



Where energy meets innovation.

EQT PRODUCTION

Doddridge County, WV

OXF160

Well #513702 - Slot 513702

Main Wellbore

Design: 513702 As Drilled Surveys

API # 47-017-06771

Standard Survey Report

11 December, 2016

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WV Department of
Environmental Protection



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Survey Report



WV Department of
Environmental Protection

Company:	EQT PRODUCTION	Local Co-ordinate Reference:	Well Well #513702 - Slot 513702
Project:	Doddridge County, WV	TVD Reference:	KB@23 @ 1243.00usft
Site:	OXF160	MD Reference:	KB@23 @ 1243.00usft
Well:	Well #513702	North Reference:	Grid
Wellbore:	Main Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	513702 As Drilled Surveys	Database:	DB Jul2216dt

Project	Doddridge 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	OXF160				
Site Position:		Northing:	250,835.87 usft	Latitude:	39° 10' 52.9707 N
From:	Map	Easting:	1,631,720.38 usft	Longitude:	80° 47' 57.0806 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.83 °

Well	Well #513702 - Slot 513702					
Well Position	+N/-S	0.00 usft	Northing:	250,860.78 usft	Latitude:	39° 10' 53.2167 N
	+E/-W	0.00 usft	Easting:	1,631,718.31 usft	Longitude:	80° 47' 57.1114 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	1,220.00 usft

Wellbore	Main Wellbore				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	11/28/2016	-7.78	66.50	52,017

Design	513702 As Drilled Surveys				
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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	171.13

Survey Program	Date	12/11/2016			
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From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
110.00	5,146.00	513702 Gyrodata Gyros (Main Wellbore)	GYD_DP_MS	Gyrodata gyro-compassing and drop
5,217.00	11,156.00	513702 ProD MWD (Main Wellbore)	MWD - OWSG	MWD - OWSG

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
110.00	0.05	190.40	110.00	-0.06	-0.01	0.05	0.05	0.05	0.00
210.00	0.04	141.83	210.00	-0.14	0.00	0.13	0.04	-0.02	-48.57
310.00	0.05	1.43	310.00	-0.12	0.02	0.12	0.08	0.01	-140.40
410.00	0.03	8.88	410.00	-0.05	0.03	0.05	0.02	-0.02	7.45
510.00	0.04	349.08	510.00	0.01	0.03	-0.01	0.02	0.01	-19.80
610.00	0.04	47.32	610.00	0.07	0.05	-0.06	0.04	0.00	58.24
710.00	0.08	35.36	710.00	0.15	0.11	-0.13	0.04	0.04	-11.96
810.00	0.12	34.42	810.00	0.29	0.21	-0.26	0.04	0.04	-0.94
910.00	0.22	34.36	910.00	0.54	0.38	-0.47	0.10	0.10	-0.06

