



Where energy meets innovation.

EQT PRODUCTION

Marion County, WV

GLO76 Pad

Well #515497 - Marcellus

API #47-04902332

Main Wellbore

Design: 515497 As Drilled Surveys

Standard Survey Report

02 December, 2015

Received
Office of Oil & Gas

MAY 26 2016





Professional Directional Survey Report



Company:	EQT PRODUCTION	Local Co-ordinate Reference:	Well Well #515497 - Marcellus
Project:	Marion County, WV	TVD Reference:	GL 1424 + 23' KB @ 1447 00usft (Pioneer 72)
Site:	GLO76 Pad	MD Reference:	GL 1424 + 23' KB @ 1447 00usft (Pioneer 72)
Well:	Well #515497 - Marcellus	North Reference:	Grid
Wellbore:	Main Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	515497 As Drilled Surveys	Database:	Well_Planner1

Project	Marion 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	GLO76 Pad				
Site Position:		Northing:	389,060.60 usft	Latitude:	39° 33' 50.33 N
From:	Map	Easting:	1,721,015.30 usft	Longitude:	80° 29' 22.49 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.63 °

Well	Well #515497 - Marcellus					
Well Position	+N-S	0.00 usft	Northing:	389,072.59 usft	Latitude:	39° 33' 50.44 N
	+E-W	0.00 usft	Easting:	1,720,956.50 usft	Longitude:	80° 29' 23.25 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	1,447.00 usft	Ground Level:	1,424.00 usft

Wellbore	Main Wellbore				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	11/24/2015	-8.65	67.03	52,519

Design	515497 As Drilled Surveys				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	10.00
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)	
	10.00	0.00	0.00	161.55	

Survey Program	Date	12/2/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
110.00	5,957.00	515497 Gyrodatta Gyros (Main Wellbore)	GYD_DP_MS	Gyrodatta gyro compassing and log	
5,969.00	7,312.00	515497 PHX MWD (Main Wellbore)	PHX+MWD+HDGM	PHX+OWSG MWD + HDGM	
7,354.00	12,866.00	ProDirectional (Main Wellbore)	MWD+IGRF	MWD+IGRF v3:standard declination	

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)
10.00	0.00	0.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00
110.00	0.27	319.28	110.00	0.18	-0.15	-0.22	0.27	0.27	0.00
210.00	0.29	312.90	210.00	0.53	-0.49	-0.66	0.04	0.02	-6.38
310.00	0.16	338.40	310.00	0.83	-0.73	-1.02	0.16	-0.13	25.50
410.00	0.16	300.18	410.00	1.03	-0.90	-1.26	0.10	0.00	-38.22
510.00	0.08	318.15	510.00	1.15	-1.07	-1.43	0.09	-0.08	17.97
610.00	0.09	263.20	610.00	1.20	-1.19	-1.51	0.08	0.01	-54.95
710.00	0.07	315.48	710.00	1.23	-1.31	-1.58	0.07	-0.02	52.28
810.00	0.08	270.84	810.00	1.28	-1.43	-1.66	0.06	0.01	-44.64

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Project: Marion County, WV
Site: GLO76 Pad
Well: Well #515497 - Marcellus
Wellbore: Main Wellbore
Design: 515497 As Drilled Surveys

Local Co-ordinate Reference: Well Well #515497 - Marcellus
TVD Reference: GL 1424 + 23' KB @ 1447 00usft (Pioneer 72)
MD Reference: GL 1424 + 23' KB @ 1447 00usft (Pioneer 72)
North Reference: Grd
Survey Calculation Method: Minimum Curvature
Database: Well_Planner1

