



Where energy meets innovation.

EQT PRODUCTION

Wetzel County, WV

Big 190

Well #516848 - Slot 516848

Main Wellbore

Design: Surveys Main Wellbore

Standard Survey Report

12 July, 2017

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WV Department of
Environmental Protection



02/16/2018

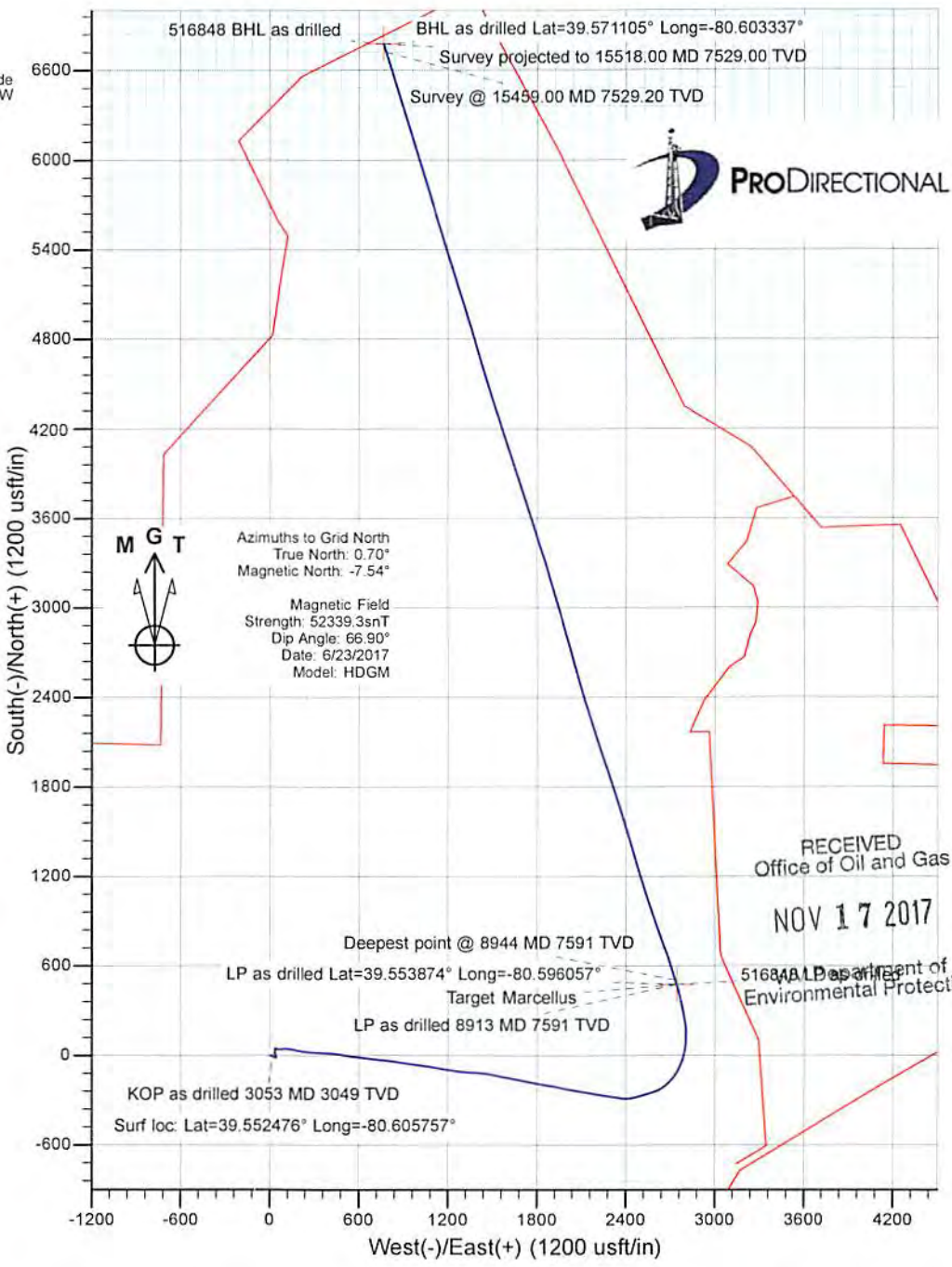
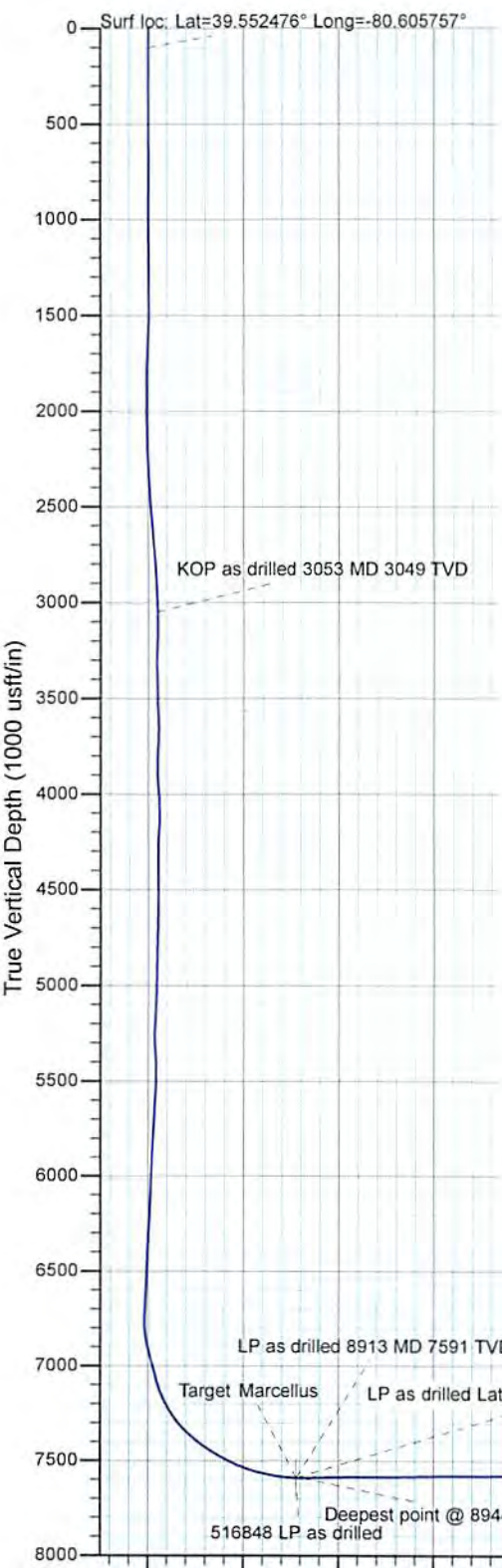


