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State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 017 - 6463 County DODDRIDGE District WEST UNION
Quad OXFORD 7.5' Pad Name OXFORD 157 Field/Pool Name
Farm name JUSTIN L. HENDERSON ET AL Well Number 513149
Operator (as registered with the OOG) EQT Production Company
Address 625 Liberty Ave. EQT Plaza, Suite 1700 City Pittsburgh State PA Zip 15222

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey

Top hole	Northing 4342991	Easting 520169
Landing Point of Curve	Northing 4343089	Easting 520699
Bottom Hole	Northing 4342097	Easting 521182

Elevation (ft) 970 GL Type of Well ■New □ Existing Type of Report □Interim ■Final

Permit Type □ Deviated □ Horizontal ■ Horizontal 6A □ Vertical Depth Type □ Deep □ Shallow

Type of Operation □ Convert □ Deepen ■ Drill □ Plug Back □ Redrilling □ Rework ■ Stimulate

Well Type □ Brine Disposal □ CBM ■ Gas □ Oil □ Secondary Recovery □ Solution Mining □ Storage □ Other ___

Type of Completion ■ Single □ Multiple Fluids Produced □ Brine ■Gas ■ NGL □ Oil □ Other ___
Drilled with □ Cable ■ Rotary

Drilling Media Surface hole ■ Air □ Mud □Fresh Water Intermediate hole ■ Air □ Mud □ Fresh Water □ Brine
Production hole □ Air ■ Mud □ Fresh Water □ Brine
Mud Type(s) and Additive(s)
Water base Mud 12.5 ppg barium sulfate, sodium chloride, xanthan gum, polyanionic cellulose, modified starch, sodium hydroxide, phosphonates and alkyl phophates, glutaraldehyde solution, calcium hydroxide, partially hydrolyzed polyacrylamide/polyacrylate, potassium chloride, sodium carbonate, ground walnut shells, alcohol and modified fatty acid, ferrochrome lignosulfonate, calcium carbonate, fibrous cellulose

Date permit issued 04/18/2014 Date drilling commenced 08/18/2014 Date drilling ceased 1/31/2015
Date completion activities began 5/9/2015 Date completion activities ceased 5/13/2015
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 144 Open mine(s) (Y/N) depths N
Salt water depth(s) ft - Void(s) encountered (Y/N) depths N
Coal depth(s) ft 338 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

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API 47- 017 - 6463 Farm name JUSTIN L. HENDERSON ET AL Well number 513149

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	63'	NEW	A-500 40LB/FT	NONE	Y
Surface	17.5"	13.375"	942'	NEW	J-55 54.5LB/FT	295',380'	Y
Coal							
Intermediate 1	12.375"	9.625"	5,024'	NEW	P-110 40LB/FT	1243',2947',4071'	Y
Intermediate 2							
Intermediate 3							
Production	8.5"	5.5"	11,430'	NEW	P-110 20LB/FT	NONE	N
Tubing							
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor	CLASS A	61	15.6	1.18	71.98	0	8
Surface	CLASS A	795	15.6	1.19	946.05	0	8
Coal							
Intermediate 1	CLASS A / CLASS A	370 / 340	14.2 / 15.6	1.28 /1.18	874.8	0	8
Intermediate 2							
Intermediate 3							
Production	CLASS A / CLASS H	460 / 455	14.2 / 15.2	1.26 / 1.97	1475.95	5,100	8
Tubing							

Drillers TD (ft) 11,463' Loggers TD (ft) _____
Deepest formation penetrated Marcellus Plug back to (ft) _____
Plug back procedure _____

Kick off depth (ft) 5,228'

Check all wireline logs run ☐ caliper ☐ density ■ deviated/directional ☐ induction
☐ neutron ☐ resistivity ■ gamma ray ■ temperature ☐sonic

Well cored ☐ Yes ■ No ☐ Conventional ☐ Sidewall Were cuttings collected ☐ Yes ■ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____
CONDUCTOR- NONE
SURFACE- JOINTS: 1,12
INTERMEDIATE- RAN AT LEAST EVERY 500' FEET JOINTS: 1,12,24,36,48,60,73,97,109,120
PRODUCTION- 76 Composite Body centralizers ran every joint from 4,986 to 8,145'

WAS WELL COMPLETED AS SHOT HOLE ☐ Yes ■ No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ■ No DETAILS _____

WERE TRACERS USED ☐ Yes ■ No TYPE OF TRACER(S) USED _____

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
					Please See Attached

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
						Please	See	Attached

Please insert additional pages as applicable.

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PRODUCING FORMATION(S)	DEPTHS	
Marcellus	6,394' TVD	7,644' MD

Please insert additional pages as applicable.

GAS TEST ☐ Build up ☐ Drawdown ■ Open Flow OIL TEST ■ Flow ☐ Pump

SHUT-IN PRESSURE Surface 1,758 psi Bottom Hole N/A psi DURATION OF TEST 101.0 hrs

OPEN FLOW	Gas	Oil	NGL	Water	GAS MEASURED BY
	10,252 mcfpd	N/A bpd	67.9 bpd	812.2 bpd	☐ Estimated ■ Orifice ☐ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
	0		0		

Please insert additional pages as applicable.

Drilling Contractor ALPHA HUNTER DRILLING (RIG 4)
Address P.O. BOX 430 City RENO State OH Zip 45773

Logging Company HOSSCO SERVICES, LLC
Address 614 TROTTERS LANE City CHARLESTON State WV Zip 25312

Cementing Company NABORS CEMENTING SERVICES
Address 2504 SMITH CREEK ROAD City WAYNESBURG State PA Zip 15370

Stimulating Company Keane
Address 2121 Sage Road City Houston State TX Zip 77056

Please insert additional pages as applicable.

Completed by Jim Helmick Telephone 412-395-5518
Signature Title VP Completions Date 8/6/2015

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

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Drilling Contractor Patterson UTI (Rig 252)
Address 207 Carlton Drive City Eighty Four State PA Zip 15330

Logging Company GYRODATA
Address 601 MAYER ST City BRIDGEVILLE State PA Zip 15017

Logging Company BLUE DOT ENERGY SERVICES
Address P.O. BOX 784 City BIDGEPORT State WV Zip 26330

Cementing Company _____
Address _____ City _____ State _____ Zip _____

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513149 Final Formations (API 47-1706463)

Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
FRESH WATER ZONE	1		154	
SAND/SHALE	1		347	
PITTSBURGH COAL SEAM	347		351	
SAND/SHALE	351		1,599.00	
BIG LIME	1,599.00		1,884.00	
WEIR	1,884.00		2,089.00	
BEREA	2,089.00		2,093.00	
GANTZ	2,093.00		2,204.00	
50F	2,204.00		2,294.00	
30F	2,294.00		2,349.00	
GORDON	2,349.00		2,438.00	
4TH	2,438.00		2,660.00	
BAYARD	2,660.00		2,933.00	
WARREN	2,933.00		3,010.00	
SPEECHLEY	3,010.00		3,499.00	
BALLTOWN A	3,499.00		4,146.00	
RILEY	4,146.00		4,596.00	
BENSON	4,596.00		4,849.00	
ALEXANDER	4,849.00		6,003.00	5,875.70
SONYEA	6,003.00	5,875.70	6,153.00	5,944.90
MIDDLESEX	6,153.00	5,944.90	6,209.00	5,963.60
GENESEE	6,209.00	5,963.60	6,286.00	5,987.90
GENESEO	6,286.00	5,987.90	7,372.00	6,338.90
TULLY	7,372.00	6,338.90	7,510.00	6,363.70
HAMILTON	7,510.00	6,363.70	7,644.00	6,393.50
MRC 3	7,644.00	6,393.50		

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EQT Production - Marcellus

Doddridge County, WV Grid
Doddridge County 513149
Well #513149
API: 47-170476463
Main Wellbore

Design: AS Drilled Surveys

Standard Survey Report

01 February, 2015

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Phoenix Technologies

Survey Report

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513149
Company:	EQT Production - Marcellus	**TVD Reference:**	KB @ 991.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB @ 991.0usft
Site:	Doddridge County 513149	**North Reference:**	Grid
Well:	Well #513149	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	AS Drilled Surveys		

Project — Doddridge County, WV Grid

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia North 4701		Using geodetic scale factor

Site — Doddridge County 513149

Site Position:		**Northing:**	270,560.90 usft	**Latitude:**	39.24
From:	Map	**Easting:**	1,641,274.50 usft	**Longitude:**	-80.77
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.81 °

Well — Well #513149

Well Position	**+N/-S**	0.0 usft	**Northing:**	270,560.90 usft	**Latitude:**	39° 14' 9.266 N
	+E/-W	0.0 usft	**Easting:**	1,641,274.50 usft	**Longitude:**	80° 45' 59.293 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	968.0 usft

Wellbore — Main Wellbore

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	1/19/2015	-8.50	66.71	52,194

Design — AS Drilled Surveys

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	6,436.0	0.0	0.0	132.43

Survey Program — **Date** 2/1/2015

From ()	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	5,180.0	513149 Gyrodata Gyro (Main Wellbore)	GYD_DP_MS	Gyrodata gyro-compassing and drop
0.00	7,074.0	513149 PHX MWD (Air Curve) (Main Wellb	MWD+IGRF	MWD+IGRF v3:standard declination
0.00	11,463.0	513149 PHX MWD Curve and Lateral (Ma	MWD+IGRF	MWD+IGRF v3:standard declination

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	-991.0	0.0	0.0	0.0	0.00	0.00	0.00
110.0	0.12	44.45	110.0	-881.0	0.1	0.1	0.0	0.11	0.11	0.00
210.0	0.06	27.11	210.0	-781.0	0.2	0.2	0.0	0.07	-0.06	-17.34
310.0	0.07	57.53	310.0	-681.0	0.3	0.3	0.0	0.04	0.01	30.42
410.0	0.08	36.26	410.0	-581.0	0.4	0.3	0.0	0.03	0.01	-21.27
510.0	0.15	321.49	510.0	-481.0	0.5	0.3	-0.1	0.15	0.07	-74.77
610.0	0.31	322.96	610.0	-381.0	0.8	0.1	-0.5	0.16	0.16	1.47

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Well:	Well #513149	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	AS Drilled Surveys		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
710.0	0.21	313.52	710.0	-281.0	1.2	-0.2	-1.0	0.11	-0.10	-9.44
810.0	0.26	290.93	810.0	-181.0	1.4	-0.6	-1.4	0.10	0.05	-22.59
910.0	0.33	293.94	910.0	-81.0	1.6	-1.1	-1.9	0.07	0.07	3.01
1,010.0	0.72	286.10	1,010.0	19.0	1.9	-1.9	-2.7	0.40	0.39	-7.84
1,110.0	0.85	292.72	1,110.0	119.0	2.3	-3.2	-4.0	0.16	0.13	6.62
1,210.0	0.85	290.61	1,210.0	219.0	2.9	-4.6	-5.3	0.03	0.00	-2.11
1,310.0	0.78	300.31	1,310.0	319.0	3.5	-5.9	-6.7	0.15	-0.07	9.70
1,410.0	0.83	310.78	1,410.0	419.0	4.3	-7.0	-8.1	0.16	0.05	10.47
1,510.0	0.72	313.15	1,509.9	518.9	5.2	-8.0	-9.4	0.11	-0.11	2.37
1,610.0	0.62	323.33	1,609.9	618.9	6.1	-8.8	-10.6	0.16	-0.10	10.18
1,710.0	0.56	327.54	1,709.9	718.9	6.9	-9.4	-11.6	0.07	-0.06	4.21
1,810.0	0.41	349.87	1,809.9	818.9	7.7	-9.7	-12.4	0.24	-0.15	22.33
1,910.0	0.35	2.37	1,909.9	918.9	8.4	-9.8	-12.8	0.10	-0.06	12.50
2,010.0	0.29	352.47	2,009.9	1,018.9	8.9	-9.8	-13.2	0.08	-0.06	-9.90
2,110.0	0.24	30.53	2,109.9	1,118.9	9.3	-9.7	-13.5	0.18	-0.05	38.06
2,210.0	0.27	36.63	2,209.9	1,218.9	9.7	-9.5	-13.5	0.04	0.03	6.10
2,310.0	0.19	22.20	2,309.9	1,318.9	10.1	-9.3	-13.6	0.10	-0.08	-14.43
2,410.0	0.14	58.75	2,409.9	1,418.9	10.3	-9.1	-13.6	0.11	-0.05	36.55
2,510.0	0.17	63.71	2,509.9	1,518.9	10.4	-8.8	-13.5	0.03	0.03	4.96
2,610.0	0.14	77.94	2,609.9	1,618.9	10.5	-8.6	-13.4	0.05	-0.03	14.23
2,710.0	0.20	128.88	2,709.9	1,718.9	10.4	-8.3	-13.2	0.16	0.06	50.94
2,810.0	0.24	123.18	2,809.9	1,818.9	10.2	-8.0	-12.8	0.05	0.04	-5.70
2,910.0	0.30	146.05	2,909.9	1,918.9	9.8	-7.7	-12.3	0.12	0.06	22.87
3,010.0	0.30	169.21	3,009.9	2,018.9	9.4	-7.5	-11.9	0.12	0.00	23.16
3,110.0	0.39	173.41	3,109.9	2,118.9	8.8	-7.4	-11.4	0.09	0.09	4.20
3,210.0	0.35	166.55	3,209.9	2,218.9	8.1	-7.3	-10.9	0.06	-0.04	-6.86
3,310.0	0.41	166.90	3,309.9	2,318.9	7.5	-7.2	-10.3	0.06	0.06	0.35
3,410.0	0.43	171.96	3,409.9	2,418.9	6.8	-7.0	-9.8	0.04	0.02	5.06
3,510.0	0.34	180.84	3,509.9	2,518.9	6.1	-7.0	-9.3	0.11	-0.09	8.88
3,610.0	0.39	220.67	3,609.9	2,618.9	5.6	-7.2	-9.1	0.25	0.05	39.83
3,710.0	0.50	235.05	3,709.9	2,718.9	5.0	-7.8	-9.2	0.16	0.11	14.38
3,810.0	0.61	263.98	3,809.9	2,818.9	4.7	-8.7	-9.6	0.30	0.11	28.93
3,910.0	0.90	285.27	3,909.9	2,918.9	4.9	-10.0	-10.7	0.40	0.29	21.29
4,010.0	1.09	283.20	4,009.9	3,018.9	5.3	-11.6	-12.2	0.19	0.19	-2.07
4,110.0	1.35	289.72	4,109.8	3,118.8	5.9	-13.7	-14.1	0.29	0.26	6.52
4,210.0	1.61	292.07	4,209.8	3,218.8	6.9	-16.1	-16.5	0.27	0.26	2.35
4,310.0	1.83	293.71	4,309.8	3,318.8	8.0	-18.9	-19.3	0.23	0.22	1.64
4,410.0	2.01	297.79	4,409.7	3,418.7	9.5	-21.9	-22.5	0.23	0.18	4.08
4,510.0	2.12	301.79	4,509.6	3,518.6	11.3	-25.0	-26.1	0.18	0.11	4.00
4,610.0	2.43	308.44	4,609.6	3,618.6	13.6	-28.2	-30.0	0.41	0.31	6.65
4,710.0	2.78	312.15	4,709.5	3,718.5	16.5	-31.7	-34.5	0.39	0.35	3.71
4,810.0	2.99	314.06	4,809.3	3,818.3	20.0	-35.4	-39.6	0.23	0.21	1.91
4,910.0	3.57	316.00	4,909.2	3,918.2	24.0	-39.4	-45.3	0.59	0.58	1.94

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Survey Report

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513149
Company:	EQT Production - Marcellus	**TVD Reference:**	KB @ 991.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB @ 991.0usft
Site:	Doddridge County 513149	**North Reference:**	Grid
Well:	Well #513149	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	AS Drilled Surveys		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,010.0	3.69	313.98	5,009.0	4,018.0	28.5	-43.9	-51.6	0.18	0.12	-2.02
5,110.0	3.43	324.72	5,108.8	4,117.8	33.2	-47.9	-57.7	0.71	-0.26	10.74
Gyro Tie In=5170' MD										
5,180.0	3.66	332.80	5,178.6	4,187.6	36.9	-50.1	-61.9	0.78	0.33	11.54
5,216.0	3.70	336.00	5,214.6	4,223.6	38.9	-51.1	-64.0	0.58	0.11	8.89
5,259.0	7.11	337.94	5,257.4	4,266.4	42.7	-52.7	-67.7	7.94	7.93	4.51
5,302.0	11.71	340.80	5,299.8	4,308.8	49.3	-55.1	-73.9	10.75	10.70	6.65
5,342.0	15.38	345.52	5,338.7	4,347.7	58.2	-57.8	-82.0	9.57	9.18	11.80
5,385.0	18.69	352.72	5,379.8	4,388.8	70.6	-60.1	-92.0	9.11	7.70	16.74
5,428.0	22.32	357.52	5,420.1	4,429.1	85.6	-61.3	-103.0	9.30	8.44	11.16
5,471.0	24.39	3.73	5,459.5	4,468.5	102.6	-61.1	-114.3	7.47	4.81	14.44
5,514.0	24.88	14.53	5,498.6	4,507.6	120.2	-58.3	-124.1	10.52	1.14	25.12
5,557.0	26.12	23.83	5,537.5	4,546.5	137.7	-52.2	-131.4	9.74	2.88	21.63
5,600.0	28.28	31.23	5,575.7	4,584.7	155.0	-43.0	-136.4	9.32	5.02	17.21
5,642.0	30.49	37.62	5,612.3	4,621.3	172.0	-31.4	-139.2	9.13	5.26	15.21
5,685.0	31.90	44.01	5,649.1	4,658.1	188.8	-16.8	-139.8	8.36	3.28	14.86
5,728.0	33.58	50.31	5,685.3	4,694.3	204.6	0.2	-137.9	8.83	3.91	14.65
5,771.0	36.41	55.12	5,720.5	4,729.5	219.5	19.9	-133.4	9.19	6.58	11.19
5,814.0	40.30	56.70	5,754.2	4,763.2	234.4	42.0	-127.2	9.33	9.05	3.67
5,857.0	44.10	57.80	5,786.1	4,795.1	250.0	66.2	-119.8	9.00	8.84	2.56
5,900.0	47.11	58.42	5,816.2	4,825.2	266.3	92.3	-111.5	7.08	7.00	1.44
5,943.0	51.22	59.21	5,844.3	4,853.3	283.1	120.2	-102.3	9.66	9.56	1.84
5,986.0	54.09	61.02	5,870.4	4,879.4	300.1	149.8	-91.9	7.47	6.67	4.21
6,029.0	57.80	63.71	5,894.4	4,903.4	316.6	181.4	-79.8	10.06	8.63	6.26
6,072.0	60.72	64.90	5,916.4	4,925.4	332.6	214.7	-66.0	7.20	6.79	2.77
6,114.0	64.52	65.82	5,935.7	4,944.7	348.2	248.6	-51.4	9.25	9.05	2.19
6,157.0	68.71	65.82	5,952.8	4,961.8	364.3	284.6	-35.8	9.74	9.74	0.00
6,200.0	71.10	66.93	5,967.6	4,976.6	380.5	321.6	-19.4	6.06	5.56	2.58
6,243.0	71.50	65.91	5,981.4	4,990.4	396.8	358.9	-2.8	2.43	0.93	-2.37
6,286.0	71.98	65.03	5,994.8	5,003.8	413.8	396.0	13.2	2.24	1.12	-2.05
6,329.0	72.21	63.93	6,008.0	5,017.0	431.4	433.0	28.5	2.49	0.53	-2.56
6,372.0	70.70	64.11	6,021.7	5,030.7	449.3	469.6	43.5	3.53	-3.51	0.42
6,415.0	68.10	63.84	6,036.8	5,045.8	466.9	505.8	58.3	6.08	-6.05	-0.63
6,457.0	67.21	64.02	6,052.8	5,061.8	484.0	540.7	72.5	2.16	-2.12	0.43
6,500.0	65.89	62.83	6,069.9	5,078.9	501.6	575.9	86.7	3.98	-3.07	-2.77
6,543.0	64.38	65.43	6,088.0	5,097.0	518.7	611.0	101.1	6.51	-3.51	6.05
6,586.0	63.28	65.74	6,107.0	5,116.0	534.6	646.2	116.3	2.64	-2.56	0.72
6,629.0	66.11	66.93	6,125.4	5,134.4	550.2	681.8	132.0	7.04	6.58	2.77
6,672.0	69.20	67.01	6,141.7	5,150.7	565.8	718.4	148.5	7.19	7.19	0.19
6,715.0	70.22	66.53	6,156.6	5,165.6	581.7	755.4	165.2	2.59	2.37	1.12
6,758.0	69.20	67.50	6,171.5	5,180.5	597.4	792.6	181.9	3.18	-2.37	2.26
6,801.0	68.71	71.64	6,187.0	5,196.0	611.4	830.2	200.2	9.06	-1.14	9.63

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Phoenix Technologies

Survey Report

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513149
Company:	EQT Production - Marcellus	**TVD Reference:**	KB @ 991.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB @ 991.0usft
Site:	Doddridge County 513149	**North Reference:**	Grid
Well:	Well #513149	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	AS Drilled Surveys		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,844.0	68.49	76.31	6,202.7	5,211.7	622.5	868.6	221.2	10.12	-0.51	10.86
6,886.0	69.60	80.01	6,217.7	5,226.7	630.5	907.0	244.1	8.64	2.64	8.81
6,929.0	71.01	84.51	6,232.2	5,241.2	636.0	947.1	270.0	10.38	3.28	10.47
6,972.0	70.88	88.43	6,246.2	5,255.2	638.5	987.7	298.2	8.62	-0.30	9.12
7,057.0	70.70	92.71	6,274.2	5,283.2	637.7	1,067.9	358.0	4.76	-0.21	5.04
Final Survey=7064' MD/ 6270' TVD - Plan Tie In=7074' MD										
7,074.0	71.54	93.63	6,279.7	5,288.7	636.8	1,084.0	370.5	7.12	4.94	5.41
7,105.0	72.80	92.80	6,289.2	5,298.2	635.1	1,113.4	393.3	4.80	4.06	-2.68
7,138.0	74.50	93.70	6,298.5	5,307.5	633.3	1,145.0	417.9	5.78	5.15	2.73
7,170.0	75.60	95.80	6,306.7	5,315.7	630.8	1,175.9	442.3	7.21	3.44	6.56
7,201.0	76.60	98.70	6,314.2	5,323.2	627.0	1,205.7	466.9	9.64	3.23	9.35
7,232.0	77.80	101.80	6,321.1	5,330.1	621.6	1,235.4	492.5	10.49	3.87	10.00
7,264.0	78.60	105.50	6,327.6	5,336.6	614.2	1,265.9	520.0	11.59	2.50	11.56
7,295.0	79.80	108.20	6,333.4	5,342.4	605.4	1,295.0	547.4	9.39	3.87	8.71
7,327.0	80.60	111.10	6,338.9	5,347.9	594.8	1,324.7	576.5	9.27	2.50	9.06
7,358.0	81.40	113.60	6,343.7	5,352.7	583.1	1,353.0	605.3	8.37	2.58	8.06
7,389.0	81.60	115.90	6,348.3	5,357.3	570.3	1,380.9	634.5	7.37	0.65	7.42
7,421.0	80.80	118.30	6,353.2	5,362.2	555.9	1,409.0	665.0	7.82	-2.50	7.50
7,452.0	79.20	120.20	6,358.6	5,367.6	541.0	1,435.6	694.7	7.94	-5.16	6.13
7,484.0	77.70	122.40	6,365.0	5,374.0	524.7	1,462.4	725.4	8.21	-4.69	6.88
7,515.0	77.30	125.10	6,371.7	5,380.7	507.9	1,487.6	755.4	8.60	-1.29	8.71
7,547.0	77.20	127.30	6,378.8	5,387.8	489.4	1,512.8	786.4	6.71	-0.31	6.88
7,578.0	77.10	130.70	6,385.7	5,394.7	470.4	1,536.3	816.5	10.70	-0.32	10.97
7,609.0	77.10	134.00	6,392.6	5,401.6	450.1	1,558.6	846.8	10.38	0.00	10.65
7,641.0	77.20	136.70	6,399.7	5,408.7	427.9	1,580.5	877.9	8.23	0.31	8.44
7,672.0	77.20	140.40	6,406.6	5,415.6	405.2	1,600.5	908.0	11.64	0.00	11.94
7,703.0	78.20	143.00	6,413.2	5,422.2	381.5	1,619.3	937.9	8.81	3.23	8.39
7,735.0	79.70	145.40	6,419.3	5,428.3	356.0	1,637.7	968.6	8.73	4.69	7.50
7,766.0	80.80	148.90	6,424.6	5,433.6	330.3	1,654.2	998.1	11.68	3.55	11.29
7,797.0	82.10	151.50	6,429.2	5,438.2	303.7	1,669.5	1,027.3	9.29	4.19	8.39
7,829.0	83.80	152.90	6,433.1	5,442.1	275.6	1,684.3	1,057.2	6.86	5.31	4.38
LP= 7860' MD/6436' TVD										
7,860.0	85.70	155.00	6,435.9	5,444.9	247.9	1,697.8	1,085.9	9.11	6.13	6.77
7,892.0	86.40	155.40	6,438.1	5,447.1	218.9	1,711.2	1,115.4	2.52	2.19	1.25
7,924.0	86.90	155.60	6,440.0	5,449.0	189.8	1,724.5	1,144.8	1.68	1.56	0.63
8,017.0	87.10	155.10	6,444.9	5,453.9	105.4	1,763.2	1,230.3	0.58	0.22	-0.54
8,112.0	87.40	154.60	6,449.4	5,458.4	19.5	1,803.5	1,318.0	0.61	0.32	-0.53
8,206.0	87.80	154.60	6,453.4	5,462.4	-65.3	1,843.8	1,405.0	0.43	0.43	0.00
8,301.0	87.40	153.80	6,457.4	5,466.4	-150.8	1,885.1	1,493.1	0.94	-0.42	-0.84
8,395.0	89.60	153.90	6,459.8	5,468.8	-235.1	1,926.5	1,580.6	2.34	2.34	0.11
8,489.0	89.30	151.30	6,460.7	5,469.7	-318.5	1,969.8	1,668.8	2.78	-0.32	-2.77
8,584.0	90.10	148.70	6,461.2	5,470.2	-400.8	2,017.3	1,759.4	2.86	0.84	-2.74
8,678.0	91.10	152.40	6,460.2	5,469.2	-482.6	2,063.5	1,848.7	4.08	1.06	3.94

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Phoenix Technologies

Survey Report

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513149
Company:	EQT Production - Marcellus	**TVD Reference:**	KB @ 991.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB @ 991.0usft
Site:	Doddridge County 513149	**North Reference:**	Grid
Well:	Well #513149	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	AS Drilled Surveys		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,773.0	90.50	154.00	6,458.9	5,467.9	-567.4	2,106.3	1,937.5	1.80	-0.63	1.68
8,868.0	89.90	155.00	6,458.6	5,467.6	-653.2	2,147.2	2,025.6	1.23	-0.63	1.05
8,962.0	87.70	154.20	6,460.5	5,469.5	-738.1	2,187.5	2,112.6	2.49	-2.34	-0.85
9,056.0	87.30	153.60	6,464.6	5,473.6	-822.4	2,228.8	2,200.0	0.77	-0.43	-0.64
9,150.0	87.80	154.40	6,468.7	5,477.7	-906.8	2,270.0	2,287.3	1.00	0.53	0.85
9,245.0	87.90	154.20	6,472.2	5,481.2	-992.3	2,311.2	2,375.4	0.24	0.11	-0.21
9,339.0	88.00	153.60	6,475.6	5,484.6	-1,076.7	2,352.5	2,462.8	0.65	0.11	-0.64
9,434.0	87.60	152.80	6,479.2	5,488.2	-1,161.4	2,395.3	2,551.6	0.94	-0.42	-0.84
9,529.0	88.10	153.60	6,482.8	5,491.8	-1,246.2	2,438.1	2,640.4	0.99	0.53	0.84
9,624.0	87.70	151.80	6,486.3	5,495.3	-1,330.5	2,481.6	2,729.4	1.94	-0.42	-1.89
9,718.0	88.80	154.20	6,489.1	5,498.1	-1,414.2	2,524.3	2,817.4	2.81	1.17	2.55
9,813.0	89.30	154.70	6,490.7	5,499.7	-1,499.9	2,565.3	2,905.4	0.74	0.53	0.53
9,907.0	89.50	154.20	6,491.7	5,500.7	-1,584.7	2,605.8	2,992.6	0.57	0.21	-0.53
10,002.0	88.50	151.60	6,493.4	5,502.4	-1,669.3	2,649.1	3,081.5	2.93	-1.05	-2.74
10,096.0	88.90	153.50	6,495.5	5,504.5	-1,752.7	2,692.4	3,169.8	2.07	0.43	2.02
10,191.0	89.40	154.70	6,496.9	5,505.9	-1,838.1	2,733.9	3,258.0	1.37	0.53	1.26
10,285.0	89.60	154.00	6,497.7	5,506.7	-1,922.9	2,774.6	3,345.2	0.77	0.21	-0.74
10,379.0	89.40	155.20	6,498.5	5,507.5	-2,007.8	2,814.9	3,432.3	1.29	-0.21	1.28
10,474.0	89.10	154.20	6,499.8	5,508.8	-2,093.6	2,855.5	3,520.2	1.10	-0.32	-1.05
10,568.0	88.70	154.00	6,501.6	5,510.6	-2,178.2	2,896.5	3,607.5	0.48	-0.43	-0.21
10,662.0	89.00	156.10	6,503.5	5,512.5	-2,263.4	2,936.2	3,694.3	2.26	0.32	2.23
10,756.0	88.80	155.10	6,505.3	5,514.3	-2,349.0	2,975.0	3,780.7	1.08	-0.21	-1.06
10,851.0	89.40	155.40	6,506.8	5,515.8	-2,435.2	3,014.8	3,868.2	0.71	0.63	0.32
10,945.0	89.90	155.50	6,507.4	5,516.4	-2,520.7	3,053.8	3,954.7	0.54	0.53	0.11
11,040.0	90.60	155.90	6,506.9	5,515.9	-2,607.3	3,092.9	4,042.0	0.85	0.74	0.42
11,134.0	89.30	156.20	6,507.0	5,516.0	-2,693.2	3,131.1	4,128.1	1.42	-1.38	0.32
11,228.0	89.20	154.80	6,508.2	5,517.2	-2,778.8	3,170.0	4,214.6	1.49	-0.11	-1.49
11,323.0	89.90	154.10	6,509.0	5,518.0	-2,864.5	3,211.0	4,302.7	1.04	0.74	-0.74
Final Survey= 11409' MD/6510' TVD										
11,409.0	89.10	149.70	6,509.7	5,518.7	-2,940.3	3,251.5	4,383.7	5.20	-0.93	-5.12
Projection to TD/Deepest Point of Well= 11463' MD/6511' TVD										
11,463.0	89.10	149.70	6,510.6	5,519.6	-2,986.9	3,278.8	4,435.3	0.00	0.00	0.00

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Survey Report

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513149
Company:	EQT Production - Marcellus	**TVD Reference:**	KB @ 991.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB @ 991.0usft
Site:	Doddridge County 513149	**North Reference:**	Grid
Well:	Well #513149	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	AS Drilled Surveys		

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
5,180.0	5,178.6	36.9	-50.1	Gyro Tie In=5170' MD
7,074.0	6,279.7	636.8	1,084.0	Final Survey=7064' MD/ 6270' TVD
7,074.0	6,279.7	636.8	1,084.0	Plan Tie In=7074' MD
7,860.0	6,435.9	247.9	1,697.8	LP= 7860' MD/6436' TVD
11,409.0	6,509.7	-2,940.3	3,251.5	Final Survey= 11409' MD/6510' TVD
11,463.0	6,510.6	-2,986.9	3,278.8	Projection to TD/Deepest Point of Well= 11463' MD/6511' TVD

