

APPROVED

NAME: *Carl G. [Signature]*

DATE: *2/10/2016*

Well Operator's Report of Well Work



Where energy meets innovation.

Well Number: 515642

API: 47 - 017 - 06574

Submission: Initial Amended

Notes: Correction to Production Cement Top
(MD)

RECEIVED
Office of Oil and Gas

DEC 21 2015

WV Department of
Environmental Protection

AX WS 03/25/16
04/01/2016

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

API 47 - 017 - 06574 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 515642
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 4,345,197 Easting 520,428
Landing Point of Curve Northing 4,345,460 Easting 521,316
Bottom Hole Northing 4,344,501 Easting 521,783

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 phosphates, 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 10/22/2014 Date drilling ceased 12/22/2014
Date completion activities began 4/18/2015 Date completion activities ceased 4/23/2015
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 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:

04/01/2016

API 47-017 - 06574 Farm name Mary H. Holland Estate/Jane M. Hardin Well number 515642

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"	1,186'	New	54.5#/ft	902' & 419'	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	5,316'	New	40#/ft	None	Y
Intermediate 2							
Intermediate 3							
Production	8-1/2"	5-1/2"	12,240'	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	625/485	14.2/15.2	1.26/1.97	1743	4,638'	72
Tubing							

Drillers TD (ft) 12,250' MD Loggers TD (ft) N/A

Deepest formation penetrated Marcellus Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 5,492' 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-N/A

Surface- Ran 10 centralizers, one every other jnt. up 211'

Intermediate- RAN AT LEAST EVERY 500' FEET JOINTS: 2, 13, 24, 35, 46, 56, 67, 78, 89, 100, 111, 122, 133

Production- Composite bodied centralizers on every joint from TD up to 4,971'

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 _____

API 47- 017 - 06574 Farm name Mary H. Holland Estate/Jane M. Hardin Well number 515642

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

Logging Company _____
Address _____ City _____ State _____ Zip _____

Cementing Company _____
Address _____ City _____ State _____ Zip _____

API 47 - 017 - 06574

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	2,179
Weir	2,179	2,179	2,375	2,375
BEREA	2,375	2,375	2,381	2,381
Gantz	2,381	2,381	2,495	2,495
Fifty foot	2,495	2,495	2,585	2,584
Thirty foot	2,585	2,584	2,729	2,728
Forth Sand	2,729	2,728	2,922	2,921
Bayard	2,922	2,921	3,239	3,238
Warren	3,239	3,238	3,300	3,299
Speechley	3,300	3,299	3,971	3,970
Balltown A	3,971	3,970	4,247	4,246
BRADFORD	4,247	4,246	4,453	4,452
Riley	4,453	4,452	4,890	4,889
Benson	4,890	4,889	5,137	5,132
Alexander	5,137	5,132	7,453	6,309
Sonyea	7,453	6,309	7,881	6,456
Middlesex	7,881	6,456	8,035	6,510
Genesee	8,035	6,510	8,349	6,601
Geneseo	8,349	6,601	8,441	6,627
Tully	8,441	6,627	8,555	6,655
Hamilton	8,555	6,655	8,706	6,685
Marcellus	8,706	6,685	12,250	6,750

04/01/2016

EQT Production - Marcellus

Doddridge County, WV Grid

Doddridge County 515642

Well #515642

Main Wellbore

Design: 515642 As Drilled Surveys

Standard Survey Report

22 December, 2014

Phoenix Technologies
Survey Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 515642
Company:	EQT Production - Matco/lus	TVD Reference:	KB @ 1224.0usft
Project:	Doddridge County, WV Gnd	MD Reference:	KB @ 1224.0usft
Site:	Doddridge County 515642	North Reference:	Gnd
Well:	Well #515642	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515642 As Drilled Surveys		

Project | Doddridge County - WV Gnd

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 515642

Site Position:		Northing:	277,783.20 usft	Latitude:	39 26
From:	Map	Easting:	1,642,245.00 usft	Longitude:	-80 76
Position Uncertainty:	0 0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0 81 "