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Survey Report



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Environmental Protection

Company:	EQT PRODUCTION	Local Co-ordinate Reference:	Well Well #513702 - Slot 513702
Project:	Doddridge County, WV	TVD Reference:	KB@23 @ 1243.00usft
Site:	OXF160	MD Reference:	KB@23 @ 1243.00usft
Well:	Well #513702	North Reference:	Grid
Wellbore:	Main Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	513702 As Drilled Surveys	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)
1,010.00	0.30	22.59	1,010.00	0.94	0.59	-0.84	0.10	0.08	-11.77
1,110.00	0.37	24.37	1,110.00	1.47	0.82	-1.33	0.07	0.07	1.78
1,210.00	0.37	24.99	1,209.99	2.06	1.09	-1.87	0.00	0.00	0.62
1,310.00	0.51	222.96	1,309.99	2.03	0.92	-1.86	0.87	0.14	-162.03
1,410.00	3.95	227.53	1,409.90	-0.63	-1.92	0.32	3.44	3.44	4.57
1,510.00	7.94	230.61	1,509.34	-7.34	-9.80	5.74	4.00	3.99	3.08
1,610.00	11.02	222.76	1,607.97	-18.74	-21.63	15.18	3.33	3.08	-7.85
1,710.00	10.54	219.26	1,706.21	-32.84	-33.91	27.22	0.81	-0.48	-3.50
1,810.00	8.48	217.13	1,804.83	-45.80	-44.15	38.45	2.09	-2.06	-2.13
1,910.00	7.74	227.82	1,903.83	-56.20	-53.59	47.27	1.68	-0.74	10.69
2,010.00	7.95	236.16	2,002.90	-64.57	-64.32	53.89	1.16	0.21	8.34
2,110.00	8.31	231.43	2,101.90	-72.93	-75.72	60.39	0.76	0.36	-4.73
2,210.00	9.14	225.34	2,200.74	-83.02	-87.02	68.62	1.24	0.83	-6.09
2,310.00	10.05	224.61	2,299.34	-94.81	-98.80	78.45	0.92	0.91	-0.73
2,410.00	7.08	218.96	2,398.22	-105.82	-108.80	87.79	3.08	-2.97	-5.65
2,510.00	3.98	207.48	2,497.74	-113.69	-114.28	94.72	3.28	-3.10	-11.48
2,610.00	1.39	159.24	2,597.63	-117.91	-115.45	98.70	3.23	-2.59	-48.24
2,710.00	1.29	135.52	2,697.61	-119.85	-114.23	100.81	0.56	-0.10	-23.72
2,810.00	0.42	86.78	2,797.59	-120.63	-113.08	101.76	1.06	-0.87	-48.74
2,910.00	0.56	359.89	2,897.59	-120.12	-112.71	101.31	0.68	0.14	-86.89
3,010.00	0.58	355.77	2,997.59	-119.12	-112.75	100.32	0.05	0.02	-4.12
3,110.00	0.60	355.90	3,097.58	-118.10	-112.83	99.30	0.02	0.02	0.13
3,210.00	0.44	0.70	3,197.58	-117.19	-112.86	98.40	0.17	-0.16	4.80
3,310.00	0.36	356.37	3,297.58	-116.49	-112.87	97.71	0.09	-0.08	-4.33
3,410.00	0.26	354.43	3,397.57	-115.95	-112.92	97.17	0.10	-0.10	-1.94
3,510.00	0.20	348.74	3,497.57	-115.56	-112.97	96.76	0.06	-0.06	-5.69
3,610.00	0.16	335.18	3,597.57	-115.26	-113.06	96.46	0.06	-0.04	-13.56
3,710.00	0.14	255.59	3,697.57	-115.16	-113.24	96.33	0.19	-0.02	-79.59
3,810.00	0.14	234.39	3,797.57	-115.27	-113.46	96.40	0.05	0.00	-21.20
3,910.00	0.23	249.00	3,897.57	-115.41	-113.75	96.50	0.10	0.09	14.61
4,010.00	0.43	268.46	3,997.57	-115.49	-114.31	96.49	0.23	0.20	19.46
4,110.00	0.70	256.78	4,097.56	-115.64	-115.28	96.49	0.29	0.27	-11.68
4,210.00	0.89	259.05	4,197.55	-115.93	-116.63	96.57	0.19	0.19	2.27
4,310.00	1.19	260.01	4,297.54	-116.25	-118.42	96.61	0.30	0.30	0.96
4,410.00	1.24	259.87	4,397.52	-116.63	-120.51	96.66	0.05	0.05	-0.14
4,510.00	1.43	262.41	4,497.49	-116.98	-122.81	96.65	0.20	0.19	2.54
4,610.00	1.53	259.64	4,597.46	-117.39	-125.36	96.66	0.12	0.10	-2.77
4,710.00	1.73	261.33	4,697.41	-117.85	-128.17	96.69	0.21	0.20	1.69
4,810.00	1.66	261.06	4,797.37	-118.31	-131.09	96.69	0.07	-0.07	-0.27
4,910.00	1.81	262.68	4,897.33	-118.73	-134.09	96.65	0.16	0.15	1.62
5,010.00	1.70	263.70	4,997.28	-119.10	-137.13	96.54	0.11	-0.11	1.02
5,110.00	1.93	264.94	5,097.23	-119.41	-140.28	96.36	0.23	0.23	1.24
5,146.00	1.97	261.32	5,133.21	-119.55	-141.49	96.32	0.36	0.11	-10.06