Checked By: _____ Approved By: _____ Date: _____

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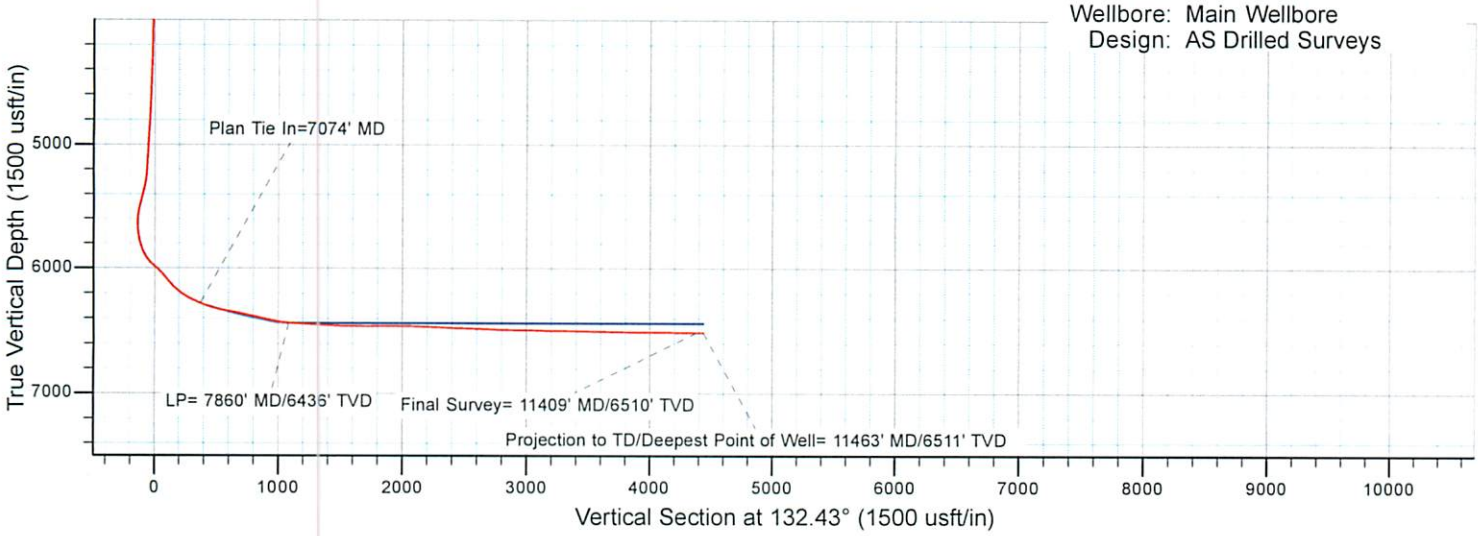
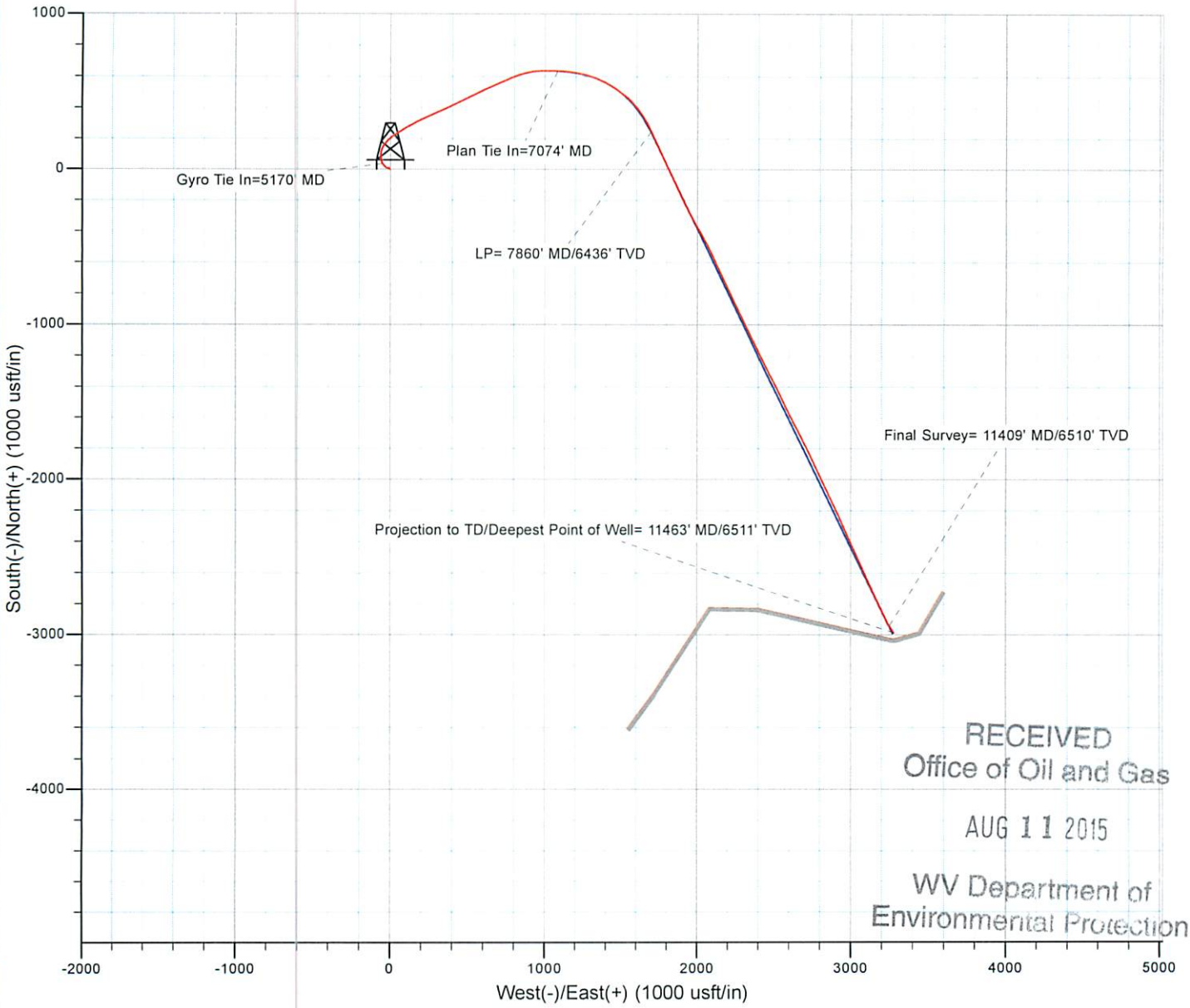
EQT Production - Marcellus

Project: Doddridge County, WV Grid
Site: Doddridge County 513149
Well: Well #513149
Wellbore: Main Wellbore
Design: AS Drilled Surveys





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513149 - 47-017-06463-0000- Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	3/29/2015	11,427.00	11,430.00	10	MARCELLUS
1	5/10/2015	11,162.00	11,344.00	32	MARCELLUS
2	5/10/2015	10,862.00	11,102.00	40	MARCELLUS
3	5/10/2015	10,562.00	10,804.00	40	MARCELLUS
4	5/11/2015	10,262.00	10,504.00	40	MARCELLUS
5	5/11/2015	9,962.00	10,204.00	40	MARCELLUS
6	5/11/2015	9,662.00	9,904.00	40	MARCELLUS
7	5/11/2015	9,362.00	9,604.00	40	MARCELLUS
8	5/11/2015	9,062.00	9,304.00	40	MARCELLUS
9	5/12/2015	8,762.00	9,004.00	40	MARCELLUS
10	5/12/2015	8,462.00	8,704.00	40	MARCELLUS
11	5/12/2015	8,162.00	8,404.00	40	MARCELLUS
12	5/13/2015	7,862.00	8,104.00	40	MARCELLUS
13	5/13/2015	7,562.00	7,804.00	40	MARCELLUS

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513149 - 47-017-06463-0000- Stimulated Stages

Stage Number	Stimulation Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
Initiation Sleeve	5/10/2015	14.1	5,573.00	8,018.00	5,204.00	0	292	0
1	5/10/2015	100.5	7,871.00	8,339.00	5,256.00	481,300	11230	0
2	5/10/2015	99.9	7,454.00	7,901.00	4,874.00	482,580	10963	0
3	5/10/2015	100.2	7,369.00	8,001.00	4,992.00	484,240	11345	0
4	5/11/2015	88.7	7,888.00	8,864.00	4,986.00	484,820	10953	0
5	5/11/2015	99	7,653.00	8,368.00	4,867.00	483,640	11181	0
6	5/11/2015	100.7	7,342.00	8,131.00	4,311.00	478,560	11640	0
7	5/11/2015	99.7	7,501.00	8,548.00	4,944.00	486,860	11491	0
8	5/11/2015	100.3	7,313.00	8,024.00	4,931.00	482,540	11030	0
9	5/12/2015	101	7,010.00	7,375.00	4,705.00	482,720	10946	0
10	5/12/2015	99.9	7,183.00	7,754.00	3,922.00	477,900	10910	0
11	5/12/2015	97.8	7,281.00	9,749.00	7,548.00	457,440	10922	0
11.01	5/12/2015	9.09	4,500.00	6,501.00	4,549.00	0	2473	0
12	5/13/2015	100.5	6,738.00	7,049.00	4,944.00	498,740	11377	0
13	5/13/2015	98.4	6,850.00	7,379.00	3,807.00	499,300	10930	0

17-06463

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/9/2015
Job End Date:	5/13/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06463-00-00
Operator Name:	EQT Production
Well Name and Number:	513149
Longitude:	-80.76647000
Latitude:	39.23590700
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,394
Total Base Water Volume (gal):	6,246,030
Total Base Non Water Volume:	0

FracFocus Chemical Disclosure Registry

GROUNDWATER PROTECTION COUNCIL

INTERSTATE Oil & Gas COMPACT COMMISSION

17-06463

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Keane Group	Carrier/Base Fluid					
			Water	7732-18-5	100.00000	88.96568	None
Sand (Proppant)	Keane Group	Proppant					
			Silica Substrate	14808-60-7	100.00000	10.72003	None
MC MX 437-5	Multi-Chem	Calcium nitrate solution					
			Calcium nitrate	10124-37-5	60.00000	0.05610	None
Hydrochloric Acid (15%)	Keane Group	Acidizing					
			Hydrochloric Acid	7647-01-0	15.00000	0.01748	None
FFR760	Keane Group	Friction Reducer					
			Hydrotreated Light Distillate	64742-47-8	30.00000	0.00534	None
			Alkyl Alcohol	Proprietary	10.00000	0.00178	None
			Oxyalkylated alcohol A	Proprietary	5.00000	0.00089	None
FFR730	Keane Group	Friction Reducer					
			Oxyalkylated alcohol A	Proprietary	5.00000	0.00307	None
EC6330A	Keane Group	Scale Inhibitor					
			Sodium Phosphate, Tribasic	7601-54-9	5.00000	0.00123	None
AI 600	Keane Group	Corrosion Inhibitor					
			Ethylene Glycol	107-21-1	40.00000	0.00012	None

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			N, N-Dimethyiformamide	68-12-2	20.00000	0.00006	None
			Tar bases, quinoline derivs, benzyl chloride-quatemized	72480-70-7	15.00000	0.00005	None
			Cinnamiaidehyde	104-55-2	15.00000	0.00005	None
			2-Butoxyenthanol	111-76-2	15.00000	0.00005	None
			Poly (oxy-1,2-ethanediyl), .alpha.-(4-nonylphenyl)-.omega.-hydroxy-,branched	127087-87-0	5.00000	0.00002	None
			1-Decanol	112-30-1	5.00000	0.00002	None
			1-Octanol	111-87-5	2.50000	0.00001	None
			Triethyl Phosphate	78-40-0	2.50000	0.00001	None
			Isopropyl alcohol	67-63-0	2.50000	0.00001	None
LEB-10X	Keane Group	Gel Breaker					
			Ethylene Glycol	107-21-1	30.00000	0.00006	None

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

* Total Water Volume sources may include fresh water, produced water, and/or recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.
Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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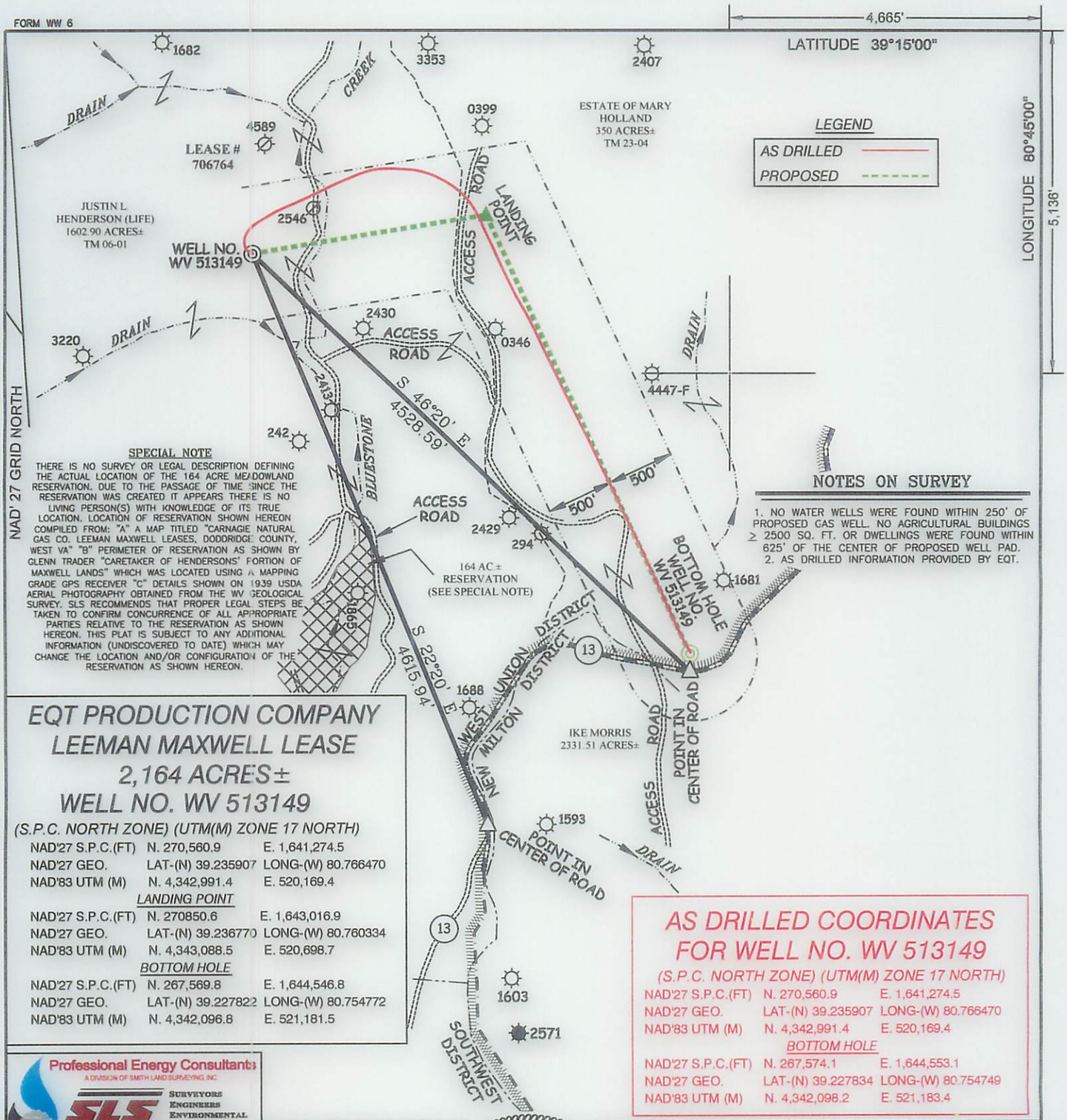
FORM WW 6



SPECIAL NOTE

THERE IS NO SURVEY OR LEGAL DESCRIPTION DEFINING THE ACTUAL LOCATION OF THE 164 ACRE MEADOWLAND RESERVATION. DUE TO THE PASSAGE OF TIME SINCE THE RESERVATION WAS CREATED IT APPEARS THERE IS NO LIVING PERSON(S) WITH KNOWLEDGE OF ITS TRUE LOCATION. LOCATION OF RESERVATION SHOWN HEREON COMPILED FROM: "A" A MAP TITLED "CARNAGIE NATURAL GAS CO. LEEMAN MAXWELL LEASES, DODDRIDGE COUNTY, WEST VA" "B" PERIMETER OF RESERVATION AS SHOWN BY GLENN TRADER "CARETAKER OF HENDERSONS' PORTION OF MAXWELL LANDS" WHICH WAS LOCATED USING A MAPPING GRADE GPS RECEIVER "C" DETAILS SHOWN ON 1939 USDA AERIAL PHOTOGRAPHY OBTAINED FROM THE WV GEOLOGICAL SURVEY. SLS RECOMMENDS THAT PROPER LEGAL STEPS BE TAKEN TO CONFIRM CONCURRENCE OF ALL APPROPRIATE PARTIES RELATIVE TO THE RESERVATION AS SHOWN HEREON. THIS PLAT IS SUBJECT TO ANY ADDITIONAL INFORMATION (UNDISCOVERED TO DATE) WHICH MAY CHANGE THE LOCATION AND/OR CONFIGURATION OF THE RESERVATION AS SHOWN HEREON.

NOTES ON SURVEY

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
2. AS DRILLED INFORMATION PROVIDED BY EQT.

EQT PRODUCTION COMPANY
LEEMAN MAXWELL LEASE
2,164 ACRES±
WELL NO. WV 513149

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'27 S.P.C.(FT)	N. 270,560.9	E. 1,641,274.5
NAD'27 GEO.	LAT-(N) 39.235907	LONG-(W) 80.766470
NAD'83 UTM (M)	N. 4,342,991.4	E. 520,169.4
LANDING POINT		
NAD'27 S.P.C.(FT)	N. 270850.6	E. 1,643,016.9
NAD'27 GEO.	LAT-(N) 39.236770	LONG-(W) 80.760334
NAD'83 UTM (M)	N. 4,343,088.5	E. 520,698.7
BOTTOM HOLE		
NAD'27 S.P.C.(FT)	N. 267,569.8	E. 1,644,546.8
NAD'27 GEO.	LAT-(N) 39.227822	LONG-(W) 80.754772
NAD'83 UTM (M)	N. 4,342,096.8	E. 521,181.5

AS DRILLED COORDINATES FOR WELL NO. WV 513149

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'27 S.P.C.(FT)	N. 270,560.9	E. 1,641,274.5
NAD'27 GEO.	LAT-(N) 39.235907	LONG-(W) 80.766470
NAD'83 UTM (M)	N. 4,342,991.4	E. 520,169.4
BOTTOM HOLE		
NAD'27 S.P.C.(FT)	N. 267,574.1	E. 1,644,553.1
NAD'27 GEO.	LAT-(N) 39.227834	LONG-(W) 80.754749
NAD'83 UTM (M)	N. 4,342,098.2	E. 521,183.4

Professional Energy Consultants
A DIVISION OF SMITH LAND SURVEYING, INC.
SLS SURVEYORS ENGINEERS ENVIRONMENTAL PROJECT MGMT.
(304) 462-5634 WWW.SLSSURVEYS.COM

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. 2288 Earl N. Thompson

EARL N. THOMPSON LICENSED No. 2288 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE DECEMBER 06 , 20 13

REVISED 03/06/14 & 02/10/15

OPERATORS WELL NO. WV 513149

API WELL NO. 47 — 017 — 6463
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 7889ASDRILLED513149

SCALE 1" = 1000'

HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK)

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

WELL TYPE: OIL ____ GAS X LIQUID INJECTION ____ WASTE DISPOSAL ____ IF "GAS" PRODUCTION X STORAGE ____ DEEP ____ SHALLOW X

LOCATION :

ELEVATION 967'(GROUND) 968'(PROPOSED) WATERSHED BLUESTONE CREEK

DISTRICT WEST UNION COUNTY DODDRIDGE QUADRANGLE OXFORD 7.5'

SURFACE OWNER JUSTIN L. HENDERSON (LIFE) ACREAGE 1,602.90±

ROYALTY OWNER LEEMAN MAXWELL HRS ACREAGE 2,164±

PROPOSED WORK : LEASE NO. 706764

DRILL X CONVERT ____ DRILL DEEPER ____ REDRILL ____ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ____ PERFORATE NEW FORMATION ____ PLUG AND ABANDON ____ CLEAN OUT AND REPLUG ____ OTHER ____

PHYSICAL CHANGE IN WELL (SPECIFY) ____ TARGET FORMATION MARCELLUS

ESTIMATED DEPTH 6399'

COUNTY NAME PERMIT

WELL OPERATOR EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY

ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280

BRIDGEPORT, WV 26330 BRIDGEPORT, WV 26330

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State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 017 - 6504 County DODDRIDGE District Southwest
Quad OXFORD 7.5' Pad Name OXFORD 159 Field/Pool Name
Farm name JUSTIN L. HENDERSON ET AL Well Number 513155
Operator (as registered with the OOG) EQT Production Company
Address 625 Liberty Ave. EQT Plaza, Suite 1700 City Pittsburgh State PA Zip 15222

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,339,878 Easting 520,542
Landing Point of Curve Northing 4,339,162 Easting 520,220
Bottom Hole Northing 4,340,625 Easting 519,507

Elevation (ft) 1,252 GL Type of Well ■New □ Existing Type of Report □Interim ■Final

Permit Type □ Deviated □ Horizontal ■ Horizontal 6A □ Vertical Depth Type □ Deep □ Shallow

Type of Operation □ Convert □ Deepen ■ Drill □ Plug Back □ Redrilling □ Rework ■ Stimulate

Well Type □ Brine Disposal □ CBM ■ Gas □ Oil □ Secondary Recovery □ Solution Mining □ Storage □ Other

Type of Completion ■ Single □ Multiple Fluids Produced □ Brine □Gas □ NGL □ Oil ■ Other W/O Flowback
Drilled with □ Cable ■ Rotary

Drilling Media Surface hole ■ Air □ Mud □Fresh Water Intermediate hole ■ Air □ Mud □ Fresh Water □ Brine
Production hole □ Air ■ Mud □ Fresh Water □ Brine
Mud Type(s) and Additive(s)
Water base Mud 12.5 ppg barium sulfate, sodium chloride, xanthan gum, polyanionic cellulose, modified starch, sodium hydroxide, phosphonates and alkyl phophates, glutaraldehyde solution, calcium hydroxide, partially hydrolyzed polyacrylamide/polyacrylate, potassium chloride, sodium carbonate, ground walnut shells, alcohol and modified fatty acid, ferrochrome lignosulfonate, calcium carbonate, fibrous cellulose

Date permit issued 7/30/2014 Date drilling commenced 11/21/2014 Date drilling ceased 4/24/2015
Date completion activities began 6/12/2015 Date completion activities ceased 6/19/2015
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

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Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 264, 325, 401 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1312, 1379 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 246, 313, 474, 616,732,735 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:
JL

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API 47- 017 - 6504 Farm name JUSTIN L. HENDERSON ET AL Well number 513155

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	40'	NEW	A-500 40LB/FT	NONE	Y
Surface	17.5"	13.375"	1,091'	NEW	J-55 54.5LB/FT	None	Y
Coal							
Intermediate 1	12.375"	9.625"	5,279'	NEW	P-110 40LB/FT	None	Y
Intermediate 2							
Intermediate 3							
Production	8.5"	5.5"	12881	NEW	P-110 20LB/FT	NONE	N
Tubing							
Packer type and depth set							

Comment Details

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ^{3}/sks)	Volume (ft ^{3})	Cement Top (MD)	WOC (hrs)
Conductor	CLASS A	38	15.6	1.18	44.84	0	8
Surface	CLASS A	866	15.6	1.20	1,021.88	0	8
Coal							
Intermediate 1	CLASS A / A / A	447 / 380 / 1,205	14.2 / 15.6 /15.6	1.24 / 1.18 / 1.18	2,424.58	0	8
Intermediate 2							
Intermediate 3							
Production	Class A 50/50 POZ / H	870 / 565	14.2 /15.2	1.26 / 1.97	2209.25	4200'	8
Tubing							

Drillers TD (ft) 12885' Loggers TD (ft) 12885'
Deepest formation penetrated Marcellus Plug back to (ft)
Plug back procedure

Kick off depth (ft) 5413'

Check all wireline logs run ☐ caliper ☐ density ■ deviated/directional ☐ induction
☐ neutron ☐ resistivity ■ gamma ray ■ temperature ☐sonic

Well cored ☐ Yes ■ No ☐ Conventional ☐ Sidewall Were cuttings collected ■ Yes ☐ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING
CONDUCTOR- NONE
SURFACE- (3) Centralizers placed every 500' from 1089' to 165'
INTERMEDIATE- (11) Centralizers placed at least every 500' FEET from 5277' to 64'
PRODUCTION- (181) Centralizers on every joint from 12881' to 5281'

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WAS WELL COMPLETED AS SHOT HOLE ☐ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ■ No DETAILS

WERE TRACERS USED ☐ Yes ■ No TYPE OF TRACER(S) USED

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API 47- 017 - 6504 Farm name JUSTIN L. HENDERSON ET AL Well number 513155

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
					Please See Attached

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
						Please	See	Attached

Please insert additional pages as applicable.

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API 47- 017 - 6504 Farm name JUSTIN L. HENDERSON ET AL Well number 513155

PRODUCING FORMATION(S)	DEPTHS			
Marcellus	6,694'	TVD	8,530'	MD

Please insert additional pages as applicable.

GAS TEST □ Build up □ Drawdown □ Open Flow OIL TEST □ Flow □ Pump

SHUT-IN PRESSURE Surface _____ psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas _____ mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd GAS MEASURED BY □ Estimated □ Orifice □ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
	0		0		

Please insert additional pages as applicable.

Drilling Contractor ALPHA HUNTER DRILLING (RIG 5)
Address P.O. BOX 430 City RENO State OH Zip 45773

Logging Company Vaughn Energy Services
Address P.O. Box 261021 City Corpus Christi State TX Zip 78246-1021

Cementing Company Allied Services
Address 1036 East Main Street City Bridgeport State WV Zip 26330

Stimulating Company FTSI
Address 301 E 18th Street City Cisco State TX Zip 76437

Please insert additional pages as applicable.

Completed by Jim Helmick Telephone 412-395-5518
Signature _____ Title VP Completions Date 9/10/2015

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

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API 47- 017 - 6504 Farm name JUSTIN L. HENDERSON ET AL Well number 513155

Drilling Contractor Patterson UTI
Address 207 Carlton Drive City Eighty Four State PA Zip 15330

Logging Company Phoenix Technology Services
Address 1805 Brittmoore Road City Houston State TX Zip 77043

Logging Company Gyro Data Inc.
Address 601 Mayer St. City Bridgeville State PA Zip 15017

Cementing Company C & J Energy Services
Address 1650 Hackers Creek City Jane Lew State WV Zip 26378

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WELL #513155 FINAL FORMATIONS				
Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
FRESH WATER ZONE	1	1	411	411
SAND/SHALE	1	1	256	256
WASHINGTON COAL	256	256	258	258
SAND/SHALE	258	258	323	323
WAYNESBURG A COAL	323	323	325	325
SAND/SHALE	325	325	484	484
UNIONTOWN COAL	484	484	486	486
SAND/SHALE	486	486	626	626
SEWICKLEY	626	626	628	628
SAND/SHALE	628	628	742	742
REDSTONE COAL	742	742	743	743
SAND/SHALE	743	743	745	745
PITTSBURGH COAL	745	745	749	749
SAND/SHALE	749	749	2,030.00	2,029.80
BIG LIME	2,030.00	2,029.80	2,174.00	2,173.70
SAND/SHALE	2,174.00	2,173.70	2,323.00	2,322.70
WEIR	2,323.00	2,322.70	2,437.00	2,436.60
SAND/SHALE	2,437.00	2,436.60	2,531.00	2,530.60
GANTZ	2,531.00	2,530.60	2,608.00	2,607.60
50F	2,608.00	2,607.60	2,684.00	2,683.50
SAND/SHALE	2,684.00	2,683.50	2,730.00	2,729.50
30F	2,730.00	2,729.50	2,765.00	2,764.50
SAND/SHALE	2,765.00	2,764.50	2,779.00	2,778.50
GORDON	2,779.00	2,778.50	2,870.00	2,869.50
4TH SAND	2,870.00	2,869.50	3,051.00	3,050.40
BAYARD	3,051.00	3,050.40	3,151.00	3,150.30
SAND/SHALE	3,151.00	3,150.30	3,388.00	3,387.20
WARREN	3,388.00	3,387.20	3,447.00	3,446.10
SAND/SHALE	3,447.00	3,446.10	3,459.00	3,458.10
SPEECHLEY	3,459.00	3,458.10	3,703.00	3,702.00
SAND/SHALE	3,703.00	3,702.00	4,139.00	4,137.10
BALLTOWN A	4,139.00	4,137.10	4,253.00	4,250.60
SAND/SHALE	4,253.00	4,250.60	4,338.00	4,335.20
RILEY	4,338.00	4,335.20	4,484.00	4,480.40
SAND/SHALE	4,484.00	4,480.40	5,009.00	5,001.80
BENSON	5,009.00	5,001.80	5,049.00	5,041.50
SAND/SHALE	5,049.00	5,041.50	5,180.00	5,171.60
ALEXANDER	5,180.00	5,171.60	6,211.00	5,995.80
RHINESTREET UPPER	6,211.00	5,995.80	6,362.00	6,038.50
RHINESTREET	6,362.00	6,038.50	7,448.00	6,354.60
SONYEA	7,448.00	6,354.60	7,842.00	6,492.70
MIDDLESEX	7,842.00	6,492.70	8,000.00	6,546.10
GENESSEE	8,000.00	6,546.10	8,196.00	6,608.90
GENESEO	8,196.00	6,608.90	8,338.00	6,654.60
TULLY	8,338.00	6,654.60	8,414.00	6,672.20
HAMILTON	8,414.00	6,672.20	8,530.00	6,693.60
MARCELLUS	8,530.00	6,693.60		

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PHOENIX
TECHNOLOGY SERVICES

EQT Production - Marcellus

Doddridge County, WV Grid
Doddridge County 513155
Well #513155

Main Wellbore

Design: 513155 AS Drilled

Standard Survey Report

28 April, 2015

EQT
Where energy meets innovation.

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PHOENIX TECHNOLOGY SERVICES 17-06504

PHX
Survey Report

EQT Where energy meets innovation.

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513155
Company:	EQT Production - Marcellus	**TVD Reference:**	KB@23 @ 1275.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB@23 @ 1275.0usft
Site:	Doddridge County 513155	**North Reference:**	Grid
Well:	Well #513155	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513155 AS Drilled		

Project Doddridge County, WV Grid

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia North 4701		Using geodetic scale factor

Site Doddridge County 513155

Site Position:		**Northing:**	260,322.00 usft	**Latitude:**	39.21
From:	Map	**Easting:**	1,642,326.60 usft	**Longitude:**	-80.76
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.81 °

Well Well #513155

Well Position	**+N/-S**	0.0 usft	**Northing:**	260,322.00 usft	**Latitude:**	39° 12' 28.219 N
	+E/-W	0.0 usft	**Easting:**	1,642,326.60 usft	**Longitude:**	80° 45' 44.094 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	1,252.0 usft

Wellbore Main Wellbore

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	4/6/2015	-7.78	66.68	52,241

Design 513155 AS Drilled

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	306.82

Survey Program Date 4/28/2015

From ()	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	5,288.0	513155 Gyrodata Gyros (Main Wellbore)	GYD_DP_MS	Gyrodata gyro-compassing and drop
0.00	12,885.0	513155 PHX MWD Surveys (Main Wellbor	PHX+MWD+HDGM	PHX+OWSG MWD + HDGM

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	-1,275.0	0.0	0.0	0.0	0.00	0.00	0.00
23.0	0.00	0.00	23.0	-1,252.0	0.0	0.0	0.0	0.00	0.00	0.00
123.0	0.29	243.85	123.0	-1,152.0	-0.1	-0.2	0.1	0.29	0.29	0.00
223.0	0.21	253.74	223.0	-1,052.0	-0.3	-0.6	0.3	0.09	-0.08	9.89
323.0	0.24	287.49	323.0	-952.0	-0.3	-1.0	0.6	0.13	0.03	33.75
423.0	0.18	275.94	423.0	-852.0	-0.2	-1.4	1.0	0.07	-0.06	-11.55
523.0	0.23	277.22	523.0	-752.0	-0.1	-1.7	1.3	0.05	0.05	1.28
623.0	0.20	277.01	623.0	-652.0	-0.1	-2.1	1.6	0.03	-0.03	-0.21

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Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513155
Company:	EQT Production - Marcellus	**TVD Reference:**	KB@23 @ 1275.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB@23 @ 1275.0usft
Site:	Doddridge County 513155	**North Reference:**	Grid
Well:	Well #513155	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513155 AS Drilled		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
723.0	0.25	279.63	723.0	-552.0	0.0	-2.5	2.0	0.05	0.05	2.62
823.0	0.28	285.69	823.0	-452.0	0.1	-2.9	2.4	0.04	0.03	6.06
923.0	0.37	294.38	923.0	-352.0	0.3	-3.5	2.9	0.10	0.09	8.69
1,023.0	0.54	282.92	1,023.0	-252.0	0.5	-4.2	3.7	0.19	0.17	-11.46
1,123.0	0.67	291.20	1,123.0	-152.0	0.8	-5.2	4.7	0.16	0.13	8.28
1,223.0	0.97	308.13	1,223.0	-52.0	1.6	-6.4	6.1	0.38	0.30	16.93
1,323.0	1.19	302.11	1,323.0	48.0	2.6	-8.0	8.0	0.25	0.22	-6.02
1,423.0	1.27	300.62	1,422.9	147.9	3.7	-9.8	10.1	0.09	0.08	-1.49
1,523.0	1.17	299.60	1,522.9	247.9	4.8	-11.6	12.2	0.10	-0.10	-1.02
1,623.0	1.02	296.15	1,622.9	347.9	5.7	-13.3	14.1	0.16	-0.15	-3.45
1,723.0	1.18	293.23	1,722.9	447.9	6.5	-15.1	16.0	0.17	0.16	-2.92
1,823.0	1.49	287.93	1,822.8	547.8	7.3	-17.3	18.2	0.33	0.31	-5.30
1,923.0	1.43	291.42	1,922.8	647.8	8.2	-19.7	20.6	0.11	-0.06	3.49
2,023.0	1.50	294.67	2,022.8	747.8	9.2	-22.0	23.1	0.11	0.07	3.25
2,123.0	1.51	294.72	2,122.7	847.7	10.3	-24.4	25.7	0.01	0.01	0.05
2,223.0	1.49	296.67	2,222.7	947.7	11.4	-26.8	28.3	0.05	-0.02	1.95
2,323.0	1.49	300.15	2,322.7	1,047.7	12.6	-29.0	30.8	0.09	0.00	3.48
2,423.0	1.66	302.63	2,422.6	1,147.6	14.1	-31.4	33.6	0.18	0.17	2.48
2,523.0	1.54	304.77	2,522.6	1,247.6	15.6	-33.7	36.3	0.13	-0.12	2.14
2,623.0	1.66	305.48	2,622.6	1,347.6	17.2	-36.0	39.1	0.12	0.12	0.71
2,723.0	1.70	309.02	2,722.5	1,447.5	19.0	-38.3	42.1	0.11	0.04	3.54
2,823.0	1.71	304.43	2,822.5	1,547.5	20.8	-40.7	45.0	0.14	0.01	-4.59
2,923.0	1.76	310.12	2,922.4	1,647.4	22.6	-43.1	48.1	0.18	0.05	5.69
3,023.0	1.87	308.62	3,022.4	1,747.4	24.6	-45.6	51.2	0.12	0.11	-1.50
3,123.0	1.93	308.41	3,122.3	1,847.3	26.7	-48.2	54.5	0.06	0.06	-0.21
3,223.0	1.96	307.52	3,222.3	1,947.3	28.8	-50.8	57.9	0.04	0.03	-0.89
3,323.0	2.13	307.03	3,322.2	2,047.2	30.9	-53.7	61.5	0.17	0.17	-0.49
3,423.0	1.97	307.41	3,422.1	2,147.1	33.1	-56.5	65.1	0.16	-0.16	0.38
3,523.0	2.05	309.81	3,522.1	2,247.1	35.3	-59.3	68.6	0.12	0.08	2.40
3,623.0	2.03	313.95	3,622.0	2,347.0	37.7	-61.9	72.1	0.15	-0.02	4.14
3,723.0	1.97	314.53	3,722.0	2,447.0	40.1	-64.4	75.6	0.06	-0.06	0.58
3,823.0	2.41	312.00	3,821.9	2,546.9	42.7	-67.2	79.4	0.45	0.44	-2.53
3,923.0	3.50	304.70	3,921.7	2,646.7	45.9	-71.3	84.5	1.15	1.09	-7.30
4,023.0	4.52	300.66	4,021.5	2,746.5	49.6	-77.2	91.5	1.06	1.02	-4.04
4,123.0	5.06	302.06	4,121.2	2,846.2	54.0	-84.3	99.8	0.55	0.54	1.40
4,223.0	5.40	301.56	4,220.7	2,945.7	58.8	-92.0	108.9	0.34	0.34	-0.50
4,323.0	5.56	302.91	4,320.3	3,045.3	63.8	-100.1	118.4	0.21	0.16	1.35
4,423.0	6.01	304.20	4,419.8	3,144.8	69.4	-108.5	128.5	0.47	0.45	1.29
4,523.0	6.44	306.80	4,519.2	3,244.2	75.7	-117.3	139.3	0.51	0.43	2.60
4,623.0	6.70	311.16	4,618.5	3,343.5	82.9	-126.2	150.7	0.56	0.26	4.36
4,723.0	6.93	313.55	4,717.8	3,442.8	90.9	-135.0	162.5	0.37	0.23	2.39
4,823.0	6.92	317.49	4,817.1	3,542.1	99.5	-143.4	174.5	0.48	-0.01	3.94