Well | Well #515642

Well Position	+N/-S	0 0 usft	Northing:	277,783.20 usft	Latitude:	39° 15' 20 780 N
	+E/-W	0 0 usft	Easting:	1,642,245 00 usft	Longitude:	80° 45' 48 250 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	11/24/2014	-8 50	66 74	52,220

Design | 515642 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	118 15

Survey Program | Date 12/22/2014

From (')	To (usft)	Survey (Wellbore)	Tool Name	Description
0 00	4,639.0	515642 Gyrodatta Gyros (Main Wellbore)	GYD_DP_MS	Gyrodatta gyro-compassing and drop
0 00	12,250.0	515642 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	0.28	149.33	100.0	-1,124.0	-0.2	0.1	0.2	0.28	0.28	0.00
200.0	0.37	141.88	200.0	-1,024.0	-0.7	0.4	0.7	0.10	0.09	-7.45
300.0	0.34	141.68	300.0	-924.0	-1.2	0.8	1.3	0.03	-0.03	-0.20
400.0	0.36	143.15	400.0	-824.0	-1.6	1.2	1.8	0.02	0.02	1.47
500.0	0.42	139.81	500.0	-724.0	-2.2	1.6	2.5	0.06	0.06	-3.34
600.0	0.50	128.66	600.0	-624.0	-2.7	2.2	3.2	0.12	0.08	-11.15
700.0	0.49	131.87	700.0	-524.0	-3.3	2.9	4.1	0.03	-0.01	3.21