Project: Wetzel County, WV
 Site: Big 190
 Well: Well #516848
 Wellbore: Main Wellbore
 Design: Surveys Main Wellbo

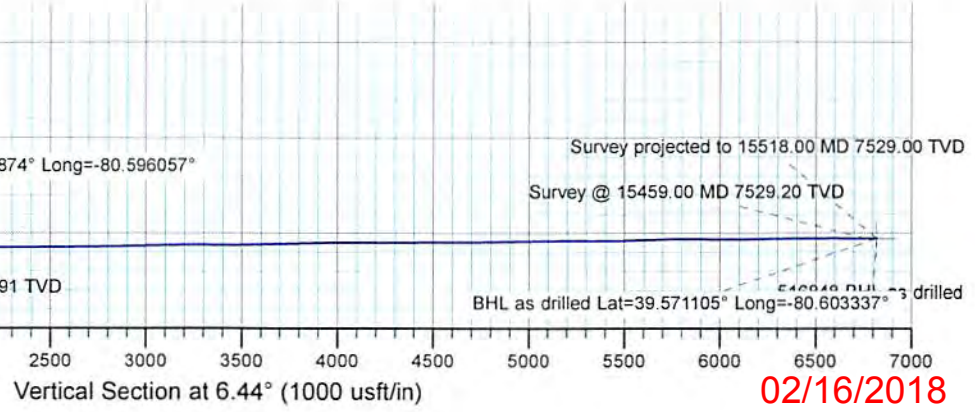
MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Annotation
100.00	0.13	331.66	100.00	0.10	-0.05	0.09	Gyro
100.00	0.13	331.66	100.00	0.10	-0.05	0.09	Surf loc: Lat=39.552476° Long=-80.605757°
2759.00	5.45	351.29	2764.98	32.63	34.22	36.26	ProD MWD surveys
3053.00	2.33	5.64	3048.51	47.68	33.33	51.12	KOP as drilled 3053 MD 3049 TVD
8913.00	88.20	344.00	7590.63	475.48	2741.16	779.93	LP as drilled 8913 MD 7591 TVD
8913.00	88.20	344.00	7590.63	475.48	2741.16	779.93	Target Marcellus
8913.00	88.20	344.00	7590.63	475.48	2741.16	779.93	LP as drilled Lat=39.553874° Long=-80.596057°
8944.00	91.40	342.60	7590.73	505.16	2732.25	808.43	Deepest point @ 8944 MD 7591 TVD
15459.00	90.20	342.80	7529.20	6719.85	783.02	6765.27	Survey @ 15459.00 MD 7529.20 TVD
15518.00	90.20	342.80	7529.00	6776.21	765.57	6819.32	Survey projected to 15518.00 MD 7529.00 TVD
15518.00	90.20	342.80	7529.00	6776.21	765.57	6819.32	BHL as drilled Lat=39.571105° Long=-80.603337°

Geodetic System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: West Virginia North 4701

System Datum: Mean Sea Level
 Depth Reference: RKB=1474+16 @ 1490.00usft (Savanna 654)
 Surface location
 Northing: 385252.77 Easting: 1688213.0039° 33' 8.9133 N Longitude: 80° 36' 20.7240 W



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02/16/2018

Company:	EQT PRODUCTION	Local Co-ordinate Reference:	Well Well #516848 - Slot 516848
Project:	Wetzel County, WV	TVD Reference:	RKB=1474+16 @ 1490.00usft (Savanna 654)
Site:	Big 190	MD Reference:	RKB=1474+16 @ 1490.00usft (Savanna 654)
Well:	Well #516848	North Reference:	Grid
Wellbore:	Main Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Main Wellbore	Database:	DB_Jul2216dt_v14

Project	Wetzel 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	Big 190				
Site Position:		Northing:	385,255.46 usft	Latitude:	39° 33' 8.9435 N
From:	Map	Easting:	1,688,243.35 usft	Longitude:	80° 36' 20.3370 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.71 °

Well	Well #516848 - Slot 516848					
Well Position	+N-S	0.00 usft	Northing:	385,252.77 usft	Latitude:	39° 33' 8.9133 N
	+E-W	0.00 usft	Easting:	1,688,213.00 usft	Longitude:	80° 36' 20.7240 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	1,474.00 usft

Wellbore	Main Wellbore				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/23/2017	-8.25	66.90	52,339.30000000

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	6.44	

Survey Program	Date 7/12/2017			RECEIVED Office of Oil and Gas	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	NOV 17 2017
100.00	2,725.00	Gryo 0-2725 MD (Main Wellbore)	MWD - OWSG	MWD - OWSG	WV Department of Environmental Protection
2,769.00	5,482.00	MWD (Main Wellbore)	MWD - OWSG	MWD - OWSG	
5,550.00	15,518.00	MWD TIP=5482 MD (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	0.13	331.66	100.00	0.10	-0.05	0.09	0.13	0.13	0.00	0.00
Gyro - Surf loc: Lat=39.552476° Long=-80.605757°										
200.00	0.13	320.45	200.00	0.29	-0.18	0.27	0.03	0.00	0.00	-11.21
300.00	0.16	38.35	300.00	0.48	-0.17	0.46	0.18	0.03	0.03	77.90
400.00	0.21	45.46	400.00	0.72	0.05	0.72	0.05	0.05	0.05	7.11
500.00	0.10	67.62	500.00	0.88	0.26	0.91	0.12	-0.11	-0.11	22.16
600.00	0.05	153.69	600.00	0.88	0.36	0.91	0.11	-0.05	-0.05	86.07
700.00	0.05	207.28	700.00	0.80	0.36	0.84	0.05	0.00	0.00	53.59