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Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513155
Company:	EQT Production - Marcellus	**TVD Reference:**	KB@23 @ 1275.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB@23 @ 1275.0usft
Site:	Doddridge County 513155	**North Reference:**	Grid
Well:	Well #513155	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513155 AS Drilled		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,923.0	6.87	319.81	4,916.4	3,641.4	108.5	-151.4	186.2	0.28	-0.05	2.32
5,023.0	6.73	322.25	5,015.7	3,740.7	117.7	-158.8	197.7	0.32	-0.14	2.44
5,123.0	6.51	325.49	5,115.0	3,840.0	127.0	-165.6	208.7	0.43	-0.22	3.24
5,223.0	6.52	327.14	5,214.3	3,939.3	136.5	-171.9	219.4	0.19	0.01	1.65
Gyro Tie In=5288' MD										
5,288.0	6.57	331.05	5,278.9	4,003.9	142.8	-175.7	226.2	0.69	0.08	6.02
KOP=5318' MD										
5,318.0	6.40	330.70	5,308.7	4,033.7	145.8	-177.3	229.3	0.58	-0.57	-1.17
5,350.0	4.50	331.50	5,340.6	4,065.6	148.4	-178.8	232.1	5.94	-5.94	2.50
5,381.0	1.30	324.00	5,371.5	4,096.5	149.8	-179.6	233.6	10.37	-10.32	-24.19
5,413.0	1.80	165.40	5,403.5	4,128.5	149.6	-179.7	233.5	9.52	1.56	-495.63
5,444.0	5.20	160.60	5,434.5	4,159.5	147.8	-179.1	232.0	11.00	10.97	-15.48
5,476.0	8.00	157.00	5,466.3	4,191.3	144.4	-177.8	228.8	8.84	8.75	-11.25
5,507.0	10.20	163.60	5,496.9	4,221.9	139.8	-176.1	224.8	7.84	7.10	21.29
5,539.0	12.60	169.60	5,528.2	4,253.2	133.6	-174.7	219.9	8.36	7.50	18.75
5,570.0	15.10	173.60	5,558.3	4,283.3	126.3	-173.6	214.7	8.63	8.06	12.90
5,601.0	17.70	177.10	5,588.1	4,313.1	117.6	-173.0	208.9	8.97	8.39	11.29
5,633.0	20.30	179.70	5,618.3	4,343.3	107.2	-172.7	202.4	8.54	8.13	8.13
5,664.0	22.20	182.00	5,647.2	4,372.2	95.9	-172.9	195.9	6.69	6.13	7.42
5,696.0	24.40	185.10	5,676.6	4,401.6	83.3	-173.7	188.9	7.87	6.88	9.69
5,727.0	27.00	187.40	5,704.5	4,429.5	69.9	-175.1	182.1	8.98	8.39	7.42
5,759.0	29.40	188.80	5,732.7	4,457.7	55.0	-177.3	174.8	7.78	7.50	4.38
5,790.0	32.20	190.30	5,759.4	4,484.4	39.3	-179.9	167.6	9.37	9.03	4.84
5,821.0	35.10	191.70	5,785.2	4,510.2	22.5	-183.2	160.1	9.68	9.35	4.52
5,853.0	37.80	192.50	5,810.9	4,535.9	3.9	-187.2	152.2	8.57	8.44	2.50
5,884.0	41.10	193.70	5,834.8	4,559.8	-15.3	-191.7	144.2	10.93	10.65	3.87
5,915.0	44.50	194.70	5,857.6	4,582.6	-35.7	-196.8	136.1	11.18	10.97	3.23
5,947.0	47.70	195.30	5,879.8	4,604.8	-58.0	-202.8	127.6	10.09	10.00	1.88
5,978.0	52.10	195.20	5,899.7	4,624.7	-80.9	-209.0	118.9	14.20	14.19	-0.32
6,010.0	56.40	194.50	5,918.4	4,643.4	-106.0	-215.7	109.1	13.55	13.44	-2.19
6,041.0	60.60	194.00	5,934.6	4,659.6	-131.6	-222.2	99.0	13.62	13.55	-1.61
6,073.0	64.50	194.10	5,949.4	4,674.4	-159.1	-229.1	88.0	12.19	12.19	0.31
6,105.0	67.90	194.60	5,962.3	4,687.3	-187.5	-236.3	76.8	10.72	10.63	1.56
6,136.0	70.70	195.50	5,973.2	4,698.2	-215.5	-243.9	66.1	9.43	9.03	2.90
6,167.0	72.80	197.70	5,982.9	4,707.9	-243.7	-252.3	55.9	9.56	6.77	7.10
6,230.0	73.40	198.90	6,001.3	4,726.3	-300.9	-271.2	36.7	2.06	0.95	1.90
6,324.0	73.70	199.50	6,027.9	4,752.9	-386.1	-300.9	9.5	0.69	0.32	0.64
6,419.0	74.10	197.80	6,054.2	4,779.2	-472.5	-330.0	-19.0	1.77	0.42	-1.79
6,514.0	75.00	194.30	6,079.5	4,804.5	-560.5	-355.3	-51.5	3.68	0.95	-3.68
6,609.0	75.90	194.00	6,103.4	4,828.4	-649.7	-377.8	-86.9	1.00	0.95	-0.32
6,703.0	73.10	195.20	6,128.5	4,853.5	-737.3	-400.6	-121.2	3.22	-2.98	1.28
6,798.0	70.90	195.80	6,157.9	4,882.9	-824.4	-424.8	-154.0	2.39	-2.32	0.63
6,893.0	70.80	197.20	6,189.0	4,914.0	-910.4	-450.3	-185.2	1.40	-0.11	1.47

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513155
Company:	EQT Production - Marcellus	**TVD Reference:**	KB@23 @ 1275.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB@23 @ 1275.0usft
Site:	Doddridge County 513155	**North Reference:**	Grid
Well:	Well #513155	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513155 AS Drilled		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,987.0	72.00	198.80	6,219.0	4,944.0	-995.2	-477.8	-213.9	2.06	1.28	1.70
7,081.0	72.40	197.40	6,247.8	4,972.8	-1,080.2	-505.6	-242.7	1.48	0.43	-1.49
7,175.0	73.70	198.90	6,275.2	5,000.2	-1,165.7	-533.6	-271.5	2.06	1.38	1.60
7,269.0	74.50	197.60	6,300.9	5,025.9	-1,251.5	-561.9	-300.3	1.58	0.85	-1.38
7,301.0	75.00	196.90	6,309.3	5,034.3	-1,281.0	-571.1	-310.6	2.63	1.56	-2.19
7,332.0	73.50	198.60	6,317.8	5,042.8	-1,309.4	-580.2	-320.3	7.16	-4.84	5.48
7,363.0	72.20	201.80	6,326.9	5,051.9	-1,337.2	-590.4	-328.8	10.72	-4.19	10.32
7,394.0	71.20	205.60	6,336.6	5,061.6	-1,364.1	-602.2	-335.5	12.08	-3.23	12.26
7,426.0	70.50	208.90	6,347.1	5,072.1	-1,391.0	-616.1	-340.5	9.98	-2.19	10.31
7,458.0	69.80	211.70	6,358.0	5,083.0	-1,417.0	-631.2	-343.9	8.52	-2.19	8.75
7,489.0	68.80	215.00	6,369.0	5,094.0	-1,441.2	-647.2	-345.7	10.47	-3.23	10.65
7,521.0	68.00	217.90	6,380.7	5,105.7	-1,465.2	-664.9	-345.9	8.79	-2.50	9.06
7,552.0	67.70	220.80	6,392.4	5,117.4	-1,487.4	-683.1	-344.6	8.72	-0.97	9.35
7,583.0	67.70	223.90	6,404.2	5,129.2	-1,508.5	-702.4	-341.9	9.25	0.00	10.00
7,613.0	68.20	227.80	6,415.5	5,140.5	-1,527.9	-722.3	-337.5	12.16	1.67	13.00
7,645.0	69.20	231.00	6,427.1	5,152.1	-1,547.3	-745.0	-331.0	9.83	3.13	10.00
7,676.0	70.60	236.00	6,437.8	5,162.8	-1,564.6	-768.4	-322.7	15.80	4.52	16.13
7,708.0	71.10	240.30	6,448.3	5,173.3	-1,580.6	-794.0	-311.7	12.79	1.56	13.44
7,739.0	70.60	244.10	6,458.4	5,183.4	-1,594.2	-819.9	-299.1	11.69	-1.61	12.26
7,771.0	71.00	247.50	6,469.0	5,194.0	-1,606.6	-847.5	-284.5	10.11	1.25	10.63
7,802.0	70.60	250.90	6,479.1	5,204.1	-1,617.0	-874.8	-268.8	10.44	-1.29	10.97
7,834.0	70.00	254.20	6,489.9	5,214.9	-1,626.0	-903.6	-251.2	9.89	-1.88	10.31
7,865.0	70.50	257.20	6,500.4	5,225.4	-1,633.2	-931.8	-232.9	9.25	1.61	9.68
7,896.0	70.80	261.50	6,510.7	5,235.7	-1,638.6	-960.6	-213.1	13.12	0.97	13.87
7,928.0	70.10	262.90	6,521.4	5,246.4	-1,642.7	-990.5	-191.7	4.67	-2.19	4.38
7,960.0	69.80	266.20	6,532.4	5,257.4	-1,645.6	-1,020.4	-169.4	9.73	-0.94	10.31
7,991.0	70.10	269.60	6,543.0	5,268.0	-1,646.7	-1,049.5	-146.8	10.35	0.97	10.97
8,023.0	70.50	272.80	6,553.8	5,278.8	-1,646.0	-1,079.6	-122.3	9.50	1.25	10.00
8,055.0	70.90	276.00	6,564.4	5,289.4	-1,643.7	-1,109.7	-96.8	9.52	1.25	10.00
8,086.0	71.40	278.90	6,574.4	5,299.4	-1,639.9	-1,138.8	-71.3	9.00	1.61	9.35
8,118.0	71.80	281.90	6,584.5	5,309.5	-1,634.4	-1,168.6	-44.1	8.98	1.25	9.38
8,149.0	71.70	284.50	6,594.2	5,319.2	-1,627.7	-1,197.3	-17.1	7.97	-0.32	8.39
8,181.0	71.80	287.60	6,604.2	5,329.2	-1,619.3	-1,226.5	11.3	9.21	0.31	9.69
8,212.0	71.70	290.50	6,613.9	5,338.9	-1,609.7	-1,254.3	39.4	8.89	-0.32	9.35
8,244.0	70.70	293.80	6,624.3	5,349.3	-1,598.3	-1,282.4	68.6	10.25	-3.13	10.31
8,275.0	70.30	297.20	6,634.6	5,359.6	-1,585.7	-1,308.8	97.3	10.42	-1.29	10.97
8,307.0	71.00	300.60	6,645.2	5,370.2	-1,571.1	-1,335.2	127.2	10.26	2.19	10.63
8,338.0	73.70	303.70	6,654.6	5,379.6	-1,555.4	-1,360.2	156.6	12.91	8.71	10.00
8,369.0	76.60	306.30	6,662.6	5,387.6	-1,538.2	-1,384.7	186.6	12.38	9.35	8.39
8,401.0	78.10	309.00	6,669.6	5,394.6	-1,519.1	-1,409.4	217.8	9.47	4.69	8.44
8,432.0	78.90	312.90	6,675.7	5,400.7	-1,499.2	-1,432.4	248.1	12.60	2.58	12.58
8,464.0	79.70	316.30	6,681.7	5,406.7	-1,477.1	-1,454.8	279.2	10.74	2.50	10.63
8,495.0	79.80	319.30	6,687.2	5,412.2	-1,454.5	-1,475.2	309.2	9.53	0.32	9.68

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Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513155
Company:	EQT Production - Marcellus	**TVD Reference:**	KB@23 @ 1275.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB@23 @ 1275.0usft
Site:	Doddridge County 513155	**North Reference:**	Grid
Well:	Well #513155	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513155 AS Drilled		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,526.0	79.30	322.90	6,692.8	5,417.8	-1,430.8	-1,494.4	338.7	11.53	-1.61	11.61
8,558.0	79.80	326.10	6,698.6	5,423.6	-1,405.2	-1,512.7	368.7	9.96	1.56	10.00
8,589.0	82.00	328.10	6,703.5	5,428.5	-1,379.5	-1,529.3	397.4	9.54	7.10	6.45
8,621.0	85.10	330.40	6,707.1	5,432.1	-1,352.2	-1,545.5	426.8	12.04	9.69	7.19
8,652.0	88.50	332.30	6,708.9	5,433.9	-1,325.0	-1,560.4	454.9	12.56	10.97	6.13
LP/Deepest Point of Well=8684' MD/ 6709' TVD										
8,684.0	89.70	333.60	6,709.4	5,434.4	-1,296.5	-1,574.9	483.7	5.53	3.75	4.06
8,778.0	91.30	334.10	6,708.5	5,433.5	-1,212.2	-1,616.3	567.4	1.78	1.70	0.53
8,872.0	90.50	334.50	6,707.1	5,432.1	-1,127.5	-1,657.1	650.8	0.95	-0.85	0.43
8,967.0	92.00	334.90	6,705.0	5,430.0	-1,041.6	-1,697.7	734.7	1.63	1.58	0.42
9,062.0	90.70	334.00	6,702.8	5,427.8	-955.9	-1,738.7	818.9	1.66	-1.37	-0.95
9,156.0	92.00	333.30	6,700.5	5,425.5	-871.7	-1,780.4	902.7	1.57	1.38	-0.74
9,251.0	89.90	334.10	6,699.0	5,424.0	-786.6	-1,822.4	987.5	2.37	-2.21	0.84
9,346.0	90.50	334.80	6,698.6	5,423.6	-700.9	-1,863.4	1,071.6	0.97	0.63	0.74
9,440.0	92.00	335.50	6,696.6	5,421.6	-615.6	-1,902.9	1,154.3	1.76	1.60	0.74
9,534.0	90.00	334.90	6,694.9	5,419.9	-530.3	-1,942.3	1,237.0	2.22	-2.13	-0.64
9,629.0	92.60	337.50	6,692.8	5,417.8	-443.4	-1,980.7	1,319.8	3.87	2.74	2.74
9,724.0	91.00	335.80	6,689.8	5,414.8	-356.2	-2,018.3	1,402.1	2.46	-1.68	-1.79
9,818.0	92.00	336.70	6,687.3	5,412.3	-270.2	-2,056.1	1,484.0	1.43	1.06	0.96
9,913.0	89.20	335.50	6,686.4	5,411.4	-183.4	-2,094.6	1,566.8	3.21	-2.95	-1.26
10,007.0	89.00	334.90	6,687.8	5,412.8	-98.0	-2,134.0	1,649.5	0.67	-0.21	-0.64
10,102.0	90.20	334.50	6,688.5	5,413.5	-12.2	-2,174.6	1,733.5	1.33	1.26	-0.42
10,196.0	91.00	333.90	6,687.5	5,412.5	72.5	-2,215.5	1,817.0	1.06	0.85	-0.64
10,291.0	91.70	334.70	6,685.3	5,410.3	158.0	-2,256.7	1,901.2	1.12	0.74	0.84
10,385.0	92.70	333.30	6,681.7	5,406.7	242.5	-2,297.9	1,984.8	1.83	1.06	-1.49
10,480.0	89.00	334.10	6,680.3	5,405.3	327.6	-2,340.0	2,069.5	3.98	-3.89	0.84
10,574.0	89.00	333.50	6,681.9	5,406.9	411.9	-2,381.5	2,153.3	0.64	0.00	-0.64
10,669.0	91.40	335.50	6,681.6	5,406.6	497.7	-2,422.4	2,237.4	3.29	2.53	2.11
10,763.0	92.60	336.20	6,678.3	5,403.3	583.4	-2,460.8	2,319.5	1.48	1.28	0.74
10,857.0	92.80	336.30	6,673.9	5,398.9	669.3	-2,498.6	2,401.3	0.24	0.21	0.11
10,952.0	92.40	335.50	6,669.5	5,394.5	756.0	-2,537.4	2,484.2	0.94	-0.42	-0.84
11,046.0	90.80	334.70	6,666.9	5,391.9	841.2	-2,576.9	2,567.0	1.90	-1.70	-0.85
11,140.0	90.40	333.60	6,665.9	5,390.9	925.8	-2,617.9	2,650.5	1.25	-0.43	-1.17
11,235.0	89.40	332.90	6,666.1	5,391.1	1,010.6	-2,660.7	2,735.6	1.28	-1.05	-0.74
11,329.0	91.70	333.30	6,665.2	5,390.2	1,094.4	-2,703.2	2,819.8	2.48	2.45	0.43
11,424.0	90.80	333.30	6,663.1	5,388.1	1,179.3	-2,745.9	2,904.8	0.95	-0.95	0.00
11,518.0	92.40	336.20	6,660.5	5,385.5	1,264.2	-2,786.0	2,987.9	3.52	1.70	3.09
11,612.0	92.30	335.40	6,656.6	5,381.6	1,349.9	-2,824.5	3,070.0	0.86	-0.11	-0.85
11,707.0	91.80	333.70	6,653.2	5,378.2	1,435.6	-2,865.2	3,154.0	1.86	-0.53	-1.79
11,801.0	90.30	327.70	6,651.5	5,376.5	1,517.6	-2,911.2	3,239.9	6.58	-1.60	-6.38
11,895.0	91.70	329.70	6,649.9	5,374.9	1,597.9	-2,960.0	3,327.2	2.60	1.49	2.13
11,990.0	93.00	332.50	6,646.0	5,371.0	1,680.9	-3,005.9	3,413.7	3.25	1.37	2.95

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PHOENIX TECHNOLOGY SERVICES 17-06504

PHX
Survey Report

EQT Where energy meets innovation.

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513155
Company:	EQT Production - Marcellus	**TVD Reference:**	KB@23 @ 1275.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB@23 @ 1275.0usft
Site:	Doddridge County 513155	**North Reference:**	Grid
Well:	Well #513155	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	513155 AS Drilled		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,084.0	91.90	337.80	6,642.0	5,367.0	1,766.1	-3,045.4	3,496.3	5.75	-1.17	5.64
12,178.0	91.70	336.80	6,639.0	5,364.0	1,852.8	-3,081.6	3,577.3	1.08	-0.21	-1.06
12,273.0	89.90	337.70	6,637.7	5,362.7	1,940.4	-3,118.4	3,659.2	2.12	-1.89	0.95
12,367.0	89.50	337.00	6,638.2	5,363.2	2,027.1	-3,154.6	3,740.2	0.86	-0.43	-0.74
12,461.0	89.70	336.00	6,638.8	5,363.8	2,113.3	-3,192.0	3,821.8	1.08	0.21	-1.06
12,555.0	90.50	336.40	6,638.7	5,363.7	2,199.4	-3,230.0	3,903.7	0.95	0.85	0.43
12,650.0	87.70	337.70	6,640.2	5,365.2	2,286.8	-3,267.0	3,985.8	3.25	-2.95	1.37
12,745.0	88.40	336.80	6,643.4	5,368.4	2,374.4	-3,303.7	4,067.7	1.20	0.74	-0.95
Final Survey=12832' MD/ 6645' TVD										
12,832.0	89.20	336.80	6,645.2	5,370.2	2,454.3	-3,338.0	4,143.0	0.92	0.92	0.00
Projection to TD=12885' MD/ 6646' TVD										
12,885.0	89.20	336.80	6,646.0	5,371.0	2,503.0	-3,358.9	4,188.9	0.00	0.00	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
5,288.0	5,278.9	142.8	-175.7	Gyro Tie In=5288' MD
5,318.0	5,308.7	145.8	-177.3	KOP=5318' MD
8,684.0	6,709.4	-1,296.5	-1,574.9	LP/Deepest Point of Well=8684' MD/ 6709' TVD
12,832.0	6,645.2	2,454.3	-3,338.0	Final Survey=12832' MD/ 6645' TVD
12,885.0	6,646.0	2,503.0	-3,358.9	Projection to TD=12885' MD/ 6646' TVD

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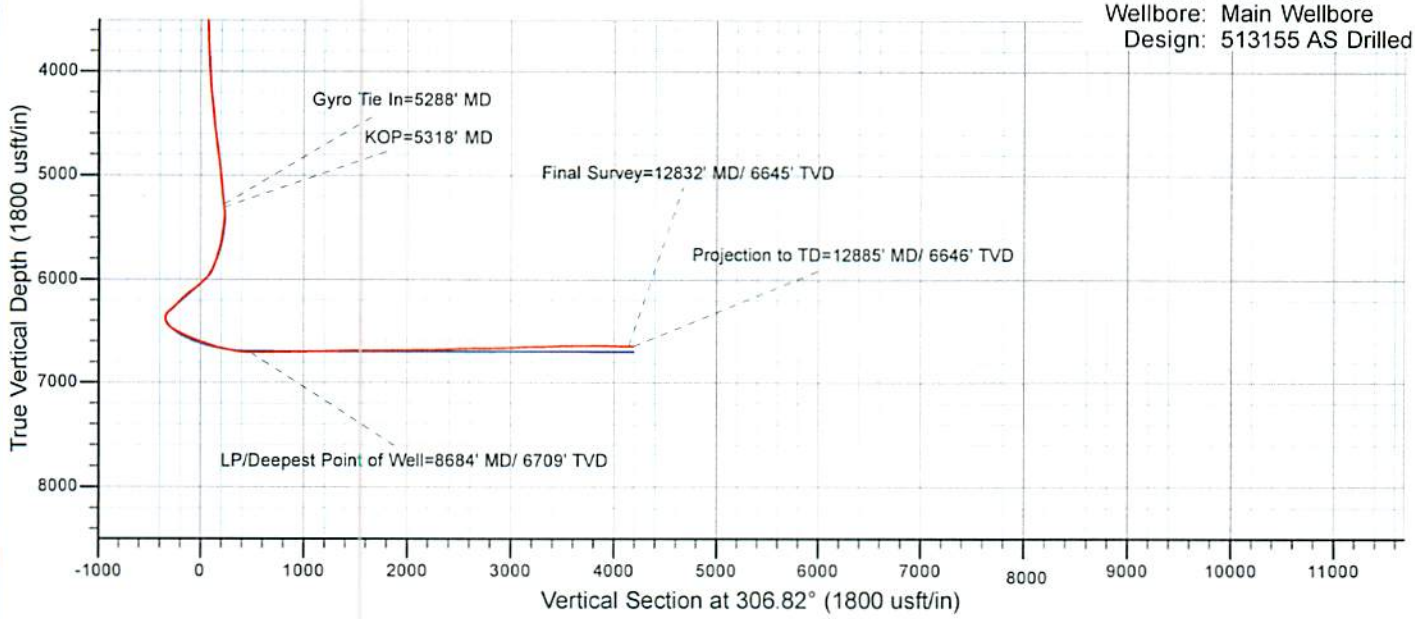
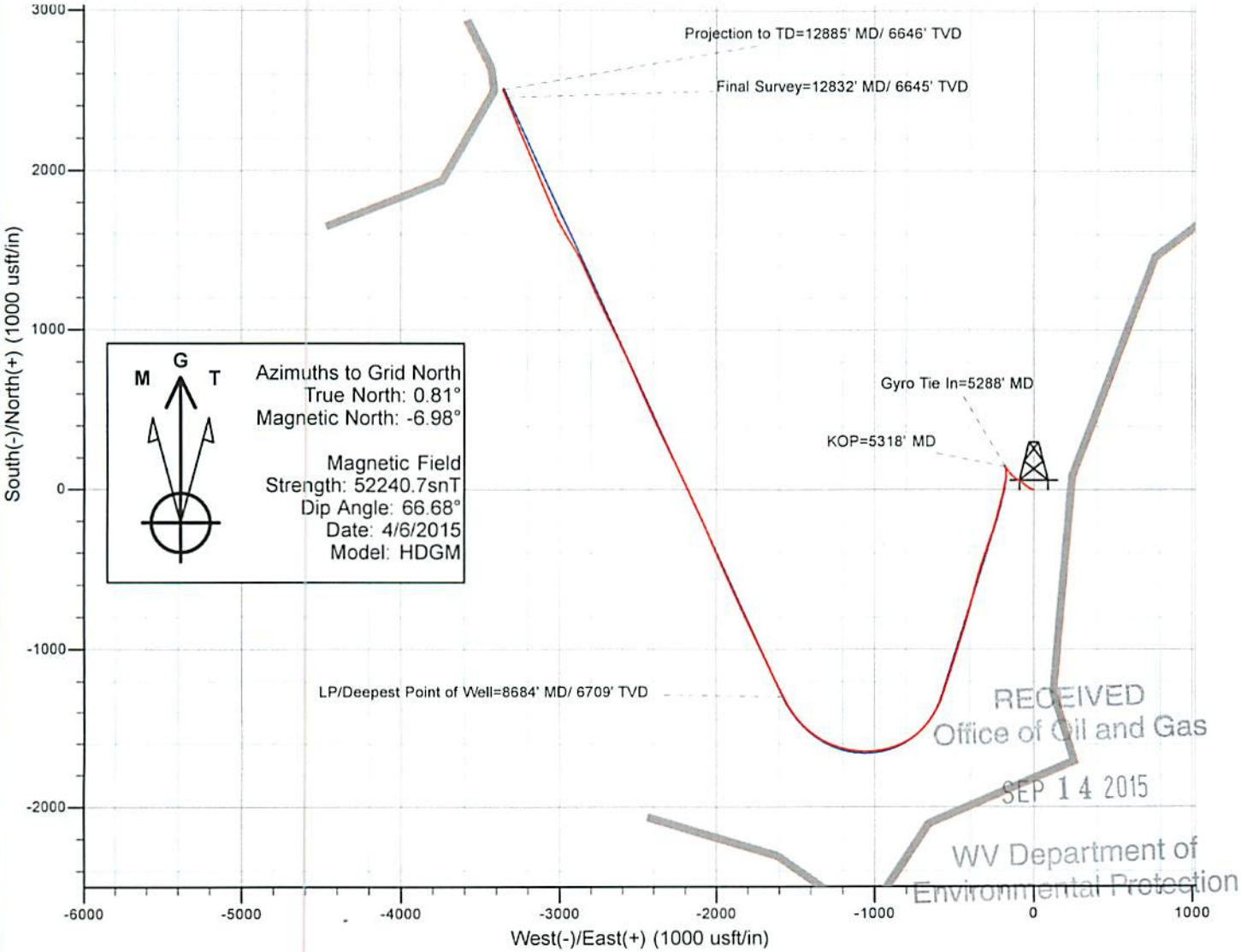
TECHNOLOGY SERVICES

EQT Production - Marcellus

Project: Doddridge County, WV Grid
Site: Doddridge County 513155
Well: Well #513155
Wellbore: Main Wellbore
Design: 513155 AS Drilled





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513155 - 47-017-06504-0000- Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	5/20/2015	12,879.00	12,881.00	10	MARCELLUS
1	6/12/2015	12,727.00	12,849.00	42	MARCELLUS
2	6/12/2015	12,547.00	12,669.00	42	MARCELLUS
2.1	6/13/2015	12,512.00	12,534.00	28	MARCELLUS
3	6/13/2015	12,332.00	12,454.00	42	MARCELLUS
4	6/13/2015	12,152.00	12,274.00	42	MARCELLUS
5	6/14/2015	11,972.00	12,094.00	42	MARCELLUS
6	6/14/2015	11,792.00	11,912.00	42	MARCELLUS
7	6/14/2015	11,612.00	11,734.00	42	MARCELLUS
8	6/14/2015	11,432.00	11,554.00	42	MARCELLUS
9	6/14/2015	11,252.00	11,374.00	42	MARCELLUS
10	6/15/2015	11,072.00	11,194.00	42	MARCELLUS
11	6/15/2015	10,892.00	11,014.00	42	MARCELLUS
12	6/15/2015	10,712.00	10,834.00	42	MARCELLUS
13	6/15/2015	10,532.00	10,654.00	42	MARCELLUS
14	6/15/2015	10,352.00	10,474.00	42	MARCELLUS
15	6/16/2015	10,172.00	10,290.00	42	MARCELLUS
16	6/16/2015	9,992.00	10,114.00	42	MARCELLUS
17	6/16/2015	9,812.00	9,934.00	42	MARCELLUS
18	6/16/2015	9,632.00	9,754.00	42	MARCELLUS
19	6/16/2015	9,452.00	9,574.00	42	MARCELLUS
20	6/16/2015	9,272.00	9,392.00	42	MARCELLUS
20.1	6/17/2015	9,228.00	9,250.00	28	MARCELLUS
21	6/17/2015	9,046.00	9,168.00	42	MARCELLUS
21.02	6/17/2015	9,036.00	9,057.00	28	MARCELLUS
22	6/18/2015	8,866.00	8,988.00	42	MARCELLUS
23	6/18/2015	8,686.00	8,808.00	42	MARCELLUS
24	6/18/2015	8,506.00	8,611.00	42	MARCELLUS
25	6/18/2015	8,326.00	8,450.00	42	MARCELLUS

17-06504

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513155 - 47-017-06504-0000- Stimulated Stages

Stage Number	Stimulation Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
Initiation Sleeve	6/12/2015	12.6	7,354.00	8,913.00	4,306.00	0	721	0
1	6/13/2015	92	7,729.00	8,606.00	4,374.00	301,089	7548	0
2	6/13/2015	92.9	8,077.00	9,080.00	4,277.00	300,999	10230	0
3	6/13/2015	97.7	7,639.00	8,871.00	4,373.00	299,710	7269	0
4	6/13/2015	98.2	7,687.00	7,984.00	5,176.00	301,020	7260	0
5	6/14/2015	98.9	7,708.00	8,470.00	4,989.00	360,688	8526	0
6	6/14/2015	100.1	7,814.00	9,093.00	5,001.00	362,073	8347	0
7	6/14/2015	99.3	8,083.00	8,964.00	5,195.00	360,599	8209	0
8	6/14/2015	98.7	7,826.00	8,974.00	4,812.00	361,874	8268	0
9	6/14/2015	100.3	7,761.00	8,753.00	5,026.00	362,290	8412	0
10	6/15/2015	99.6	7,735.00	8,029.00	4,725.00	359,418	8423	0
11	6/15/2015	100.2	7,839.00	8,746.00	5,130.00	360,381	7847	0
12	6/15/2015	100.4	7,724.00	8,472.00	5,008.00	360,399	7889	0
13	6/15/2015	100.7	7,929.00	8,260.00	4,385.00	359,138	8228	0
14	6/15/2015	100.3	7,802.00	8,442.00	4,631.00	359,908	8252	0
15	6/16/2015	100.1	7,790.00	8,628.00	5,029.00	359,823	8308	0
16	6/16/2015	100	7,987.00	8,846.00	5,118.00	356,499	7917	0
17	6/16/2015	99.2	7,922.00	8,890.00	5,321.00	358,332	7910	0
18	6/16/2015	98.9	7,650.00	7,905.00	5,289.00	358,768	7949	0
19	6/16/2015	99.3	7,546.00	8,069.00	5,352.00	360,770	8,215	0
20	6/17/2015	92.10	7,761.00	9,523.00	8,801	361,320	12,689	0
21	6/17/2015	83.60	7,921.00	9,586.00	5,127	3,557	3,218	0
21.01	6/17/2015	85.10	7,840.00	9,587.00	4,712	176,074	5,197	0
21.02	6/17/2015	0.00	0.00	6,695.00	5,109	0	2,212	0
22	6/18/2015	96.20	7,720.00	7,904.00	5,252	358,055	7,780	0
23	6/18/2015	99.40	7,717.00	8,799.00	5,205	358,036	8184	0
24	6/18/2015	98.00	7,838.00	8,340.00	4,253	361,623	7892	0
25	6/19/2015	99.6	7,686.00	8,410.00	3,831.00	360,145	8042	0

17-06504

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/12/2015
Job End Date:	6/19/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06504-00-00
Operator Name:	EQT Production
Well Name and Number:	513155
Longitude:	-80.76224800
Latitude:	39.20783900
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,694
Total Base Water Volume (gal):	8,859,564
Total Base Non Water Volume:	0

FracFocus Chemical Disclosure Registry

GROUNDWATER PROTECTION COUNCIL

INTERSTATE Oil & Gas COMPACT COMMISSION

17-06504

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	FTS International	Carrier/Base Fluid					
			Water	7732-18-5	100.00000	89.20986	None
Sand (Proppant)	FTS International	Proppant					
			Crystalline Silica	14808-60-7	100.00000	10.35601	None
MC MX 437-5	Multi-Chem	Calcium nitrate solution					
			Calcium nitrate	10124-37-5	60.00000	0.05825	None
FRW-900	FTS International	Friction reducer					
			Hydrotreated light distillate	64742-47-8	30.00000	0.02469	None
			Alkyl Alcohol	Proprietary	10.00000	0.00823	None
			Oxyalkylated alcohol A	Proprietary	5.00000	0.00411	None
Hydrochloric Acid (15%)	FTS International	Acidizing					
			Hydrochloric Acid	7647-01-0	15.00000	0.03313	None
HVG-1	FTS International	Gelling agent					
			Petroleum distillate	64742-47-8	55.00000	0.00371	None
			Guar gum	9000-30-0	50.00000	0.00337	None
			Clay	14808-60-7	2.00000	0.00013	None
			Surfactant	68439-51-0	2.00000	0.00013	None
CS-500-SI	FTS International	Scale inhibitor					

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			Ethylene glycol	107-21-1	10.00000	0.00249	None
FE-100L	FTS International	Iron control					
			Citric acid	77-92-9	55.00000	0.00074	None
CI-150	FTS International	Acid Corrosion Inhibitor					
			Organic amine resin salt	Proprietary	30.00000	0.00012	None
			Ethylene glycol	107-21-1	30.00000	0.00012	None
			Isopropanol	67-63-0	30.00000	0.00012	None
			Dimethylformamide	68-12-2	10.00000	0.00004	None
			Quaternary ammonium compound	Proprietary	10.00000	0.00004	None
			Aromatic aldehyde	Proprietary	10.00000	0.00004	None
NE-100	FTS International	Non-emulsifier					
			2-Butoxyethanol	111-76-2	10.00000	0.00003	None
			2-Propanol	67-63-0	10.00000	0.00003	None
			Dodecylbenzenesulfonic acid	27176-87-0	5.00000	0.00002	None
APB-1	FTS International	Breaker					
			Ammonium persulfate	7727-54-0	95.00000	0.00008	None
B-10	FTS International	High pH buffer					
			Potassium carbonate	584-08-7	48.00000	0.00003	None
			Potassium hydroxide	1310-58-3	20.00000	0.00001	None

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

* Total Water Volume sources may include fresh water, produced water, and/or recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.
Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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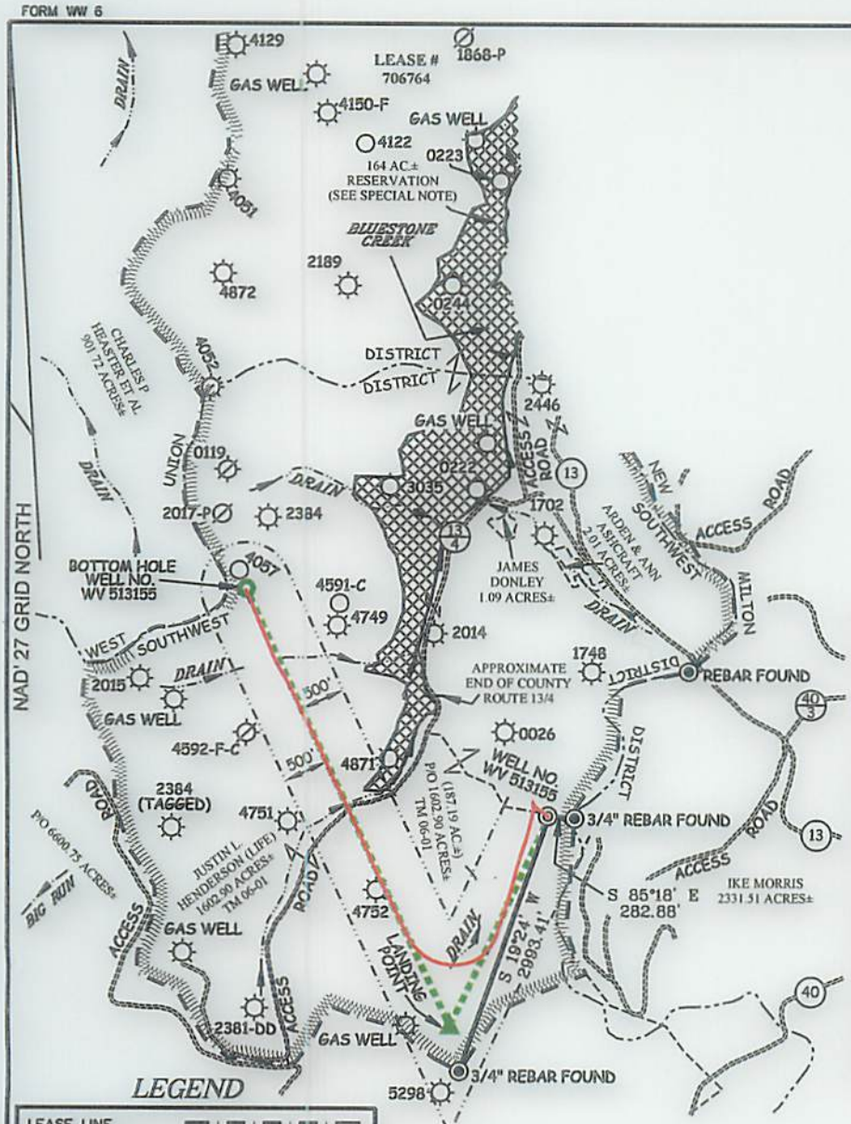

SPECIAL NOTE

THERE IS NO SURVEY OR LEGAL DESCRIPTION DEFINING THE ACTUAL LOCATION OF THE 164 ACRE MEADOWLAND RESERVATION. DUE TO THE PASSAGE OF TIME SINCE THE RESERVATION WAS CREATED IT APPEARS THERE IS NO LIVING PERSON(S) WITH KNOWLEDGE OF ITS TRUE LOCATION. LOCATION OF RESERVATION SHOWN HEREON COMPILED FROM: "A" A MAP TITLED "CARNAGIE NATURAL GAS CO. LEEMAN MAXWELL LEASES, DODDRIDGE COUNTY, WEST VA" "B" PERIMETER OF RESERVATION AS SHOWN BY GLENN TRADER "CARETAKER OF HENDERSONS' PORTION OF MAXWELL LANDS" WHICH WAS LOCATED USING A MAPPING GRADE GPS RECEIVER "C" DETAILS SHOWN ON 1939 USDA AERIAL PHOTOGRAPHY OBTAINED FROM THE WV GEOLOGICAL SURVEY. SLS RECOMMENDS THAT PROPER LEGAL STEPS BE TAKEN TO CONFIRM CONCURRENCE OF ALL APPROPRIATE PARTIES RELATIVE TO THE RESERVATION AS SHOWN HEREON. THIS PLAT IS SUBJECT TO ANY ADDITIONAL INFORMATION (UNDISCOVERED TO DATE) WHICH MAY CHANGE THE LOCATION AND/OR CONFIGURATION OF THE RESERVATION AS SHOWN HEREON.