Phoenix Technologies

Survey Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 515642
Company:	ECF Production - Marcellus	TVD Reference:	KB @ 1224 0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB @ 1224 0usft
Site:	Doddridge County 515642	North Reference:	Grid
Well:	Well #515642	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515642 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	0.50	139.25	800.0	-424.0	-3.9	3.5	4.9	0.06	0.01	7.38
900.0	0.48	184.02	900.0	-324.0	-4.7	3.7	5.5	0.37	-0.02	44.77
1,000.0	0.67	212.56	1,000.0	-224.0	-5.6	3.4	5.6	0.34	0.19	28.54
1,100.0	0.48	200.88	1,100.0	-124.0	-6.4	2.9	5.6	0.22	-0.19	-11.68
1,200.0	0.60	107.50	1,200.0	-24.0	-7.0	3.3	6.2	0.79	0.12	-93.38
1,300.0	0.88	112.40	1,300.0	76.0	-7.4	4.5	7.5	0.29	0.28	4.90
1,400.0	1.54	121.32	1,399.9	175.9	-8.4	6.3	9.6	0.68	0.66	8.92
1,500.0	1.79	122.23	1,499.9	275.9	-10.0	8.8	12.5	0.25	0.25	0.91
1,600.0	1.85	122.27	1,599.8	375.8	-11.7	11.5	15.6	0.06	0.06	0.04
1,700.0	1.88	122.10	1,699.8	475.8	-13.4	14.2	18.9	0.03	0.03	-0.17
1,800.0	1.93	121.40	1,799.7	575.7	-15.1	17.1	22.2	0.06	0.05	-0.70
1,900.0	1.88	123.08	1,899.7	675.7	-16.9	19.9	25.5	0.07	-0.05	1.68
2,000.0	1.83	124.41	1,999.6	775.6	-18.7	22.6	28.7	0.07	-0.05	1.33
2,100.0	1.63	125.84	2,099.6	875.6	-20.5	25.0	31.7	0.20	-0.20	1.43
2,200.0	1.51	125.61	2,199.5	975.5	-22.1	27.3	34.4	0.12	-0.12	-0.23
2,300.0	1.39	130.01	2,299.5	1,075.5	-23.6	29.3	36.9	0.16	-0.12	4.40
2,400.0	1.25	131.89	2,399.5	1,175.5	-25.1	31.0	39.2	0.15	-0.14	1.88
2,500.0	1.18	135.41	2,499.5	1,275.5	-26.6	32.5	41.2	0.10	-0.07	3.52
2,600.0	0.99	140.85	2,599.4	1,375.4	-28.0	33.8	43.0	0.22	-0.19	5.44
2,700.0	0.87	145.98	2,699.4	1,475.4	-29.3	34.8	44.5	0.15	-0.12	5.13
2,800.0	0.79	153.24	2,799.4	1,575.4	-30.5	35.5	45.7	0.13	-0.08	7.26
2,900.0	0.78	155.84	2,899.4	1,675.4	-31.8	36.1	46.8	0.04	-0.01	2.60
3,000.0	0.79	148.70	2,999.4	1,775.4	-33.0	36.7	47.9	0.10	0.01	-7.14
3,100.0	0.92	159.66	3,099.4	1,875.4	-34.3	37.4	49.1	0.21	0.13	10.96
3,200.0	0.86	154.81	3,199.4	1,975.4	-35.7	38.0	50.3	0.10	-0.06	-4.85
3,300.0	0.94	158.03	3,299.4	2,075.4	-37.2	38.6	51.6	0.09	0.08	3.22
3,400.0	0.94	164.64	3,399.4	2,175.4	-38.7	39.1	52.8	0.11	0.00	6.61
3,500.0	1.02	169.99	3,499.3	2,275.3	-40.4	39.5	53.9	0.12	0.08	5.35
3,600.0	1.02	168.13	3,599.3	2,375.3	-42.1	39.8	55.0	0.03	0.00	-1.86
3,700.0	0.97	169.91	3,699.3	2,475.3	-43.8	40.2	56.1	0.06	-0.05	1.78
3,800.0	1.04	167.55	3,799.3	2,575.3	-45.6	40.5	57.2	0.08	0.07	-2.36
3,900.0	1.01	171.65	3,899.3	2,675.3	-47.3	40.8	58.3	0.08	-0.03	4.10
4,000.0	0.85	194.76	3,999.3	2,775.3	-48.9	40.8	59.0	0.40	-0.16	23.11
4,100.0	0.78	212.41	4,099.3	2,875.3	-50.2	40.2	59.1	0.26	-0.07	17.65
4,200.0	0.81	227.57	4,199.2	2,975.2	-51.3	39.3	58.9	0.21	0.03	15.16
4,300.0	0.81	246.01	4,299.2	3,075.2	-52.0	38.2	58.2	0.26	0.00	18.44
4,400.0	0.85	260.65	4,399.2	3,175.2	-52.4	36.8	57.2	0.22	0.04	14.64
4,500.0	0.63	272.27	4,499.2	3,275.2	-52.5	35.5	56.1	0.27	-0.22	11.62
4,600.0	0.66	287.38	4,599.2	3,375.2	-52.3	34.4	55.0	0.17	0.03	15.11
Gyro Tie In=4638' MD										
4,639.0	0.83	285.78	4,638.2	3,414.2	-52.2	33.9	54.5	0.44	0.44	-4.10
4,721.0	1.40	26.20	4,720.2	3,496.2	-51.1	33.8	53.9	2.14	0.70	122.46
4,752.0	2.90	44.60	4,751.2	3,527.2	-50.2	34.5	54.1	5.27	4.84	59.35