Company: EQT PRODUCTION	Local Co-ordinate Reference: Well Well #516848 - Slot 516848
Project: Wetzel County, WV	TVD Reference: RKB=1474+16 @ 1490.00usft (Savanna 654)
Site: Big 190	MD Reference: RKB=1474+16 @ 1490.00usft (Savanna 654)
Well: Well #516848	North Reference: Grid
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)	
800.00	0.05	241.76	800.00	0.74	0.30	0.77	0.03	0.00	34.48	
900.00	0.05	239.23	900.00	0.70	0.23	0.72	0.00	0.00	-2.53	
1,000.00	0.03	215.17	1,000.00	0.65	0.18	0.67	0.03	-0.02	-24.06	
1,100.00	0.03	185.48	1,100.00	0.61	0.16	0.62	0.02	0.00	-29.69	
1,200.00	0.10	310.86	1,200.00	0.64	0.09	0.64	0.12	0.07	125.38	
1,300.00	0.76	44.72	1,300.00	1.17	0.49	1.21	0.77	0.66	93.86	
1,400.00	1.44	62.95	1,399.98	2.21	2.08	2.43	0.76	0.68	18.23	
1,500.00	2.91	113.30	1,499.91	1.78	5.53	2.38	2.28	1.47	50.35	
1,600.00	6.76	120.72	1,599.54	-2.24	12.92	-0.77	3.89	3.85	7.42	
1,700.00	8.76	114.75	1,698.62	-8.43	24.90	-5.59	2.15	2.00	-5.97	
1,800.00	4.82	102.80	1,797.90	-12.55	35.91	-8.44	4.16	-3.94	-11.95	
1,900.00	1.57	100.19	1,897.73	-13.73	41.36	-9.00	3.25	-3.25	-2.61	
2,000.00	0.48	17.71	1,997.72	-13.57	42.84	-8.68	1.58	-1.09	-82.48	
2,100.00	1.33	343.27	2,097.70	-12.06	42.63	-7.20	0.97	0.85	-34.44	
2,200.00	2.29	342.94	2,197.65	-9.04	41.71	-4.30	0.96	0.96	-0.33	
2,300.00	3.03	344.65	2,297.54	-4.58	40.42	-0.02	0.74	0.74	1.71	
2,400.00	3.88	347.04	2,397.36	1.27	38.97	5.63	0.86	0.85	2.39	
2,500.00	4.77	346.94	2,497.08	8.62	37.27	12.74	0.89	0.89	-0.10	
2,600.00	4.88	352.55	2,596.72	16.88	35.78	20.79	0.48	0.11	5.61	
2,700.00	5.53	355.65	2,696.31	25.91	34.86	29.65	0.71	0.65	3.10	
2,725.00	5.77	356.18	2,721.19	28.36	34.68	32.07	0.98	0.96	2.12	
2,769.00	5.45	351.29	2,764.98	32.63	34.22	36.26	1.31	-0.73	-11.11	
ProD MWD surveys										
2,800.00	5.01	349.89	2,795.85	35.42	33.76	38.98	1.48	-1.42	-4.52	
2,832.00	4.58	349.88	2,827.74	38.05	33.29	41.55	1.34	-1.34	-0.03	
2,863.00	3.12	348.46	2,858.67	40.10	32.90	43.54	4.72	-4.71	-4.58	
2,895.00	2.24	351.14	2,890.63	41.57	32.63	44.97	2.78	-2.75	8.38	
2,926.00	1.91	2.43	2,921.61	42.68	32.56	46.07	1.69	-1.06	36.42	
2,958.00	1.96	10.14	2,953.59	43.76	32.68	47.15	0.83	0.16	24.09	
2,990.00	2.38	11.98	2,985.57	44.94	32.91	48.35	1.33	1.31	5.75	
3,021.00	2.68	8.39	3,016.54	46.29	33.15	49.72	1.09	0.97	-11.58	
3,053.00	2.33	5.64	3,048.51	47.68	33.33	51.12	1.16	-1.09	-8.59	
KOP as drilled 3053 MD 3049 TVD										
3,084.00	1.07	342.57	3,079.49	48.58	33.30	52.01	4.55	-4.06	-74.42	
3,116.00	0.78	238.94	3,111.49	48.75	33.03	52.15	4.58	-0.91	-323.84	
3,148.00	1.36	173.15	3,143.49	48.27	32.88	51.65	3.94	1.81	-205.59	
3,179.00	2.53	132.70	3,174.47	47.44	33.43	50.89	5.60	3.77	-130.48	
3,211.00	4.13	120.43	3,206.42	46.37	34.94	50.00	5.45	5.00	-38.34	
3,242.00	5.89	113.47	3,237.30	45.17	37.37	49.08	6.00	5.68	-22.45	
3,274.00	7.42	107.62	3,269.08	43.89	40.84	48.20	5.22	4.78	-18.28	
3,305.00	8.62	98.23	3,299.78	42.96	45.05	47.74	5.72	3.87	-30.29	
3,337.00	9.05	91.50	3,331.40	42.55	49.94	47.88	3.50	1.34	-21.03	
3,369.00	9.02	86.80	3,363.00	42.62	54.96	48.52	2.31	-0.09	-14.69	
3,400.00	8.93	85.33	3,393.62	42.95	59.78	49.39	0.79	-0.29	-4.74	