NOTES ON SURVEY

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
2. AS DRILLED INFORMATION PROVIDED BY EQT.

EQT PRODUCTION COMPANY
LEEMAN MAXWELL LEASE
2,164 ACRES±
WELL NO. WV 513155

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'27 S.P.C.(FT)	N. 260,322.0	E. 1,642,326.6
NAD'27 GEO.	LAT-(N) 39.207839	LONG-(W) 80.762248
NAD'83 UTM (M)	N. 4,339,877.5	E. 520,542.0
LANDING POINT		
NAD'27 S.P.C.(FT)	N. 257,992.4	E. 1,641,230.8
NAD'27 GEO.	LAT-(N) 39.201401	LONG-(W) 80.765999
NAD'83 UTM (M)	N. 4,339,162.2	E. 520,220.0
BOTTOM HOLE		
NAD'27 S.P.C.(FT)	N. 262,832.1	E. 1,638,974.0
NAD'27 GEO.	LAT-(N) 39.214600	LONG-(W) 80.774204
NAD'83 UTM (M)	N. 4,340,625.1	E. 519,507.8

LEGEND

- LEASE LINE
- SURFACE LINE
- PROPOSED LATERAL
- AS DRILLED PATH
- OFFSET LINE
- TIE LINE
- CREEK
- ROAD
- COUNTY ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- PLUGGED WELL
- TAX MAP-PARCEL 00-00

AS DRILLED COORDINATES FOR WELL NO. WV 513155

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'27 S.P.C.(FT)	N. 260,322.0	E. 1,642,326.6
NAD'27 GEO.	LAT-(N) 39.207839	LONG-(W) 80.762248
NAD'83 UTM (M)	N. 4,339,877.5	E. 520,542.0
BOTTOM HOLE		
NAD'27 S.P.C.(FT)	N. 262,824.9	E. 1,638,967.9
NAD'27 GEO.	LAT-(N) 39.214580	LONG-(W) 80.774225
NAD'83 UTM (M)	N. 4,340,622.9	E. 519,506.0

Professional Energy Consultants
A DIVISION OF SMITH LAND SURVEYING, INC.
SLS SURVEYORS ENGINEERS ENVIRONMENTAL PROJECT MGMT.
(304) 462-5634 WWW.SLSSURVEYS.COM

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. 2288 Earl N. Thompson

EARL N. THOMPSON LICENSED No. 2288 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE JANUARY 06 , 20 14

REVISED 3/17/14, 07/25/14 & 05/05/15

OPERATORS WELL NO. WV 513155

API WELL NO. 47 — 017 — 06504H
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 7889AD513155

HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

WELL TYPE: OIL ____ GAS X LIQUID INJECTION ____ WASTE DISPOSAL ____ IF "GAS" PRODUCTION X STORAGE ____ DEEP ____ SHALLOW X

LOCATION :

ELEVATION 1,274'(GROUND) 1,252'(PROPOSED) WATERSHED BLUESTONE CREEK

DISTRICT SOUTHWEST COUNTY DODDRIDGE QUADRANGLE OXFORD 7.5'

SURFACE OWNER JUSTIN L. HENDERSON (LIFE) ACREAGE 187.19 OF 1,602.90±

ROYALTY OWNER LEEMAN MAXWELL HRS ACREAGE 2,164±

PROPOSED WORK : LEASE NO. 706764

DRILL X CONVERT ____ DRILL DEEPER ____ REDRILL ____ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ____ PERFORATE NEW FORMATION ____ PLUG AND ABANDON ____ CLEAN OUT AND REPLUG ____ OTHER ____

PHYSICAL CHANGE IN WELL (SPECIFY) ____ TARGET FORMATION MARCELLUS

ESTIMATED DEPTH TVD 6,663'

WELL OPERATOR EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY

ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330

COUNTY NAME

PERMIT

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State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 017 - 06572 County DODDRIDGE District WEST UNION
Quad WEST UNION 7.5' Pad Name WEU6 Field/Pool Name
Farm name FRANKLIN BUTLER & KEY OIL COMPANY Well Number 513342
Operator (as registered with the OOG) EQT Production Company
Address 625 Liberty Ave. EQT Plaza, Suite 1700 City Pittsburgh State PA Zip 15222

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey

Top hole	Northing	4,349,015	Easting	521,253
Landing Point of Curve	Northing	4,348,242	Easting	520,714
Bottom Hole	Northing	4,346,915	Easting	521,093

Elevation (ft) 1260 GL Type of Well ■New □ Existing Type of Report □Interim ■Final

Permit Type □ Deviated □ Horizontal ■ Horizontal 6A □ Vertical Depth Type □ Deep □ Shallow

Type of Operation □ Convert □ Deepen ■ Drill □ Plug Back □ Redrilling □ Rework ■ Stimulate

Well Type □ Brine Disposal □ CBM ■ Gas □ Oil □ Secondary Recovery □ Solution Mining □ Storage □ Other _____

Type of Completion ■ Single □ Multiple Fluids Produced □ Brine ■Gas ■ NGL □ Oil □ Other _____
Drilled with □ Cable ■ Rotary

Drilling Media Surface hole ■ Air □ Mud □Fresh Water Intermediate hole ■ Air □ Mud □ Fresh Water □ Brine
Production hole □ Air ■ Mud □ Fresh Water □ Brine
Mud Type(s) and Additive(s)
Water base Mud 13.5 ppg barium sulfate, sodium chloride, xanthan gum, polyanionic cellulose, modified starch, sodium hydroxide, phosphonates and alkyl phophates, glutaraldehyde solution, calcium hydroxide, partially hydrolyzed polyacrylamide/polyacrylate, potassium chloride, sodium carbonate, ground walnut shells, alcohol and modified fatty acid, ferrochrome lignosulfonate, calcium carbonate, fibrous cellulose

Date permit issued 10/21/2014 Date drilling commenced 10/28/2014 Date drilling ceased 01/10/2015
Date completion activities began 4/20/2015 Date completion activities ceased 4/26/2015
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

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Freshwater depth(s) ft 353',465',508',967',1031' Open mine(s) (Y/N) depths N
Salt water depth(s) ft NONE Void(s) encountered (Y/N) depths N
Coal depth(s) ft 188' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

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API 47- 017 - 06572 Farm name FRANKLIN BUTLER & KEY OIL COMPANY Well number 513342

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	40'	NEW	A-500 40LB/FT	NONE	Y
Surface	17.5"	13.375"	1131'	NEW	J-55 54.5LB/FT	282',494'	Y
Coal							
Intermediate 1	12.375"	9.625"	3100'	NEW	A-500 40LB/FT	1197',1535'	Y
Intermediate 2							
Intermediate 3							
Production	8.5"	5.5"	12,741'	NEW	P-110 20LB/FT	NONE	N
Tubing							
Packer type and depth set							

Comment Details

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ^{3}/sks)	Volume (ft ^{3})	Cement Top (MD)	WOC (hrs)
Conductor	CLASS A	38	15.6	1.18	44.84	0	8
Surface	CLASS A	890	15.6	1.19	1059.1	0	8
Coal							
Intermediate 1	CLASS A	1135	15.6	1.18	1339.3	0	8
Intermediate 2							
Intermediate 3							
Production	CLASS A / CLASS H	1050/655	15.2/15.6	1.07/1.86	2341.8	3500'	72
Tubing							

Drillers TD (ft) 12,741' MD Loggers TD (ft) N/A

Deepest formation penetrated Marcellus Plug back to (ft) 1463'

Plug back procedure DRILLED TO 1823' THEN PLUGGED BACK FOR SIDETRACK. TRIPPED IN OPEN ENDED AND PUMPED 85 BBLS 16.4PPG CLASS H CEMENT WITH 3% CACL. TOP OF CEMENT WAS 1463'.

Kick off depth (ft) 3,458' MD

Check all wireline logs run ☐ caliper ☐ density ■ deviated/directional ☐ induction
☐ neutron ☐ resistivity ■ gamma ray ■ temperature ☐ sonic

Well cored ☐ Yes ■ No ☐ Conventional ☐ Sidewall Were cuttings collected ■ Yes ☐ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING

CONDUCTOR- NONE

SURFACE- JOINTS: 1,12,24

INTERMEDIATE- RAN AT LEAST EVERY 500' FEET

Production- Composite bodied centralizers on every joint from TD up to 2,500'

WAS WELL COMPLETED AS SHOT HOLE ☐ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ■ No DETAILS

WERE TRACERS USED ☐ Yes ■ No TYPE OF TRACER(S) USED

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API 47- 017 - 06572 Farm name FRANKLIN BUTLER & KEY OIL COMPANY Well number 513342

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
					Please See Attached

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
						Please	See	Attached

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Please insert additional pages as applicable.

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API 47- 017 - 06572 Farm name FRANKLIN BUTLER & KEY OIL COMPANY Well number 513342

PRODUCING FORMATION(S)	DEPTHS			
Marcellus	6,843	TVD	7,977	MD

Please insert additional pages as applicable.

GAS TEST ☐ Build up ☐ Drawdown ■ Open Flow OIL TEST ■ Flow ☐ Pump

SHUT-IN PRESSURE Surface 2,123 psi Bottom Hole N/A psi DURATION OF TEST 129.0 hrs

OPEN FLOW	Gas	Oil	NGL	Water	GAS MEASURED BY
	11,090 mcfpd	0 bpd	134.7 bpd	504.0 bpd	☐ Estimated ■ Orifice ☐ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
	0		0		

Please insert additional pages as applicable.

Drilling Contractor ALPHA HUNTER DRILLING (RIG 4)
Address P.O. BOX 430 City RENO State OH Zip 45773

Logging Company GYRODATA INC.
Address 601 MAYER ST. City BRIDGEVILLE State PA Zip 15017

Cementing Company NABORS
Address 2504 SMITH CREEK ROAD City WAYNESBURG State PA Zip 15370

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Stimulating Company KEANE
Address 2121 SAGE ROAD City HOUSTON State TX Zip 77056

Please insert additional pages as applicable.

Completed by JAMES ABBOTT Telephone 412-553-5996
Signature Title COMPLETIONS DIRECTOR Date 7/13/2015

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

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API 47- 017 - 06572 Farm name FRANKLIN BUTLER & KEY OIL COMPANY Well number 513342

Drilling Contractor Savanna Drilling
Address 2204 Timberloch Place Suite 230 City Woodlands State TX Zip 77380

Logging Company HOSSCO SERVICES LLC
Address 614 TROTTERS LANE City CHARLESTON State WV Zip 25312

Logging Company _____
Address _____ City _____ State _____ Zip _____

Cementing Company _____
Address _____ City _____ State _____ Zip _____

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Formations

Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
FRESH WATER ZONE	0	0	1,034	1,034
SAND / SHALE	0	0	191	191
COAL	191	191	194	194
SAND / SHALE	194	194	2,307	2,303
BEREA	2,307	2,303	2,575	2,571
GANTZ	2,575	2,571	2,665	2,661
50F	2,665	2,661	2,763	2,759
30F	2,763	2,759	2,830	2,826
GORDON	2,830	2,826	2,899	2,895
4TH	2,899	2,895	3,051	3,047
5TH	3,051	3,047	3,441	3,437
WARREN	3,441	3,437	3,505	3,501
SPEECHLEY	3,505	3,501	4,576	4,368
BRADFORD	4,576	4,368	5,557	5,105
BENSON	5,557	5,105	5,998	5,438
ALEXANDER	5,998	5,438	7,378	6,481
SONYEA	7,378	6,481	7,570	6,622
MIDDLESEX	7,570	6,622	7,658	6,681
GENESSEE	7,658	6,681	7,795	6,760
GENESEO	7,795	6,760	7,852	6,789
TULLY	7,852	6,789	7,910	6,815
HAMILTON	7,910	6,815	7,977	6,843
MARCELLUS	7,977	6,843	12,741	6,886

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API 47 - 017 - 06572

EQT Production - Marcellus

Doddridge County, WV Grid
Doddridge County 513342
Well #513342

513342 ST01

Design: 513342 ST01 As Drilled Surveys

Standard Survey Report

20 January, 2015

Phoenix Technologies

Survey Report

17-06572

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513342
Company:	EQT Production - Marcellus	**TVD Reference:**	KB@16 ft @ 1276.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB@16 ft @ 1276.0usft
Site:	Doddridge County 513342	**North Reference:**	Grid
Well:	Well #513342	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	513342 ST01		
Design:	513342 ST01 As Drilled Surveys		

Project — Doddridge County, WV Grid

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia North 4701		Using geodetic scale factor

Site — Doddridge County 513342

Site Position:		**Northing:**	290,267.60 usft	**Latitude:**	39.29
From:	Map	**Easting:**	1,645,159.80 usft	**Longitude:**	-80.75
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.80 °

Well — Well #513342

Well Position	**+N/-S**	0.0 usft	**Northing:**	290,267.60 usft	**Latitude:**	39° 17' 24.570 N
	+E/-W	0.0 usft	**Easting:**	1,645,159.80 usft	**Longitude:**	80° 45' 13.413 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	1,260.0 usft

Wellbore — 513342 ST01

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	12/15/2014	-8.52	66.76	52,229

Design — 513342 ST01 As Drilled Surveys

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	3.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	185.31

Survey Program — **Date** 1/20/2015

From ()	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	3,278.0	Gyrodata Gyro (513342 ST01)	GYD_DP_MS	Gyrodata gyro-compassing and drop
0.00	12,741.0	513342 PHX MWD (Curve and Lateral) (51	MWD+IGRF	MWD+IGRF v3:standard declination

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	-1,276.0	0.0	0.0	0.0	0.00	0.00	0.00
103.0	0.10	281.88	103.0	-1,173.0	0.0	-0.1	0.0	0.10	0.10	0.00
203.0	0.28	258.32	203.0	-1,073.0	0.0	-0.4	0.1	0.19	0.18	-23.56
303.0	0.24	244.71	303.0	-973.0	-0.2	-0.8	0.2	0.07	[illegible]	[illegible]
403.0	0.17	208.15	403.0	-873.0	-0.4	-1.1	0.5	[illegible]	-0.07	-36.56
503.0	0.17	165.32	503.0	-773.0	-0.6	-1.1	0.7	0.12	0.00	-42.83
603.0	0.15	158.80	603.0	-673.0	-0.9	-1.0	1.0	0.03	[illegible]	[illegible]
703.0	0.16	150.91	703.0	-573.0	-1.2	-0.9	1.2	0.02	0.01	-7.89

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Phoenix Technologies

Survey Report

17-06572

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513342
Company:	EQT Production - Marcellus	**TVD Reference:**	KB@16 ft @ 1276.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB@16 ft @ 1276.0usft
Site:	Doddridge County 513342	**North Reference:**	Grid
Well:	Well #513342	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	513342 ST01		
Design:	513342 ST01 As Drilled Surveys		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
803.0	0.21	131.27	803.0	-473.0	-1.4	-0.7	1.5	0.08	0.05	-19.64
903.0	0.16	132.38	903.0	-373.0	-1.6	-0.5	1.7	0.05	-0.05	1.11
1,003.0	0.17	129.95	1,003.0	-273.0	-1.8	-0.3	1.8	0.01	0.01	-2.43
1,103.0	0.24	124.11	1,103.0	-173.0	-2.0	0.0	2.0	0.07	0.07	-5.84
1,203.0	0.76	126.23	1,203.0	-73.0	-2.5	0.7	2.4	0.52	0.52	2.12
1,303.0	1.24	134.53	1,303.0	27.0	-3.7	2.0	3.5	0.50	0.48	8.30
1,403.0	1.30	133.21	1,403.0	127.0	-5.2	3.6	4.9	0.07	0.06	-1.32
1,503.0	0.90	149.24	1,502.9	226.9	-6.7	4.9	6.2	0.50	-0.40	16.03
1,603.0	3.12	271.76	1,602.9	326.9	-7.3	2.5	7.0	3.68	2.22	122.52
1,703.0	8.18	284.72	1,702.4	426.4	-5.4	-7.1	6.0	5.19	5.06	12.96
1,803.0	9.35	281.35	1,801.2	525.2	-2.0	-21.9	4.0	1.28	1.17	-3.37
1,903.0	7.69	254.23	1,900.1	624.1	-2.2	-36.3	5.5	4.30	-1.66	-27.12
2,003.0	4.85	230.03	1,999.5	723.5	-6.7	-46.0	10.9	3.82	-2.84	-24.20
2,103.0	2.20	202.21	2,099.4	823.4	-11.2	-50.0	15.8	3.08	-2.65	-27.82
2,203.0	1.11	189.59	2,199.3	923.3	-13.9	-50.9	18.6	1.14	-1.09	-12.62
2,303.0	1.26	193.38	2,299.3	1,023.3	-16.0	-51.3	20.6	0.17	0.15	3.79
2,403.0	1.31	190.44	2,399.3	1,123.3	-18.2	-51.7	22.9	0.08	0.05	-2.94
2,503.0	1.23	186.02	2,499.2	1,223.2	-20.3	-52.1	25.1	0.13	-0.08	-4.42
2,603.0	1.21	183.64	2,599.2	1,323.2	-22.5	-52.2	27.2	0.05	-0.02	-2.38
2,703.0	1.01	167.84	2,699.2	1,423.2	-24.4	-52.1	29.1	0.36	-0.20	-15.80
2,803.0	0.86	167.04	2,799.2	1,523.2	-26.0	-51.8	30.7	0.15	-0.15	-0.80
2,903.0	0.90	165.51	2,899.2	1,623.2	-27.5	-51.4	32.1	0.05	0.04	-1.53
3,003.0	0.88	169.24	2,999.2	1,723.2	-29.0	-51.1	33.6	0.06	-0.02	3.73
3,103.0	0.93	159.26	3,099.1	1,823.1	-30.5	-50.6	35.1	0.17	0.05	-9.98
3,203.0	1.03	158.45	3,199.1	1,923.1	-32.1	-50.0	36.6	0.10	0.10	-0.81
Gyro Tie In=3278' MD										
3,278.0	0.94	166.29	3,274.1	1,998.1	-33.3	-49.6	37.8	0.22	-0.12	10.45
3,464.0	4.10	207.30	3,459.9	2,183.9	-40.7	-52.3	45.4	1.85	1.70	22.05
3,496.0	7.30	212.40	3,491.8	2,215.8	-43.4	-53.9	48.2	10.11	10.00	15.94
3,527.0	9.80	213.10	3,522.4	2,246.4	-47.3	-56.4	52.3	8.07	8.06	2.26
3,559.0	12.10	214.60	3,553.8	2,277.8	-52.4	-59.8	57.7	7.24	7.19	4.69
3,590.0	14.40	217.80	3,584.0	2,308.0	-58.1	-64.0	63.8	7.78	7.42	10.32
3,622.0	16.70	220.10	3,614.8	2,338.8	-64.7	-69.4	70.9	7.44	7.19	7.19
3,653.0	18.90	219.70	3,644.3	2,368.3	-72.0	-75.5	78.7	7.11	7.10	-1.29
3,685.0	21.50	219.00	3,674.4	2,398.4	-80.6	-82.5	87.8	8.16	8.13	-2.19
3,716.0	24.00	218.20	3,703.0	2,427.0	-89.9	-90.0	97.9	8.13	8.06	-2.58
3,747.0	26.50	218.00	3,731.0	2,455.0	-100.3	-98.1	109.0	8.07	8.06	-0.65
3,779.0	28.80	216.70	3,759.3	2,483.3	-112.1	-107.1	121.6	7.43	7.19	-4.06
3,810.0	31.40	216.00	3,786.2	2,510.2	-124.7	-116.3	134.9	8.46	8.39	-2.26
3,842.0	34.30	215.40	3,813.0	2,537.0	-138.8	-126.5	149.9	9.12	9.06	-1.88
3,905.0	40.50	216.50	3,863.1	2,587.1	-169.7	-148.9	182.8	9.90	9.84	1.75
3,968.0	40.90	216.10	3,910.8	2,634.8	-202.8	-173.3	218.0	0.76	0.63	-0.63
4,031.0	40.70	215.60	3,958.5	2,682.5	-236.2	-197.4	253.4	0.61	-0.32	-0.79

17-06572

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513342
Company:	EQT Production - Marcellus	**TVD Reference:**	KB@16 ft @ 1276.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB@16 ft @ 1276.0usft
Site:	Doddridge County 513342	**North Reference:**	Grid
Well:	Well #513342	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	513342 ST01		
Design:	513342 ST01 As Drilled Surveys		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,094.0	40.70	215.80	4,006.3	2,730.3	-269.5	-221.3	288.9	0.21	0.00	0.32
4,156.0	40.70	215.40	4,053.3	2,777.3	-302.4	-244.9	323.8	0.42	0.00	-0.65
4,220.0	40.50	215.30	4,101.9	2,825.9	-336.4	-269.0	359.8	0.33	-0.31	-0.16
4,283.0	41.40	214.80	4,149.5	2,873.5	-370.2	-292.7	395.7	1.52	1.43	-0.79
4,345.0	42.10	215.00	4,195.7	2,919.7	-404.1	-316.3	431.6	1.15	1.13	0.32
4,408.0	42.20	214.60	4,242.4	2,966.4	-438.8	-340.4	468.4	0.45	0.16	-0.63
4,440.0	42.10	215.30	4,266.1	2,990.1	-456.4	-352.7	487.1	1.50	-0.31	2.19
4,472.0	41.70	219.40	4,290.0	3,014.0	-473.4	-365.7	505.2	8.65	-1.25	12.81
4,535.0	41.10	224.50	4,337.2	3,061.2	-504.3	-393.5	538.6	5.44	-0.95	8.10
4,598.0	40.70	224.70	4,384.9	3,108.9	-533.7	-422.5	570.5	0.67	-0.63	0.32
4,662.0	40.10	224.00	4,433.6	3,157.6	-563.4	-451.5	602.7	1.18	-0.94	-1.09
4,725.0	40.30	222.40	4,481.7	3,205.7	-593.0	-479.3	634.8	1.67	0.32	-2.54
4,787.0	40.30	222.60	4,529.0	3,253.0	-622.6	-506.4	666.7	0.21	0.00	0.32
4,850.0	41.40	224.10	4,576.7	3,300.7	-652.5	-534.7	699.2	2.34	1.75	2.38
4,913.0	41.80	225.30	4,623.8	3,347.8	-682.2	-564.1	731.5	1.42	0.63	1.90
4,976.0	41.50	223.80	4,670.8	3,394.8	-712.1	-593.5	763.9	1.65	-0.48	-2.38
5,039.0	41.20	224.20	4,718.1	3,442.1	-742.0	-622.4	796.4	0.63	-0.48	0.63
5,102.0	40.60	222.30	4,765.8	3,489.8	-772.1	-650.7	829.0	2.19	-0.95	-3.02
5,165.0	41.40	223.50	4,813.3	3,537.3	-802.3	-678.8	861.7	1.78	1.27	1.90
5,228.0	41.30	223.20	4,860.6	3,584.6	-832.6	-707.4	894.5	0.35	-0.16	-0.48
5,291.0	41.10	222.50	4,908.0	3,632.0	-863.0	-735.6	927.4	0.80	-0.32	-1.11
5,354.0	42.50	223.60	4,955.0	3,679.0	-893.7	-764.3	960.6	2.51	2.22	1.75
5,417.0	42.50	223.50	5,001.4	3,725.4	-924.5	-793.6	994.0	0.11	0.00	-0.16
5,480.0	42.50	223.20	5,047.9	3,771.9	-955.5	-822.8	1,027.5	0.32	0.00	-0.48
5,543.0	41.00	224.40	5,094.9	3,818.9	-985.8	-851.8	1,060.4	2.70	-2.38	1.90
5,606.0	40.50	224.80	5,142.6	3,866.6	-1,015.1	-880.7	1,092.2	0.90	-0.79	0.63
5,669.0	40.30	224.30	5,190.6	3,914.6	-1,044.2	-909.3	1,123.8	0.60	-0.32	-0.79
5,732.0	40.40	224.60	5,238.6	3,962.6	-1,073.3	-937.9	1,155.5	0.35	0.16	0.48
5,795.0	41.10	225.50	5,286.3	4,010.3	-1,102.3	-967.0	1,187.1	1.45	1.11	1.43
5,858.0	41.90	226.70	5,333.5	4,057.5	-1,131.3	-997.1	1,218.7	1.79	1.27	1.90
5,920.0	42.00	226.90	5,379.6	4,103.6	-1,159.6	-1,027.3	1,249.7	0.27	0.16	0.32
5,983.0	41.30	226.40	5,426.7	4,150.7	-1,188.4	-1,057.8	1,281.2	1.23	-1.11	-0.79
6,046.0	41.50	226.70	5,473.9	4,197.9	-1,217.0	-1,088.0	1,312.5	0.45	0.32	0.48
6,109.0	41.80	227.00	5,521.0	4,245.0	-1,245.7	-1,118.5	1,343.8	0.57	0.48	0.48
6,171.0	40.50	224.80	5,567.7	4,291.7	-1,274.0	-1,147.8	1,374.8	3.14	-2.10	-3.55
6,234.0	40.20	223.30	5,615.7	4,339.7	-1,303.4	-1,176.2	1,406.6	1.61	-0.48	-2.38
6,297.0	40.50	223.90	5,663.7	4,387.7	-1,332.9	-1,204.3	1,438.6	0.78	0.48	0.95
6,360.0	40.70	223.30	5,711.6	4,435.6	-1,362.6	-1,232.6	1,470.8	0.70	0.32	-0.95
6,423.0	40.70	223.20	5,759.3	4,483.3	-1,392.5	-1,260.8	1,503.2	0.10	0.00	-0.16
6,486.0	40.70	223.10	5,807.1	4,531.1	-1,422.5	-1,288.9	1,535.6	0.10	0.00	-0.16
6,549.0	41.10	222.80	5,854.7	4,578.7	-1,452.7	-1,317.0	1,568.3	0.71	0.63	-0.48
6,612.0	41.20	224.70	5,902.1	4,626.1	-1,482.6	-1,345.6	1,600.8	1.99	0.16	3.02

Phoenix Technologies

Survey Report

17-06572

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513342
Company:	EQT Production - Marcellus	**TVD Reference:**	KB@16 ft @ 1276.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB@16 ft @ 1276.0usft
Site:	Doddridge County 513342	**North Reference:**	Grid
Well:	Well #513342	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	513342 ST01		
Design:	513342 ST01 As Drilled Surveys		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,675.0	41.10	225.00	5,949.6	4,673.6	-1,512.0	-1,374.9	1,632.7	0.35	-0.16	0.48
6,737.0	41.20	225.50	5,996.3	4,720.3	-1,540.7	-1,403.8	1,664.0	0.55	0.16	0.81
6,801.0	41.30	225.00	6,044.4	4,768.4	-1,570.4	-1,433.8	1,696.4	0.54	0.16	-0.78
6,825.0	41.40	224.50	6,062.4	4,786.4	-1,581.7	-1,445.0	1,708.6	1.44	0.42	-2.08
6,887.0	41.50	224.70	6,108.9	4,832.9	-1,610.9	-1,473.8	1,740.4	0.27	0.16	0.32
6,951.0	41.10	223.30	6,157.0	4,881.0	-1,641.3	-1,503.1	1,773.4	1.57	-0.63	-2.19
7,013.0	40.90	223.20	6,203.7	4,927.7	-1,670.9	-1,531.0	1,805.4	0.34	-0.32	-0.16
7,076.0	40.80	221.90	6,251.4	4,975.4	-1,701.3	-1,558.9	1,838.2	1.36	-0.16	-2.06
7,139.0	40.90	222.70	6,299.1	5,023.1	-1,731.8	-1,586.6	1,871.1	0.85	0.16	1.27
7,202.0	40.80	223.70	6,346.7	5,070.7	-1,761.8	-1,614.8	1,903.7	1.05	-0.16	1.59
7,265.0	40.60	224.60	6,394.5	5,118.5	-1,791.3	-1,643.4	1,935.7	0.98	-0.32	1.43
7,328.0	40.40	224.20	6,442.4	5,166.4	-1,820.5	-1,672.0	1,967.4	0.52	-0.32	-0.63
7,390.0	40.40	223.50	6,489.6	5,213.6	-1,849.5	-1,699.9	1,998.8	0.73	0.00	-1.13
7,422.0	40.30	223.10	6,514.0	5,238.0	-1,864.6	-1,714.1	2,015.2	0.87	-0.31	-1.25
7,453.0	41.80	219.40	6,537.4	5,261.4	-1,879.9	-1,727.5	2,031.7	9.21	4.84	-11.94
7,484.0	42.90	215.40	6,560.3	5,284.3	-1,896.5	-1,740.2	2,049.3	9.39	3.55	-12.90
7,516.0	43.90	211.50	6,583.5	5,307.5	-1,914.8	-1,752.3	2,068.7	8.94	3.13	-12.19
7,547.0	44.70	208.00	6,605.7	5,329.7	-1,933.6	-1,763.0	2,088.4	8.30	2.58	-11.29
7,578.0	45.90	205.10	6,627.5	5,351.5	-1,953.3	-1,772.9	2,109.0	7.69	3.87	-9.35
7,610.0	47.60	203.70	6,649.5	5,373.5	-1,974.5	-1,782.5	2,131.0	6.19	5.31	-4.38
7,641.0	49.60	200.60	6,670.0	5,394.0	-1,996.1	-1,791.2	2,153.3	9.89	6.45	-10.00
7,672.0	51.70	198.40	6,689.6	5,413.6	-2,018.7	-1,799.2	2,176.5	8.72	6.77	-7.10
7,704.0	53.70	194.10	6,709.0	5,433.0	-2,043.1	-1,806.3	2,201.5	12.38	6.25	-13.44
7,735.0	55.50	191.90	6,727.0	5,451.0	-2,067.7	-1,812.0	2,226.5	8.20	5.81	-7.10
7,767.0	56.80	190.10	6,744.8	5,468.8	-2,093.8	-1,817.1	2,253.0	6.19	4.06	-5.63
7,798.0	58.20	187.10	6,761.5	5,485.5	-2,119.6	-1,821.0	2,279.1	9.33	4.52	-9.68
7,829.0	59.70	185.60	6,777.4	5,501.4	-2,146.0	-1,823.9	2,305.6	6.37	4.84	-4.84
7,861.0	62.70	184.20	6,792.9	5,516.9	-2,174.0	-1,826.3	2,333.6	10.13	9.38	-4.38
7,892.0	63.60	181.40	6,806.9	5,530.9	-2,201.6	-1,827.7	2,361.3	8.57	2.90	-9.03
7,924.0	63.70	180.10	6,821.1	5,545.1	-2,230.3	-1,828.0	2,389.9	3.65	0.31	-4.06
7,956.0	65.30	176.90	6,834.8	5,558.8	-2,259.1	-1,827.3	2,418.5	10.32	5.00	-10.00
8,019.0	71.30	174.80	6,858.1	5,582.1	-2,317.5	-1,823.0	2,476.2	10.01	9.52	-3.33
8,082.0	78.40	173.00	6,874.6	5,598.6	-2,377.9	-1,816.5	2,535.8	11.60	11.27	-2.86
Top of Marcellus @6883' TVD										
8,138.2	84.38	170.05	6,883.0	5,607.0	-2,432.9	-1,808.3	2,589.8	11.83	10.63	-5.25
LP= 8145' MD/6883' TVD										
8,145.0	85.10	169.70	6,883.6	5,607.6	-2,439.5	-1,807.2	2,596.3	11.83	10.65	-5.17
Deepest Point of Well= 8208' MD/6886' TVD										
8,208.0	90.40	167.40	6,886.1	5,610.1	-2,501.2	-1,794.7	2,656.5	9.17	8.41	-3.65
8,271.0	92.70	168.00	6,884.4	5,608.4	-2,562.7	-1,781.3	2,716.5	3.77	3.65	0.95
8,334.0	94.50	166.60	6,880.4	5,604.4	-2,624.0	-1,767.4	2,776.3	3.62	2.86	-2.22
8,397.0	93.80	165.70	6,875.9	5,599.9	-2,685.0	-1,752.4	2,835.7	1.81	-1.11	-1.43
8,460.0	93.20	163.90	6,872.0	5,596.0	-2,745.7	-1,735.9	2,894.6	3.01	-0.95	-2.86