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Survey Report



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Project:	Doddridge County, WV	TVD Reference:	KB@23 @ 1243.00usft
Site:	OXF160	MD Reference:	KB@23 @ 1243.00usft
Well:	Well #513702	North Reference:	Grid
Wellbore:	Main Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	513702 As Drilled Surveys	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)
5,217.00	2.00	257.50	5,204.16	-120.01	-143.91	96.39	0.19	0.04	-5.38
ProD MWD surveys									
5,248.00	1.90	256.90	5,235.15	-120.24	-144.94	96.46	0.33	-0.32	-1.94
KOP @ 5248 MD 5235 TVD									
5,280.00	3.10	296.00	5,267.12	-119.98	-146.23	96.01	6.31	3.75	122.19
5,311.00	5.10	314.30	5,298.04	-118.65	-147.97	94.43	7.63	6.45	59.03
5,343.00	8.10	323.70	5,329.82	-115.84	-150.33	91.29	9.93	9.38	29.38
5,374.00	10.90	327.30	5,360.40	-111.61	-153.20	86.67	9.23	9.03	11.61
5,406.00	13.30	328.20	5,391.68	-105.94	-156.78	80.51	7.52	7.50	2.81
5,438.00	16.10	329.90	5,422.63	-98.97	-160.94	72.98	8.85	8.75	5.31
5,469.00	18.60	330.80	5,452.22	-90.93	-165.51	64.34	8.11	8.06	2.90
5,501.00	21.90	331.70	5,482.24	-81.22	-170.83	53.92	10.36	10.31	2.81
5,532.00	26.20	332.50	5,510.54	-70.06	-176.74	41.98	13.91	13.87	2.58
5,564.00	30.20	332.80	5,538.74	-56.63	-183.68	27.64	12.51	12.50	0.94
5,595.00	33.00	333.00	5,565.14	-42.17	-191.08	12.21	9.04	9.03	0.65
5,627.00	36.90	333.30	5,591.36	-25.81	-199.35	-5.22	12.20	12.19	0.94
5,658.00	41.40	332.80	5,615.39	-8.37	-208.22	-23.82	14.55	14.52	-1.61
5,690.00	40.90	332.10	5,639.49	10.30	-217.96	-43.77	2.12	-1.56	-2.19
5,722.00	37.20	329.80	5,664.34	27.92	-227.73	-62.69	12.42	-11.56	-7.19
5,753.00	34.10	327.00	5,689.53	43.31	-237.18	-79.35	11.30	-10.00	-9.03
5,785.00	33.00	325.50	5,716.20	58.02	-247.01	-95.40	4.30	-3.44	-4.69
5,816.00	32.40	322.80	5,742.28	71.59	-256.81	-110.32	5.09	-1.94	-8.71
5,848.00	30.80	318.60	5,769.54	84.57	-267.41	-124.78	8.50	-5.00	-13.13
5,879.00	29.20	314.40	5,796.39	95.82	-278.07	-137.53	8.51	-5.16	-13.55
5,911.00	26.70	312.90	5,824.66	106.17	-288.91	-149.43	8.11	-7.81	-4.69
5,942.00	23.70	313.00	5,852.70	115.16	-298.57	-159.81	9.68	-9.68	0.32
5,974.00	21.30	307.20	5,882.27	123.07	-307.91	-169.05	10.21	-7.50	-18.13
6,005.00	18.90	300.00	5,911.38	128.98	-316.74	-176.26	11.11	-7.74	-23.23
6,037.00	16.00	294.70	5,941.91	133.42	-325.24	-181.95	10.33	-9.06	-16.56
6,068.00	14.30	284.50	5,971.84	136.16	-332.83	-185.83	10.18	-5.48	-32.90
6,100.00	14.10	276.20	6,002.86	137.57	-340.53	-188.42	6.39	-0.63	-25.94
6,131.00	14.20	274.90	6,032.92	138.31	-348.07	-190.30	1.07	0.32	-4.19
6,162.00	14.10	266.20	6,062.98	138.38	-355.63	-191.54	6.86	-0.32	-28.06
6,194.00	14.90	252.60	6,093.97	136.89	-363.45	-191.27	10.90	2.50	-42.50
6,225.00	15.20	238.00	6,123.92	133.54	-370.70	-189.08	12.24	0.97	-47.10
6,257.00	17.20	226.80	6,154.66	128.08	-377.71	-184.77	11.57	6.25	-35.00
6,288.00	19.10	218.90	6,184.12	120.99	-384.24	-178.77	10.02	6.13	-25.48
6,319.00	21.00	211.80	6,213.24	112.32	-390.35	-171.15	9.95	6.13	-22.90
6,351.00	23.40	208.50	6,242.87	101.87	-396.41	-161.75	8.45	7.50	-10.31
6,382.00	25.90	202.60	6,271.05	90.20	-401.95	-151.07	11.31	8.06	-19.03
6,414.00	28.50	195.90	6,299.51	76.40	-406.73	-138.18	12.54	8.13	-20.94
6,445.00	31.10	188.30	6,326.42	61.36	-409.91	-123.80	14.78	8.39	-24.52
6,477.00	34.80	185.30	6,353.27	44.08	-411.95	-107.05	12.63	11.56	-9.38
6,508.00	38.80	184.50	6,378.09	25.58	-413.53	-89.01	13.00	12.90	-2.58