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)
910.00	0.14	306.36	910.00	1.35	-1.60	-1.78	0.09	0.06	35.52
1,010.00	0.38	312.90	1,010.00	1.65	-1.94	-2.18	0.24	0.24	6.54
1,110.00	0.39	319.36	1,109.99	2.13	-2.40	-2.78	0.04	0.01	6.46
1,210.00	0.42	308.19	1,209.99	2.62	-2.91	-3.40	0.08	0.03	-11.17
1,310.00	0.50	310.84	1,309.99	3.13	-3.53	-4.08	0.08	0.08	2.65
1,410.00	0.58	307.18	1,409.98	3.72	-4.26	-4.88	0.09	0.08	-3.66
1,510.00	1.03	310.29	1,509.97	4.61	-5.35	-6.06	0.45	0.45	3.11
1,610.00	1.07	308.35	1,609.96	5.77	-6.77	-7.61	0.05	0.04	-1.94
1,710.00	1.17	307.79	1,709.94	6.97	-8.31	-9.24	0.10	0.10	-0.56
1,810.00	1.07	308.73	1,809.92	8.18	-9.84	-10.88	0.10	-0.10	0.94
1,910.00	1.06	301.88	1,909.90	9.25	-11.36	-12.37	0.13	-0.01	-6.85
2,010.00	1.12	288.41	2,009.88	10.05	-13.07	-13.67	0.26	0.06	-13.47
2,110.00	1.11	286.00	2,109.88	10.63	-14.93	-14.80	0.05	-0.01	-2.41
2,210.00	1.15	282.96	2,209.84	11.12	-16.84	-15.88	0.07	0.04	-3.04
2,310.00	1.04	288.86	2,309.83	11.64	-18.67	-16.95	0.16	-0.11	5.90
2,410.00	0.80	291.83	2,409.81	12.19	-20.18	-17.95	0.24	-0.24	2.97
2,510.00	0.62	291.83	2,509.81	12.65	-21.33	-18.75	0.18	-0.18	0.00
2,610.00	0.52	293.45	2,609.80	13.03	-22.25	-19.40	0.10	-0.10	1.62
2,710.00	0.52	287.32	2,709.80	13.35	-23.10	-19.97	0.06	0.00	-6.13
2,810.00	0.62	288.28	2,809.79	13.65	-24.05	-20.56	0.10	0.10	0.96
2,910.00	0.44	297.91	2,909.79	14.00	-24.90	-21.16	0.20	-0.18	9.63
3,010.00	0.42	291.16	3,009.78	14.31	-25.58	-21.67	0.05	-0.02	-6.75
3,110.00	0.46	296.32	3,109.78	14.62	-26.28	-22.19	0.06	0.04	5.16
3,210.00	0.45	308.56	3,209.78	15.05	-26.95	-22.80	0.10	-0.01	12.24
3,310.00	0.49	326.47	3,309.78	15.65	-27.49	-23.54	0.15	0.04	17.91
3,410.00	0.45	323.03	3,409.77	16.32	-27.96	-24.33	0.05	-0.04	-3.44
3,510.00	0.74	298.32	3,509.77	16.94	-28.77	-25.17	0.38	0.29	-24.71
3,610.00	0.84	300.23	3,609.76	17.61	-29.97	-26.19	0.10	0.10	1.91
3,710.00	0.83	295.41	3,709.75	18.29	-31.26	-27.25	0.07	-0.01	-4.82
3,810.00	0.81	296.59	3,809.74	18.92	-32.54	-28.25	0.03	-0.02	1.18
3,910.00	0.74	292.04	3,909.73	19.48	-33.78	-29.17	0.09	0.07	-4.55
4,010.00	0.74	285.16	4,009.72	19.89	-35.00	-29.94	0.09	0.08	6.88
4,110.00	0.82	288.13	4,109.71	20.28	-36.30	-30.73	0.09	0.08	2.97
4,210.00	0.99	297.19	4,209.70	20.90	-37.75	-31.77	0.22	0.22	9.06
4,310.00	1.00	299.75	4,309.68	21.73	-39.27	-33.04	0.05	0.01	2.56
4,410.00	1.01	301.81	4,409.67	22.63	-40.78	-34.37	0.04	0.01	2.06
4,510.00	1.05	304.91	4,509.65	23.61	-42.28	-35.78	0.07	0.04	3.10
4,610.00	0.93	305.83	4,609.64	24.61	-43.69	-37.17	0.12	-0.12	0.92
4,710.00	0.76	321.37	4,709.62	25.61	-44.76	-38.46	0.28	-0.17	15.54
4,810.00	0.65	27.37	4,809.62	26.63	-44.92	-39.47	0.77	-0.11	66.00
4,910.00	0.74	39.16	4,909.61	27.63	-44.25	-40.22	0.17	0.09	11.79
5,010.00	0.84	59.86	5,009.60	28.50	-43.21	-40.71	0.30	0.10	20.70
5,110.00	0.78	88.32	5,109.59	28.89	-41.89	-40.66	0.40	-0.06	26.46

