68
8,144.00	72.00	40.10	6,203.45	1,776.16	2,779.64	1,965.27	10.71	0.63	-11.25
8,175.00	72.10	36.90	6,213.00	1,799.23	2,798.00	1,989.56	9.83	0.32	-10.32
8,206.00	72.70	34.20	6,222.38	1,823.27	2,815.17	2,014.74	8.52	1.94	-8.71
8,238.00	73.80	31.70	6,231.60	1,848.98	2,831.84	2,041.55	8.23	3.44	-7.81
8,269.00	75.10	29.50	6,239.91	1,874.69	2,847.04	2,068.25	8.02	4.19	-7.10

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Survey Report



Company:	EQT PRODUCTION	Local Co-ordinate Reference:	Well Well #514480 - Slot 514480
Location:	Harrison County, WV	TVD Reference:	KB@23 @ 1039.00usft (Savanna 803)
Well:	PH154	MD Reference:	KB@23 @ 1039.00usft (Savanna 803)
Well ID:	Well 514480	North Reference:	Grid
Well Type:	Oil Wellbore	Survey Calculation Method:	Minimum Curvature
Well Status:	Drillers Main Wellbore	Database:	DB Jul2216dt

Wellbore	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6200.00	76.30	27.10	6,247.57	1,901.14	2,861.27	2,095.62	8.44	3.87	-7.74
6200.00	77.30	24.20	6,254.88	1,929.22	2,874.76	2,124.57	9.36	3.13	-9.08
6200.00	77.50	21.60	6,261.86	1,957.98	2,886.91	2,154.12	7.95	0.63	-8.13
6200.00	78.20	18.40	6,268.39	1,986.46	2,897.27	2,183.24	10.34	2.26	-10.32
6200.00	78.90	14.20	6,274.54	2,015.61	2,905.79	2,212.92	13.47	2.26	-13.55
6200.00	79.80	10.60	6,280.46	2,046.32	2,912.54	2,244.02	11.41	2.81	-11.25
6200.00	80.60	7.50	6,285.74	2,076.49	2,917.35	2,274.45	10.19	2.58	-10.00
6200.00	81.60	4.40	6,290.69	2,107.93	2,920.62	2,306.04	10.07	3.13	-9.69
6200.00	82.80	0.70	6,294.90	2,138.60	2,921.99	2,336.74	12.44	3.87	-11.94
6200.00	83.30	356.60	6,298.77	2,170.35	2,921.24	2,368.36	12.81	1.56	-12.81
6200.00	85.50	353.00	6,302.33	2,201.01	2,918.45	2,398.75	11.55	0.65	-11.61
6200.00	83.20	348.70	6,306.04	2,232.39	2,913.40	2,429.70	13.38	-0.94	-13.44
6200.00	84.80	346.50	6,309.28	2,262.49	2,906.78	2,459.27	8.74	5.16	-7.10
6200.00	85.90	343.90	6,311.80	2,292.36	2,898.88	2,488.52	9.08	3.55	-8.39
6200.00	86.00	342.30	6,313.50	2,322.94	2,889.59	2,518.37	8.25	6.56	-5.00