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Survey Report



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Project:	Doddridge County, WV	TVD Reference:	KB@23 @ 1243.00usft
Site:	OXF160	MD Reference:	KB@23 @ 1243.00usft
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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)
6,540.00	42.50	182.90	6,402.36	4.78	-414.86	-68.67	12.01	11.56	-5.00
6,571.00	44.90	179.90	6,424.77	-16.62	-415.37	-47.60	10.23	7.74	-9.68
6,603.00	45.30	175.20	6,447.37	-39.25	-414.40	-25.09	10.48	1.25	-14.69
6,634.00	47.40	171.70	6,468.77	-61.53	-411.83	-2.68	10.61	6.77	-11.29
6,666.00	50.30	170.80	6,489.82	-85.34	-408.16	21.41	9.31	9.06	-2.81
6,697.00	53.40	169.50	6,508.97	-109.36	-403.99	45.78	10.53	10.00	-4.19
6,729.00	56.60	169.10	6,527.32	-135.11	-399.12	71.98	10.05	10.00	-1.25
6,760.00	60.00	168.50	6,543.61	-160.98	-393.99	98.33	11.09	10.97	-1.94
6,792.00	62.50	168.10	6,559.00	-188.45	-388.30	126.35	7.89	7.81	-1.25
6,823.00	64.80	167.70	6,572.76	-215.61	-382.48	154.08	7.51	7.42	-1.29
6,854.00	67.30	167.50	6,585.34	-243.27	-376.40	182.35	8.09	8.06	-0.65
6,886.00	71.00	167.40	6,596.73	-272.46	-369.90	212.19	11.57	11.56	-0.31
6,917.00	74.60	168.10	6,605.90	-301.39	-363.62	241.75	11.81	11.61	2.26
6,949.00	77.70	167.90	6,613.56	-331.78	-357.16	272.77	9.71	9.69	-0.63
6,980.00	81.30	167.30	6,619.20	-361.55	-350.61	303.19	11.77	11.61	-1.94
7,012.00	84.60	167.30	6,623.13	-392.52	-343.63	334.87	10.31	10.31	0.00
7,043.00	86.00	166.90	6,625.67	-422.64	-336.74	365.69	4.70	4.52	-1.29
7,075.00	86.80	167.00	6,627.68	-453.75	-329.52	397.54	2.52	2.50	0.31
7,106.00	87.20	167.20	6,629.30	-483.93	-322.61	428.42	1.44	1.29	0.65
Landing point @ 7106 MD 6629 TVD									
7,138.00	87.50	166.80	6,630.78	-515.07	-315.42	460.30	1.56	0.94	-1.25
7,169.00	88.40	164.70	6,631.89	-545.10	-307.80	491.14	7.37	2.90	-6.77
7,201.00	89.20	164.40	6,632.56	-575.93	-299.27	522.92	2.67	2.50	-0.94
7,295.00	88.80	163.60	6,634.20	-666.28	-273.37	616.18	0.95	-0.43	-0.85
7,390.00	89.50	162.10	6,635.61	-757.04	-245.36	710.18	1.74	0.74	-1.58
7,485.00	88.60	163.30	6,637.19	-847.73	-217.11	804.13	1.58	-0.95	1.26
7,579.00	88.30	165.60	6,639.73	-938.25	-191.92	897.45	2.47	-0.32	2.45
7,674.00	89.30	167.50	6,641.72	-1,030.62	-169.83	992.12	2.26	1.05	2.00
7,768.00	89.90	167.40	6,642.37	-1,122.37	-149.41	1,085.93	0.65	0.64	-0.11
7,863.00	90.40	167.40	6,642.13	-1,215.08	-128.69	1,180.72	0.53	0.53	0.00
7,957.00	91.20	167.90	6,640.81	-1,306.89	-108.58	1,274.54	1.00	0.85	0.53
8,052.00	90.40	167.00	6,639.49	-1,399.61	-87.94	1,369.33	1.27	-0.84	-0.95
8,146.00	88.40	164.40	6,640.47	-1,490.68	-64.73	1,462.89	3.49	-2.13	-2.77
8,240.00	89.30	164.40	6,642.36	-1,581.20	-39.46	1,556.23	0.96	0.96	0.00
8,335.00	87.20	165.50	6,645.26	-1,672.89	-14.80	1,650.62	2.50	-2.21	1.16
8,429.00	88.20	165.10	6,649.03	-1,763.74	9.03	1,744.06	1.15	1.06	-0.43
8,524.00	88.30	168.20	6,651.93	-1,856.12	30.95	1,838.71	3.26	0.11	3.26
8,618.00	88.80	167.90	6,654.31	-1,948.05	50.41	1,932.55	0.62	0.53	-0.32
8,712.00	89.40	167.30	6,655.79	-2,039.85	70.59	2,026.35	0.90	0.64	-0.64
8,807.00	90.50	165.10	6,655.87	-2,132.10	93.25	2,120.99	2.59	1.16	-2.32
8,901.00	88.90	164.90	6,656.36	-2,222.89	117.58	2,214.45	1.72	-1.70	-0.21
8,995.00	89.50	164.70	6,657.68	-2,313.59	142.22	2,307.87	0.67	0.64	-0.21
9,090.00	90.20	164.50	6,657.93	-2,405.18	167.45	2,402.25	0.77	0.74	-0.21



JUN 9 2017

Survey Report



WV Department of
Environmental Protection

Company:	EQT PRODUCTION	Local Co-ordinate Reference:	Well Well #513702 - Slot 513702
Project:	Doddridge County, WV	TVD Reference:	KB@23 @ 1243.00usft
Site:	OXF160	MD Reference:	KB@23 @ 1243.00usft
Well:	Well #513702	North Reference:	Grid
Wellbore:	Main Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	513702 As Drilled Surveys	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)
9,184.00	91.30	164.40	6,656.69	-2,495.73	192.65	2,495.60	1.18	1.17	-0.11
9,278.00	88.70	164.40	6,656.69	-2,586.26	217.93	2,588.95	2.77	-2.77	0.00
9,373.00	88.60	161.90	6,658.93	-2,677.15	245.45	2,682.99	2.63	-0.11	-2.63
9,467.00	89.40	165.30	6,660.57	-2,767.30	271.98	2,776.15	3.72	0.85	3.62
9,562.00	89.40	168.30	6,661.57	-2,859.77	293.67	2,870.86	3.16	0.00	3.16
9,656.00	89.40	168.00	6,662.55	-2,951.76	312.98	2,964.73	0.32	0.00	-0.32
9,750.00	90.20	166.90	6,662.88	-3,043.52	333.40	3,058.53	1.45	0.85	-1.17
9,845.00	88.50	167.60	6,663.96	-3,136.16	354.36	3,153.31	1.94	-1.79	0.74
9,939.00	89.00	167.10	6,666.01	-3,227.86	374.95	3,247.08	0.75	0.53	-0.53
10,034.00	89.60	167.40	6,667.17	-3,320.51	395.91	3,341.85	0.71	0.63	0.32
10,128.00	90.00	165.00	6,667.50	-3,411.79	418.33	3,435.50	2.59	0.43	-2.55
10,222.00	90.80	164.70	6,666.84	-3,502.52	442.90	3,528.93	0.91	0.85	-0.32
10,317.00	88.70	164.10	6,667.26	-3,594.01	468.44	3,623.27	2.30	-2.21	-0.63
10,411.00	88.90	163.30	6,669.23	-3,684.21	494.82	3,716.46	0.88	0.21	-0.85
10,505.00	89.10	163.10	6,670.87	-3,774.19	521.98	3,809.54	0.30	0.21	-0.21
10,600.00	88.60	165.10	6,672.77	-3,865.53	548.00	3,903.80	2.17	-0.53	2.11
10,694.00	89.10	164.40	6,674.66	-3,956.20	572.72	3,997.20	0.92	0.53	-0.74
10,789.00	90.70	165.50	6,674.83	-4,047.94	597.39	4,091.64	2.04	1.68	1.16
Deepest point @ 10789 MD 6675 TVD									
10,883.00	90.90	164.30	6,673.51	-4,138.68	621.87	4,185.08	1.29	0.21	-1.28
10,977.00	91.30	166.30	6,671.71	-4,229.58	645.72	4,278.57	2.17	0.43	2.13
11,072.00	89.10	164.40	6,671.38	-4,321.48	669.75	4,373.07	3.06	-2.32	-2.00
11,102.00	89.20	164.40	6,671.82	-4,350.38	677.81	4,402.86	0.33	0.33	0.00
Survey @ 11102.00 MD									
11,155.00	89.20	164.40	6,672.58	-4,402.38	692.33	4,456.48	0.00	0.00	0.00
Survey projected to 11156.00 MD									