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Site:	GLO76 Pad	MD Reference:	GL 1424 + 23' KB @ 1447 00usft (Pioneer 72)
Well:	Well #515497 - Marcellus	North Reference:	Grid
Wellbore:	Main Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	515497 As Drilled Surveys	Database:	Well_Planner1

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)	
5,210.00	0.86	105.93	5,209.58	28.70	-40.49	-40.04	0.26	0.08	17.61	
5,310.00	1.19	131.99	5,309.57	27.80	-39.00	-38.71	0.56	0.33	26.06	
5,410.00	1.15	148.65	5,409.55	26.25	-37.70	-36.83	0.34	-0.04	16.66	
5,510.00	1.06	151.60	5,509.53	24.58	-36.74	-34.94	0.11	-0.09	2.95	
5,610.00	0.95	124.52	5,609.51	23.30	-35.62	-33.37	0.48	-0.11	-27.08	
5,710.00	1.55	92.65	5,709.49	22.77	-33.58	-32.22	0.90	0.60	-31.87	
5,810.00	2.62	80.18	5,809.42	23.09	-29.98	-31.39	1.16	1.07	-12.47	
5,910.00	5.09	82.58	5,909.19	24.06	-23.33	-30.20	2.47	2.47	2.40	
5,957.00	6.09	82.54	5,955.96	24.65	-18.79	-29.33	2.13	2.13	-0.09	
Gyro Tie On=5947' MD										
5,969.00	5.70	73.20	5,967.90	24.90	-17.59	-29.19	8.62	-3.25	-77.83	
6,012.00	5.10	24.80	6,010.73	27.26	-14.74	-30.52	10.36	-1.40	-112.56	
6,055.00	7.70	349.70	6,053.47	31.83	-14.45	-34.77	10.65	6.05	-81.63	
6,098.00	11.30	340.70	6,095.88	38.64	-16.36	-41.83	9.03	8.37	-20.93	
6,142.00	11.60	339.70	6,139.00	46.86	-19.32	-50.56	0.82	0.68	-2.27	
6,185.00	11.50	339.50	6,181.13	54.93	-22.32	-59.17	0.25	-0.23	-0.47	
6,228.00	11.70	335.40	6,223.26	62.91	-25.64	-67.79	1.97	0.47	-9.53	
6,271.00	14.00	320.40	6,265.19	70.88	-30.77	-76.98	9.38	5.35	-34.86	
6,314.00	16.40	308.20	6,308.69	78.65	-38.86	-86.90	9.27	5.58	-28.37	
6,357.00	18.70	298.70	6,347.70	85.71	-49.68	-97.03	8.53	5.35	-22.09	
6,400.00	17.90	294.00	6,388.52	91.71	-61.76	-106.54	3.90	-1.86	-10.93	
6,443.00	17.10	290.70	6,429.53	96.84	-73.71	-115.00	2.96	-1.86	-7.67	
6,486.00	16.70	286.90	6,470.68	100.67	-85.54	-122.56	2.73	-0.93	-8.84	
6,529.00	17.00	287.80	6,511.83	104.38	-97.44	-129.85	0.92	0.70	2.09	
6,572.00	19.60	291.10	6,552.65	108.90	-110.15	-138.16	6.51	6.05	7.67	
6,615.00	23.00	294.10	6,592.71	114.93	-124.56	-148.44	8.30	7.91	6.98	
6,658.00	25.60	295.20	6,631.90	122.32	-140.63	-160.53	6.14	6.05	2.56	
6,701.00	27.70	296.40	6,670.33	130.72	-157.99	-174.00	5.04	4.88	2.79	
6,744.00	29.50	296.10	6,708.08	139.82	-176.45	-188.47	4.20	4.19	-0.70	
6,787.00	30.60	296.20	6,745.30	149.31	-195.78	-203.59	2.56	2.56	0.23	
6,830.00	31.50	294.30	6,782.14	158.77	-215.84	-218.91	3.09	2.09	-4.42	
6,873.00	34.30	293.20	6,818.24	168.16	-237.22	-234.59	6.68	6.51	-2.56	
6,916.00	36.70	292.50	6,853.25	177.86	-260.23	-251.06	5.66	5.58	-1.63	
6,959.00	39.80	292.20	6,887.01	187.97	-284.85	-268.45	7.22	7.21	-0.70	
7,002.00	42.10	291.00	6,919.49	198.34	-311.05	-286.58	5.65	5.35	-2.79	
7,045.00	42.60	287.50	6,951.27	207.89	-338.39	-304.28	5.60	5.35	-8.14	
7,088.00	43.10	285.10	6,982.80	216.09	-366.46	-320.95	5.60	5.35	-5.58	
7,131.00	41.70	279.00	7,014.56	222.16	-394.78	-335.66	5.60	5.35	-5.58	
7,174.00	40.40	273.00	7,047.00	225.12	-422.83	-347.36	5.60	5.35	-13.95	
7,217.00	38.40	267.40	7,080.24	225.25	-450.10	-356.10	9.48	-4.65	-13.02	
Final Survey=7207' MD/7070' TVD										
7,312.00	34.50	256.70	7,156.72	217.71	-505.84	-366.59	7.84	-4.11	-11.26	
PROJ to Bit=7302' MD/7147' TVD										
7,354.00	32.70	248.30	7,191.72	210.77	-527.97	-367.01	11.86	-4.29	-20.00	