17.06572

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513342
Company:	EQT Production - Marcellus	**TVD Reference:**	KB@16 ft @ 1276.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB@16 ft @ 1276.0usft
Site:	Doddridge County 513342	**North Reference:**	Grid
Well:	Well #513342	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	513342 ST01		
Design:	513342 ST01 As Drilled Surveys		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,523.0	93.10	164.80	6,868.6	5,592.6	-2,806.3	-1,718.9	2,953.3	1.44	-0.16	1.43
8,586.0	93.00	165.30	6,865.2	5,589.2	-2,867.1	-1,702.7	3,012.3	0.81	-0.16	0.79
8,649.0	92.00	165.00	6,862.5	5,586.5	-2,927.9	-1,686.6	3,071.4	1.66	-1.59	-0.48
8,712.0	90.90	164.40	6,860.9	5,584.9	-2,988.7	-1,670.0	3,130.4	1.99	-1.75	-0.95
8,775.0	90.10	165.20	6,860.3	5,584.3	-3,049.4	-1,653.4	3,189.4	1.80	-1.27	1.27
8,838.0	90.40	165.20	6,860.0	5,584.0	-3,110.4	-1,637.3	3,248.5	0.48	0.48	0.00
8,901.0	90.50	164.50	6,859.6	5,583.6	-3,171.2	-1,620.9	3,307.5	1.12	0.16	-1.11
8,963.0	90.50	163.40	6,859.0	5,583.0	-3,230.7	-1,603.7	3,365.3	1.77	0.00	-1.77
9,026.0	90.80	162.80	6,858.3	5,582.3	-3,291.0	-1,585.4	3,423.6	1.06	0.48	-0.95
9,089.0	91.60	163.80	6,857.0	5,581.0	-3,351.3	-1,567.3	3,482.0	2.03	1.27	1.59
9,152.0	92.30	164.60	6,854.8	5,578.8	-3,411.9	-1,550.2	3,540.7	1.69	1.11	1.27
9,215.0	91.30	164.50	6,852.9	5,576.9	-3,472.6	-1,533.4	3,599.6	1.60	-1.59	-0.16
9,278.0	90.60	164.20	6,851.8	5,575.8	-3,533.3	-1,516.4	3,658.4	1.21	-1.11	-0.48
9,341.0	90.60	164.20	6,851.1	5,575.1	-3,593.9	-1,499.3	3,717.2	0.00	0.00	0.00
9,404.0	90.80	164.00	6,850.4	5,574.4	-3,654.5	-1,482.0	3,775.9	0.45	0.32	-0.32
9,466.0	90.80	162.30	6,849.5	5,573.5	-3,713.8	-1,464.0	3,833.3	2.74	0.00	-2.74
9,528.0	90.90	164.30	6,848.6	5,572.6	-3,773.2	-1,446.2	3,890.8	3.23	0.16	3.23
9,591.0	91.10	165.80	6,847.5	5,571.5	-3,834.0	-1,430.0	3,949.9	2.40	0.32	2.38
9,653.0	91.70	165.90	6,846.0	5,570.0	-3,894.1	-1,414.8	4,008.4	0.98	0.97	0.16
9,716.0	91.60	166.00	6,844.2	5,568.2	-3,955.2	-1,399.5	4,067.8	0.22	-0.16	0.16
9,779.0	91.30	166.60	6,842.6	5,566.6	-4,016.4	-1,384.6	4,127.3	1.06	-0.48	0.95
9,842.0	91.30	167.60	6,841.1	5,565.1	-4,077.8	-1,370.6	4,187.1	1.59	0.00	1.59
9,905.0	89.80	166.50	6,840.5	5,564.5	-4,139.2	-1,356.4	4,247.0	2.95	-2.38	-1.75
9,968.0	89.00	166.00	6,841.2	5,565.2	-4,200.4	-1,341.5	4,306.5	1.50	-1.27	-0.79
10,031.0	89.10	165.90	6,842.2	5,566.2	-4,261.5	-1,326.2	4,365.9	0.22	0.16	-0.16
10,094.0	89.80	166.90	6,842.8	5,566.8	-4,322.7	-1,311.4	4,425.5	1.94	1.11	1.59
10,156.0	89.50	165.40	6,843.2	5,567.2	-4,382.9	-1,296.5	4,484.1	2.47	-0.48	-2.42
10,219.0	89.60	166.10	6,843.7	5,567.7	-4,444.0	-1,281.0	4,543.5	1.12	0.16	1.11
10,282.0	89.80	164.80	6,844.1	5,568.1	-4,505.0	-1,265.2	4,602.7	2.09	0.32	-2.06
10,345.0	89.80	164.60	6,844.3	5,568.3	-4,565.7	-1,248.6	4,661.7	0.32	0.00	-0.32
10,408.0	89.70	163.90	6,844.5	5,568.5	-4,626.4	-1,231.5	4,720.5	1.12	-0.16	-1.11
10,471.0	89.40	163.50	6,845.0	5,569.0	-4,686.8	-1,213.8	4,779.0	0.79	-0.48	-0.63
10,534.0	89.60	164.70	6,845.6	5,569.6	-4,747.4	-1,196.5	4,837.8	1.93	0.32	1.90
10,597.0	90.60	164.80	6,845.5	5,569.5	-4,808.2	-1,180.0	4,896.8	1.60	1.59	0.16
10,660.0	90.90	164.50	6,844.7	5,568.7	-4,868.9	-1,163.3	4,955.7	0.67	0.48	-0.48
10,723.0	91.90	168.10	6,843.1	5,567.1	-4,930.1	-1,148.4	5,015.2	5.93	1.59	5.71
10,786.0	92.20	169.50	6,840.9	5,564.9	-4,991.9	-1,136.1	5,075.6	2.27	0.48	2.22
10,849.0	91.00	169.20	6,839.1	5,563.1	-5,053.8	-1,124.5	5,136.1	1.96	-1.90	-0.48
10,912.0	90.20	167.50	6,838.4	5,562.4	-5,115.5	-1,111.8	5,196.4	2.98	-1.27	-2.70
10,975.0	90.70	169.20	6,837.9	5,561.9	-5,177.2	-1,099.1	5,256.7	2.81	0.79	2.70
11,038.0	91.20	170.10	6,836.9	5,560.9	-5,239.1	-1,087.7	5,317.3	1.63	0.79	1.43
11,101.0	90.60	167.70	6,835.9	5,559.9	-5,300.9	-1,075.6	5,377.7	3.93	-0.95	-3.81
11,163.0	89.80	166.20	6,835.7	5,559.7	-5,361.3	-1,061.6	5,436.6	2.74	-1.29	-2.42

17-06572

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513342
Company:	EQT Production - Marcellus	**TVD Reference:**	KB@16 ft @ 1276.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB@16 ft @ 1276.0usft
Site:	Doddridge County 513342	**North Reference:**	Grid
Well:	Well #513342	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	513342 ST01		
Design:	513342 ST01 As Drilled Surveys		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,227.0	89.50	163.40	6,836.1	5,560.1	-5,423.1	-1,044.8	5,496.5	4.40	-0.47	-4.38
11,289.0	89.80	163.80	6,836.5	5,560.5	-5,482.6	-1,027.3	5,554.1	0.81	0.48	0.65
11,352.0	91.30	166.10	6,835.9	5,559.9	-5,543.4	-1,011.0	5,613.2	4.36	2.38	3.65
11,415.0	91.20	165.40	6,834.5	5,558.5	-5,604.4	-995.5	5,672.5	1.12	-0.16	-1.11
11,478.0	91.70	166.30	6,832.9	5,556.9	-5,665.5	-980.1	5,731.9	1.63	0.79	1.43
11,541.0	90.50	163.80	6,831.7	5,555.7	-5,726.4	-963.8	5,791.0	4.40	-1.90	-3.97
11,604.0	89.80	162.70	6,831.5	5,555.5	-5,786.7	-945.7	5,849.4	2.07	-1.11	-1.75
11,667.0	90.10	164.50	6,831.6	5,555.6	-5,847.1	-927.9	5,907.9	2.90	0.48	2.86
11,730.0	90.50	166.10	6,831.2	5,555.2	-5,908.1	-911.9	5,967.1	2.62	0.63	2.54
11,793.0	90.90	166.50	6,830.5	5,554.5	-5,969.3	-897.0	6,026.6	0.90	0.63	0.63
11,856.0	90.70	166.30	6,829.6	5,553.6	-6,030.5	-882.2	6,086.2	0.45	-0.32	-0.32
11,919.0	90.20	164.00	6,829.1	5,553.1	-6,091.4	-866.0	6,145.4	3.74	-0.79	-3.65
11,983.0	90.90	165.40	6,828.5	5,552.5	-6,153.1	-849.1	6,205.3	2.45	1.09	2.19
12,044.0	91.40	165.10	6,827.3	5,551.3	-6,212.1	-833.6	6,262.6	0.96	0.82	-0.49
12,107.0	91.40	164.50	6,825.7	5,549.7	-6,272.9	-817.1	6,321.6	0.95	0.00	-0.95
12,170.0	91.90	164.90	6,823.9	5,547.9	-6,333.6	-800.5	6,380.5	1.02	0.79	0.63
12,233.0	91.90	164.10	6,821.8	5,545.8	-6,394.3	-783.6	6,439.4	1.27	0.00	-1.27
12,296.0	91.10	164.90	6,820.2	5,544.2	-6,455.0	-766.8	6,498.2	1.80	-1.27	1.27
12,360.0	90.40	163.80	6,819.3	5,543.3	-6,516.6	-749.6	6,558.0	2.04	-1.09	-1.72
12,422.0	90.30	163.30	6,819.0	5,543.0	-6,576.0	-732.0	6,615.6	0.82	-0.16	-0.81
12,485.0	90.50	163.20	6,818.5	5,542.5	-6,636.4	-713.8	6,674.0	0.35	0.32	-0.16
12,548.0	91.40	164.50	6,817.5	5,541.5	-6,696.9	-696.3	6,732.6	2.51	1.43	2.06
12,611.0	90.80	163.20	6,816.3	5,540.3	-6,757.4	-678.8	6,791.2	2.27	-0.95	-2.06
Final Survey= 12673' MD/6816' TVD										
12,673.0	90.50	162.90	6,815.6	5,539.6	-6,816.7	-660.7	6,848.6	0.68	-0.48	-0.48
Projection to TD= 12741' MD/6815' TVD										
12,741.0	90.50	162.90	6,815.0	5,539.0	-6,881.7	-640.7	6,911.4	0.00	0.00	0.00

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
8,138.2	6,883.0	Top of Marcellus @6883' TVD		0.00	

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Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 513342
Company:	EQT Production - Marcellus	**TVD Reference:**	KB@16 ft @ 1276.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB@16 ft @ 1276.0usft
Site:	Doddridge County 513342	**North Reference:**	Grid
Well:	Well #513342	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	513342 ST01		
Design:	513342 ST01 As Drilled Surveys		

Design Annotations

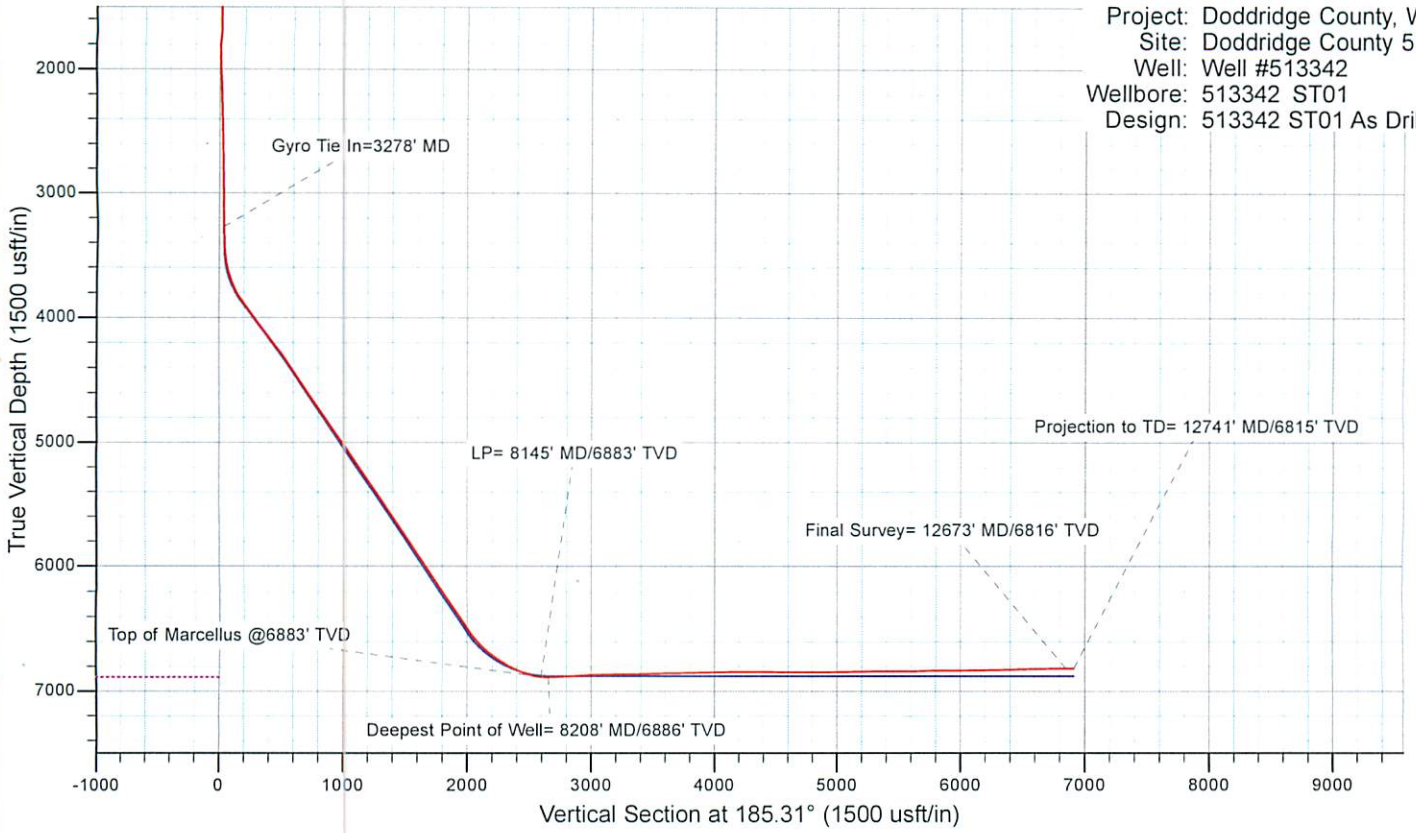
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
3,278.0	3,274.1	-33.3	-49.6	Gyro Tie In=3278' MD
8,145.0	6,883.6	-2,439.5	-1,807.2	LP= 8145' MD/6883' TVD
8,208.0	6,886.1	-2,501.2	-1,794.7	Deepest Point of Well= 8208' MD/6886' TVD
12,673.0	6,815.6	-6,816.7	-660.7	Final Survey= 12673' MD/6816' TVD
12,741.0	6,815.0	-6,881.7	-640.7	Projection to TD= 12741' MD/6815' TVD

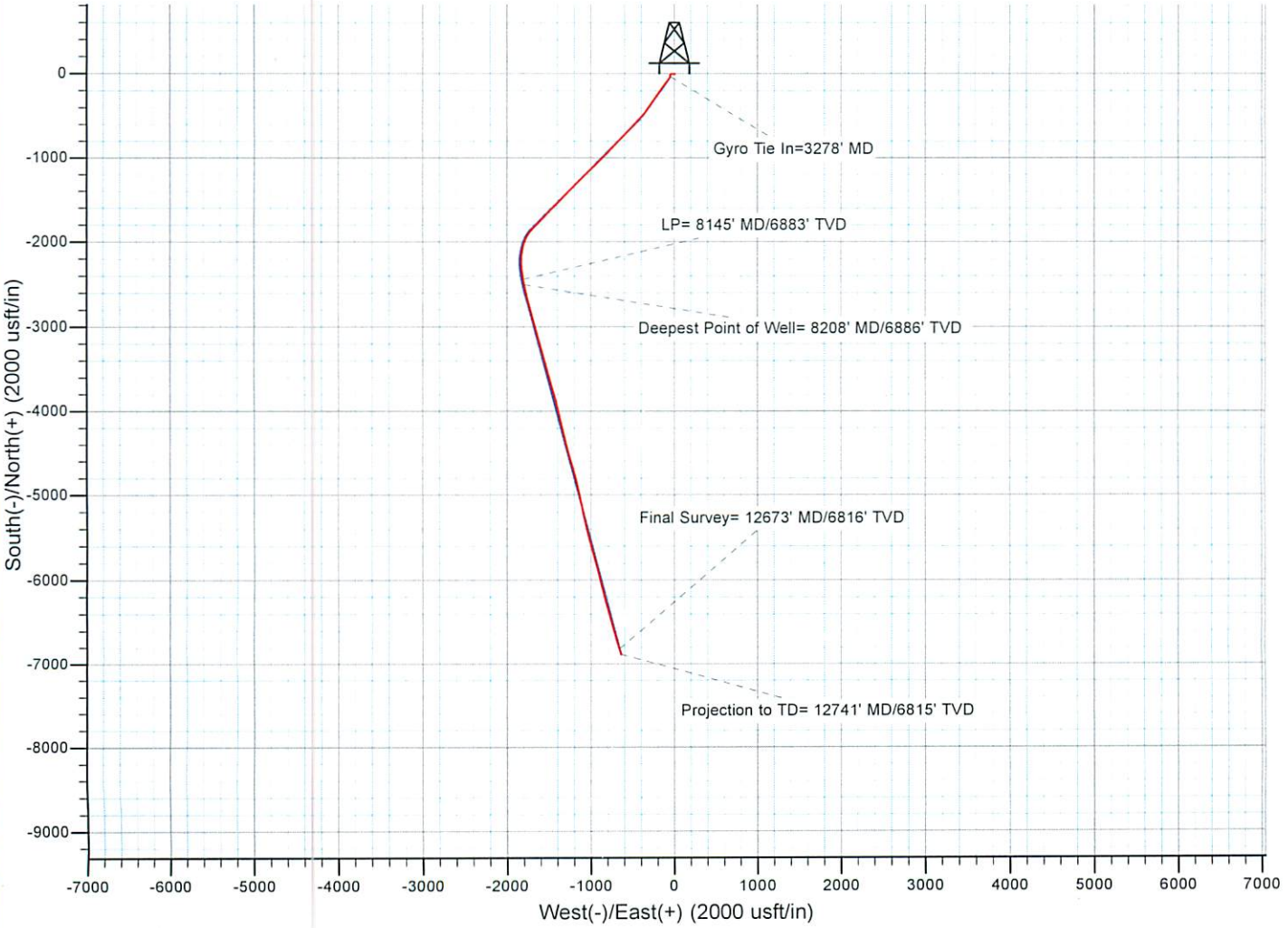
Checked By: _____ Approved By: _____ Date: _____

17-06572

EQT Production - Marcellus

Project: Doddridge County, WV Grid
Site: Doddridge County 513342
Well: Well #513342
Wellbore: 513342 ST01
Design: 513342 ST01 As Drilled Surveys





513342 - 47-017-06572-0000 -- Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	2/24/2015	12,715.00	12,717.00	10	MARCELLUS
1	4/21/2015	12,593.00	12,655.00	28	MARCELLUS
2	4/21/2015	12,413.00	12,532.00	42	MARCELLUS
3	4/22/2015	12,233.00	12,357.00	42	MARCELLUS
4	4/22/2015	12,050.00	12,177.00	42	MARCELLUS
5	4/22/2015	11,873.00	11,997.00	42	MARCELLUS
6	4/22/2015	11,693.00	11,817.00	42	MARCELLUS
7	4/23/2015	11,513.00	11,637.00	42	MARCELLUS
8	4/23/2015	11,333.00	11,457.00	42	MARCELLUS
9	4/23/2015	11,153.00	11,277.00	42	MARCELLUS
10	4/23/2015	10,973.00	11,099.00	42	MARCELLUS
11	4/23/2015	10,793.00	10,912.00	42	MARCELLUS
12	4/23/2015	10,613.00	10,735.00	42	MARCELLUS
13	4/24/2015	10,430.00	10,555.00	42	MARCELLUS
14	4/24/2015	10,253.00	10,377.00	42	MARCELLUS
15	4/24/2015	10,073.00	10,197.00	42	MARCELLUS
16	4/24/2015	9,893.00	10,017.00	42	MARCELLUS
17	4/24/2015	9,713.00	9,835.00	42	MARCELLUS
18	4/25/2015	9,533.00	9,655.00	42	MARCELLUS
19	4/25/2015	9,353.00	9,475.00	42	MARCELLUS
20	4/25/2015	9,173.00	9,294.00	42	MARCELLUS
21	4/25/2015	8,995.00	9,115.00	42	MARCELLUS
22	4/25/2015	8,813.00	8,935.00	42	MARCELLUS
23	4/26/2015	8,633.00	8,755.00	42	MARCELLUS
24	4/26/2015	8,453.00	8,577.00	42	MARCELLUS
25	4/26/2015	8,273.00	8,397.00	42	MARCELLUS
26	4/26/2015	8,093.00	8,215.00	42	MARCELLUS

Received
Office of Oil & Gas
JUL 14 2015

17-06572

513342 - 47-017-06572-0000 - Stimulated Stages

Stage Number	Stimulation Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
Initiation Sleeve	4/21/2015	9.70	6561	9104	6018	0	753	0
1	4/21/2015	97.9	8,597	8,828	4,066	295,210	8,650	0
2	4/21/2015	99.1	8,535	8,808	3,615	299,216	8,079	0
3	4/22/2015	98.9	8,439	8,884	4,014	299,863	7,847	0
4	4/22/2015	99.8	8,302	8,708	4,845	300,438	8,229	0
5	4/22/2015	100.2	8,082	8,728	4,848	299,703	8,246	0
6	4/22/2015	100.3	8,120	9,237	5,650	299,765	7,824	0
7	4/23/2015	100.6	8,112	9,361	5,047	300,718	7,592	0
8	4/23/2015	100.2	7,984	8,775	5,115	299,844	7,821	0
9	4/23/2015	100.2	7,888	8,304	4,455	300,936	7,940	0
10	4/23/2015	100.2	8,144	9,086	4,757	303,860	8,283	0
11	4/23/2015	100.8	7,993	8,249	4,525	304,320	7,633	0
12	4/24/2015	100.5	7,979	8,258	4,978	299,864	7,558	0
13	4/24/2015	100.7	8,081	8,679	4,989	299,888	7,570	0
14	4/24/2015	100.3	7,847	8,294	4,267	300,932	7,896	0
15	4/24/2015	94.6	7,982	9,324	3,672	277,380	8,013	0
16	4/24/2015	100.3	8,064	8,665	4,284	304,073	7,592	0
17	4/24/2015	100.7	7,963	8,702	4,886	303,320	7,473	0
18	4/25/2015	100.7	7,873	8,413	4,719	299,050	7,579	0
19	4/25/2015	100.2	7,696	7,991	4,481	299,310	7,705	0
20	4/25/2015	100.4	7,772	8,964	4,882	300,030	7,455	0
21	4/25/2015	99.1	7,956	9,180	5,264	299,100	7,608	0
22	4/26/2015	100.4	7,673	8,048	4,981	299,500	7,648	0
23	4/26/2015	99.2	7,860	8,533	5,116	299,200	7,607	0
24	4/26/2015	100.4	7,539	7,853	5,098	300,436	7,544	0
25	4/26/2015	100.6	7,687	8,419	5,316	302,313	7,448	0
26	4/26/2015	100.6	7,541	8,362	5,182	299,601	7,391	0

17-06572

Hydraulic Fracturing Fluid Product Component Information Disclosure

17-06572

Job Start Date:	4/20/2015
Job End Date:	4/26/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06572-00-00
Operator Name:	EQT Production
Well Name and Number:	513342
Longitude:	-80.75372600
Latitude:	39.29015800
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,886
Total Base Water Volume (gal):	8,525,328
Total Base Non Water Volume:	0

FracFocus Chemical Disclosure Registry

GROUNDWATER PROTECTION COUNCIL

INTERSTATE Oil & Gas COMPACT COMMISSION

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Keane Group	Carrier/Base Fluid					
			Water	7732-18-5	100.00000	89.79363	None
Sand (Proppant)	Keane Group	Proppant					
			Silica Substrate	14808-60-7	100.00000	9.82940	None
MC MX 437-5	Multi-Chem	Calcium nitrate solution					
			Calcium nitrate	10124-37-5	60.00000	0.05769	None
Hydrochloric Acid (15%)	Keane Group	Acidizing					
			Hydrochloric Acid	7647-01-0	15.00000	0.02744	None
FFR 730	Keane Group	Friction reducer					
			Oxyalkylated alcohol A	Proprietary	5.00000	0.00357	None
Greenskeeper LF	Keane Group	Solvent					
			Distillates, Petroleum, Hydrotreated Light	64742-47-8	100.00000	0.00293	None
EC6330A	Keane Group	Scale Inhibitor					
			Sodium Phosphate, Tribasic	7601-54-9	5.00000	0.00115	None
AI 600	Keane Group	Corrosion Inhibitor					
			Ethylene Glycol	107-21-1	40.00000	0.00018	None
			N, N-Dimethylformamide	68-12-2	20.00000	0.00009	None
			Cinnamiaidehyde	104-55-2	15.00000	0.00007	None

			2-Butoxyenthanol	111-76-2	15.00000	0.00007	None
			Tar bases, quinoline derivs, benzyl chloride-quatemized	72480-70-7	15.00000	0.00007	None
			1-Decanol	112-30-1	5.00000	0.00002	None
			Poly (oxy-1,2-ethanediyl), .alpha.-(4-nonylphenyl)-.omega.-hydroxy-,branched	127087-87-0	5.00000	0.00002	None
			1-Octanol	111-87-5	2.50000	0.00001	None
			Isopropyl alcohol	67-63-0	2.50000	0.00001	None
			Triethyl Phosphate	78-40-0	2.50000	0.00001	None
LEB-10X	Keane Group	Gel Breaker					
			Ethylene Glycol	107-21-1	30.00000	0.00001	None
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							

* Total Water Volume sources may include fresh water, produced water, and/or recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.
Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

17-06572

FORM WW 6

LATITUDE 39° 17' 30"

1,054'

550'

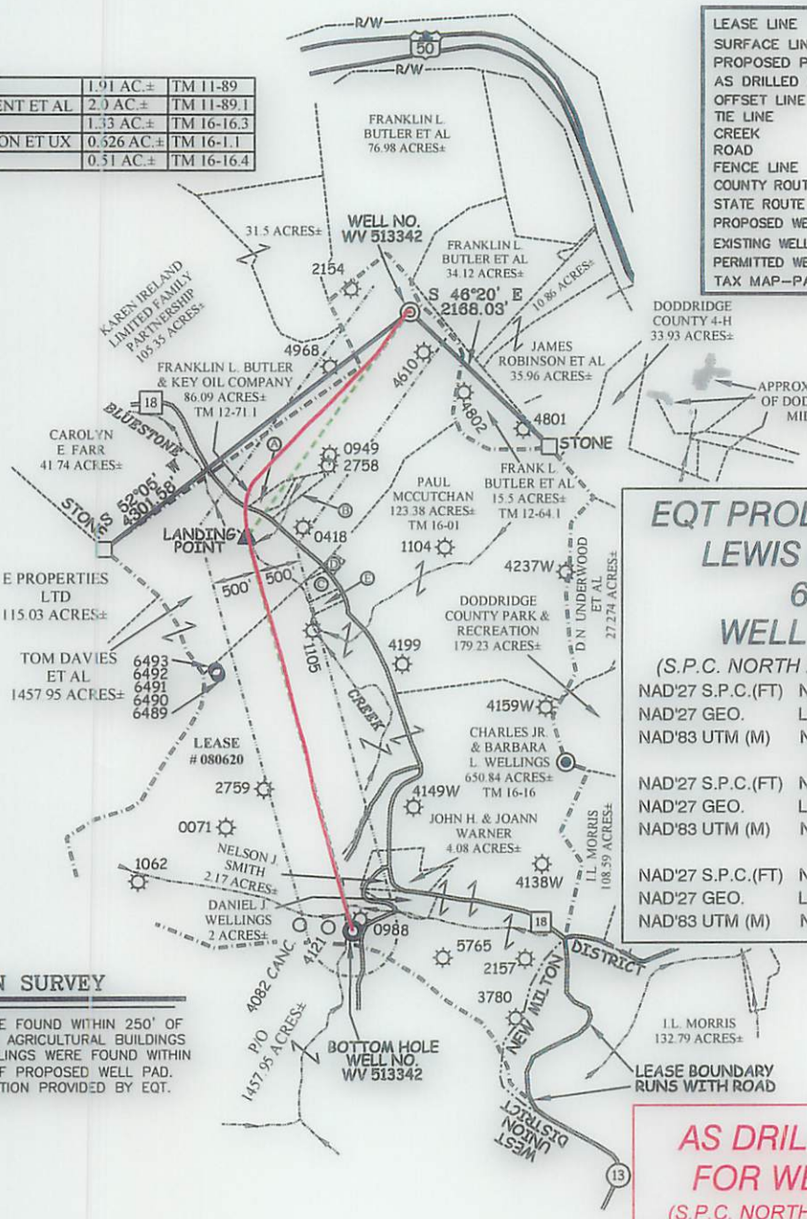
LONGITUDE 80° 45' 00"

NAD '27 GRID NORTH

A	PHAME TRENT	1.91 AC.±	TM 11-89
B	WILLIAM L. TRENT ET AL	2.0 AC.±	TM 11-89.1
C	ACE FUELS	1.33 AC.±	TM 16-16.3
D	ALDEN C. SUTTON ET UX	0.626 AC.±	TM 16-1.1
E	ACE FUELS	0.51 AC.±	TM 16-16.4

LEGEND:

LEASE LINE
SURFACE LINE
PROPOSED PATH
AS DRILLED PATH
OFFSET LINE
TIE LINE
CREEK
ROAD
FENCE LINE
COUNTY ROUTE
STATE ROUTE
PROPOSED WELL
EXISTING WELL
PERMITTED WELL
TAX MAP–PARCEL 00–00



EQT PRODUCTION COMPANY
LEWIS MAXWELL LEASE
640 ACRES±
WELL NO. WV 513342

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'27 S.P.C.(FT)	N. 290,267.6	E. 1,645,159.8
NAD'27 GEO.	LAT-(N) 39.290158	LONG-(W) 80.753726
NAD'83 UTM (M)	N. 4,349,014.8	E. 521,252.9
	LANDING POINT	
NAD'27 S.P.C.(FT)	N. 287,761.7	E. 1,643,347.8
NAD'27 GEO.	LAT-(N) 39.283209	LONG-(W) 80.760003
NAD'83 UTM (M)	N. 4,348,242.2	E. 520,713.6
	BOTTOM HOLE	
NAD'27 S.P.C.(FT)	N. 283,386.1	E. 1,644,520.3
NAD'27 GEO.	LAT-(N) 39.271242	LONG-(W) 80.755645
NAD'83 UTM (M)	N. 4,346,915.1	E. 521,093.0

NOTES ON SURVEY

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
2. AS DRILLED INFORMATION PROVIDED BY EQT.