Drill pipe by 14 MO/314 TVD									
6200.00	88.70	341.90	6,314.39	2,352.42	2,880.07	2,547.12	2.60	2.26	-1.29
6200.00	89.10	341.90	6,316.21	2,442.71	2,850.56	2,635.13	0.42	0.42	0.00
6200.00	89.40	339.50	6,317.44	2,531.41	2,819.50	2,721.46	2.57	0.32	-2.55
6200.00	91.00	340.30	6,317.12	2,619.68	2,787.19	2,807.27	1.90	1.70	0.85
6200.00	88.30	341.10	6,316.87	2,709.34	2,755.80	2,894.52	1.98	-1.79	0.84
6200.00	89.60	339.00	6,317.77	2,797.69	2,723.73	2,980.43	2.26	0.32	-2.23
6200.00	89.80	339.00	6,318.26	2,885.44	2,690.04	3,065.63	0.21	0.21	0.00
6200.00	90.40	340.90	6,318.10	2,974.68	2,657.47	3,152.38	2.10	0.63	2.00
6200.00	88.60	340.90	6,318.92	3,063.50	2,626.72	3,238.85	1.91	-1.91	0.00
6200.00	89.10	341.20	6,320.82	3,153.33	2,595.87	3,326.31	0.61	0.53	0.32
6200.00	90.30	341.20	6,321.32	3,242.31	2,565.58	3,412.97	1.28	1.28	0.00
6200.00	95.70	341.30	6,322.14	3,331.32	2,535.37	3,499.66	1.71	-1.70	0.11
6200.00	90.00	341.20	6,323.21	3,421.27	2,504.83	3,587.27	1.37	1.37	-0.11
6200.00	88.30	342.00	6,324.61	3,510.45	2,475.17	3,674.17	2.00	-1.81	0.85
6200.00	90.00	343.10	6,326.00	3,600.11	2,446.98	3,761.65	2.15	1.81	1.17
6200.00	88.40	341.70	6,327.32	3,689.69	2,418.57	3,849.04	2.26	-1.70	-1.49
6200.00	88.00	339.80	6,330.30	3,779.33	2,387.26	3,936.29	2.04	-0.42	-2.00
6200.00	88.40	339.20	6,333.25	3,867.34	2,354.36	4,021.79	0.77	0.43	-0.64
6200.00	90.20	342.90	6,334.40	3,956.22	2,323.84	4,108.33	4.38	1.91	3.94
6200.00	91.40	343.10	6,333.07	4,047.06	2,296.07	4,197.01	1.28	1.26	0.21
6200.00	88.80	342.30	6,332.91	4,136.79	2,268.12	4,284.59	2.89	-2.77	-0.85
6200.00	89.00	341.70	6,334.71	4,226.18	2,239.08	4,371.73	0.67	0.21	-0.64
6200.00	89.90	341.30	6,335.63	4,316.26	2,208.94	4,459.50	1.04	0.95	-0.42
6200.00	89.70	344.30	6,335.96	4,406.05	2,181.14	4,547.14	3.20	-0.21	3.19
6200.00	90.80	344.00	6,335.54	4,497.43	2,155.20	4,636.50	1.20	1.16	-0.32
6200.00	89.30	343.20	6,335.46	4,587.61	2,128.66	4,724.60	1.81	-1.60	-0.85
6200.00	90.20	342.60	6,335.87	4,677.45	2,101.02	4,812.30	1.15	0.96	-0.64