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
513702 LP as drilled - hit/miss target - Shape - actual wellpath hits target center - Point	0.00	0.00	6,629.30	-483.93	-322.61	250,376.85	1,631,395.70	39° 10' 48.3878 N	80° 48' 1.1190 W
513702 BHL as drilled - actual wellpath misses target center by 0.01usft at 11156.00usft MD (6672.58 TVD, -4402.38 N, 692.33 E) - Point	0.00	0.00	6,672.58	-4,402.38	692.34	246,458.40	1,632,410.65	39° 10' 9.8060 N	80° 47' 47.5132 W

Company:	EQT PRODUCTION	Local Co-ordinate Reference:	Well Well #513702 - Slot 513702
Project:	Doddridge County, WV	TVD Reference:	KB@23 @ 1243.00usft
Site:	OXF160	MD Reference:	KB@23 @ 1243.00usft
Well:	Well #513702	North Reference:	Grid
Wellbore:	Main Wellbore	Survey Calculation Method:	Minimum Curvature
Design:	513702 As Drilled Surveys	Database:	DB Jul2216dt

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,217.00	5,204.16	-120.01	-143.91	ProD MWD surveys
5,248.00	5,235.15	-120.24	-144.94	KOP @ 5248 MD 5235 TVD
7,106.00	6,629.30	-483.93	-322.61	Landing point @ 7106 MD 6629 TVD
10,789.00	6,674.83	-4,047.94	597.39	Deepest point @ 10789 MD 6675 TVD
11,102.00	6,671.82	-4,350.38	677.81	Survey @ 11102.00 MD
11,156.00	6,672.58	-4,402.38	692.33	Survey projected to 11156.00 MD

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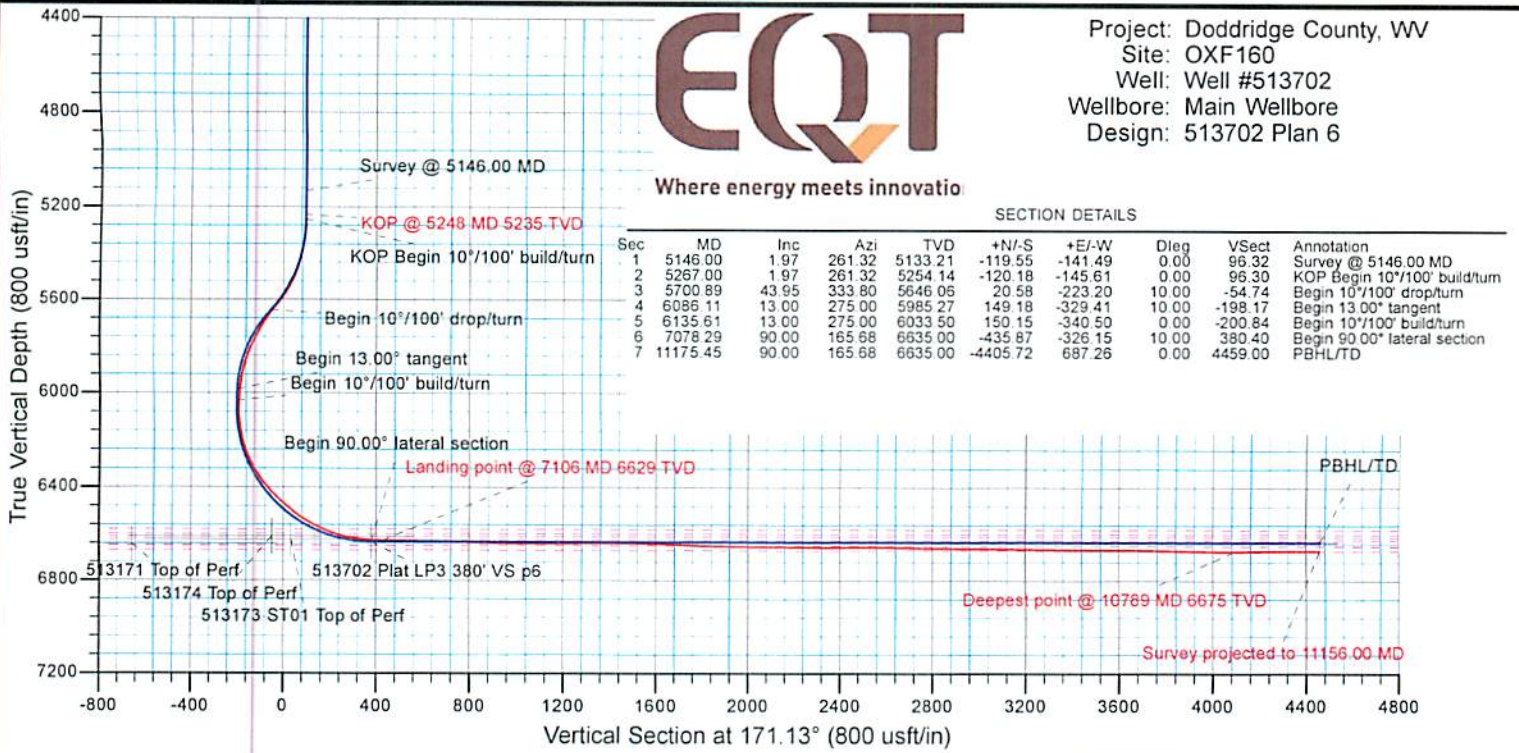
JUN 9 2017