AS DRILLED COORDINATES FOR WELL NO. WV 513342

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'27 S.P.C.(FT)	N. 290,267.6	E. 1,645,159.8
NAD'27 GEO.	LAT-(N) 39.290158	LONG-(W) 80.753726
NAD'83 UTM (M)	N. 4,349,014.8	E. 521,252.9
	BOTTOM HOLE	
NAD'27 S.P.C.(FT)	N. 283,386.2	E. 1,644,519.1
NAD'27 GEO.	LAT-(N) 39.271242	LONG-(W) 80.755650
NAD'83 UTM (M)	N. 4,346,915.1	E. 521,092.7

Professional Energy Consultants
A DIVISION OF SMITH LAND SURVEYING, INC.
SLS
SURVEYORS ENGINEERS ENVIRONMENTAL PROJECT MGMT.
(304) 462-5634 WWW.SLSSURVEYS.COM

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. 2288 Earl N. Thompson

EARL N. THOMPSON LICENSED No. 2288 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE JUNE 09 , 20 14

REVISED 08/01/14 & 01/21/15

OPERATORS WELL NO. WV 513342

API WELL NO. 47 — 017 — 06572
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 7831ASDRILLED513342

SCALE 1" = 2000'

HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK)

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

WELL TYPE: OIL ____ GAS X LIQUID INJECTION ____ WASTE DISPOSAL ____ IF "GAS" PRODUCTION X STORAGE ____ DEEP ____ SHALLOW X

LOCATION :

ELEVATION 1,260' (PAD ELEVATION) WATERSHED BLUESTONE CREEK & MIDDLE ISLAND CREEK

DISTRICT WEST UNION COUNTY DODDRIDGE QUADRANGLE WEST UNION 7.5'

SURFACE OWNER FRANKLIN L. BUTLER & KEY OIL COMPANY ACREAGE 86.09±

ROYALTY OWNER LEWIS MAXWELL HEIRS ACREAGE 640±

PROPOSED WORK : LEASE NO. 080620

DRILL X CONVERT ____ DRILL DEEPER ____ REDRILL ____ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ____ PERFORATE NEW FORMATION ____ PLUG AND ABANDON ____ CLEAN OUT AND REPLUG ____ OTHER ____

PHYSICAL CHANGE IN WELL (SPECIFY) ____ TARGET FORMATION MARCELLUS

ESTIMATED DEPTH TVD 6,854'

WELL OPERATOR EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY

ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280

BRIDGEPORT, WV 26330 BRIDGEPORT, WV 26330

COUNTY NAME

PERMIT

SLS

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Rev. 8/23/13

Page ___ of ___

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 017 - 06575 County Doddridge District West Union
Quad West Union 7.5' Pad Name WEU51 Field/Pool Name
Farm name Mary H. Holland Estate/Jane M. Hardin Well Number 515730
Operator (as registered with the OOG) EQT Production Company
Address 625 Liberty Ave. EQT Plaza, Suite 1700 City Pittsburgh State PA Zip 15222

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey

Top hole	Northing	4,345,201	Easting	520,426
Landing Point of Curve	Northing	4,345,571	Easting	521,544
Bottom Hole	Northing	4,344,872	Easting	521,884

Elevation (ft) 1208 GL Type of Well ■New □ Existing Type of Report □Interim ■Final

Permit Type □ Deviated □ Horizontal ■ Horizontal 6A □ Vertical Depth Type □ Deep ■ Shallow

Type of Operation □ Convert □ Deepen ■ Drill □ Plug Back □ Redrilling □ Rework ■ Stimulate

Well Type □ Brine Disposal □ CBM ■ Gas □ Oil □ Secondary Recovery □ Solution Mining □ Storage □ Other ___

Type of Completion □ Single □ Multiple Fluids Produced □ Brine ■Gas ■ NGL □ Oil □ Other ___
Drilled with □ Cable ■ Rotary

Drilling Media Surface hole ■ Air □ Mud □Fresh Water Intermediate hole ■ Air ■ Mud □ Fresh Water □ Brine
Production hole □ Air ■ Mud □ Fresh Water □ Brine
Mud Type(s) and Additive(s)
Water base Mud 12.5 ppg barium sulfate, sodium chloride, xanthan gum, polyanionic cellulose, modified starch, sodium hydroxide, phosphonates and alkyl phophates, glutaraldehyde solution, calcium hydroxide, partially hydrolyzed polyacrylamide/polyacrylate, potassium chloride, sodium carbonate, ground walnut shells, alcohol and modified fatty acid, ferrochrome lignosulfonate, calcium carbonate, fibrous cellulose

Date permit issued 10/20/2014 Date drilling commenced 10/16/2014 Date drilling ceased 12/06/2014
Date completion activities began 4/23/2015 Date completion activities ceased 4/28/2015
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

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Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 334 Open mine(s) (Y/N) depths N
Salt water depth(s) ft ___ Void(s) encountered (Y/N) depths N
Coal depth(s) ft 101,170,294,314,486,555 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:
6/21/15

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API 47- 017 - 06575 Farm name Mary H. Holland Estate/Jane M. Hardin Well number 515730

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	30"	26"	40'	New	82.6#/ft	None	Y
Surface	17-1/2"	13-3/8"	1,174'	New	54.5#/ft	None	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	5,363'	New	40#/ft	None	Y
Intermediate 2							
Intermediate 3							
Production	8-1/2"	5-1/2"	11,698'	New	20#/ft	None	N
Tubing							
Packer type and depth set							

Comment Details

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	49	15.6	1.18	58	0	8
Surface	Class A	925	15.6	1.19	1100	0	8
Coal							
Intermediate 1	Class A	375/340/1140	14.2/15.6/15.6	1.28/1.18/1.18	2226	0	8
Intermediate 2							
Intermediate 3							
Production	Class A/Class H	726/360	14.2/15.2	1.26/1.97	1624	5,400'	72
Tubing							

Drillers TD (ft) 11,710' Loggers TD (ft) N/A
Deepest formation penetrated Marcellus Plug back to (ft) N/A
Plug back procedure N/A

Kick off depth (ft) 5,438'

Check all wireline logs run ☐ caliper ☐ density ■ deviated/directional ☐ induction
☐ neutron ☐ resistivity ■ gamma ray ■ temperature ☐sonic

Well cored ☐ Yes ■ No ☐ Conventional ☐ Sidewall Were cuttings collected ☐ Yes ■ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING Conductor-N/A
Surface- Joints: 2, 14, 26
Intermediate- RAN AT LEAST EVERY 500' FEET JOINTS: ,, 14, 26, 38, 51, 64 76, 88, 100, 114, 126
Production- Composite bodied centralizers on every joint from TD up to 4,870'

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WAS WELL COMPLETED AS SHOT HOLE ☐ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ■ No DETAILS

WERE TRACERS USED ☐ Yes ■ No TYPE OF TRACER(S) USED

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API 47- 017 - 06575 Farm name Mary H. Holland Estate/Jane M. Hardin Well number 515730

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
					Please See Attached

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
						Please	See	Attached

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Please insert additional pages as applicable.

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API 47- 017 - 06575 Farm name Mary H. Holland Estate/Jane M. Hardin Well number 515730

PRODUCING FORMATION(S)	DEPTHS	
Marcellus	6,695' TVD	9,102' MD

Please insert additional pages as applicable.

GAS TEST ☐ Build up ☐ Drawdown ■ Open Flow OIL TEST ■ Flow ☐ Pump

SHUT-IN PRESSURE Surface 1,716 psi Bottom Hole n/a psi DURATION OF TEST 99.0 hrs

OPEN FLOW	Gas	Oil	NGL	Water	GAS MEASURED BY
	8,399 mcfpd	0 bpd	13.6 bpd	774.7 bpd	☐ Estimated ■ Orifice ☐ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
	0		0		

Please insert additional pages as applicable.

Drilling Contractor Savanna Drilling
Address 2204 Timberloch Place Suite 230 City Woodlands State TX Zip 77380

Logging Company GyroData
Address 601 Mayer St City Bridgeville State PA Zip 15017

Cementing Company Nabors
Address 380 Southpointe Boulevard Suite 210 City Canonsburg State PA Zip 15317

Stimulating Company FTSI
Address 301 E 18TH STREET City CISCO State TX Zip 76437

Please insert additional pages as applicable.

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Completed by JAMES ABBOTT Telephone 412-553-5996
Signature _____ Title DIRECTOR OF COMPLETIONS Date 7/13/2015

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

API 47-017-06575

Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
Fresh Water Zone	0	0	334	334
SAND / SHALE	0	0	101	101
Washington Coal	101	101	104	104
SAND / SHALE	104	104	170	170
Waynesburg A Coal	170	170	172	172
SAND / SHALE	172	172	294	294
Coal	294	294	298	298
SAND / SHALE	298	298	314	314
Uniontown Coal	314	314	317	317
SAND / SHALE	317	317	486	486
Redstone Coal	486	486	487	487
SAND / SHALE	487	487	555	555
Pittsburgh Coal	555	555	558	558
SAND / SHALE	558	558	1,484	1,484
MAXTON	1,484	1,484	1,880	1,880
Big Lime	1,880	1,880	1,949	1,949
KEENER	1,949	1,949	2,179	2,178
Weir	2,179	2,178	2,375	2,374
BEREA	2,375	2,374	2,381	2,380
Gantz	2,381	2,380	2,495	2,494
Fifty foot	2,495	2,494	2,585	2,584
Thirty foot	2,585	2,584	2,729	2,727
Forth Sand	2,729	2,727	2,922	2,920
Bayard	2,922	2,920	3,239	3,236
Warren	3,239	3,236	3,300	3,297
Speechley	3,300	3,297	3,971	3,965
Balltown A	3,971	3,965	4,247	4,239
Benson	4,247	4,239	5,137	5,098
Alexander	5,137	5,098	7,847	6,311
Sonyea	7,847	6,311	8,314	6,468
Middlesex	8,314	6,468	8,492	6,528
Genesee	8,492	6,528	8,725	6,607
Geneseo	8,725	6,607	8,812	6,637
Tully	8,812	6,637	8,923	6,666
Hamilton	8,923	6,666	9,102	6,695
Marcellus	9,102	6,695	11,710	6,748

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API 47- 017 - 06575

EQT Production - Marcellus

Doddridge County, WV Grid
Doddridge County 515730
Well #515730

Main Wellbore

Design: 515730 As Drilled Surveys

Standard Survey Report

08 December, 2014

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Phoenix Technologies

Survey Report

17.06575

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 515730
Company:	EQT Production - Marcellus	**TVD Reference:**	KB @ 1224.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB @ 1224.0usft
Site:	Doddridge County 515730	**North Reference:**	Grid
Well:	Well #515730	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515730 As Drilled Surveys		

Project Doddridge County, WV Grid

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia North 4701		Using geodetic scale factor

Site Doddridge County 515730

Site Position:		**Northing:**	277,796.40 usft	**Latitude:**	39.26
From:	Map	**Easting:**	1,642,237.90 usft	**Longitude:**	-80.76
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.81 °

Well Well #515730

Well Position	**+N/-S**	0.0 usft	**Northing:**	277,796.40 usft	**Latitude:**	39° 15' 20.910 N
	+E/-W	0.0 usft	**Easting:**	1,642,237.90 usft	**Longitude:**	80° 45' 48.343 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	1,208.0 usft

Wellbore Main Wellbore

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	11/10/2014	-8.50	66.74	52,225

Design 515730 As Drilled Surveys

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	103.66

Survey Program Date 12/8/2014

From ()	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	4,150.0	515730 Gyrodata Gyro (Main Wellbore)	GYD_DP_MS	Gyrodata gyro-compassing and drop
0.00	11,710.0	515730 PHX MWD (Main Wellbore)	MWD+IGRF	MWD+IGRF v3:standard declination

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	-1,224.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.26	91.24	100.0	-1,124.0	0.0	0.2	0.2	0.26	0.26	0.00
200.0	0.52	138.20	200.0	-1,024.0	-0.3	0.8	0.8	0.39	0.26	46.96
300.0	0.78	140.31	300.0	-924.0	-1.2	1.5	1.7	0.26	0.26	2.11
400.0	0.51	132.13	400.0	-824.0	-2.0	2.3	2.7	0.28	-0.27	-8.18
500.0	0.39	134.04	500.0	-724.0	-2.6	2.8	3.4	0.12	-0.12	1.91
600.0	0.23	154.58	600.0	-624.0	-3.0	3.2	3.8	0.19	-0.16	20.54
700.0	0.16	161.68	700.0	-524.0	-3.3	3.3	4.0	0.07	-0.07	7.10

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JUL 14 2015
JUL 14 2015

17-06515

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 515730
Company:	EQT Production - Marcellus	**TVD Reference:**	KB @ 1224.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB @ 1224.0usft
Site:	Doddridge County 515730	**North Reference:**	Grid
Well:	Well #515730	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515730 As Drilled Surveys		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
800.0	0.22	168.31	800.0	-424.0	-3.6	3.4	4.1	0.06	0.06	6.63
900.0	0.20	194.49	900.0	-324.0	-4.0	3.4	4.2	0.10	-0.02	26.18
1,000.0	0.19	188.65	1,000.0	-224.0	-4.3	3.3	4.2	0.02	-0.01	-5.84
1,100.0	0.29	155.32	1,100.0	-124.0	-4.7	3.4	4.4	0.17	0.10	-33.33
1,200.0	0.62	118.82	1,200.0	-24.0	-5.2	4.0	5.1	0.42	0.33	-36.50
1,300.0	0.81	118.54	1,300.0	76.0	-5.8	5.1	6.3	0.19	0.19	-0.28
1,400.0	1.25	121.10	1,399.9	175.9	-6.7	6.6	8.0	0.44	0.44	2.56
1,500.0	1.76	120.05	1,499.9	275.9	-8.0	8.9	10.5	0.51	0.51	-1.05
1,600.0	1.88	121.11	1,599.9	375.9	-9.6	11.6	13.6	0.12	0.12	1.06
1,700.0	2.09	120.29	1,699.8	475.8	-11.4	14.6	16.9	0.21	0.21	-0.82
1,800.0	2.32	121.84	1,799.7	575.7	-13.4	17.9	20.5	0.24	0.23	1.55
1,900.0	2.69	122.29	1,899.6	675.6	-15.7	21.6	24.7	0.37	0.37	0.45
2,000.0	2.89	122.30	1,999.5	775.5	-18.3	25.7	29.3	0.20	0.20	0.01
2,100.0	3.10	122.79	2,099.4	875.4	-21.1	30.1	34.2	0.21	0.21	0.49
2,200.0	3.00	119.16	2,199.2	975.2	-23.9	34.7	39.3	0.22	-0.10	-3.63
2,300.0	3.31	119.15	2,299.1	1,075.1	-26.6	39.5	44.6	0.31	0.31	-0.01
2,400.0	3.48	116.39	2,398.9	1,174.9	-29.3	44.7	50.4	0.24	0.17	-2.76
2,500.0	3.44	113.90	2,498.7	1,274.7	-31.9	50.2	56.3	0.16	-0.04	-2.49
2,600.0	3.40	114.15	2,598.5	1,374.5	-34.3	55.6	62.1	0.04	-0.04	0.25
2,700.0	3.37	113.21	2,698.4	1,474.4	-36.7	61.0	68.0	0.06	-0.03	-0.94
2,800.0	3.38	113.72	2,798.2	1,574.2	-39.0	66.4	73.8	0.03	0.01	0.51
2,900.0	3.35	112.46	2,898.0	1,674.0	-41.3	71.8	79.6	0.08	-0.03	-1.26
3,000.0	3.64	112.18	2,997.8	1,773.8	-43.6	77.5	85.6	0.29	0.29	-0.28
3,100.0	4.01	112.14	3,097.6	1,873.6	-46.1	83.6	92.2	0.37	0.37	-0.04
3,200.0	4.71	109.58	3,197.3	1,973.3	-48.8	90.8	99.7	0.73	0.70	-2.56
3,300.0	5.23	109.07	3,297.0	2,073.0	-51.7	98.9	108.3	0.52	0.52	-0.51
3,400.0	5.76	109.17	3,396.5	2,172.5	-54.8	108.0	117.9	0.53	0.53	0.10
3,500.0	5.93	108.98	3,496.0	2,272.0	-58.2	117.6	128.0	0.17	0.17	-0.19
3,600.0	6.16	110.20	3,595.4	2,371.4	-61.7	127.5	138.5	0.26	0.23	1.22
3,700.0	6.03	111.11	3,694.9	2,470.9	-65.4	137.5	149.0	0.16	-0.13	0.91
3,800.0	5.86	113.74	3,794.3	2,570.3	-69.4	147.0	159.3	0.32	-0.17	2.63
3,900.0	5.68	117.41	3,893.8	2,669.8	-73.7	156.1	169.1	0.41	-0.18	3.67
4,000.0	5.25	122.48	3,993.4	2,769.4	-78.5	164.3	178.2	0.65	-0.43	5.07
4,100.0	4.97	128.80	4,093.0	2,869.0	-83.6	171.6	186.5	0.63	-0.28	6.32
Gyro Tie In=4150' MD										
4,150.0	4.88	132.30	4,142.8	2,918.8	-86.4	174.8	190.3	0.63	-0.18	7.00
4,185.0	5.00	134.10	4,177.6	2,953.6	-88.5	177.0	192.9	0.56	0.34	5.14
4,248.0	5.10	135.00	4,240.4	3,016.4	-92.4	181.0	197.7	0.20	0.16	1.43
4,279.0	5.10	135.80	4,271.3	3,047.3	-94.3	182.9	200.0	0.23	0.00	2.58
4,311.0	5.30	136.10	4,303.1	3,079.1	-96.4	184.9	202.5	0.63	0.63	0.94
4,342.0	5.60	132.80	4,334.0	3,110.0	-98.5	187.0	205.0	1.40	0.97	-10.65
4,373.0	6.30	119.90	4,364.8	3,140.8	-100.4	189.6	208.0	4.85	2.26	-41.61
4,405.0	7.20	109.40	4,396.6	3,172.6	-101.9	193.0	211.6	4.76	2.81	-32.81

17-06575

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 515730
Company:	EQT Production - Marcellus	**TVD Reference:**	KB @ 1224.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB @ 1224.0usft
Site:	Doddridge County 515730	**North Reference:**	Grid
Well:	Well #515730	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515730 As Drilled Surveys		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,437.0	8.00	102.80	4,428.3	3,204.3	-103.1	197.1	215.9	3.70	2.50	-20.63
4,468.0	8.70	99.40	4,459.0	3,235.0	-103.9	201.5	220.4	2.76	2.26	-10.97
4,499.0	9.30	94.40	4,489.6	3,265.6	-104.5	206.3	225.2	3.18	1.94	-16.13
4,531.0	9.70	87.80	4,521.2	3,297.2	-104.6	211.6	230.3	3.62	1.25	-20.63
4,562.0	10.00	81.50	4,551.7	3,327.7	-104.1	216.9	235.3	3.61	0.97	-20.32
4,593.0	10.40	76.80	4,582.2	3,358.2	-103.1	222.3	240.3	2.98	1.29	-15.16
4,625.0	10.70	74.00	4,613.7	3,389.7	-101.6	227.9	245.5	1.86	0.94	-8.75
4,656.0	11.30	72.70	4,644.1	3,420.1	-99.9	233.6	250.6	2.09	1.94	-4.19
4,688.0	12.00	71.30	4,675.5	3,451.5	-97.9	239.7	256.1	2.36	2.19	-4.38
4,719.0	12.80	71.00	4,705.8	3,481.8	-95.7	246.0	261.7	2.59	2.58	-0.97
4,751.0	13.80	70.20	4,736.9	3,512.9	-93.3	253.0	267.9	3.18	3.13	-2.50
4,782.0	15.30	69.20	4,766.9	3,542.9	-90.6	260.3	274.3	4.91	4.84	-3.23
4,814.0	16.70	69.50	4,797.7	3,573.7	-87.5	268.5	281.6	4.38	4.38	0.94
4,845.0	17.70	69.00	4,827.3	3,603.3	-84.2	277.1	289.2	3.26	3.23	-1.61
4,877.0	18.30	69.60	4,857.7	3,633.7	-80.7	286.4	297.3	1.96	1.88	1.88
4,908.0	18.70	70.10	4,887.1	3,663.1	-77.3	295.6	305.5	1.39	1.29	1.61
4,940.0	19.00	69.90	4,917.4	3,693.4	-73.8	305.3	314.1	0.96	0.94	-0.63
4,971.0	20.00	69.30	4,946.6	3,722.6	-70.2	315.0	322.7	3.29	3.23	-1.94
5,003.0	21.40	68.50	4,976.5	3,752.5	-66.1	325.6	332.0	4.46	4.38	-2.50
5,034.0	23.40	68.20	5,005.2	3,781.2	-61.8	336.5	341.6	6.46	6.45	-0.97
5,066.0	25.60	67.70	5,034.3	3,810.3	-56.8	348.8	352.4	6.91	6.88	-1.56
5,097.0	27.00	67.60	5,062.1	3,838.1	-51.6	361.5	363.5	4.52	4.52	-0.32
5,129.0	27.50	67.70	5,090.6	3,866.6	-46.0	375.1	375.3	1.57	1.56	0.31
5,160.0	27.70	68.10	5,118.0	3,894.0	-40.6	388.4	387.0	0.88	0.65	1.29
5,192.0	28.00	68.10	5,146.3	3,922.3	-35.0	402.3	399.2	0.94	0.94	0.00
5,223.0	28.60	68.00	5,173.6	3,949.6	-29.5	415.9	411.1	1.94	1.94	-0.32
5,255.0	29.10	67.70	5,201.6	3,977.6	-23.7	430.2	423.6	1.63	1.56	-0.94
5,318.0	29.50	67.50	5,256.6	4,032.6	-11.9	458.7	448.6	0.65	0.63	-0.32
5,349.0	29.50	67.50	5,283.6	4,059.6	-6.1	472.8	460.9	0.00	0.00	0.00
5,422.0	29.90	69.50	5,347.0	4,123.0	7.2	506.5	490.5	1.46	0.55	2.74
5,453.0	32.00	69.10	5,373.6	4,149.6	12.8	521.4	503.6	6.81	6.77	-1.29
5,484.0	34.60	69.50	5,399.5	4,175.5	18.8	537.3	517.7	8.42	8.39	1.29
5,516.0	37.70	70.20	5,425.3	4,201.3	25.3	555.0	533.3	9.77	9.69	2.19
5,547.0	40.90	70.60	5,449.3	4,225.3	31.9	573.5	549.8	10.35	10.32	1.29
5,579.0	44.20	70.10	5,472.9	4,248.9	39.2	593.9	567.8	10.37	10.31	-1.56
5,610.0	48.00	69.10	5,494.4	4,270.4	47.0	614.8	586.3	12.48	12.26	-3.23
5,641.0	51.00	68.50	5,514.5	4,290.5	55.5	636.8	605.7	9.79	9.68	-1.94
5,673.0	53.40	67.70	5,534.1	4,310.1	64.9	660.2	626.3	7.76	7.50	-2.50
5,704.0	54.90	67.20	5,552.3	4,328.3	74.5	683.4	646.5	5.01	4.84	-1.61
5,736.0	56.70	66.40	5,570.2	4,346.2	85.0	707.8	667.7	5.99	5.63	-2.50
5,767.0	59.20	65.20	5,586.7	4,362.7	95.7	731.7	688.4	8.71	8.06	-3.87
5,799.0	61.20	64.60	5,602.6	4,378.6	107.5	756.9	710.1	6.46	6.25	-1.88

17-06575

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 515730
Company:	EQT Production - Marcellus	**TVD Reference:**	KB @ 1224.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB @ 1224.0usft
Site:	Doddridge County 515730	**North Reference:**	Grid
Well:	Well #515730	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515730 As Drilled Surveys		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,830.0	64.70	63.90	5,616.7	4,392.7	119.5	781.7	731.4	11.47	11.29	-2.26
5,862.0	69.10	64.20	5,629.2	4,405.2	132.4	808.2	754.1	13.78	13.75	0.94
5,925.0	72.60	64.30	5,649.9	4,425.9	158.3	861.8	800.1	5.56	5.56	0.16
5,988.0	72.80	63.60	5,668.6	4,444.6	184.7	915.8	846.4	1.11	0.32	-1.11
6,051.0	71.40	63.10	5,688.0	4,464.0	211.6	969.4	892.1	2.35	-2.22	-0.79
6,113.0	70.30	63.80	5,708.3	4,484.3	237.7	1,021.8	936.8	2.07	-1.77	1.13
6,177.0	72.10	64.20	5,729.0	4,505.0	264.3	1,076.3	983.4	2.87	2.81	0.63
6,240.0	72.10	64.30	5,748.3	4,524.3	290.3	1,130.3	1,029.8	0.15	0.00	0.16
6,303.0	69.20	64.10	5,769.2	4,545.2	316.2	1,183.8	1,075.7	4.61	-4.60	-0.32
6,366.0	67.60	64.40	5,792.4	4,568.4	341.7	1,236.5	1,120.9	2.58	-2.54	0.48
6,429.0	69.50	64.80	5,815.4	4,591.4	366.8	1,289.5	1,166.4	3.07	3.02	0.63
6,491.0	71.40	65.30	5,836.2	4,612.2	391.4	1,342.5	1,212.1	3.16	3.06	0.81
6,555.0	70.70	64.40	5,857.0	4,633.0	417.2	1,397.3	1,259.3	1.72	-1.09	-1.41
6,618.0	67.80	63.80	5,879.3	4,655.3	442.9	1,450.2	1,304.7	4.69	-4.60	-0.95
6,681.0	66.90	63.60	5,903.5	4,679.5	468.7	1,502.4	1,349.3	1.46	-1.43	-0.32
6,744.0	68.80	64.10	5,927.3	4,703.3	494.4	1,554.7	1,394.1	3.10	3.02	0.79
6,807.0	71.40	64.60	5,948.7	4,724.7	520.0	1,608.1	1,439.9	4.19	4.13	0.79
6,870.0	73.50	64.80	5,967.7	4,743.7	545.7	1,662.4	1,486.6	3.35	3.33	0.32
6,933.0	73.30	65.50	5,985.7	4,761.7	571.0	1,717.2	1,533.9	1.11	-0.32	1.11
6,997.0	72.00	66.10	6,004.8	4,780.8	596.1	1,772.9	1,582.1	2.22	-2.03	0.94
7,060.0	69.80	66.60	6,025.4	4,801.4	620.0	1,827.5	1,629.5	3.57	-3.49	0.79
7,123.0	67.80	66.20	6,048.2	4,824.2	643.5	1,881.3	1,676.2	3.23	-3.17	-0.63
7,185.0	68.00	66.10	6,071.5	4,847.5	666.7	1,933.8	1,721.8	0.36	0.32	-0.16
7,249.0	68.80	65.30	6,095.1	4,871.1	691.2	1,988.1	1,768.7	1.71	1.25	-1.25
7,312.0	69.30	64.50	6,117.6	4,893.6	716.2	2,041.3	1,814.6	1.43	0.79	-1.27
7,375.0	69.90	63.60	6,139.6	4,915.6	742.0	2,094.4	1,860.1	1.64	0.95	-1.43
7,438.0	68.60	65.10	6,161.9	4,937.9	767.5	2,147.5	1,905.7	3.04	-2.06	2.38
7,501.0	68.10	64.00	6,185.1	4,961.1	792.7	2,200.4	1,951.1	1.81	-0.79	-1.75
7,565.0	68.50	63.70	6,208.8	4,984.8	818.9	2,253.8	1,996.8	0.76	0.63	-0.47
7,627.0	68.30	63.10	6,231.6	5,007.6	844.7	2,305.3	2,040.8	0.96	-0.32	-0.97
7,690.0	68.50	63.80	6,254.8	5,030.8	870.9	2,357.7	2,085.5	1.08	0.32	1.11
7,753.0	69.00	66.10	6,277.7	5,053.7	895.7	2,410.9	2,131.3	3.49	0.79	3.65
7,816.0	69.40	66.80	6,300.0	5,076.0	919.2	2,464.9	2,178.2	1.22	0.63	1.11
7,880.0	69.30	66.60	6,322.6	5,098.6	942.9	2,519.9	2,226.1	0.33	-0.16	-0.31
7,943.0	70.50	65.70	6,344.2	5,120.2	966.9	2,574.0	2,273.0	2.33	1.90	-1.43
8,006.0	71.70	66.00	6,364.7	5,140.7	991.2	2,628.4	2,320.1	1.96	1.90	0.48
8,069.0	71.00	66.10	6,384.8	5,160.8	1,015.5	2,683.0	2,367.4	1.12	-1.11	0.16
8,131.0	70.40	65.80	6,405.3	5,181.3	1,039.3	2,736.4	2,413.7	1.07	-0.97	-0.48
8,194.0	69.60	66.40	6,426.8	5,202.8	1,063.3	2,790.5	2,460.6	1.55	-1.27	0.95
8,258.0	70.20	65.90	6,448.8	5,224.8	1,087.6	2,845.5	2,508.3	1.19	0.94	-0.78
8,321.0	70.10	65.10	6,470.2	5,246.2	1,112.2	2,899.4	2,554.9	1.20	-0.16	-1.27
8,384.0	70.20	64.60	6,491.6	5,267.6	1,137.4	2,953.1	2,601.1	0.76	0.16	-0.79
8,447.0	70.50	64.80	6,512.8	5,288.8	1,162.7	3,006.7	2,647.2	0.56	0.48	0.32

17-06575

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 515730
Company:	EQT Production - Marcellus	**TVD Reference:**	KB @ 1224.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB @ 1224.0usft
Site:	Doddridge County 515730	**North Reference:**	Grid
Well:	Well #515730	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515730 As Drilled Surveys		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,509.0	70.00	64.50	6,533.8	5,309.8	1,187.7	3,059.4	2,692.6	0.93	-0.81	-0.48
8,541.0	70.40	66.00	6,544.6	5,320.6	1,200.3	3,086.8	2,716.2	4.58	1.25	4.69
8,573.0	71.10	70.40	6,555.2	5,331.2	1,211.5	3,114.8	2,740.8	13.16	2.19	13.75
8,604.0	71.60	74.40	6,565.1	5,341.1	1,220.4	3,142.8	2,765.9	12.33	1.61	12.90
8,636.0	70.60	78.60	6,575.4	5,351.4	1,227.5	3,172.2	2,792.8	12.80	-3.13	13.13
8,667.0	69.40	80.30	6,586.0	5,362.0	1,232.8	3,200.9	2,819.4	6.44	-3.87	5.48
8,699.0	68.40	83.20	6,597.6	5,373.6	1,237.1	3,230.4	2,847.0	9.01	-3.13	9.06
8,730.0	68.50	87.40	6,609.0	5,385.0	1,239.5	3,259.1	2,874.4	12.61	0.32	13.55
8,761.0	70.30	90.70	6,619.9	5,395.9	1,239.9	3,288.1	2,902.5	11.53	5.81	10.65
8,793.0	71.00	94.20	6,630.5	5,406.5	1,238.6	3,318.3	2,932.1	10.55	2.19	10.94
8,824.0	71.10	96.00	6,640.5	5,416.5	1,236.0	3,347.5	2,961.1	5.50	0.32	5.81
8,856.0	73.20	97.80	6,650.3	5,426.3	1,232.4	3,377.7	2,991.3	8.47	6.56	5.63
8,887.0	76.40	101.20	6,658.5	5,434.5	1,227.4	3,407.2	3,021.2	14.78	10.32	10.97
8,919.0	79.40	104.50	6,665.2	5,441.2	1,220.5	3,437.7	3,052.4	13.77	9.38	10.31
8,950.0	81.10	108.50	6,670.4	5,446.4	1,211.8	3,467.0	3,082.9	13.85	5.48	12.90
8,982.0	81.50	111.90	6,675.3	5,451.3	1,200.9	3,496.7	3,114.4	10.58	1.25	10.63
9,013.0	80.90	114.60	6,680.0	5,456.0	1,188.8	3,524.8	3,144.6	8.82	-1.94	8.71
9,045.0	80.70	117.60	6,685.1	5,461.1	1,174.9	3,553.2	3,175.4	9.28	-0.63	9.38
9,077.0	80.50	121.00	6,690.4	5,466.4	1,159.4	3,580.7	3,205.8	10.50	-0.63	10.63
9,107.0	80.20	123.50	6,695.4	5,471.4	1,143.6	3,605.7	3,233.8	8.28	-1.00	8.33
9,138.0	80.20	125.80	6,700.7	5,476.7	1,126.3	3,630.9	3,262.4	7.31	0.00	7.42
9,170.0	80.00	129.10	6,706.2	5,482.2	1,107.1	3,655.9	3,291.2	10.18	-0.63	10.31
9,201.0	80.00	133.70	6,711.6	5,487.6	1,086.9	3,678.8	3,318.2	14.61	0.00	14.84
9,233.0	80.20	137.20	6,717.1	5,493.1	1,064.5	3,700.9	3,345.0	10.79	0.63	10.94
9,264.0	82.20	139.50	6,721.8	5,497.8	1,041.6	3,721.3	3,370.2	9.77	6.45	7.42
9,295.0	84.50	142.00	6,725.4	5,501.4	1,017.7	3,740.7	3,394.7	10.92	7.42	8.06
9,327.0	84.90	146.50	6,728.4	5,504.4	991.9	3,759.3	3,418.9	14.06	1.25	14.06
9,358.0	85.30	149.30	6,731.0	5,507.0	965.7	3,775.8	3,441.0	9.09	1.29	9.03
9,389.0	84.30	150.90	6,733.8	5,509.8	939.0	3,791.1	3,462.3	6.07	-3.23	5.16
9,452.0	86.20	156.00	6,739.0	5,515.0	882.8	3,819.2	3,502.8	8.61	3.02	8.10
LP= 9515' MD/6741' TVD										
9,515.0	90.10	155.50	6,741.1	5,517.1	825.4	3,845.0	3,541.5	6.24	6.19	-0.79
9,578.0	90.90	155.90	6,740.5	5,516.5	768.0	3,871.0	3,580.2	1.42	1.27	0.63
9,642.0	91.70	154.80	6,739.1	5,515.1	709.9	3,897.7	3,619.9	2.12	1.25	-1.72
9,704.0	90.20	154.80	6,738.0	5,514.0	653.8	3,924.1	3,658.8	2.42	-2.42	0.00
9,767.0	89.90	155.40	6,738.0	5,514.0	596.6	3,950.6	3,698.1	1.06	-0.48	0.95
9,830.0	90.80	155.10	6,737.6	5,513.6	539.4	3,977.0	3,737.2	1.51	1.43	-0.48
9,893.0	91.30	154.10	6,736.4	5,512.4	482.5	4,004.0	3,776.9	1.77	0.79	-1.59
9,957.0	88.00	153.10	6,736.8	5,512.8	425.2	4,032.4	3,818.1	5.39	-5.16	-1.56
10,020.0	87.30	153.00	6,739.4	5,515.4	369.1	4,061.0	3,859.0	1.12	-1.11	-0.16
10,083.0	87.30	152.40	6,742.4	5,518.4	313.2	4,089.8	3,900.3	0.95	0.00	-0.95
10,145.0	89.00	154.00	6,744.4	5,520.4	257.9	4,117.8	3,940.5	3.76	2.74	2.58

Phoenix Technologies

Survey Report

17-06575

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 515730
Company:	EQT Production - Marcellus	**TVD Reference:**	KB @ 1224.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB @ 1224.0usft
Site:	Doddridge County 515730	**North Reference:**	Grid
Well:	Well #515730	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515730 As Drilled Surveys		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,208.0	89.30	153.10	6,745.3	5,521.3	201.5	4,145.8	3,981.1	1.51	0.48	-1.43
10,271.0	89.40	153.70	6,746.0	5,522.0	145.1	4,174.0	4,021.8	0.97	0.16	0.95
10,334.0	89.70	154.30	6,746.5	5,522.5	88.5	4,201.6	4,062.0	1.06	0.48	0.95
10,397.0	90.50	153.40	6,746.4	5,522.4	32.0	4,229.4	4,102.3	1.91	1.27	-1.43
10,460.0	90.70	150.80	6,745.8	5,521.8	-23.7	4,258.9	4,144.1	4.14	0.32	-4.13
10,523.0	89.80	151.50	6,745.5	5,521.5	-78.9	4,289.3	4,186.7	1.81	-1.43	1.11
10,586.0	88.70	153.20	6,746.3	5,522.3	-134.7	4,318.5	4,228.2	3.21	-1.75	2.70
10,649.0	90.80	154.70	6,746.6	5,522.6	-191.3	4,346.2	4,268.5	4.10	3.33	2.38
10,712.0	91.30	155.90	6,745.4	5,521.4	-248.5	4,372.5	4,307.6	2.06	0.79	1.90
10,775.0	92.10	155.70	6,743.6	5,519.6	-305.9	4,398.3	4,346.2	1.31	1.27	-0.32
10,838.0	90.50	156.80	6,742.1	5,518.1	-363.6	4,423.7	4,384.5	3.08	-2.54	1.75
10,901.0	88.50	158.40	6,742.7	5,518.7	-421.8	4,447.7	4,421.5	4.07	-3.17	2.54
10,964.0	88.40	159.00	6,744.4	5,520.4	-480.5	4,470.5	4,457.6	0.97	-0.16	0.95
11,026.0	87.90	157.70	6,746.4	5,522.4	-538.1	4,493.4	4,493.4	2.25	-0.81	-2.10
11,090.0	89.20	157.60	6,748.0	5,524.0	-597.3	4,517.7	4,531.0	2.04	2.03	-0.16
11,153.0	92.60	156.70	6,747.0	5,523.0	-655.3	4,542.2	4,568.5	5.58	5.40	-1.43
11,216.0	92.00	155.70	6,744.5	5,520.5	-712.9	4,567.6	4,606.8	1.85	-0.95	-1.59
11,278.0	91.70	155.00	6,742.5	5,518.5	-769.2	4,593.4	4,645.2	1.23	-0.48	-1.13
11,341.0	92.20	155.00	6,740.3	5,516.3	-826.3	4,620.1	4,684.5	0.79	0.79	0.00
11,404.0	91.70	155.80	6,738.2	5,514.2	-883.5	4,646.3	4,723.5	1.50	-0.79	1.27
11,467.0	90.00	156.40	6,737.3	5,513.3	-941.1	4,671.8	4,761.9	2.86	-2.70	0.95
11,530.0	88.30	157.80	6,738.2	5,514.2	-999.2	4,696.3	4,799.4	3.50	-2.70	2.22
11,593.0	88.30	158.90	6,740.1	5,516.1	-1,057.7	4,719.5	4,835.8	1.75	0.00	1.75
Final Survey= 11656' MD/6742' TVD										
11,656.0	88.60	157.30	6,741.8	5,517.8	-1,116.1	4,743.0	4,872.4	2.58	0.48	-2.54
Projection to TD= 11710' MD/6743' TVD										
11,710.0	88.60	157.30	6,743.1	5,519.1	-1,165.9	4,763.8	4,904.4	0.00	0.00	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
4,150.0	4,142.8	-86.4	174.8	Gyro Tie In=4150' MD
9,515.0	6,741.1	825.4	3,845.0	LP= 9515' MD/6741' TVD
11,656.0	6,741.8	-1,116.1	4,743.0	Final Survey= 11656' MD/6742' TVD
11,710.0	6,743.1	-1,165.9	4,763.8	Projection to TD= 11710' MD/6743' TVD