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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)
First PromWd at 7354'MD									
7,385.00	32.20	243.90	7,217.88	204.04	-543.17	-365.44	7.78	-1.61	-14.19
7,417.00	31.60	238.30	7,245.05	195.88	-557.96	-362.38	9.43	-1.88	-17.50
7,449.00	31.50	231.30	7,272.33	186.25	-571.62	-357.56	11.45	-0.31	-21.88
7,480.00	32.10	225.90	7,298.69	175.45	-583.86	-351.19	9.38	1.94	-17.42
7,512.00	33.20	221.10	7,325.63	162.93	-595.73	-343.07	8.79	3.44	-15.00
7,543.00	34.60	214.90	7,351.37	149.31	-606.35	-333.51	12.03	4.52	-20.00
7,575.00	36.40	209.40	7,377.43	133.58	-616.21	-321.71	11.45	5.63	-17.19
7,606.00	38.50	204.00	7,402.04	116.75	-624.65	-308.41	12.57	6.77	-17.42
7,638.00	40.70	199.20	7,426.70	97.79	-632.14	-292.80	11.77	6.88	-15.00
7,670.00	42.30	195.40	7,450.67	77.55	-638.43	-275.59	9.32	5.00	-11.88
7,701.00	44.60	190.80	7,473.18	56.79	-643.24	-257.42	12.61	7.42	-14.84
7,733.00	47.10	186.50	7,495.48	34.10	-646.67	-236.98	12.41	7.81	-13.44
7,764.00	49.80	182.40	7,516.04	10.98	-648.46	-215.62	13.18	8.71	-13.23
7,796.00	52.00	179.20	7,536.22	-13.84	-648.79	-192.17	10.37	6.88	-10.00
7,827.00	54.60	175.90	7,554.75	-38.66	-647.72	-168.29	11.96	8.39	-10.65
7,859.00	57.10	174.30	7,572.72	-65.05	-645.45	-142.54	8.84	7.81	-5.00
7,891.00	59.50	172.80	7,589.53	-92.10	-642.39	-115.91	8.49	7.50	-4.69
7,922.00	62.50	170.40	7,604.56	-118.91	-638.42	-89.22	11.81	9.68	-7.74
7,954.00	65.20	168.10	7,618.86	-147.13	-633.06	-60.76	10.62	8.44	-7.19
7,985.00	67.60	166.70	7,631.07	-174.84	-626.86	-32.50	8.78	7.74	-4.52
8,017.00	70.20	165.50	7,642.59	-203.82	-619.68	-2.75	8.85	8.13	-3.75
8,048.00	73.10	163.00	7,652.35	-232.13	-611.69	26.64	12.09	9.35	-8.06
8,080.00	74.30	162.10	7,661.33	-261.43	-602.48	57.35	4.62	3.75	-2.81
8,112.00	76.60	161.10	7,669.37	-290.82	-592.70	88.32	7.80	7.19	-3.13
8,143.00	80.00	159.40	7,675.66	-319.38	-582.45	118.66	12.21	10.97	-5.48
8,175.00	83.00	158.20	7,680.39	-348.89	-571.00	150.27	10.08	9.38	-3.75
8,206.00	83.60	158.00	7,684.00	-377.45	-559.52	181.00	2.04	1.94	-0.65
8,238.00	85.30	157.10	7,687.10	-406.89	-547.36	212.77	6.00	5.31	-2.81
8,269.00	86.10	156.30	7,689.42	-435.28	-535.13	243.57	3.64	2.58	-2.58
8,301.00	87.90	155.30	7,691.10	-464.42	-522.03	275.37	6.43	5.63	-3.13
8,332.00	88.70	154.60	7,692.02	-492.50	-508.91	306.15	3.43	2.58	-2.26
8,427.00	86.70	153.50	7,695.83	-577.84	-467.38	400.25	2.40	2.58	-1.16
8,522.00	86.20	153.80	7,701.71	-662.81	-425.29	494.17	0.61	-0.53	0.32
8,616.00	88.90	153.30	7,705.73	-746.88	-383.46	587.16	2.92	2.87	-0.53
8,711.00	87.70	154.10	7,708.55	-832.01	-341.39	681.23	1.52	2.87	0.84
8,806.00	87.30	154.10	7,712.69	-917.39	-299.93	775.33	0.42	-0.42	0.00
8,901.00	87.20	153.80	7,717.25	-1,002.64	-258.26	869.39	0.33	-0.11	-0.32
8,995.00	87.20	153.90	7,721.84	-1,086.92	-216.88	962.43	0.11	0.00	0.11
9,090.00	87.00	153.20	7,726.65	-1,171.86	-174.62	1,056.38	0.77	-0.21	-0.74
9,185.00	88.00	152.60	7,730.79	-1,256.35	-131.39	1,150.21	1.23	1.05	-0.63
9,280.00	88.00	153.40	7,734.11	-1,340.94	-88.29	1,244.10	0.84	0.00	0.84
9,374.00	89.90	152.90	7,735.83	-1,424.79	-45.84	1,337.07	2.09	2.02	-0.53