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3,432.00	9.76	85.97	3,425.20	43.35	64.96	50.36	2.61	2.59	2.00
3,463.00	10.50	90.66	3,455.71	43.50	70.41	51.12	3.57	2.39	15.13
3,495.00	11.49	93.44	3,487.13	43.27	76.51	51.58	3.51	3.09	8.69
3,527.00	13.12	90.31	3,518.39	43.06	83.32	52.14	5.50	5.09	-9.78
3,558.00	15.27	87.02	3,548.44	43.26	90.92	53.18	7.41	6.94	-10.61
3,590.00	17.52	86.30	3,579.14	43.79	99.93	54.72	7.06	7.03	-2.25
3,622.00	19.95	86.57	3,609.44	44.42	110.19	56.50	7.60	7.59	0.84
3,653.00	21.53	91.16	3,638.43	44.62	121.16	57.93	7.31	5.10	14.81
3,685.00	23.51	97.63	3,668.00	43.66	133.36	58.34	9.90	6.19	20.22
3,717.00	26.28	102.15	3,697.02	41.32	146.61	57.50	10.50	8.66	14.13
3,749.00	29.44	105.61	3,725.31	37.71	161.12	55.54	11.09	9.88	10.81
3,780.00	31.56	102.59	3,752.02	33.89	176.38	53.46	8.44	6.84	-9.74
3,812.00	34.13	98.38	3,778.91	30.76	193.43	52.26	10.74	8.03	-13.16
3,844.00	36.57	97.79	3,805.01	28.16	211.76	51.73	7.70	7.63	-1.84
3,875.00	38.18	98.44	3,829.64	25.50	230.39	51.18	5.35	5.19	2.10
3,907.00	38.17	98.15	3,854.80	22.64	249.96	50.54	0.56	-0.03	-0.91
3,968.00	36.84	93.78	3,903.20	18.77	286.88	50.82	4.88	-2.18	-7.16
4,031.00	36.42	88.43	3,953.77	18.03	324.43	54.31	5.11	-0.67	-8.49
4,063.00	35.76	91.05	3,979.63	18.12	343.27	56.51	5.24	-2.06	8.19
4,094.00	34.99	91.88	4,004.91	17.66	361.21	58.07	2.93	-2.48	2.68
4,158.00	34.01	94.74	4,057.65	15.58	397.39	60.06	2.96	-1.53	4.47
4,221.00	35.77	94.93	4,109.33	12.54	433.30	61.07	2.80	2.79	0.30
4,284.00	36.91	99.48	4,160.08	7.85	470.31	60.55	4.65	1.81	7.22
4,346.00	37.32	101.30	4,209.52	1.10	507.11	57.97	1.89	0.66	2.94
4,409.00	36.73	99.85	4,259.82	-5.87	544.40	55.23	1.67	-0.94	-2.30
4,472.00	38.16	96.92	4,309.84	-11.44	582.28	53.95	3.63	2.27	-4.65
4,533.00	37.32	95.94	4,358.08	-15.62	619.38	53.95	1.69	-1.38	-1.61
4,596.00	36.76	96.14	4,408.37	-19.61	657.12	54.21	0.91	-0.89	0.32
4,659.00	36.55	94.85	4,458.91	-23.22	694.56	54.83	1.27	-0.33	-2.05
4,722.00	35.87	97.04	4,509.74	-27.07	731.57	55.16	2.32	-1.08	3.48
4,786.00	35.44	96.29	4,561.75	-31.40	768.62	55.01	0.96	-0.67	-1.17
4,849.00	35.30	97.66	4,613.12	-35.82	804.82	54.67	1.28	-0.22	2.17
4,912.00	34.72	98.55	4,664.72	-40.92	840.60	53.62	1.23	-0.92	1.41
4,975.00	34.11	97.20	4,716.69	-45.80	875.87	52.73	1.55	-0.97	-2.14
5,039.00	36.06	99.46	4,769.07	-51.14	912.26	51.50	3.66	3.05	3.53
5,102.00	34.95	98.18	4,820.35	-56.76	948.41	49.97	2.12	-1.76	-2.03
5,166.00	35.77	98.17	4,872.54	-62.03	985.07	48.85	1.28	1.28	-0.02
5,229.00	35.85	98.24	4,923.64	-67.29	1,021.56	47.72	0.14	0.13	0.11
5,293.00	34.15	96.73	4,976.06	-72.08	1,057.95	47.04	2.98	-2.66	-2.36
5,356.00	35.85	98.72	5,027.67	-76.95	1,093.75	46.21	3.25	2.70	3.16
5,419.00	37.02	99.13	5,078.35	-82.76	1,130.71	44.59	1.90	1.86	0.65
5,482.00	37.94	100.09	5,128.35	-89.16	1,168.50	42.47	1.73	1.46	1.52
5,550.00	39.00	99.90	5,181.58	-96.50	1,210.16	39.85	1.57	1.56	-0.28

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Survey WV Department of Environmental Protection