WV Department of
Environmental Protection



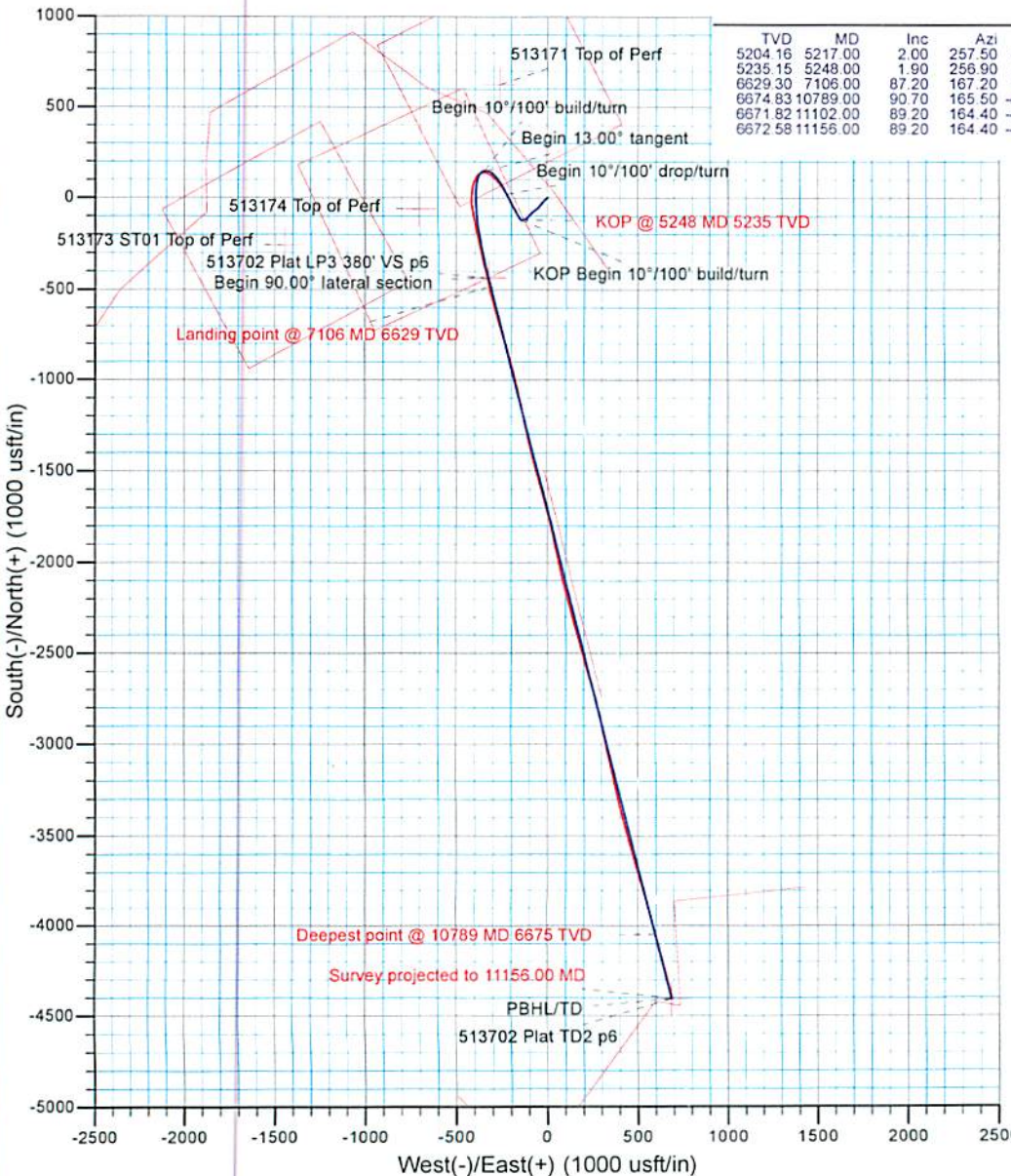
Project: Doddridge County, WV
 Site: OXF160
 Well: Well #513702
 Wellbore: Main Wellbore
 Design: 513702 Plan 6