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Professional Directional

Survey Report



Company: EQT PRODUCTION
Project: Marion County, WV
Site: GLO76 Pad
Well: Well #515497 - Marcellus
Wellbore: Main Wellbore
Design: 515497 As Drilled Surveys

Local Co-ordinate Reference: Well Well #515497 - Marcellus
TVD Reference: GL 1424 + 23' KB @ 1447 00usft (Pioneer 72)
MD Reference: GL 1424 + 23' KB @ 1447 00usft (Pioneer 72)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Well_Planner1

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)
9,469.00	90.50	153.00	7,735.50	-1,509.40	-2.64	1,431.00	0.64	0.63	0.11
9,564.00	88.90	154.80	7,736.00	-1,594.70	39.15	1,525.14	2.54	-1.68	1.89
9,658.00	89.40	154.70	7,737.39	-1,679.71	79.25	1,618.47	0.54	0.53	-0.11
9,752.00	89.90	154.90	7,737.97	-1,764.76	119.27	1,711.82	0.57	0.53	0.21
9,847.00	87.90	152.40	7,739.79	-1,849.87	161.42	1,805.89	3.37	-2.11	-2.63
9,942.00	88.40	152.30	7,742.86	-1,933.97	205.48	1,899.61	0.54	0.53	-0.11
10,036.00	88.70	151.70	7,745.24	-2,016.94	249.60	1,992.28	0.71	0.32	-0.64
10,131.00	89.10	151.10	7,747.06	-2,100.34	295.07	2,085.78	0.76	0.42	-0.63
10,226.00	88.60	153.20	7,748.97	-2,184.31	339.44	2,179.48	2.27	-0.53	2.21
10,320.00	89.10	153.00	7,750.85	-2,268.12	381.96	2,272.44	0.57	0.53	-0.21
10,415.00	88.40	155.30	7,752.93	-2,353.59	423.36	2,366.61	2.53	-0.74	2.42
10,510.00	89.10	155.30	7,755.00	-2,439.88	463.05	2,461.03	0.74	0.74	0.00
10,604.00	89.70	155.70	7,755.98	-2,525.41	502.03	2,554.50	0.77	0.64	0.43
10,699.00	89.10	154.10	7,756.98	-2,611.43	542.33	2,648.85	1.80	-0.63	-1.68
10,794.00	89.80	154.60	7,757.89	-2,697.06	583.45	2,743.09	0.91	0.74	0.53
10,889.00	90.10	153.00	7,757.97	-2,782.30	625.39	2,837.22	1.71	0.32	-1.68