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5,613.00	39.50	99.10	5,230.37	-103.08	1,249.48	37.72	1.13	0.79	-1.27
5,676.00	41.40	96.40	5,278.31	-108.57	1,289.97	36.80	4.10	3.02	-4.29
5,741.00	42.90	92.20	5,326.51	-111.81	1,333.45	38.45	4.91	2.31	-6.46
5,801.00	40.20	92.50	5,371.41	-113.44	1,373.21	41.30	4.51	-4.50	0.50
5,833.00	39.50	92.30	5,395.98	-114.30	1,393.69	42.74	2.22	-2.19	-0.63
5,864.00	36.30	93.30	5,420.44	-115.23	1,412.71	43.95	10.51	-10.32	3.23
5,927.00	31.80	98.30	5,472.63	-118.70	1,447.78	44.44	8.41	-7.14	7.94
5,990.00	33.20	101.40	5,525.77	-124.50	1,481.12	42.41	3.45	2.22	4.92
6,053.00	35.50	102.20	5,577.78	-131.78	1,515.91	39.08	3.72	3.65	1.27
6,117.00	35.10	101.40	5,630.01	-139.34	1,552.11	35.62	0.96	-0.63	-1.25
6,179.00	34.30	99.70	5,680.99	-145.81	1,586.80	33.09	2.03	-1.29	-2.74
6,243.00	35.50	102.00	5,733.48	-152.71	1,622.76	30.26	2.78	1.88	3.59
6,306.00	35.50	102.30	5,784.77	-160.41	1,658.52	26.62	0.28	0.00	0.48
6,369.00	35.10	100.80	5,836.18	-167.70	1,694.19	23.38	1.52	-0.63	-2.38
6,432.00	34.70	100.10	5,887.85	-174.24	1,729.63	20.86	0.90	-0.63	-1.11
6,495.00	36.10	100.20	5,939.21	-180.67	1,765.56	18.49	2.22	2.22	0.16
6,558.00	36.30	99.70	5,990.04	-187.10	1,802.20	16.22	0.57	0.32	-0.79
6,621.00	35.50	99.40	6,041.08	-193.23	1,838.63	14.21	1.30	-1.27	-0.48
6,684.00	35.70	100.20	6,092.30	-199.48	1,874.77	12.06	0.80	0.32	1.27
6,747.00	34.60	99.60	6,143.81	-205.71	1,910.50	9.87	1.83	-1.75	-0.95
6,810.00	35.70	101.10	6,195.32	-212.24	1,946.17	7.39	2.22	1.75	2.38
6,873.00	36.00	102.10	6,246.39	-219.66	1,982.32	4.07	1.04	0.48	1.59
6,936.00	35.70	101.50	6,297.45	-227.20	2,018.43	0.62	0.73	-0.48	-0.95
6,999.00	34.60	99.60	6,348.97	-233.85	2,054.08	-1.98	2.46	-1.75	-3.02
7,062.00	36.20	100.30	6,400.32	-240.16	2,090.03	-4.22	2.62	2.54	1.11
7,125.00	37.00	99.60	6,450.90	-246.65	2,127.02	-6.52	1.43	1.27	-1.11
7,188.00	36.60	98.80	6,501.34	-252.68	2,164.28	-8.34	0.99	-0.63	-1.27
7,245.00	37.00	99.20	6,546.98	-258.03	2,198.00	-9.86	0.82	0.70	0.70
7,308.00	37.30	99.90	6,597.20	-264.34	2,235.52	-11.93	0.82	0.48	1.11
7,371.00	37.70	100.00	6,647.18	-270.96	2,273.29	-14.28	0.64	0.63	0.16
7,433.00	37.80	99.10	6,696.20	-277.26	2,310.72	-16.34	0.90	0.16	-1.45
7,496.00	36.60	98.90	6,746.38	-283.22	2,348.34	-18.04	1.91	-1.90	-0.32
7,528.00	36.20	98.10	6,772.14	-286.03	2,367.12	-18.72	1.94	-1.25	-2.50
7,559.00	35.90	94.20	6,797.21	-287.98	2,385.25	-18.63	7.47	-0.97	-12.58
7,590.00	35.60	87.70	6,822.38	-288.29	2,403.34	-16.90	12.28	-0.97	-20.97
7,622.00	35.60	82.90	6,848.40	-286.76	2,421.89	-13.31	8.73	0.00	-15.00
7,653.00	35.80	79.60	6,873.58	-284.01	2,439.77	-8.57	6.24	0.65	-10.65
7,685.00	36.30	76.80	6,899.45	-280.16	2,458.20	-2.67	5.38	1.56	-8.75
7,717.00	36.80	74.30	6,925.16	-275.40	2,476.65	4.12	4.91	1.56	-7.81
7,748.00	37.00	73.20	6,949.95	-270.19	2,494.51	11.30	2.23	0.65	-3.55
7,780.00	36.00	73.50	6,975.67	-264.74	2,512.75	18.77	3.17	-3.13	0.94
7,811.00	35.50	73.10	7,000.83	-259.53	2,530.10	25.89	1.78	-1.61	-1.29
7,843.00	34.20	73.50	7,027.09	-254.28	2,547.61	33.07	4.12	-4.06	1.25

Company:	EQT PRODUCTION	Local Co-ordinate Reference:	Well Well #516848 - Slot 516848	RECEIVED Office of Oil and Gas NOV 17 2017 WV Department of Environmental Protection
Project:	Wetzel County, WV	TVD Reference:	RKB=1474+16 @ 1490.00usft (Savanna 654)	
Site:	Big 190	MD Reference:	RKB=1474+16 @ 1490.00usft (Savanna 654)	
Well:	Well #516848	North Reference:	Grid	
Wellbore:	Main Wellbore	Survey Calculation Method:	Minimum Curvature	
Design:	Surveys Main Wellbore	Database:	DB_Jul2216dt_v14	