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Company:	EQT PRODUCTION	Local Co-ordinate Reference:	Well Well #514480 - Slot 514480
Project:	Ritchie County, WV	TVD Reference:	KB@23 @ 1039.00usft (Savanna 803)
Site:	PEN54	MD Reference:	KB@23 @ 1039.00usft (Savanna 803)
Well:	Well #514480	North Reference:	Grid
Wellbore:	Main Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Main Wellbore	Database:	DB Jul2216dt

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,300.00	76.30	27.10	6,247.57	1,901.14	2,861.27	2,095.62	8.44	3.87	-7.74
8,332.00	77.30	24.20	6,254.88	1,929.22	2,874.76	2,124.57	9.36	3.13	-9.06
8,364.00	77.50	21.60	6,261.86	1,957.98	2,886.91	2,154.12	7.95	0.63	-8.13
8,395.00	78.20	18.40	6,268.39	1,986.46	2,897.27	2,183.24	10.34	2.26	-10.32
8,426.00	78.90	14.20	6,274.54	2,015.61	2,905.79	2,212.92	13.47	2.26	-13.55
8,458.00	79.80	10.60	6,280.46	2,046.32	2,912.54	2,244.02	11.41	2.81	-11.25
8,489.00	80.60	7.50	6,285.74	2,076.49	2,917.35	2,274.45	10.19	2.58	-10.00
8,521.00	81.60	4.40	6,290.69	2,107.93	2,920.62	2,306.04	10.07	3.13	-9.69
8,552.00	82.80	0.70	6,294.90	2,138.60	2,921.99	2,336.74	12.44	3.87	-11.94
8,584.00	83.30	356.60	6,298.77	2,170.35	2,921.24	2,368.36	12.81	1.56	-12.81
8,615.00	83.50	353.00	6,302.33	2,201.01	2,918.45	2,398.75	11.55	0.65	-11.61
8,647.00	83.20	348.70	6,306.04	2,232.39	2,913.40	2,429.70	13.38	-0.94	-13.44
8,678.00	84.80	346.50	6,309.28	2,262.49	2,906.78	2,459.27	8.74	5.16	-7.10
8,709.00	85.90	343.90	6,311.80	2,292.36	2,898.88	2,488.52	9.08	3.55	-8.39
8,741.00	88.00	342.30	6,313.50	2,322.94	2,889.59	2,518.37	8.25	6.56	-5.00
Land point 8741 MD/6314 TVD									
8,772.00	88.70	341.90	6,314.39	2,352.42	2,880.07	2,547.12	2.60	2.26	-1.29
8,867.00	89.10	341.90	6,316.21	2,442.71	2,850.56	2,635.13	0.42	0.42	0.00
8,961.00	89.40	339.50	6,317.44	2,531.41	2,819.50	2,721.46	2.57	0.32	-2.55
9,055.00	91.00	340.30	6,317.12	2,619.68	2,787.19	2,807.27	1.90	1.70	0.85
9,150.00	89.30	341.10	6,316.87	2,709.34	2,755.80	2,894.52	1.98	-1.79	0.84
9,244.00	89.60	339.00	6,317.77	2,797.69	2,723.73	2,980.43	2.26	0.32	-2.23
9,338.00	89.80	339.00	6,318.26	2,885.44	2,690.04	3,065.63	0.21	0.21	0.00
9,433.00	90.40	340.90	6,318.10	2,974.68	2,657.47	3,152.38	2.10	0.63	2.00
9,527.00	88.60	340.90	6,318.92	3,063.50	2,626.72	3,238.85	1.91	-1.91	0.00
9,622.00	89.10	341.20	6,320.82	3,153.33	2,595.87	3,326.31	0.61	0.53	0.32
9,716.00	90.30	341.20	6,321.32	3,242.31	2,565.58	3,412.97	1.28	1.28	0.00
9,810.00	88.70	341.30	6,322.14	3,331.32	2,535.37	3,499.66	1.71	-1.70	0.11
9,905.00	90.00	341.20	6,323.21	3,421.27	2,504.83	3,587.27	1.37	1.37	-0.11
9,999.00	88.30	342.00	6,324.61	3,510.45	2,475.17	3,674.17	2.00	-1.81	0.85
10,093.00	90.00	343.10	6,326.00	3,600.11	2,446.98	3,761.65	2.15	1.81	1.17
10,187.00	88.40	341.70	6,327.32	3,689.69	2,418.57	3,849.04	2.26	-1.70	-1.49
10,282.00	88.00	339.80	6,330.30	3,779.33	2,387.26	3,936.29	2.04	-0.42	-2.00
10,376.00	88.40	339.20	6,333.25	3,867.34	2,354.36	4,021.79	0.77	0.43	-0.64
10,470.00	90.20	342.90	6,334.40	3,956.22	2,323.84	4,108.33	4.38	1.91	3.94
10,565.00	91.40	343.10	6,333.07	4,047.06	2,296.07	4,197.01	1.28	1.26	0.21
10,659.00	88.80	342.30	6,332.91	4,136.79	2,268.12	4,284.59	2.89	-2.77	-0.85
10,753.00	89.00	341.70	6,334.71	4,226.18	2,239.08	4,371.73	0.67	0.21	-0.64
10,848.00	89.90	341.30	6,335.63	4,316.26	2,208.94	4,459.50	1.04	0.95	-0.42
10,942.00	89.70	344.30	6,335.96	4,406.05	2,181.14	4,547.14	3.20	-0.21	3.19
11,037.00	90.80	344.00	6,335.54	4,497.43	2,155.20	4,636.50	1.20	1.16	-0.32
11,131.00	89.30	343.20	6,335.46	4,587.61	2,128.66	4,724.60	1.81	-1.60	-0.85
11,225.00	90.20	342.60	6,335.87	4,677.45	2,101.02	4,812.30	1.15	0.96	-0.64

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Company:	EQT PRODUCTION	Local Co-ordinate Reference:	Well Well #514480 - Slot 514480
Project:	Ritchie County, WV	TVD Reference:	KB@23 @ 1039.00usft (Savanna 803)
Site:	PEN54	MD Reference:	KB@23 @ 1039.00usft (Savanna 803)
Well:	Well #514480	North Reference:	Grid
Wellbore:	Main Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Main Wellbore	Database:	DB Jul2216dt