10,984.00	88.10	153.00	7,759.46	-2,866.93	668.51	2,931.15	2.11	-2.11	0.00
11,078.00	89.40	153.80	7,761.51	-2,950.96	710.59	3,024.17	1.62	1.38	0.85
11,173.00	88.30	153.40	7,763.42	-3,036.03	752.82	3,118.24	1.23	-1.16	-0.42
11,267.00	88.10	152.30	7,766.37	-3,119.63	795.69	3,211.11	1.19	-0.21	-1.17
11,362.00	88.80	152.60	7,768.94	-3,203.83	839.61	3,304.88	0.80	0.74	0.32
11,457.00	89.00	152.50	7,770.77	-3,288.12	883.40	3,398.69	0.24	0.21	-0.11
11,551.00	89.40	153.40	7,772.08	-3,371.83	926.14	3,491.62	1.05	0.43	0.96
11,646.00	89.80	153.20	7,772.74	-3,456.69	968.83	3,585.64	0.47	0.42	-0.21
11,741.00	90.70	154.00	7,772.33	-3,541.78	1,011.07	3,679.72	1.27	0.95	0.84
11,836.00	88.60	153.10	7,772.91	-3,626.83	1,053.38	3,773.79	2.40	-2.21	-0.95
11,930.00	88.90	152.80	7,774.96	-3,710.53	1,096.11	3,866.71	0.45	0.32	-0.32
12,025.00	89.50	152.60	7,776.29	-3,794.94	1,139.68	3,960.57	0.67	0.63	-0.21
12,120.00	90.00	152.30	7,776.70	-3,879.17	1,183.62	4,054.37	0.61	0.53	-0.32
12,214.00	89.00	153.40	7,777.52	-3,962.80	1,226.51	4,147.28	1.58	-1.06	1.17
12,309.00	89.50	153.40	7,778.76	-4,047.74	1,269.05	4,241.31	0.53	0.53	0.00
12,403.00	90.10	153.60	7,779.09	-4,131.86	1,310.99	4,334.39	0.67	0.64	0.21
12,498.00	88.50	154.20	7,780.25	-4,217.17	1,352.78	4,428.53	1.80	-1.68	0.63
12,593.00	88.80	154.80	7,782.49	-4,302.89	1,393.66	4,522.78	0.71	0.63	0.63
12,688.00	89.10	154.60	7,784.23	-4,388.76	1,434.26	4,617.09	0.88	0.32	-0.21
12,782.00	89.40	154.70	7,785.46	-4,473.70	1,474.50	4,710.40	0.34	0.32	0.11
12,813.00	89.60	154.50	7,785.73	-4,501.70	1,487.80	4,741.17	0.91	0.63	-0.65
Last Survey: 12813'MD / 7785.73'TVD									
12,866.00	89.60	154.50	7,786.10	-4,549.54	1,510.61	4,793.77	0.00	0.00	0.00
PTB: 12866'MD									