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)
7,874.00	34.10	73.90	7,052.75	-249.39	2,564.31	39.80	0.79	-0.32	1.29
7,905.00	34.20	73.60	7,078.40	-244.52	2,581.02	46.51	0.63	0.32	-0.97
7,937.00	34.40	69.70	7,104.84	-238.85	2,598.13	54.07	6.90	0.63	-12.19
7,968.00	35.00	63.70	7,130.33	-231.87	2,614.32	62.82	11.18	1.94	-19.35
8,000.00	35.90	58.90	7,156.41	-222.95	2,630.58	73.51	9.14	2.81	-15.00
8,031.00	36.80	54.90	7,181.38	-212.92	2,645.96	85.20	8.18	2.90	-12.90
8,063.00	37.60	51.30	7,206.87	-201.30	2,661.43	98.48	7.25	2.50	-11.25
8,094.00	38.50	48.50	7,231.28	-189.00	2,676.03	112.35	6.28	2.90	-9.03
8,126.00	39.70	46.60	7,256.12	-175.37	2,690.92	127.56	5.30	3.75	-5.94
8,157.00	42.00	42.00	7,279.57	-160.86	2,705.06	143.57	12.21	7.42	-14.84
8,189.00	43.90	38.20	7,302.99	-144.18	2,719.09	161.71	10.03	5.94	-11.88
8,220.00	46.50	33.50	7,324.84	-126.35	2,731.95	180.87	13.64	8.39	-15.16
8,251.00	48.40	30.40	7,345.81	-106.97	2,744.02	201.48	9.58	6.13	-10.00
8,283.00	50.20	27.10	7,366.68	-85.70	2,755.68	223.92	9.63	5.63	-10.31
8,314.00	51.40	23.90	7,386.27	-64.02	2,766.01	246.63	8.89	3.87	-10.32
8,346.00	53.50	19.90	7,405.78	-40.49	2,775.46	271.07	11.88	6.56	-12.50
8,378.00	55.80	16.50	7,424.30	-15.70	2,783.60	296.62	11.26	7.19	-10.63
8,409.00	56.60	13.20	7,441.54	9.20	2,790.19	322.10	9.21	2.58	-10.65
8,440.00	57.10	9.50	7,458.50	34.64	2,795.30	347.95	10.12	1.61	-11.94
8,472.00	59.20	6.80	7,475.39	61.54	2,799.14	375.11	9.72	6.56	-8.44
8,503.00	61.50	4.30	7,490.72	88.35	2,801.74	402.04	10.21	7.42	-8.06
8,535.00	64.10	1.20	7,505.35	116.77	2,803.10	430.44	11.84	8.13	-9.69
8,566.00	66.10	359.80	7,518.40	144.89	2,803.34	458.40	7.64	6.45	-4.52
8,598.00	68.60	356.50	7,530.73	174.40	2,802.38	487.62	12.31	7.81	-10.31
8,629.00	70.70	353.30	7,541.51	203.34	2,799.79	516.09	11.81	6.77	-10.32
8,661.00	73.30	351.40	7,551.40	233.50	2,795.74	545.60	9.89	8.13	-5.94
8,692.00	75.30	350.50	7,559.79	262.97	2,791.04	574.36	7.03	6.45	-2.90
8,724.00	77.80	349.40	7,567.23	293.61	2,785.61	604.20	8.50	7.81	-3.44
8,755.00	79.60	348.90	7,573.31	323.46	2,779.89	633.22	6.02	5.81	-1.61
8,787.00	80.80	346.30	7,578.75	354.26	2,773.12	663.06	8.84	3.75	-8.13
8,818.00	83.10	345.40	7,583.09	384.02	2,765.61	691.79	7.96	7.42	-2.90
8,850.00	84.80	345.30	7,586.47	414.80	2,757.56	721.48	5.32	5.31	-0.31
8,881.00	85.90	345.10	7,588.98	444.68	2,749.67	750.28	3.61	3.55	-0.65
8,913.00	88.20	344.00	7,590.63	475.48	2,741.16	779.93	7.97	7.19	-3.44
LP as drilled 8913 MD 7591 TVD - Target Marcellus - LP as drilled Lat=39.553874° Long=-80.596057°									
8,944.00	91.40	342.60	7,590.73	505.16	2,732.25	808.43	11.27	10.32	-4.52
Deepest point @ 8944 MD 7591 TVD									
9,007.00	91.70	342.60	7,589.03	565.26	2,713.42	866.04	0.48	0.48	0.00
9,071.00	90.60	341.10	7,587.75	626.06	2,693.49	924.22	2.91	-1.72	-2.34
9,134.00	91.20	340.00	7,586.76	685.46	2,672.51	980.89	1.99	0.95	-1.75
9,197.00	89.50	339.60	7,586.37	744.58	2,650.76	1,037.20	2.77	-2.70	-0.63
9,260.00	89.80	340.30	7,586.76	803.76	2,629.16	1,093.58	1.21	0.48	1.11
9,323.00	90.30	340.90	7,586.70	863.18	2,608.24	1,150.28	1.24	0.79	0.95
9,386.00	90.40	341.60	7,586.32	922.84	2,587.99	1,207.29	1.12	0.16	1.11

Company:	EQT PRODUCTION	Local Co-ordinate Reference:	Well Well #516848 - Slot 516848
Project:	Wetzel County, WV	TVD Reference:	RKB=1474+16 @ 1490.00usft (Savanna 654) and Gas
Site:	Big 190	MD Reference:	RKB=1474+16 @ 1490.00usft (Savanna 654) and Gas
Well:	Well #516848	North Reference:	Grid
Wellbore:	Main Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Main Wellbore	Database:	DB_Jul2216dt_v14

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WV Department of Environmental Protection

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)
9,449.00	90.50	341.20	7,585.82	982.54	2,567.89	1,264.37	0.65	0.16	-0.63
9,512.00	91.00	341.10	7,585.00	1,042.16	2,547.54	1,321.32	0.81	0.79	-0.16
9,575.00	91.50	341.30	7,583.62	1,101.78	2,527.24	1,378.29	0.85	0.79	0.32
9,638.00	90.70	343.60	7,582.41	1,161.84	2,508.25	1,435.84	3.86	-1.27	3.65
9,702.00	90.90	344.20	7,581.52	1,223.32	2,490.50	1,494.94	0.99	0.31	0.94
9,765.00	91.20	344.30	7,580.37	1,283.94	2,473.40	1,553.27	0.50	0.48	0.16
9,828.00	89.80	343.20	7,579.82	1,344.42	2,455.78	1,611.39	2.83	-2.22	-1.75
9,891.00	89.40	343.10	7,580.26	1,404.72	2,437.52	1,669.25	0.65	-0.63	-0.16
9,954.00	90.00	343.30	7,580.59	1,465.03	2,419.31	1,727.14	1.00	0.95	0.32
10,017.00	90.20	342.70	7,580.48	1,525.27	2,400.89	1,784.94	1.00	0.32	-0.95
10,080.00	90.80	342.80	7,579.93	1,585.44	2,382.21	1,842.63	0.97	0.95	0.16
10,143.00	91.10	342.40	7,578.88	1,645.55	2,363.37	1,900.24	0.79	0.48	-0.63
10,206.00	91.50	342.00	7,577.45	1,705.51	2,344.12	1,957.67	0.90	0.63	-0.63
10,269.00	89.90	342.50	7,576.68	1,765.51	2,324.91	2,015.14	2.66	-2.54	0.79
10,332.00	89.70	342.20	7,576.90	1,825.54	2,305.81	2,072.65	0.57	-0.32	-0.48
10,395.00	89.80	341.30	7,577.18	1,885.37	2,286.08	2,129.89	1.44	0.16	-1.43
10,458.00	89.90	340.70	7,577.34	1,944.94	2,265.57	2,186.78	0.97	0.16	-0.95
10,521.00	90.40	341.10	7,577.18	2,004.47	2,244.96	2,243.62	1.02	0.79	0.63
10,584.00	90.90	341.00	7,576.46	2,064.05	2,224.50	2,300.53	0.81	0.79	-0.16
10,647.00	90.00	342.30	7,575.97	2,123.84	2,204.67	2,357.72	2.51	-1.43	2.06
10,710.00	90.40	342.90	7,575.75	2,183.96	2,185.83	2,415.35	1.14	0.63	0.95
10,773.00	90.90	342.60	7,575.03	2,244.12	2,167.15	2,473.04	0.93	0.79	-0.48
10,836.00	91.10	341.60	7,573.93	2,304.06	2,147.79	2,530.43	1.62	0.32	-1.59
10,899.00	91.50	341.60	7,572.50	2,363.83	2,127.91	2,587.58	0.63	0.63	0.00
10,962.00	90.00	343.10	7,571.68	2,423.85	2,108.81	2,645.09	3.37	-2.38	2.38
11,025.00	90.10	343.90	7,571.62	2,484.26	2,090.91	2,703.10	1.28	0.16	1.27
11,088.00	90.50	344.50	7,571.29	2,544.88	2,073.76	2,761.42	1.14	0.63	0.95
11,151.00	90.70	344.80	7,570.63	2,605.63	2,057.08	2,819.91	0.57	0.32	0.48
11,214.00	91.30	345.10	7,569.53	2,666.46	2,040.73	2,878.52	1.06	0.95	0.48
11,277.00	91.50	345.30	7,568.00	2,727.35	2,024.64	2,937.23	0.45	0.32	0.32
11,340.00	90.90	343.50	7,566.68	2,788.01	2,007.70	2,995.61	3.01	-0.95	-2.86
11,403.00	91.10	343.20	7,565.58	2,848.36	1,989.65	3,053.55	0.57	0.32	-0.48
11,466.00	91.30	343.20	7,564.26	2,908.66	1,971.45	3,111.43	0.32	0.32	0.00
11,529.00	91.70	343.10	7,562.61	2,968.93	1,953.19	3,169.27	0.65	0.63	-0.16
11,592.00	89.50	343.20	7,561.95	3,029.22	1,934.93	3,227.13	3.50	-3.49	0.16
11,655.00	89.10	343.30	7,562.72	3,089.54	1,916.78	3,285.04	0.65	-0.63	0.16
11,718.00	89.10	343.80	7,563.71	3,149.96	1,898.94	3,343.07	0.79	0.00	0.79
11,781.00	90.20	344.20	7,564.09	3,210.51	1,881.58	3,401.30	1.86	1.75	0.63
11,844.00	90.90	344.20	7,563.49	3,271.13	1,864.42	3,459.61	1.11	1.11	0.00
11,907.00	91.00	341.80	7,562.44	3,331.36	1,846.01	3,517.40	3.81	0.16	-3.81
11,970.00	91.60	341.80	7,561.01	3,391.20	1,826.34	3,574.64	0.95	0.95	0.00
12,033.00	91.80	342.00	7,559.14	3,451.05	1,806.77	3,631.93	0.45	0.32	0.32
12,096.00	92.30	341.70	7,556.89	3,510.88	1,787.16	3,689.18	0.93	0.79	-0.48