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Office of Oil & Gas
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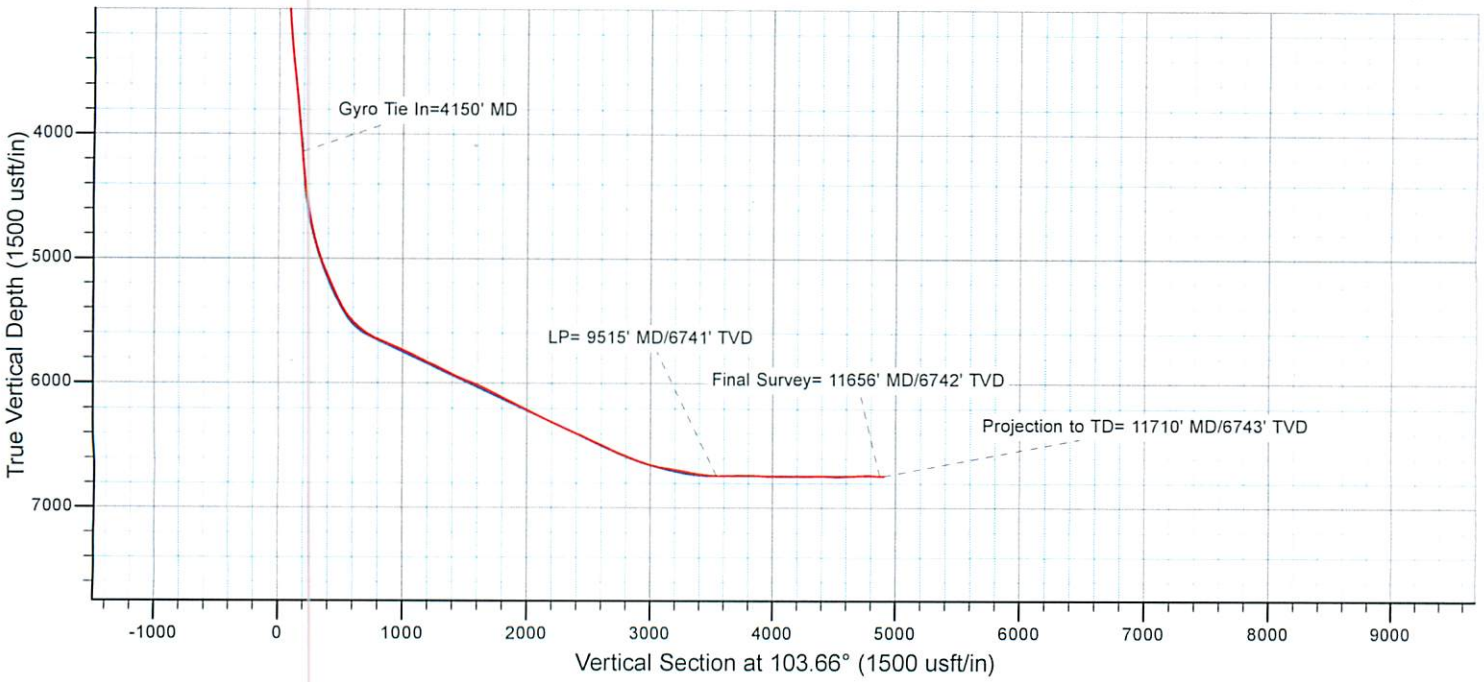
Checked By: _____ Approved By: _____ Date: _____

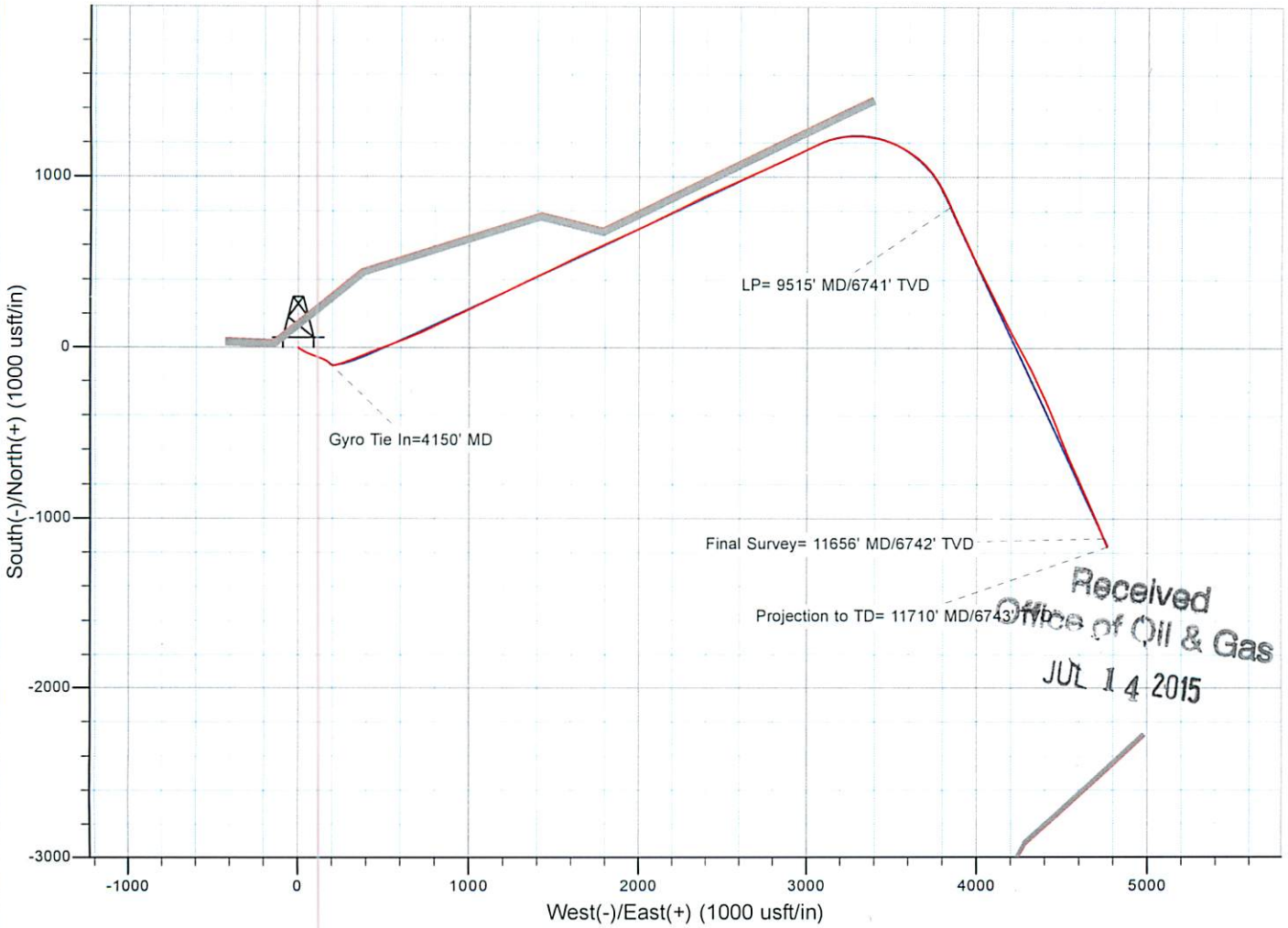
PHOENIX
TECHNOLOGY SERVICES USA INC.

17-06575

EQT Production - Marcellus

Project: Doddridge County, WV Grid
Site: Doddridge County 515730
Well: Well #515730
Wellbore: Main Wellbore
Design: 515730 As Drilled Surveys





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515730 - 47-017-06575-0000 -- Stimulated Stages

Stage Number	Stimulation Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
Initiation Sleeve	4/23/2015	11.0	5,476	6,381	4,918	0	1,346	0
1.02	4/24/2015	6.6	3,771	8,886	4,532	0	1,497	0
1	4/24/2015	98.7	8,269	8,472	5,056	299,893	9,142	0
2	4/24/2015	98.2	8,203	8,558	5,283	303,117	8,515	0
3	4/25/2015	99.8	8,254	8,554	5,157	303,706	7,968	0
4	4/25/2015	99.0	8,152	8,361	5,217	299,426	6,995	0
5	4/25/2015	97.8	8,245	8,459	5,065	298,078	6,826	0
6	4/25/2015	84.6	8,048	9,526	8,441	265,651	6,740	0
7.02	4/26/2015	5.4	4,175	6,255	5,120	0	4,130	0
7	4/26/2015	100.5	7,599	8,081	5,242	298,720	7,354	0
8	4/26/2015	99.5	8,129	8,515	4,602	300,095	7,408	0
9	4/27/2015	100.6	7,504	7,989	5,203	301,353	7,492	0
10	4/27/2015	100.8	7,326	7,676	5,359	294,624	7,213	0
11	4/27/2015	100.3	7,469	7,854	5,454	300,218	7,119	0
12	4/27/2015	100.3	7,383	7,779	5,398	301,193	6,521	0
13	4/27/2015	101.3	7,472	8,220	4,978	293,836	7,365	0
14	4/27/2015	100.3	7,347	7,788	4,991	298,553	7,464	0
15	4/28/2015	103.3	7,312	8,339	4,506	307,939	7,492	0

17-06575

515730 - 47-017-06575-0000 -- Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve				10	MARCELLUS
1	4/24/2015	11,551.00	11,613.00	28	MARCELLUS
2	4/24/2015	11,371.00	11,493.00	42	MARCELLUS
3	4/25/2015	11,192.00	11,313.00	42	MARCELLUS
4	4/25/2015	11,011.00	11,133.00	42	MARCELLUS
5	4/25/2015	10,831.00	10,953.00	42	MARCELLUS
6	4/25/2015	10,651.00	10,773.00	42	MARCELLUS
7	4/26/2015	10,471.00	10,593.00	42	MARCELLUS
8	4/26/2015	10,291.00	10,413.00	42	MARCELLUS
9	4/27/2015	10,111.00	10,233.00	42	MARCELLUS
10	4/27/2015	9,931.00	10,052.00	42	MARCELLUS
11	4/27/2015	9,751.00	9,873.00	42	MARCELLUS
12	4/27/2015	9,569.00	9,693.00	42	MARCELLUS
13	4/27/2015	9,391.00	9,513.00	42	MARCELLUS
14	4/27/2015	9,211.00	9,333.00	42	MARCELLUS
15	4/28/2015	9,031.00	9,153.00	42	MARCELLUS

17-06575

Hydraulic Fracturing Fluid Product Component Information Disclosure

17-06575

Job Start Date:	4/23/2015
Job End Date:	4/28/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06575-00-00
Operator Name:	EQT Production
Well Name and Number:	515730
Longitude:	-80.76342900
Latitude:	39.25580800
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,748
Total Base Water Volume (gal):	4,980,654
Total Base Non Water Volume:	0

FracFocus Chemical Disclosure Registry

GROUNDWATER PROTECTION COUNCIL

Interstate Oil & Gas Compact Commission

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	FTS International	Carrier/Base Fluid					
			Water	7732-18-5	100.00000	89.94501	None
Sand (Proppant)	FTS International	Proppant					
			Crystalline Silica	14808-60-7	100.00000	9.66545	None
MC MX 437-5	Multi-Chem	Calcium nitrate solution					
			Calcium nitrate	10124-37-5	60.00000	0.05749	None
FRW-900	FTS International	Friction reducer					
			Hydrotreated light distillate	64742-47-8	30.00000	0.01938	None
			Alkyl Alcohol	Proprietary	10.00000	0.00646	None
			Ozyalkylated alcohal A	Proprietary	5.00000	0.00323	None
Hydrochloric Acid (15%)	FTS International	Acidizing					
			Hydrochloric Acid	7647-01-0	15.00000	0.02754	None
FRW-600	FTS International	Friction reducer					
			Hydrotreated light distillate	64742-47-8	30.00000	0.00425	None
			Ammonium acetate	631-61-8	6.00000	0.00085	None
HVG-1	FTS International	Gelling agent					
			Petroleum distillate	64742-47-8	55.00000	0.00250	None
			Guar gum	9000-30-0	50.00000	0.00227	None

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			Surfactant	68439-51-0	2.00000	0.00009	None
			Clay	14808-60-7	2.00000	0.00009	None
CS-500-SI	FTS International	Scale inhibitor					
			Ethylene glycol	107-21-1	10.00000	0.00249	None
FE-100L	FTS International	Iron control					
			Citric acid	77-92-9	55.00000	0.00070	None
CI-150	FTS International	Acid Corrosion Inhibitor					
			Organic amine resin salt	Proprietary	30.00000	0.00010	None
			Isopropanol	67-63-0	30.00000	0.00010	None
			Ethylene glycol	107-21-1	30.00000	0.00010	None
			Dimethylformamide	68-12-2	10.00000	0.00003	None
			Aromatic aldehyde	Proprietary	10.00000	0.00003	None
			Quaternary ammonium compound	Proprietary	10.00000	0.00003	None
NE-100	FTS International	Non-emulsifier					
			2-Propanol	67-63-0	10.00000	0.00003	None
			2-Butoxyethanol	111-76-2	10.00000	0.00003	None
			Dodecylbenzenesulfonic acid	27176-87-0	5.00000	0.00001	None
APB-1	FTS International	Breaker					
			Ammonium persulfate	7727-54-0	95.00000	0.00006	None

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

* Total Water Volume sources may include fresh water, produced water, and/or recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.
Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

17-06575

FORM WW 6

3,803'

LATITUDE 39°17'30"

AS DRILLED WELL COORDINATES FOR WELL NO. WV 515730

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'27 S.P.C.(FT)	N. 277,796.4	E. 1,642,237.9
NAD'27 GEO.	LAT-(N) 39.255808	LONG-(W) 80.763428
NAD'83 UTM (M)	N. 4,345,200.6	E. 520,426.1
BOTTOM HOLE		
NAD'27 S.P.C.(FT)	N. 276,630.5	E. 1,647,001.6
NAD'27 GEO.	LAT-(N) 39.252790	LONG-(W) 80.746551
NAD'83 UTM (M)	N. 4,344,869.6	E. 521,883.3

EQT PRODUCTION COMPANY LEEMAN MAXWELL LEASE 1000 ACRES± WELL NO. WV 515730

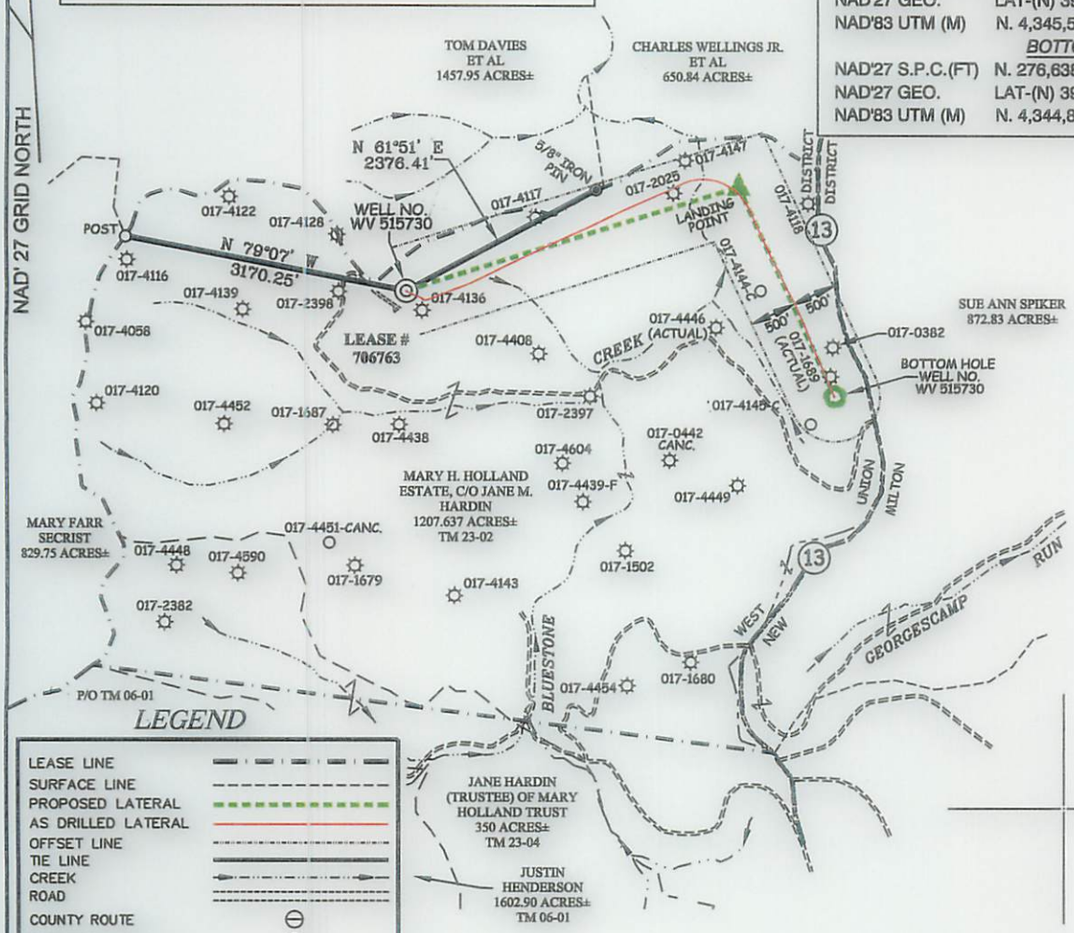
(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'27 S.P.C.(FT)	N. 277,796.4	E. 1,642,237.9
NAD'27 GEO.	LAT-(N) 39.255808	LONG-(W) 80.763428
NAD'83 UTM (M)	N. 4,345,200.6	E. 520,426.1
LANDING POINT		
NAD'27 S.P.C.(FT)	N. 278,949.8	E. 1,645,925.6
NAD'27 GEO.	LAT-(N) 39.259116	LONG-(W) 80.750464
NAD'83 UTM (M)	N. 4,345,570.7	E. 521,543.7
BOTTOM HOLE		
NAD'27 S.P.C.(FT)	N. 276,638.7	E. 1,647,003.2
NAD'27 GEO.	LAT-(N) 39.252813	LONG-(W) 80.746545
NAD'83 UTM (M)	N. 4,344,872.1	E. 521,883.7

LONGITUDE 80°45'00"

13,061'

NAD' 27 GRID NORTH



LEGEND

LEASE LINE	
SURFACE LINE	
PROPOSED LATERAL	
AS DRILLED LATERAL	
OFFSET LINE	
TIE LINE	
CREEK	
ROAD	
COUNTY ROUTE	
PROPOSED WELL	
EXISTING WELL	
TAX MAP–PARCEL	TM 00–00

NOTES ON SURVEY

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
2. AS DRILLED INFORMATION PROVIDED BY EQT.

Professional Energy Consultants
A DIVISION OF SMITH LAND SURVEYING, INC.
SLS
SURVEYORS ENGINEERS ENVIRONMENTAL PROJECT MGMT.
(304) 462-8634 WWW.SLSSURVEYS.COM

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. 849 C. Victor Moyers

C. VICTOR MOYERS LICENSED No. 849 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE JULY 07 , 20 14

REVISED 08/06/14 & 12/10/14

OPERATORS WELL NO. WV 515730

API WELL NO. 47 – 017 – 06575
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 8051ASDRILLED515730

SCALE 1" = 2000'

HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK)

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

WELL TYPE: OIL ____ GAS X LIQUID INJECTION ____ WASTE DISPOSAL ____ IF "GAS" PRODUCTION X STORAGE ____ DEEP ____ SHALLOW X

LOCATION:

ELEVATION 1,228'(GROUND) 1,208'(PROPOSED) WATERSHED BLUESTONE CREEK

DISTRICT WEST UNION COUNTY DODDRIDGE QUADRANGLE WEST UNION 7.5'

SURFACE OWNER MARY H. HOLLAND ESTATE, C/O JANE M. HARDIN ACREAGE 1207.637±

ROYALTY OWNER LEEMAN MAXWELL HEIRS ACREAGE 1,000±

PROPOSED WORK: LEASE NO. 706763

DRILL X CONVERT ____ DRILL DEEPER ____ REDRILL ____ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ____ PERFORATE NEW FORMATION ____ PLUG AND ABANDON ____ CLEAN OUT AND REPLUG ____ OTHER ____

PHYSICAL CHANGE IN WELL (SPECIFY) ____ TARGET FORMATION MARCELLUS

ESTIMATED DEPTH TVD 6661'

COUNTY NAME

PERMIT

WELL OPERATOR EQT PRODUCTION COMPANY **DESIGNATED AGENT** REX C. RAY

ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 **ADDRESS** 115 PROFESSIONAL PLACE P.O. BOX 280

BRIDGEPORT, WV 26330 BRIDGEPORT, WV 26330

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State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 017 - 6706 County DODDRIDGE District SOUTHWEST
Quad OXFORD 7.5' Pad Name OXF44 Field/Pool Name
Farm name ARDEN & CAROL COGAR Well Number 515939
Operator (as registered with the OOG) EQT Production Company
Address 625 Liberty Ave. EQT Plaza, Suite 1700 City Pittsburgh State PA Zip 15222

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey

Top hole	Northing	4,332,922	Easting	516,075
Landing Point of Curve	Northing	4,332,846	Easting	515,788
Bottom Hole	Northing	4,333,635	Easting	515,404

Elevation (ft) 1170 GL Type of Well ■New □ Existing Type of Report □Interim ■Final

Permit Type □ Deviated □ Horizontal ■ Horizontal 6A □ Vertical Depth Type □ Deep □ Shallow

Type of Operation □ Convert □ Deepen ■ Drill □ Plug Back □ Redrilling □ Rework ■ Stimulate

Well Type □ Brine Disposal □ CBM ■ Gas □ Oil □ Secondary Recovery □ Solution Mining □ Storage □ Other ____

Type of Completion ■ Single □ Multiple Fluids Produced □ Brine ■Gas ■ NGL □ Oil □ Other ____
Drilled with □ Cable ■ Rotary

Drilling Media Surface hole ■ Air □ Mud □Fresh Water Intermediate hole ■ Air □ Mud □ Fresh Water □ Brine
Production hole □ Air □ Mud □ Fresh Water □ Brine
Mud Type(s) and Additive(s)
Water base Mud 12.5 ppg barium sulfate, sodium chloride, xanthan gum, polyanionic cellulose, modified starch, sodium hydroxide, phosphonates and alkyl phophates, glutaraldehyde solution, calcium hydroxide,
partially hydrolyzed polyacrylamide/polyacrylate, potassium chloride, sodium carbonate, ground walnut shells, alcohol and modified fatty acid, ferrochrome lignosulfonate, calcium carbonate, fibrous cellulose

Date permit issued 03/1/2015 Date drilling commenced 03/20/2015 Date drilling ceased 5/25/2015
Date completion activities began 6/14/2015 Date completion activities ceased 6/19/2015
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 4,93,130,244,285,596,919,1139 Open mine(s) (Y/N) depths ____
Salt water depth(s) ft 1821 Void(s) encountered (Y/N) depths N
Coal depth(s) ft N/A Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by: ____

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API 47- 017 - 6706 Farm name ARDEN & CAROL COGAR Well number 515939

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	40'	NEW	A-500 40LB/FT	NONE	Y
Surface	17.5"	13.375"	1,153'	NEW	J-55 54.5LB/FT	201'	Y
Coal							
Intermediate 1	12.375"	9.625"	3,039'	NEW	A-500 40LB/FT	NONE	Y
Intermediate 2							
Intermediate 3							
Production	8.5"	5.5"	10,107'	NEW	P-110 20LB/FT	NONE	N
Tubing							
Packer type and depth set							

Comment Details

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ^{3}/sks)	Volume (ft ^{3})	Cement Top (MD)	WOC (hrs)
Conductor	CLASS A	38	15.6	1.18	44.84	0	8
Surface	CLASS A	970	15.6	1.20	1164	0	8
Coal							
Intermediate 1	CLASS A / CLASS A	894 / 208	15.6 / 15.6	1.18 / 1.20	1304.52	0	8
Intermediate 2							
Intermediate 3							
Production	CLASS A / CLASS H	545 / 400	14.2 / 15.2	1.26 / 1.97	1,474.7	4,350	8
Tubing							

Drillers TD (ft) 10,109 Loggers TD (ft)

Deepest formation penetrated Marcellus Plug back to (ft)

Plug back procedure

Kick off depth (ft) 5,097'

Check all wireline logs run ☐ caliper ☐ density ■ deviated/directional ☐ induction
☐ neutron ☐ resistivity ■ gamma ray ■ temperature ☐ sonic

Well cored ☐ Yes ■ No ☐ Conventional ☐ Sidewall Were cuttings collected ■ Yes ☐ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING

CONDUCTOR- NONE

SURFACE- JOINTS: 1,11, 21

INTERMEDIATE- RAN AT LEAST EVERY 500' FEET

PRODUCTION- Solid composite body centralizers ran every joint from TD to 4,500'

WAS WELL COMPLETED AS SHOT HOLE ☐ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ■ No DETAILS

WERE TRACERS USED ☐ Yes ■ No TYPE OF TRACER(S) USED

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API 47- 017 - 6706 Farm name ARDEN & CAROL COGAR Well number 515939

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
					Please See Attached

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
						Please	See	Attached

Please insert additional pages as applicable.

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API 47- 017 - 6706 Farm name ARDEN & CAROL COGAR Well number 515939

PRODUCING FORMATION(S)	DEPTHS			
Marcellus	6,547'	TVD	7,077'	MD

Please insert additional pages as applicable.

GAS TEST □ Build up □ Drawdown ■ Open Flow OIL TEST ■ Flow □ Pump

SHUT-IN PRESSURE Surface 1,872 psi Bottom Hole N/A psi DURATION OF TEST 36.0 hrs

OPEN FLOW	Gas	Oil	NGL	Water	GAS MEASURED BY
	2,352 mcfpd	N/A bpd	2.5 bpd	201 bpd	□ Estimated ■ Orifice □ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
	0		0		

Please insert additional pages as applicable.

Drilling Contractor ALPHA HUNTER DRILLING (RIG 6)
Address P.O. BOX 430 City RENO State OH Zip 45773

Logging Company Phoenix Technology Services
Address 1805 Brittmoore Road City Houston State TX Zip 77043

Cementing Company ALLIED CEMENTING SERVICES
Address 333 Technology Drive, Suite 290 City Canonsburg State PA Zip 15317

Stimulating Company KEANE
Address 2121 Sage Road City Houston State TX Zip 77056

Please insert additional pages as applicable.

Completed by Jim Helmick Telephone 412-395-5996
Signature Title VP Completions Date 9/10/2015

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

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API 47- 017 - 6706 Farm name ARDEN & CAROL COGAR Well number 515939

Drilling Contractor Patterson UTI (Rig 252)
Address 207 Carlton Drive City Eighty Four State PA Zip 15330

Logging Company GYRODATA
Address 601 MAYER ST City BRIDGEVILLE State PA Zip 15017

Logging Company _____
Address _____ City _____ State _____ Zip _____

Cementing Company C&J Energy Services
Address 2504 Smith Creek Road City Waynesburg State PA Zip 15370

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17-06706

515939 Final Formations (API 47-1706706)				
Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
FRESH WATER ZONE	1		1,149.00	
SAND/SHALE	1		1,898.00	
BIG LIME	1,898.00		2,166.00	
WEIR	2,166.00		2,361.00	
BEREA	2,361.00		2,374.00	
GANTZ	2,374.00		2,453.00	
50F	2,453.00		2,547.00	
30F	2,547.00		2,589.00	
GORDON	2,589.00		2,693.00	
4TH	2,693.00		2,851.00	
5TH	2,851.00		2,875.00	
BAYARD	2,875.00		3,210.00	
WARREN	3,210.00		3,281.00	
SPEECHLEY	3,281.00		3,770.00	
BALLTOWN A	3,770.00		4,012.00	
BALLTOWN B	4,012.00		4,132.00	
BRADFORD	4,132.00		4,394.00	
RILEY	4,394.00		4,795.00	
BENSON	4,795.00		5,052.00	5,047.50
ALEXANDER	5,052.00	5,047.50	5,800.00	5,695.30
RHINESTREET	5,800.00	5,695.30	6,049.00	5,881.90
RHINESTREET UPPER	6,049.00	5,881.90	6,490.00	6,216.70
SONYEA	6,490.00	6,216.70	6,684.00	6,360.30
MIDDLESEX	6,684.00	6,360.30	6,769.00	6,415.20
GENESSEE	6,769.00	6,415.20	6,890.00	6,482.40
GENESEO	6,890.00	6,482.40	6,994.00	6,525.00
TULLY	6,994.00	6,525.00	7,045.00	6,539.90
HAMILTON	7,045.00	6,539.90	7,077.00	6,547.20
MARCELLUS	7,077.00	6,547.20		

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PHOENIX
TECHNOLOGY SERVICES

EQT Production - Marcellus

Doddridge County, WV Grid
Doddridge County 515939
Well #515939
API 47-1706706
Main Wellbore

Design: 515939 As Drilled Surveys

Standard Survey Report

01 June, 2015

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EQT
Where energy meets innovation.

PHOENIX TECHNOLOGY SERVICES 17-06706

PHX
Survey Report

EQT Where energy meets innovation.