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Company: EQT PRODUCTION
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Site: GLO76 Pad
Well: Well #515497 - Marcellus
Wellbore: Main Wellbore
Design: 515497 As Drilled Surveys

Local Co-ordinate Reference: Well Well #515497 - Marcellus
TVD Reference: GL 1424 + 23' KB @ 1447 00usft (Pioneer 72)
MD Reference: GL 1424 + 23' KB @ 1447 00usft (Pioneer 72)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Well_Planner1

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
515497 LP 220' VS b - actual wellpath misses target center by 17.99usft at 8243.34usft MD (7687.53 TVD, -411.79 N, -545.28 E) - Point	0.00	360.00	7,670.00	-414.51	-548.26	388,658.08	1,720,408.24	39° 33' 46.28 N	80° 29' 30.19 W
515497 Plat LP 2 - actual wellpath misses target center by 305.27usft at 7747.94usft MD (7505.52 TVD, 23.10 N, -647.73 E) - Point	0.00	0.03	7,670.00	184.81	-847.70	389,257.40	1,720,108.80	39° 33' 52.17 N	80° 29' 34.10 W
515497 Plat TD2 b - actual wellpath misses target center by 116.30usft at 12866.00usft MD (7786.10 TVD, -4549.54 N, 1510.61 E) - Point	0.00	0.03	7,670.00	-4,548.79	1,517.40	384,523.80	1,722,473.90	39° 33' 5.65 N	80° 29' 3.23 W
515497 Plat TD - actual wellpath misses target center by 66.24usft at 10424.79usft MD (7753.19 TVD, -2362.48 N, 427.45 E) - Point	0.00	0.03	7,687.00	-2,364.69	426.10	386,707.90	1,721,382.60	39° 33' 27.12 N	80° 29' 17.47 W
515497 LP 220' VS - actual wellpath misses target center by 3.86usft at 8244.62usft MD (7687.63 TVD, -412.96 N, -544.78 E) - Point	0.00	360.00	7,687.00	-414.51	-548.26	388,658.08	1,720,408.24	39° 33' 46.28 N	80° 29' 30.19 W
515497 Plat TD2 - actual wellpath misses target center by 99.34usft at 12866.00usft MD (7786.10 TVD, -4549.54 N, 1510.61 E) - Point	0.00	0.03	7,687.00	-4,548.79	1,517.40	384,523.80	1,722,473.90	39° 33' 5.65 N	80° 29' 3.23 W
515497 Plat LP - actual wellpath misses target center by 314.69usft at 7759.22usft MD (7512.94 TVD, 14.62 N, -648.28 E) - Point	0.00	0.03	7,687.00	184.81	-847.70	389,257.40	1,720,108.80	39° 33' 52.17 N	80° 29' 34.10 W
515497 LP 246 VS p5 - actual wellpath misses target center by 5.13usft at 8269.89usft MD (7689.48 TVD, -436.09 N, -534.77 E) - Point	0.00	360.00	7,694.00	-436.87	-537.09	388,635.72	1,720,419.41	39° 33' 46.06 N	80° 29' 30.04 W
515497 Plat TD2 p5 - actual wellpath misses target center by 86.45usft at 12866.00usft MD (7786.10 TVD, -4549.54 N, 1510.61 E) - Point	0.00	0.03	7,720.00	-4,548.79	1,517.40	384,523.80	1,722,473.90	39° 33' 5.65 N	80° 29' 3.23 W

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,957.00	5,955.96	24.65	-18.79	Gyro Tie On=5947' MD
7,217.00	7,080.24	225.25	-450.10	Final Survey=7207' MD/7070' TVD
7,312.00	7,156.72	217.71	-505.84	PROJ to Bit=7302' MD/7147' TVD
7,354.00	7,191.72	210.77	-527.97	First ProMWD at 7354'MD
12,813.00	7,785.73	-4,501.70	1,487.80	Last Survey: 12813'MD / 7785.73'TVD
12,866.00	7,786.10	-4,549.54	1,510.61	PTB: 12866'MD