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SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Vsect	Annotation
1	5146.00	1.97	261.32	5133.21	-119.55	-141.49	0.00	98.32	Survey @ 5146.00 MD
2	5267.00	1.97	261.32	5254.14	-120.18	-145.61	0.00	96.30	KOP Begin 10°/100' build/turn
3	5700.89	43.95	333.80	5646.05	-20.58	-223.20	10.00	-54.74	Begin 10°/100' drop/turn
4	6086.11	13.00	275.00	5985.27	149.18	-329.41	10.00	-198.17	Begin 13.00° tangent
5	6135.61	13.00	275.00	6033.50	150.15	-340.50	0.00	-200.84	Begin 10°/100' build/turn
6	7078.29	90.00	165.68	6635.00	-435.87	-326.15	10.00	380.40	Begin 90.00° lateral section
7	11175.45	90.00	165.68	6635.00	-4405.72	687.26	0.00	4459.00	PBHL/TD



ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Annotation
5204.16	5217.00	2.00	257.50	-120.01	-143.91	98.39	PreD MWD surveys
5235.15	5248.00	1.90	256.90	-120.24	-144.94	96.46	KOP @ 5248 MD 5235 TVD
6629.30	7106.00	87.20	167.20	-483.93	-322.61	428.42	Landing point @ 7106 MD 6629 TVD
6674.83	10789.00	90.70	165.50	-4047.94	597.39	4091.64	Deepest point @ 10789 MD 6675 TVD
6671.82	11102.00	89.20	164.40	-4350.38	677.81	4402.86	Survey @ 11102.00 MD
6672.58	11156.00	89.20	164.40	-4402.38	692.33	4456.48	Survey projected to 11156.00 MD

MGT

Azimuths to Grid North
 True North: 0.83°
 Magnetic North: -6.95°

Magnetic Field
 Strength: 52017.0snT
 Dip Angle: 66.50°
 Date: 11/29/2016
 Model: HDGM

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
6581.00	6824.58	Tully
6601.00	6877.60	Hamilton
6613.00	6917.15	Marcellus
6626.00	6975.45	Purcell