Company:	EQT PRODUCTION	Local Co-ordinate Reference:	Well Well #516848 - Slot 516848
Project:	Wetzel County, WV	TVD Reference:	RKB=1474+16 @ 1490.00usft (Savanna 654)
Site:	Big 190	MD Reference:	RKB=1474+16 @ 1490.00usft (Savanna 654)
Well:	Well #516848	North Reference:	Grid
Wellbore:	Main Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Main Wellbore	Database:	DB_Jul2216dt_v14

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WV Department of Environmental Protection

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Bulld Rate (°/100usft)	Turn Rate (°/100usft)
12,159.00	90.60	342.40	7,555.30	3,570.79	1,767.75	3,746.54	2.92	-2.70	1.11
12,223.00	90.80	342.50	7,554.52	3,631.81	1,748.45	3,805.00	0.35	0.31	0.16
12,286.00	91.20	342.40	7,553.42	3,691.87	1,729.46	3,862.55	0.65	0.63	-0.16
12,349.00	91.30	341.90	7,552.04	3,751.82	1,710.15	3,919.96	0.81	0.16	-0.79
12,412.00	92.00	342.20	7,550.23	3,811.73	1,690.75	3,977.31	1.21	1.11	0.48
12,475.00	89.40	342.20	7,549.46	3,871.70	1,671.49	4,034.75	4.13	-4.13	0.00
12,538.00	89.20	341.80	7,550.23	3,931.61	1,652.02	4,092.10	0.71	-0.32	-0.63
12,601.00	89.70	342.00	7,550.83	3,991.49	1,632.45	4,149.41	0.85	0.79	0.32
12,664.00	89.70	341.70	7,551.16	4,051.36	1,612.83	4,206.69	0.48	0.00	-0.48
12,727.00	90.10	341.60	7,551.27	4,111.15	1,592.99	4,263.89	0.65	0.63	-0.16
12,790.00	90.70	341.90	7,550.83	4,170.98	1,573.27	4,321.13	1.06	0.95	0.48
12,853.00	91.30	341.60	7,549.73	4,230.81	1,553.54	4,378.36	1.06	0.95	-0.48
12,916.00	90.10	342.30	7,548.96	4,290.70	1,534.02	4,435.68	2.21	-1.90	1.11
12,979.00	90.00	342.00	7,548.91	4,350.67	1,514.71	4,493.11	0.50	-0.16	-0.48
13,042.00	90.10	341.60	7,548.85	4,410.51	1,495.03	4,550.37	0.65	0.16	-0.63
13,105.00	90.40	341.70	7,548.58	4,470.31	1,475.20	4,607.56	0.50	0.48	0.16
13,168.00	90.10	343.60	7,548.30	4,530.44	1,456.41	4,665.21	3.05	-0.48	3.02
13,231.00	90.40	344.30	7,548.03	4,590.98	1,439.00	4,723.42	1.21	0.48	1.11
13,293.00	90.80	344.20	7,547.38	4,650.65	1,422.17	4,780.82	0.67	0.65	-0.16
13,356.00	91.00	344.40	7,546.39	4,711.29	1,405.12	4,839.17	0.45	0.32	0.32
13,419.00	91.60	344.10	7,544.96	4,771.91	1,388.03	4,897.49	1.06	0.95	-0.48
13,482.00	90.30	343.00	7,543.92	4,832.32	1,370.19	4,955.51	2.70	-2.06	-1.75
13,544.00	90.60	342.70	7,543.43	4,891.56	1,351.91	5,012.33	0.68	0.48	-0.48
13,606.00	90.90	342.00	7,542.62	4,950.64	1,333.11	5,068.93	1.23	0.48	-1.13
13,668.00	91.40	342.40	7,541.37	5,009.66	1,314.16	5,125.45	1.03	0.81	0.65
13,731.00	89.80	342.40	7,540.71	5,069.71	1,295.11	5,182.98	2.54	-2.54	0.00
13,793.00	89.50	342.60	7,541.09	5,128.84	1,276.47	5,239.64	0.58	-0.48	0.32
13,856.00	90.00	342.90	7,541.37	5,189.00	1,257.79	5,297.33	0.93	0.79	0.48
13,918.00	90.20	343.00	7,541.26	5,248.28	1,239.61	5,354.20	0.36	0.32	0.16
13,980.00	90.60	342.80	7,540.83	5,307.53	1,221.38	5,411.04	0.72	0.65	-0.32
14,042.00	90.90	342.90	7,540.01	5,366.77	1,203.10	5,467.85	0.51	0.48	0.16
14,105.00	91.50	342.80	7,538.69	5,426.96	1,184.53	5,525.57	0.97	0.95	-0.16
14,168.00	91.70	342.20	7,536.94	5,487.02	1,165.59	5,583.13	1.00	0.32	-0.95
14,231.00	92.30	342.40	7,534.74	5,547.00	1,146.45	5,640.58	1.00	0.95	0.32
14,294.00	90.40	342.30	7,533.25	5,607.01	1,127.35	5,698.08	3.02	-3.02	-0.16
14,357.00	90.40	342.70	7,532.81	5,667.10	1,108.41	5,755.66	0.63	0.00	0.63
14,420.00	90.90	342.30	7,532.10	5,727.18	1,089.46	5,813.23	1.02	0.79	-0.63
14,481.00	89.80	342.90	7,531.73	5,785.38	1,071.22	5,869.03	2.05	-1.80	0.98
14,512.00	88.60	343.10	7,532.16	5,815.02	1,062.16	5,897.47	3.92	-3.87	0.65
14,576.00	89.20	342.90	7,533.39	5,876.22	1,043.45	5,956.17	0.99	0.94	-0.31
14,639.00	89.80	343.30	7,533.94	5,936.49	1,025.14	6,014.01	1.14	0.95	0.63
14,700.00	90.30	343.50	7,533.88	5,994.95	1,007.71	6,070.15	0.88	0.82	0.33
14,763.00	90.60	343.30	7,533.39	6,055.32	989.71	6,128.12	0.57	0.48	-0.32
14,827.00	90.60	342.50	7,532.72	6,116.49	970.90	6,186.79	1.25	0.00	-1.25