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 515939
Company:	EQT Production - Marcellus	**TVD Reference:**	KB@23 @ 1193.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB@23 @ 1193.0usft
Site:	Doddridge County 515939	**North Reference:**	Grid
Well:	Well #515939	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515939 As Drilled Surveys		

Project Doddridge County, WV Grid

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia North 4701		Using geodetic scale factor

Site Doddridge County 515939

Site Position:		**Northing:**	237,742.10 usft	**Latitude:**	39.15
From:	Map	**Easting:**	1,627,287.00 usft	**Longitude:**	-80.81
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	-0.84 °

Well Well #515939

Well Position	**+N/-S**	0.0 usft	**Northing:**	237,742.10 usft	**Latitude:**	39° 8' 42.925 N
	+E/-W	0.0 usft	**Easting:**	1,627,287.00 usft	**Longitude:**	80° 48' 50.943 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	1,170.0 usft

Wellbore Main Wellbore

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	5/11/2015	-7.73	66.60	52,117

Design 515939 As Drilled Surveys

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	317.65

Survey Program Date 6/1/2015

From ()	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	5,006.0	515939 Gyrodata Gyros (Main Wellbore)	GYD_DP_MS	Gyrodata gyro-compassing and drop
0.00	10,109.0	515939 PHX MWD Curve and Lateral (Ma	PHX+MWD+HDGM	PHX+OWSG MWD + HDGM

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	-1,193.0	0.0	0.0	0.0	0.00	0.00	0.00
110.0	0.27	217.11	110.0	-1,083.0	-0.2	-0.2	0.0	0.25	0.25	0.00
210.0	0.20	197.38	210.0	-983.0	-0.6	-0.4	-0.2	0.11	-0.07	-19.73
310.0	0.17	149.21	310.0	-883.0	-0.9	-0.3	-0.4	0.15	-0.03	-48.17
410.0	0.14	146.95	410.0	-783.0	-1.1	-0.2	-0.7	0.03	-0.03	-2.26
510.0	0.14	140.50	510.0	-683.0	-1.3	0.0	-0.9	0.02	0.00	-6.45
610.0	0.13	120.04	610.0	-583.0	-1.4	0.1	-1.2	0.05	-0.01	-20.46
710.0	0.11	117.94	710.0	-483.0	-1.5	0.3	-1.3	0.02	-0.02	-2.10

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Project:	Doddridge County, WV Grid	**MD Reference:**	KB@23 @ 1193.0usft
Site:	Doddridge County 515939	**North Reference:**	Grid
Well:	Well #515939	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515939 As Drilled Surveys		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
810.0	0.13	128.75	810.0	-383.0	-1.7	0.5	-1.6	0.03	0.02	10.81
910.0	0.29	140.66	910.0	-283.0	-1.9	0.7	-1.9	0.16	0.16	11.91
1,010.0	0.26	144.52	1,010.0	-183.0	-2.3	1.0	-2.4	0.04	-0.03	3.86
1,110.0	0.13	99.30	1,110.0	-83.0	-2.5	1.3	-2.7	0.19	-0.13	-45.22
1,210.0	0.43	41.81	1,210.0	17.0	-2.2	1.6	-2.8	0.38	0.30	-57.49
1,310.0	0.53	48.69	1,310.0	117.0	-1.7	2.2	-2.7	0.12	0.10	6.88
1,410.0	0.51	44.88	1,410.0	217.0	-1.0	2.9	-2.7	0.04	-0.02	-3.81
1,510.0	0.55	46.21	1,510.0	317.0	-0.4	3.6	-2.7	0.04	0.04	1.33
1,610.0	0.56	47.31	1,610.0	417.0	0.3	4.3	-2.7	0.01	0.01	1.10
1,710.0	0.34	26.72	1,710.0	517.0	0.9	4.8	-2.6	0.27	-0.22	-20.59
1,810.0	0.31	296.82	1,810.0	617.0	1.3	4.6	-2.2	0.46	-0.03	-89.90
1,910.0	0.39	295.59	1,910.0	717.0	1.5	4.1	-1.6	0.08	0.08	-1.23
2,010.0	0.31	304.19	2,010.0	817.0	1.8	3.6	-1.1	0.10	-0.08	8.60
2,110.0	0.16	250.01	2,110.0	917.0	1.9	3.2	-0.7	0.25	-0.15	-54.18
2,210.0	3.76	156.07	2,209.9	1,016.9	-1.1	4.4	-3.8	3.77	3.60	-93.94
2,310.0	7.20	158.28	2,309.4	1,116.4	-9.9	8.1	-12.8	3.45	3.44	2.21
2,410.0	8.22	170.73	2,408.5	1,215.5	-22.8	11.5	-24.6	1.95	1.02	12.45
2,510.0	8.56	178.40	2,507.5	1,314.5	-37.3	12.9	-36.3	1.17	0.34	7.67
2,610.0	6.30	184.91	2,606.6	1,413.6	-50.2	12.6	-45.6	2.41	-2.26	6.51
2,710.0	4.30	182.42	2,706.2	1,513.2	-59.4	12.0	-52.0	2.01	-2.00	-2.49
2,810.0	3.47	179.95	2,806.0	1,613.0	-66.2	11.8	-56.9	0.85	-0.83	-2.47
2,910.0	1.82	170.61	2,905.8	1,712.8	-70.8	12.1	-60.5	1.70	-1.65	-9.34
3,010.0	0.26	169.78	3,005.8	1,812.8	-72.6	12.4	-62.0	1.56	-1.56	-0.83
3,110.0	0.13	20.38	3,105.8	1,912.8	-72.7	12.5	-62.1	0.38	-0.13	-149.40
3,210.0	0.12	354.33	3,205.8	2,012.8	-72.5	12.5	-62.0	0.06	-0.01	-26.05
3,310.0	0.22	6.54	3,305.8	2,112.8	-72.2	12.5	-61.8	0.11	0.10	12.21
3,410.0	0.11	337.33	3,405.8	2,212.8	-71.9	12.5	-61.6	0.14	-0.11	-29.21
3,510.0	0.12	327.45	3,505.8	2,312.8	-71.7	12.4	-61.4	0.02	0.01	-9.88
3,610.0	0.18	333.00	3,605.8	2,412.8	-71.5	12.3	-61.1	0.06	0.06	5.55
3,710.0	0.19	322.43	3,705.8	2,512.8	-71.2	12.1	-60.8	0.04	0.01	-10.57
3,810.0	0.18	295.00	3,805.8	2,612.8	-71.0	11.9	-60.5	0.09	-0.01	-27.43
3,910.0	0.36	284.43	3,905.8	2,712.8	-70.9	11.4	-60.1	0.19	0.18	-10.57
4,010.0	0.51	286.86	4,005.8	2,812.8	-70.7	10.7	-59.5	0.15	0.15	2.43
4,110.0	0.69	291.40	4,105.8	2,912.8	-70.3	9.7	-58.5	0.19	0.18	4.54
4,210.0	0.86	293.24	4,205.8	3,012.8	-69.8	8.5	-57.3	0.17	0.17	1.84
4,310.0	0.90	289.40	4,305.8	3,112.8	-69.3	7.0	-55.9	0.07	0.04	-3.84
4,410.0	1.08	291.55	4,405.8	3,212.8	-68.7	5.4	-54.4	0.18	0.18	2.15
4,510.0	1.20	291.76	4,505.8	3,312.8	-67.9	3.6	-52.6	0.12	0.12	0.21
4,610.0	1.50	295.93	4,605.7	3,412.7	-67.0	1.4	-50.5	0.32	0.30	4.17
4,710.0	1.71	294.10	4,705.7	3,512.7	-65.8	-1.1	-47.9	0.22	0.21	-1.83
4,810.0	1.85	297.38	4,805.6	3,612.6	-64.4	-3.9	-45.0	0.17	0.14	3.28
4,910.0	1.76	296.48	4,905.6	3,712.6	-63.0	-6.7	-42.0	0.09	-0.09	-0.90

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Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 515939
Company:	EQT Production - Marcellus	**TVD Reference:**	KB@23 @ 1193.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB@23 @ 1193.0usft
Site:	Doddridge County 515939	**North Reference:**	Grid
Well:	Well #515939	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515939 As Drilled Surveys		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Gyro Tie In=5006' MD										
5,006.0	2.09	295.83	5,001.5	3,808.5	-61.6	-9.6	-39.0	0.34	0.34	-0.68
5,026.0	2.20	292.30	5,021.5	3,828.5	-61.3	-10.3	-38.4	0.86	0.55	-17.65
KOP=5089' MD										
5,089.0	2.60	274.90	5,084.5	3,891.5	-60.7	-12.8	-36.2	1.31	0.63	-27.62
5,121.0	5.10	226.60	5,116.4	3,923.4	-61.6	-14.6	-35.7	12.15	7.81	-150.94
5,152.0	10.00	214.40	5,147.1	3,954.1	-64.8	-17.1	-36.3	16.54	15.81	-39.35
5,184.0	13.90	213.50	5,178.4	3,985.4	-70.3	-20.8	-37.9	12.20	12.19	-2.81
5,216.0	17.00	211.50	5,209.3	4,016.3	-77.5	-25.4	-40.2	9.83	9.69	-6.25
5,247.0	19.80	209.60	5,238.7	4,045.7	-85.9	-30.3	-43.1	9.24	9.03	-6.13
5,279.0	22.90	209.10	5,268.5	4,075.5	-96.1	-36.1	-46.7	9.70	9.69	-1.56
5,311.0	25.10	209.10	5,297.7	4,104.7	-107.4	-42.4	-50.9	6.88	6.88	0.00
5,342.0	27.10	209.60	5,325.5	4,132.5	-119.3	-49.1	-55.1	6.49	6.45	1.61
5,372.0	28.90	210.70	5,352.0	4,159.0	-131.5	-56.1	-59.4	6.24	6.00	3.67
5,404.0	30.40	212.00	5,379.8	4,186.8	-145.0	-64.4	-63.8	5.10	4.69	4.06
5,436.0	31.70	212.10	5,407.3	4,214.3	-159.0	-73.1	-68.3	4.07	4.06	0.31
5,468.0	33.60	211.30	5,434.2	4,241.2	-173.7	-82.2	-73.0	6.09	5.94	-2.50
5,499.0	35.50	211.70	5,459.7	4,266.7	-188.7	-91.4	-77.9	6.17	6.13	1.29
512419 Top of Perf										
5,531.0	37.00	212.10	5,485.5	4,292.5	-204.7	-101.4	-83.0	4.75	4.69	1.25
515940 LP										
5,579.7	38.00	212.96	5,524.2	4,331.2	-229.8	-117.4	-90.8	2.32	2.06	1.76
5,594.0	38.30	213.20	5,535.4	4,342.4	-237.1	-122.2	-93.0	2.32	2.07	1.71
5,689.0	39.80	212.90	5,609.2	4,416.2	-287.3	-154.8	-108.1	1.59	1.58	-0.32
5,784.0	38.50	211.70	5,682.9	4,489.9	-338.0	-186.9	-123.9	1.58	-1.37	-1.26
5,877.0	41.10	211.10	5,754.3	4,561.3	-388.8	-217.9	-140.6	2.83	2.80	-0.65
5,972.0	42.50	210.90	5,825.1	4,632.1	-443.1	-250.5	-158.8	1.48	1.47	-0.21
6,067.0	42.50	213.60	5,895.2	4,702.2	-497.4	-284.7	-175.8	1.92	0.00	2.84
6,098.0	42.10	213.70	5,918.1	4,725.1	-514.7	-296.3	-180.9	1.31	-1.29	0.32
6,130.0	41.80	217.70	5,941.9	4,748.9	-532.1	-308.7	-185.3	8.41	-0.94	12.50
6,161.0	42.20	221.50	5,964.9	4,771.9	-548.1	-322.0	-188.2	8.30	1.29	12.26
6,193.0	42.20	224.80	5,988.7	4,795.7	-563.7	-336.7	-189.9	6.93	0.00	10.31
6,224.0	41.30	229.40	6,011.8	4,818.8	-577.8	-351.8	-190.1	10.30	-2.90	14.84
6,255.0	40.40	234.30	6,035.2	4,842.2	-590.3	-367.7	-188.6	10.74	-2.90	15.81
6,287.0	40.30	239.60	6,059.6	4,866.6	-601.6	-385.1	-185.3	10.73	-0.31	16.56
6,319.0	40.70	243.90	6,084.0	4,891.0	-611.4	-403.4	-180.2	8.81	1.25	13.44
6,350.0	39.50	248.00	6,107.7	4,914.7	-619.6	-421.6	-173.9	9.36	-3.87	13.23
510841 Top of Perf										
6,355.2	39.30	248.95	6,111.7	4,918.7	-620.8	-424.6	-172.8	12.27	-3.84	18.37
6,382.0	38.40	254.00	6,132.6	4,939.6	-626.1	-440.6	-166.0	12.27	-3.36	18.82
6,413.0	38.70	259.00	6,156.8	4,963.8	-630.6	-459.3	-156.7	10.10	0.97	16.13
6,445.0	39.10	262.70	6,181.7	4,988.7	-633.8	-479.2	-145.7	7.37	1.25	11.56
6,476.0	38.80	268.40	6,205.9	5,012.9	-635.3	-498.6	-133.7	11.60	-0.97	18.39
6,507.0	38.90	274.30	6,230.0	5,037.0	-634.9	-518.0	-120.3	11.94	0.32	19.03

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Wellbore:	Main Wellbore		
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Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,539.0	39.90	278.60	6,254.7	5,061.7	-632.6	-538.2	-105.0	9.08	3.13	13.44
6,570.0	41.30	282.00	6,278.3	5,085.3	-629.0	-558.0	-89.0	8.45	4.52	10.97
6,602.0	42.90	286.00	6,302.0	5,109.0	-623.8	-578.8	-71.1	9.76	5.00	12.50
6,633.0	44.10	290.00	6,324.5	5,131.5	-617.2	-599.1	-52.6	9.69	3.87	12.90
6,665.0	45.60	294.00	6,347.2	5,154.2	-608.7	-620.0	-32.3	9.98	4.69	12.50
6,696.0	47.50	297.00	6,368.5	5,175.5	-599.0	-640.3	-11.4	9.32	6.13	9.68
6,728.0	49.90	300.00	6,389.7	5,196.7	-587.5	-661.4	11.3	10.29	7.50	9.38
513773 Top of Perf										
6,744.4	51.11	301.98	6,400.1	5,207.1	-581.0	-672.3	23.4	11.90	7.41	12.07
6,760.0	52.30	303.80	6,409.7	5,216.7	-574.4	-682.6	35.3	11.90	7.60	11.67
6,792.0	54.50	307.90	6,428.8	5,235.8	-559.3	-703.4	60.4	12.37	6.88	12.81
6,823.0	55.70	311.10	6,446.6	5,253.6	-543.2	-723.0	85.6	9.31	3.87	10.32
6,855.0	57.10	314.20	6,464.3	5,271.3	-525.1	-742.6	112.1	9.18	4.38	9.69
6,886.0	59.90	317.20	6,480.5	5,287.5	-506.2	-761.0	138.5	12.23	9.03	9.68
6,917.0	63.00	319.70	6,495.3	5,302.3	-485.8	-779.1	165.7	12.25	10.00	8.06
6,949.0	66.90	322.40	6,508.8	5,315.8	-463.3	-797.3	194.7	14.38	12.19	8.44
6,980.0	69.80	324.90	6,520.3	5,327.3	-440.1	-814.4	223.3	11.99	9.35	8.06
7,012.0	72.20	326.00	6,530.7	5,337.7	-415.1	-831.5	253.3	8.17	7.50	3.44
7,043.0	75.10	327.10	6,539.4	5,346.4	-390.3	-847.9	282.7	9.96	9.35	3.55
7,075.0	78.10	327.70	6,546.8	5,353.8	-364.1	-864.7	313.4	9.55	9.38	1.88
7,106.0	80.30	329.00	6,552.7	5,359.7	-338.2	-880.7	343.3	8.21	7.10	4.19
7,137.0	81.80	331.00	6,557.5	5,364.5	-311.7	-896.0	373.2	8.00	4.84	6.45
7,169.0	83.30	332.40	6,561.6	5,368.6	-283.7	-911.0	404.0	6.39	4.69	4.38
7,201.0	84.40	333.50	6,565.1	5,372.1	-255.4	-925.5	434.6	4.85	3.44	3.44
515939 LP										
7,228.7	85.29	334.48	6,567.5	5,374.5	-230.6	-937.6	461.1	4.79	3.23	3.55
7,232.0	85.40	334.60	6,567.8	5,374.8	-227.6	-939.0	464.3	4.79	3.23	3.54
LP=7296' MD/ 6572' TVD										
7,296.0	87.70	334.40	6,571.7	5,378.7	-170.0	-966.5	525.4	3.61	3.59	-0.31
7,390.0	91.10	334.60	6,572.6	5,379.6	-85.1	-1,006.9	615.4	3.62	3.62	0.21
7,485.0	91.40	334.00	6,570.6	5,377.6	0.4	-1,048.1	706.4	0.71	0.32	-0.63
512418 Top of Perf										
7,508.8	90.74	334.03	6,570.1	5,377.1	21.8	-1,058.6	729.2	2.77	-2.77	0.11
7,579.0	88.80	334.10	6,570.4	5,377.4	85.0	-1,089.3	796.5	2.77	-2.77	0.11
Deepest Point of Well=7674' MD/ 6573' TVD										
7,674.0	88.40	333.00	6,572.7	5,379.7	170.0	-1,131.6	887.9	1.23	-0.42	-1.16
7,768.0	91.70	335.50	6,572.6	5,379.6	254.6	-1,172.4	977.9	4.40	3.51	2.66
7,862.0	91.60	334.00	6,569.9	5,376.9	339.6	-1,212.5	1,067.7	1.60	-0.11	-1.60
7,957.0	91.50	334.90	6,567.4	5,374.4	425.3	-1,253.4	1,158.6	0.95	-0.11	0.95
8,052.0	90.70	333.00	6,565.5	5,372.5	510.6	-1,295.1	1,249.8	2.17	-0.84	-2.00
8,147.0	91.20	334.70	6,564.0	5,371.0	595.9	-1,337.0	1,341.0	1.87	0.53	1.79
8,241.0	92.70	336.90	6,560.8	5,367.8	681.6	-1,375.5	1,430.3	2.83	1.60	2.34
8,335.0	92.30	334.60	6,556.7	5,363.7	767.2	-1,414.1	1,519.5	2.48	-0.43	-2.45

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Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Doddridge County 515939
Company:	EQT Production - Marcellus	**TVD Reference:**	KB@23 @ 1193.0usft
Project:	Doddridge County, WV Grid	**MD Reference:**	KB@23 @ 1193.0usft
Site:	Doddridge County 515939	**North Reference:**	Grid
Well:	Well #515939	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515939 As Drilled Surveys		

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,430.0	90.20	335.90	6,554.6	5,361.6	853.4	-1,453.8	1,610.1	2.60	-2.21	1.37
8,525.0	89.20	335.20	6,555.1	5,362.1	939.9	-1,493.2	1,700.5	1.28	-1.05	-0.74
8,619.0	90.40	337.70	6,555.4	5,362.4	1,026.1	-1,530.7	1,789.5	2.95	1.28	2.66
8,714.0	90.70	337.30	6,554.5	5,361.5	1,113.8	-1,567.1	1,878.8	0.53	0.32	-0.42
8,809.0	89.30	334.90	6,554.5	5,361.5	1,200.7	-1,605.5	1,968.9	2.92	-1.47	-2.53
8,903.0	90.40	337.20	6,554.8	5,361.8	1,286.6	-1,643.7	2,058.1	2.71	1.17	2.45
8,998.0	90.10	334.60	6,554.3	5,361.3	1,373.3	-1,682.5	2,148.3	2.75	-0.32	-2.74
9,091.0	90.10	334.60	6,554.2	5,361.2	1,457.3	-1,722.4	2,237.3	0.00	0.00	0.00
9,186.0	90.20	333.20	6,553.9	5,360.9	1,542.6	-1,764.2	2,328.5	1.48	0.11	-1.47
9,281.0	90.50	330.50	6,553.4	5,360.4	1,626.4	-1,809.0	2,420.6	2.86	0.32	-2.84
9,376.0	89.70	334.00	6,553.2	5,360.2	1,710.4	-1,853.2	2,512.5	3.78	-0.84	3.68
9,471.0	89.40	331.50	6,553.9	5,360.9	1,794.9	-1,896.7	2,604.2	2.65	-0.32	-2.63
9,565.0	90.50	336.80	6,554.0	5,361.0	1,879.4	-1,937.7	2,694.3	5.76	1.17	5.64
9,659.0	90.40	334.80	6,553.3	5,360.3	1,965.2	-1,976.2	2,783.6	2.13	-0.11	-2.13
9,754.0	90.00	336.60	6,552.9	5,359.9	2,051.7	-2,015.3	2,873.9	1.94	-0.42	1.89
9,848.0	89.90	335.70	6,553.0	5,360.0	2,137.7	-2,053.3	2,963.1	0.96	-0.11	-0.96
9,943.0	89.70	335.40	6,553.4	5,360.4	2,224.2	-2,092.6	3,053.5	0.38	-0.21	-0.32
10,037.0	89.80	334.60	6,553.8	5,360.8	2,309.4	-2,132.3	3,143.2	0.86	0.11	-0.85
Final Survey=10057' MD/ 6554' TVD										
10,057.0	89.90	334.30	6,553.8	5,360.8	2,327.4	-2,141.0	3,162.4	1.58	0.50	-1.50
Projection to TD=10109' MD/ 6554' TVD - 515939 TD										
10,109.0	89.90	334.30	6,553.9	5,360.9	2,374.3	-2,163.5	3,212.2	0.00	0.00	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
5,006.0	5,001.5	-61.6	-9.6	Gyro Tie In=5006' MD
5,089.0	5,084.5	-60.7	-12.8	KOP=5089' MD
7,296.0	6,571.7	-170.0	-966.5	LP=7296' MD/ 6572' TVD
7,674.0	6,572.7	170.0	-1,131.6	Deepest Point of Well=7674' MD/ 6573' TVD
10,057.0	6,553.8	2,327.4	-2,141.0	Final Survey=10057' MD/ 6554' TVD
10,109.0	6,553.9	2,374.3	-2,163.5	Projection to TD=10109' MD/ 6554' TVD

Checked By: _____ Approved By: _____ Date: _____

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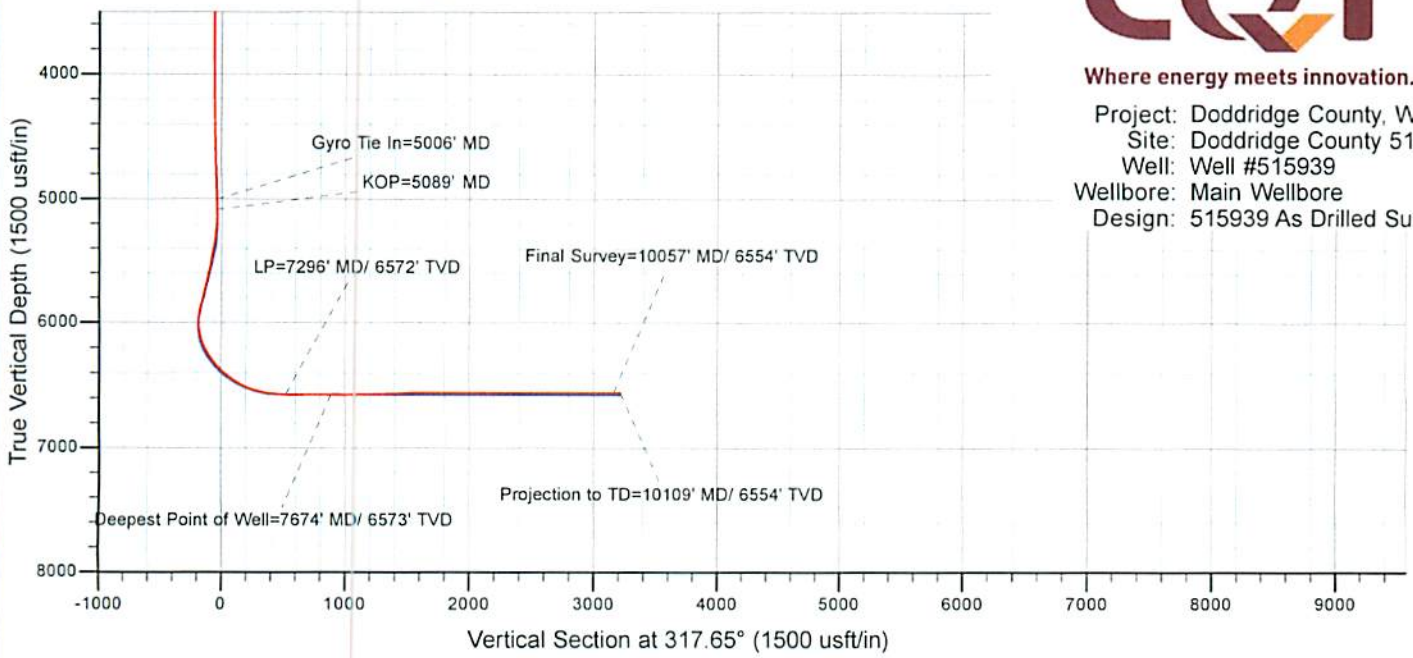
EQT Production - Marcellus

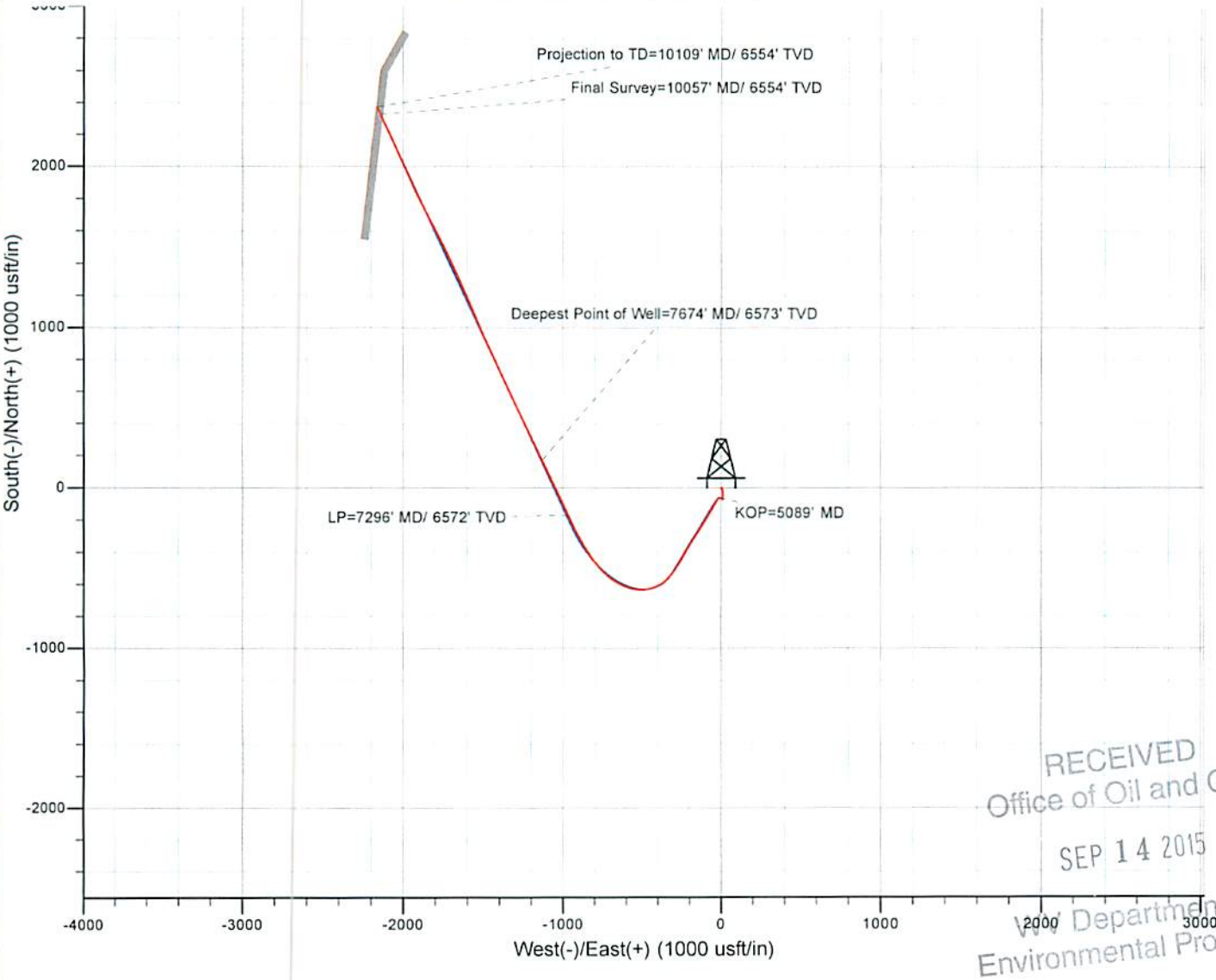
PHOENIX
TECHNOLOGY SERVICES

17-06706

EQT
Where energy meets innovation.

Project: Doddridge County, WV Grid
Site: Doddridge County 515939
Well: Well #515939
Wellbore: Main Wellbore
Design: 515939 As Drilled Surveys





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515939- 47-017-06706-0000- Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	6/15/2015	10,105.00	10,107.00	10	MARCELLUS
1	6/16/2015	9,952.00	10,074.00	42	MARCELLUS
2	6/16/2015	9,772.00	9,894.00	42	MARCELLUS
2.1	6/16/2015	9,712.00	9,742.00	42	MARCELLUS
3	6/17/2015	9,532.00	9,654.00	42	MARCELLUS
4	6/17/2015	9,352.00	9,476.00	42	MARCELLUS
5	6/17/2015	9,172.00	9,294.00	42	MARCELLUS
6	6/17/2015	8,994.00	9,114.00	42	MARCELLUS
7	6/17/2015	8,816.00	8,934.00	42	MARCELLUS
8	6/18/2015	8,632.00	8,754.00	42	MARCELLUS
9	6/18/2015	8,452.00	8,574.00	42	MARCELLUS
10	6/18/2015	8,272.00	8,392.00	42	MARCELLUS
11	6/18/2015	8,092.00	8,214.00	42	MARCELLUS
12	6/18/2015	7,912.00	8,032.00	42	MARCELLUS
13	6/18/2015	7,732.00	7,850.00	42	MARCELLUS
14	6/19/2015	7,552.00	7,672.00	42	MARCELLUS
15	6/19/2015	7,377.00	7,494.00	42	MARCELLUS
16	6/19/2015	7,190.00	7,314.00	42	MARCELLUS
17	6/19/2015	7,012.00	7,134.00	42	MARCELLUS

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515939- 47-017-06706-0000- Stimulated Stages

Stage Number	Stimulation Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
Initiation Sleeve	6/16/2015	13.2	7,251.00	9,062.00	4,321.00	0	535	0
1	6/16/2015	98.8	7,701.00	8,317.00	2,821.00	301,160	7520	0
2	6/16/2015	48.8	8,648.00	9,543.00	4,471.00	297,500	4032	0
2.1	6/16/2015	90.9	8,524.00	8,787.00	4,843.00	177,560	8053	0
3	6/17/2015	100.9	7,554.00	7,853.00	4,653.00	302,460	7600	0
4	6/17/2015	99.4	7,954.00	8,319.00	3,546.00	300,660	7979	0
5	6/17/2015	100.1	7,484.00	8,216.00	3,528.00	298,240	7279	0
6	6/17/2015	100.4	7,498.00	7,979.00	3,978.00	305,840	8803	0
7	6/17/2015	102.1	7,544.00	8,738.00	4,540.00	297,140	7213	0
8	6/18/2015	102.1	7,444.00	8,025.00	4,165.00	295,020	7175	0
9	6/18/2015	100.5	7,301.00	7,630.00	4,565.00	300,660	6871	0
10	6/18/2015	100.5	7,308.00	7,865.00	4,582.00	293,280	6995	0
11	6/18/2015	101.1	7,457.00	7,780.00	4,539.00	293,080	6878	0
12	6/18/2015	101.6	7,351.00	7,900.00	3,794.00	296,380	7174	0
13	6/19/2015	96.7	7,245.00	7,506.00	5,204.00	299,660	8491	0
14	6/19/2015	100.6	7,423.00	8,251.00	5,289.00	297,980	6499	0
15	6/19/2015	100.4	7,326.00	7,998.00	5,272.00	292,020	6796	0
16	6/19/2015	98.5	7,449.00	8,095.00	5,171.00	292,380	6805	0
17	6/19/2015	98.70	6,990.00	7,325.00	3,701	292,840	6,747	0

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/14/2015
Job End Date:	6/19/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06706-00-00
Operator Name:	EQT Production
Well Name and Number:	515939
Longitude:	-80.81415100
Latitude:	39.14525700
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,547
Total Base Water Volume (gal):	5,436,690
Total Base Non Water Volume:	0

FracFocus Chemical Disclosure Registry

GROUNDWATER PROTECTION COUNCIL

INTERSTATE Oil & Gas COMPACT COMMISSION

17-06706

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Keane Group	Carrier/Base Fluid					
			Water	7732-18-5	100.00000	89.31753	None
Sand (Proppant)	Keane Group	Proppant					
			Silica Substrate	14808-60-7	100.00000	10.30381	None
MC MX 437-5	Multi-Chem	Calcium nitrate solution					
			Calcium nitrate	10124-37-5	60.00000	0.05673	None
Hydrochloric Acid (15%)	Keane Group	Acidizing					
			Hydrochloric Acid	7647-01-0	15.00000	0.02670	None
FFR730	Keane Group	Friction Reducer					
			Oxyalkylated alcohol A	Proprietary	5.00000	0.00406	None
EC6330A	Keane Group	Scale Inhibitor					
			Sodium Phosphate, Tribasic	7601-54-9	5.00000	0.00123	None
			Ethylene Glycol	107-21-1	5.00000	0.00123	None
AI 600	Keane Group	Corrosion Inhibitor					
			Ethylene Glycol	107-21-1	40.00000	0.00017	None
			Dimethyiformamide	68-12-2	20.00000	0.00009	None
			Cinnamiaidehyde	104-55-2	15.00000	0.00007	None
			Pyridine, alkyl derives, quaternized with benzyl chloride	68909-18-2	15.00000	0.00007	None

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			1-Octanol	111-87-5	5.00000	0.00002	None
			1-Decanol	112-30-1	5.00000	0.00002	None
			Nonyl Phenol Ethoxylate, Branched	127087-87-0	5.00000	0.00002	None
			2-Butoxyenthanol	111-76-2	5.00000	0.00002	None
			Triethyl Phosphate	78-40-0	2.50000	0.00001	None
			Methanol	67-56-1	2.50000	0.00001	None
			Alkyl Pyridine	68391-11-7	1.00000	0.00000	None
LEB-10X	Keane Group	Gel Breaker					
			Ethylene Glycol	107-21-1	30.00000	0.00003	None

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

* Total Water Volume sources may include fresh water, produced water, and/or recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.
Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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FORM WW-6

LEGEND

- LEASE LINE
- SURFACE LINE
- PROPOSED PATH
- AS DRILLED PATH
- OFFSET LINE
- TIE LINE
- CREEK
- ROAD
- COUNTY ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- TAX MAP-PARCEL TM 00-00

A	RANDALL & DEBBY FARLEY	10 ACRES±	TM 13-68.1
B	DELBERT & BARBARA OSBORNE	53.50 ACRES±	TM 13-68
C	DELBERT & BARBARA OSBORNE	0.125 ACRES±	
D	UTAHONA WILLIAMS ET AL	13.25 ACRES±	
E	JEFFREY A. SPERRY	72.86 ACRES±	

ROYALTY OWNERS		
VICKIE D. MOORE ET AL	71 AC.±	LEASE NO. 114446

EQT PRODUCTION COMPANY
J. LEESON LEASE
2,000 ACRES±
WELL NO. WV 515939
(OXF44 H6)

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'27 S.P.C.(FT)	N. 237,742.1	E. 1,627,287.0
NAD'27 GEO.	LAT-(N) 39.145257	LONG-(W) 80.814151
NAD'83 UTM (M)	N. 4,332,922.1	E. 516,075.0
LANDING POINT		
NAD'27 S.P.C.(FT)	N. 237,506.6	E. 1,626,339.9
NAD'27 GEO.	LAT-(N) 39.144572	LONG-(W) 80.817478
NAD'83 UTM (M)	N. 4,332,845.5	E. 515,787.7
BOTTOM HOLE		
NAD'27 S.P.C.(FT)	N. 240,116.7	E. 1,625,122.8
NAD'27 GEO.	LAT-(N) 39.151689	LONG-(W) 80.821904
NAD'83 UTM (M)	N. 4,333,634.5	E. 515,403.6

NOTES ON SURVEY

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
2. AS DRILLED INFORMATION PROVIDED BY EQT.

AS DRILLED COORDINATES FOR WELL NO. WV 515939

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'27 S.P.C.(FT)	N. 237,742.1	E. 1,627,287.0
NAD'27 GEO.	LAT-(N) 39.145257	LONG-(W) 80.814151
NAD'83 UTM (M)	N. 4,332,922.1	E. 516,075.0
BOTTOM HOLE		
NAD'27 S.P.C.(FT)	N. 240,116.3	E. 1,625,123.5
NAD'27 GEO.	LAT-(N) 39.151688	LONG-(W) 80.821901
NAD'83 UTM (M)	N. 4,333,634.4	E. 515,403.9

Professional Energy Consultants
A DIVISION OF SMITH LAND SURVEYING, INC.
SLS SURVEYORS ENGINEERS ENVIRONMENTAL PROJECT MGMT.
(304) 462-5634 WWW.SLSSURVEYS.COM

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. 2288 *Earl N. Thompson*

EARL N. THOMPSON LICENSED No. 2288 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE NOVEMBER 20, 20 14
REVISED JUNE 26, 20 15
OPERATORS WELL NO. WV 515939
API WELL NO. 47 — 017 — 06706H
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 6113P515939
SCALE 1" = 2000'
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK)

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___ IF "GAS" PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X

LOCATION:
ELEVATION 1170' (EXISTING PAD) WATERSHED TRIBUTARY OF STRAIGHT FORK
DISTRICT SOUTHWEST COUNTY DODDRIDGE QUADRANGLE OXFORD 7.5'
SURFACE OWNER ARDEN & CAROL COGAR ACREAGE 252±
ROYALTY OWNER ADELE McDOUGAL ET AL ACREAGE 2,000±
PROPOSED WORK: LEASE NO. 109481
DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___ OTHER ___
PHYSICAL CHANGE IN WELL (SPECIFY) ___ TARGET FORMATION MARCELLUS
ESTIMATED DEPTH TVD 6,542'

COUNTY NAME
PERMIT

WELL OPERATOR EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY
ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280
BRIDGEPORT, WV 26330 BRIDGEPORT, WV 26330