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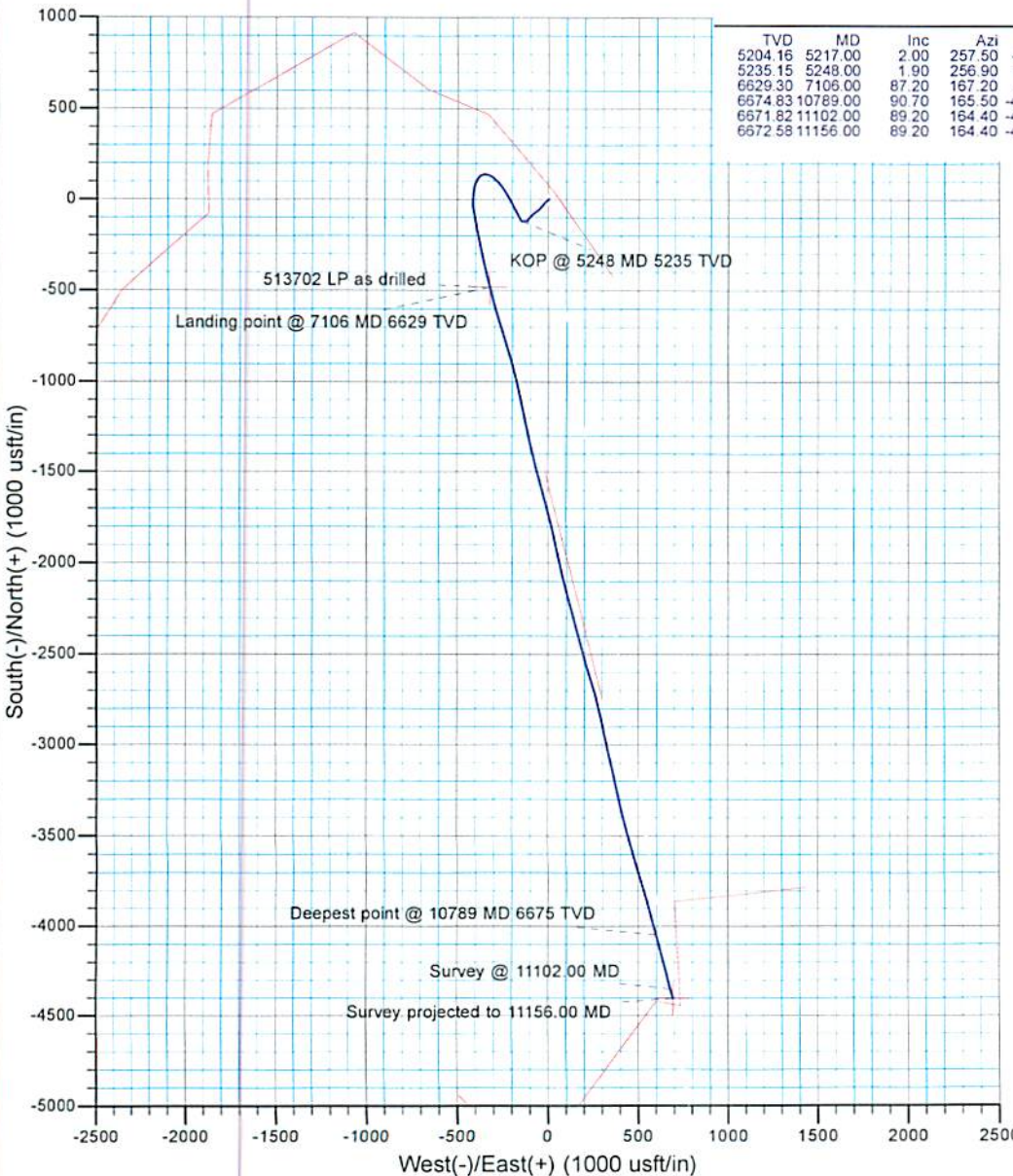
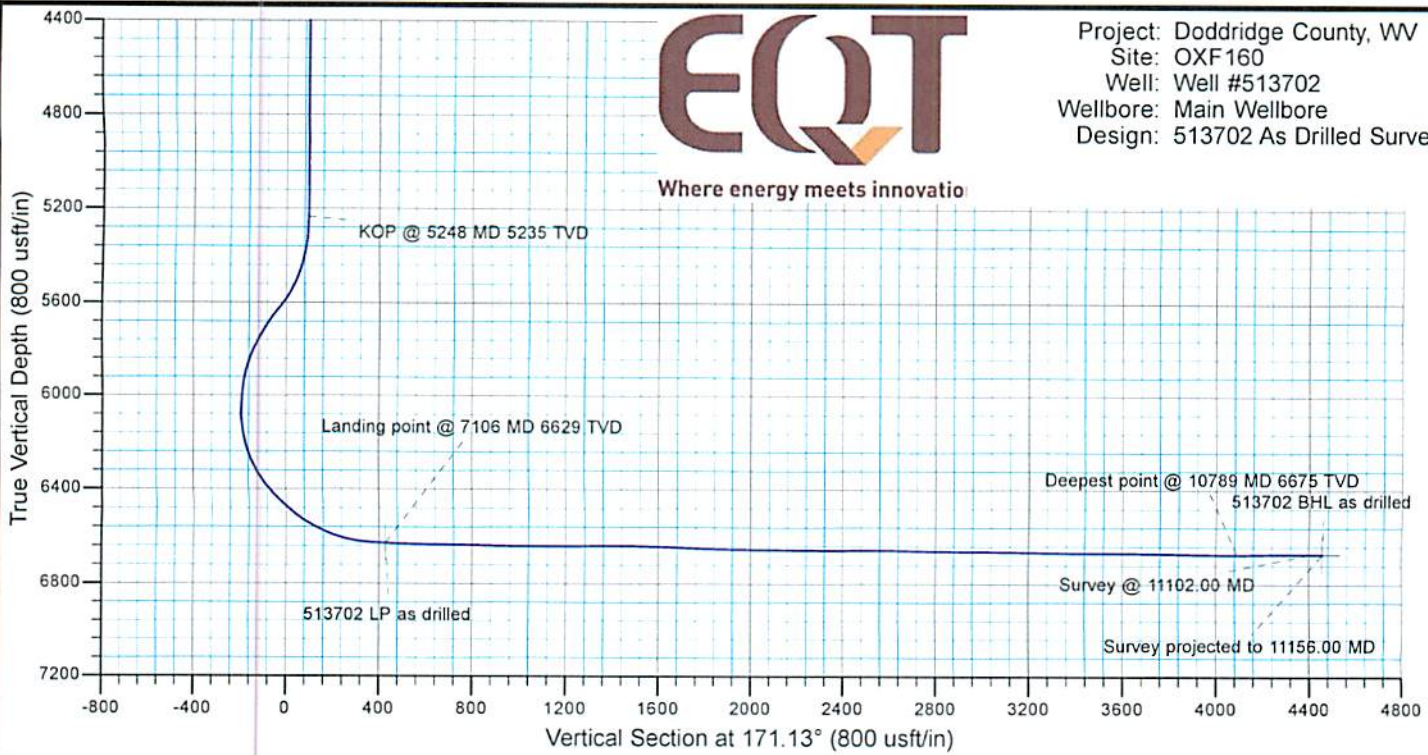
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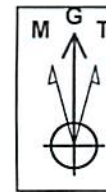
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Project: Doddridge County, WV
 Site: OXF160
 Well: Well #513702
 Wellbore: Main Wellbore
 Design: 513702 As Drilled Surveys



ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Annotation
5204.16	5217.00	2.00	257.50	-120.01	-143.91	98.39	ProD MWD surveys
5235.15	5248.00	1.90	256.90	-120.24	-144.94	98.46	KOP @ 5248 MD 5235 TVD
6629.30	7106.00	87.20	187.20	-483.93	-322.61	428.42	Landing point @ 7106 MD 6629 TVD
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6672.58	11156.00	89.20	164.40	-4402.38	-692.33	4456.48	Survey projected to 11156.00 MD



Azimuths to Grid North
 True North: 0.83°
 Magnetic North: -6.95°
 Magnetic Field
 Strength: 52017.0snT
 Dip Angle: 66.50°
 Date: 11/28/2016
 Model: HDGM



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