Company:	EQT PRODUCTION	Local Co-ordinate Reference:	Well Well #516848 - Slot 516848
Project:	Wetzel County, WV	TVD Reference:	RKB=1474+16 @ 1490.00usft (Savanna 654)
Site:	Big 190	MD Reference:	RKB=1474+16 @ 1490.00usft (Savanna 654)
Well:	Well #516848	North Reference:	Grid
Wellbore:	Main Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Main Wellbore	Database:	DB_Jul2216dt_v14

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)
14,890.00	90.90	342.90	7,531.89	6,176.63	952.16	6,244.46	0.79	0.48	0.63
14,953.00	91.60	343.10	7,530.52	6,236.87	933.75	6,302.24	1.16	1.11	0.32
15,016.00	91.30	343.40	7,528.93	6,297.17	915.60	6,360.13	0.67	-0.48	0.48
15,079.00	89.80	342.40	7,528.32	6,357.38	897.08	6,417.89	2.86	-2.38	-1.59
15,142.00	89.90	342.30	7,528.49	6,417.42	877.97	6,475.40	0.22	0.16	-0.16
15,206.00	90.70	342.60	7,528.15	6,478.44	858.68	6,533.87	1.33	1.25	0.47
15,269.00	89.80	342.90	7,527.88	6,538.60	839.99	6,591.56	1.51	-1.43	0.48
15,333.00	89.20	342.40	7,528.43	6,599.69	820.91	6,650.12	1.22	-0.94	-0.78
15,396.00	89.60	342.40	7,529.09	6,659.74	801.86	6,707.65	0.63	0.63	0.00
15,459.00	90.20	342.80	7,529.20	6,719.85	783.02	6,765.27	1.14	0.95	0.63
Survey @ 15459.00 MD 7529.20 TVD									
15,518.00	90.20	342.80	7,529.00	6,776.21	765.57	6,819.32	0.00	0.00	0.00
Survey projected to 15518.00 MD 7529.00 TVD - BHL as drilled Lat=39.571105° Long=-80.603337°									

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
516848 BHL as drilled	0.00	360.00	7,529.00	6,776.21	765.57	392,028.98	1,688,978.57	39° 34' 15.9763 N	80° 36' 12.0131 W
- actual wellpath misses target center by 0.01usft at 15518.00usft MD (7529.00 TVD, 6776.21 N, 765.58 E)									
- Point									
516848 LP as drilled	0.00	0.00	7,590.63	475.48	2,741.16	385,728.25	1,690,954.16	39° 33' 13.9445 N	80° 35' 45.8039 W
- actual wellpath hits target center									
- Point									

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
100.00	100.00	0.10	-0.05	Gyro
100.00	100.00	0.10	-0.05	Surf loc: Lat=39.552476° Long=-80.605757°
2,769.00	2,764.98	32.63	34.22	ProD MWD surveys
3,053.00	3,048.51	47.68	33.33	KOP as drilled 3053 MD 3049 TVD
8,913.00	7,590.63	475.48	2,741.16	LP as drilled 8913 MD 7591 TVD
8,913.00	7,590.63	475.48	2,741.16	Target Marcellus
8,913.00	7,590.63	475.48	2,741.16	LP as drilled Lat=39.553874° Long=-80.596057°
8,944.00	7,590.73	505.16	2,732.25	Deepest point @ 8944 MD 7591 TVD
15,459.00	7,529.20	6,719.85	783.02	Survey @ 15459.00 MD 7529.20 TVD
15,518.00	7,529.00	6,776.21	765.57	Survey projected to 15518.00 MD 7529.00 TVD
15,518.00	7,529.00	6,776.21	765.57	BHL as drilled Lat=39.571105° Long=-80.603337°

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