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,320.00	89.10	343.40	6,336.45	4,768.29	2,073.24	4,901.00	1.43	-1.16	0.84
11,414.00	90.00	343.40	6,337.19	4,858.37	2,046.39	4,988.99	0.96	0.96	0.00
11,508.00	86.90	343.60	6,339.73	4,948.46	2,019.71	5,077.00	3.30	-3.30	0.21
11,603.00	87.60	343.10	6,344.29	5,039.37	1,992.52	5,165.80	0.91	0.74	-0.53
11,697.00	89.10	344.00	6,346.99	5,129.48	1,965.91	5,253.84	1.66	1.60	0.96
11,792.00	92.30	344.80	6,345.83	5,220.96	1,940.37	5,343.32	3.47	3.37	0.84
11,886.00	90.30	342.60	6,343.70	5,311.15	1,914.00	5,431.46	3.16	-2.13	-2.34
11,981.00	90.30	340.00	6,343.20	5,401.12	1,883.54	5,519.09	2.74	0.00	-2.74
12,075.00	88.20	340.10	6,344.43	5,489.47	1,851.47	5,605.00	2.24	-2.23	0.11
12,169.00	89.40	342.80	6,346.40	5,578.56	1,821.58	5,691.79	3.14	1.28	2.87
12,263.00	89.40	341.70	6,347.39	5,668.08	1,792.92	5,779.09	1.17	0.00	-1.17
12,358.00	89.40	343.80	6,348.38	5,758.79	1,764.76	5,867.63	2.21	0.00	2.21
12,452.00	89.50	343.00	6,349.28	5,848.87	1,737.90	5,955.62	0.86	0.11	-0.85
12,546.00	89.80	344.10	6,349.86	5,939.02	1,711.28	6,043.70	1.21	0.32	1.17
12,641.00	90.40	343.20	6,349.69	6,030.18	1,684.54	6,132.78	1.14	0.63	-0.95
12,735.00	90.20	345.60	6,349.20	6,120.71	1,659.27	6,221.33	2.56	-0.21	2.55
12,829.00	90.90	346.00	6,348.30	6,211.83	1,636.21	6,310.62	0.86	0.74	0.43
12,924.00	88.00	343.20	6,349.21	6,303.40	1,610.99	6,400.21	4.24	-3.05	-2.95
13,021.00	88.50	343.20	6,352.17	6,396.21	1,582.96	6,490.86	0.52	0.52	0.00
13,116.00	89.60	343.20	6,353.75	6,487.14	1,555.51	6,579.66	1.16	1.16	0.00
13,210.00	90.50	343.30	6,353.67	6,577.15	1,528.42	6,667.56	0.96	0.96	0.11
13,305.00	88.80	343.00	6,354.25	6,668.07	1,500.88	6,756.34	1.82	-1.79	-0.32
13,401.00	89.40	343.10	6,355.75	6,759.89	1,472.90	6,845.99	0.63	0.63	0.10
13,494.00	90.20	343.40	6,356.08	6,848.94	1,446.10	6,932.96	0.92	0.86	0.32
13,589.00	88.70	342.90	6,356.99	6,939.86	1,418.56	7,021.74	1.66	-1.58	-0.53
13,683.00	89.20	342.60	6,358.71	7,029.61	1,390.69	7,109.34	0.62	0.53	-0.32
13,778.00	89.90	342.40	6,359.46	7,120.21	1,362.13	7,197.73	0.77	0.74	-0.21
13,872.00	90.60	343.20	6,359.05	7,210.01	1,334.33	7,285.38	1.13	0.74	0.85
13,967.00	89.40	342.00	6,359.05	7,300.66	1,305.92	7,373.83	1.79	-1.26	-1.26
14,062.00	90.00	341.00	6,359.55	7,390.74	1,275.78	7,461.60	1.23	0.63	-1.05
14,157.00	89.90	343.40	6,359.63	7,481.19	1,246.74	7,549.81	2.53	-0.11	2.53
14,251.00	90.50	344.00	6,359.30	7,571.41	1,220.36	7,637.97	0.90	0.64	0.64
14,346.00	91.00	343.20	6,358.06	7,662.54	1,193.54	7,727.01	0.99	0.53	-0.84
14,441.00	89.10	344.10	6,357.97	7,753.69	1,166.80	7,816.08	2.21	-2.00	0.95
14,535.00	89.10	343.40	6,359.45	7,843.92	1,140.50	7,904.27	0.74	0.00	-0.74
14,630.00	89.70	342.90	6,360.45	7,934.84	1,112.96	7,993.05	0.82	0.63	-0.53
14,724.00	90.10	343.80	6,360.61	8,024.89	1,086.03	8,081.01	1.05	0.43	0.96
14,819.00	90.90	344.70	6,359.78	8,116.32	1,060.24	8,170.42	1.27	0.84	0.95
14,914.00	92.00	345.80	6,357.38	8,208.16	1,036.06	8,260.36	1.64	1.16	1.16
15,008.00	90.40	343.50	6,355.41	8,298.78	1,011.19	8,349.02	2.98	-1.70	-2.45
15,103.00	91.30	343.40	6,354.00	8,389.83	984.13	8,437.97	0.95	0.95	-0.11
15,197.00	89.80	342.70	6,353.10	8,479.74	956.73	8,525.76	1.76	-1.60	-0.74
15,292.00	89.80	341.80	6,353.43	8,570.22	927.77	8,614.00	0.95	0.00	-0.95
15,387.00	87.90	342.20	6,355.33	8,660.54	898.42	8,702.07	2.04	-2.00	0.42

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