Phoenix Technologies
Survey Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 515842
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1224.0usft
Project:	Doddridge County, WV Gnd	MD Reference:	KB @ 1224.0usft
Site:	Doddridge County 515842	North Reference:	Grid
Well:	Well #515842	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515842 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)
4,783.0	4.40	51.80	4,782.1	3,558.1	-48.9	36.0	54.8	5.05	4.84	23.23
4,815.0	5.60	51.10	4,814.0	3,590.0	-47.2	38.2	55.9	3.75	3.75	-2.19
4,847.0	6.30	54.50	4,845.8	3,621.8	-45.2	40.8	57.3	2.45	2.19	10.63
4,878.0	6.50	61.50	4,876.6	3,652.6	-43.4	43.8	59.0	2.60	0.65	22.58
4,910.0	7.10	66.90	4,908.4	3,684.4	-41.7	47.2	61.3	2.74	1.88	16.88
4,941.0	7.50	69.30	4,939.1	3,715.1	-40.3	50.8	63.8	1.62	1.29	7.74
4,973.0	7.80	72.40	4,970.9	3,746.9	-38.9	54.8	66.7	1.59	0.94	9.69
5,004.0	8.70	74.00	5,001.5	3,777.5	-37.6	59.1	69.8	3.00	2.90	5.16
5,035.0	9.60	74.60	5,032.1	3,808.1	-36.3	63.8	73.4	2.92	2.90	1.94
5,067.0	11.10	75.40	5,063.6	3,839.6	-34.8	69.4	77.6	4.71	4.69	2.50
5,098.0	12.40	74.60	5,094.0	3,870.0	-33.1	75.5	82.2	4.23	4.19	-2.58
5,130.0	13.70	73.30	5,125.1	3,901.1	-31.1	82.4	87.4	4.16	4.06	-4.06
5,161.0	14.80	71.50	5,155.2	3,931.2	-28.8	89.7	92.7	3.83	3.55	-5.81
5,193.0	15.70	69.70	5,186.1	3,962.1	-26.0	97.6	98.4	3.18	2.81	-5.63
5,224.0	16.20	68.50	5,215.9	3,991.9	-23.0	105.6	104.0	1.93	1.61	-3.87
5,256.0	17.10	68.00	5,246.5	4,022.5	-19.6	114.1	109.9	2.85	2.81	-1.56
5,287.0	18.10	68.00	5,276.1	4,052.1	-16.1	122.8	115.9	3.23	3.23	0.00
5,351.0	19.40	69.30	5,336.7	4,112.7	-8.6	142.0	129.2	2.13	2.03	2.03
5,414.0	19.30	69.40	5,396.1	4,172.1	-1.2	161.5	143.0	0.17	-0.16	0.16
5,446.0	18.80	69.60	5,426.4	4,202.4	2.4	171.3	149.9	1.58	-1.56	0.63
5,477.0	18.20	68.20	5,455.8	4,231.8	6.0	180.5	156.3	2.41	-1.94	-4.52
5,509.0	19.20	67.30	5,486.1	4,262.1	9.9	190.0	162.8	3.25	3.13	-2.81
5,540.0	21.40	66.10	5,515.1	4,291.1	14.1	199.8	169.5	7.22	7.10	-3.87
5,572.0	24.20	65.30	5,544.6	4,320.6	19.2	211.1	177.1	8.80	8.75	-2.50
5,603.0	27.10	66.30	5,572.6	4,348.6	24.7	223.4	185.3	9.46	9.35	3.23
5,635.0	29.90	68.80	5,600.7	4,376.7	30.5	237.5	195.0	9.51	8.75	7.81
5,666.0	33.10	71.10	5,627.1	4,403.1	36.1	252.7	205.8	11.02	10.32	7.42
5,698.0	36.30	71.60	5,653.4	4,429.4	41.9	270.0	218.3	10.04	10.00	1.56
5,729.0	40.20	71.10	5,677.8	4,453.8	48.0	288.1	231.4	12.62	12.58	-1.61
5,760.0	44.50	71.10	5,700.7	4,476.7	54.8	307.9	245.6	13.87	13.87	0.00
5,792.0	48.70	70.90	5,722.7	4,498.7	62.4	329.9	261.4	13.13	13.13	-0.63
5,824.0	52.40	70.40	5,743.0	4,519.0	70.5	353.2	278.1	11.63	11.56	-1.56
5,855.0	55.30	67.90	5,761.3	4,537.3	79.5	376.6	294.5	11.40	9.35	-8.06
5,919.0	62.50	66.10	5,794.3	4,570.3	100.9	427.0	328.9	11.50	11.25	-2.81
5,982.0	70.50	66.40	5,819.4	4,595.4	124.1	479.8	364.5	12.71	12.70	0.48
6,044.0	72.90	66.10	5,838.9	4,614.9	147.8	533.7	400.8	3.90	3.87	-0.48
6,107.0	73.10	66.10	5,857.3	4,633.3	172.3	588.8	437.9	0.32	0.32	0.00
6,170.0	72.10	66.10	5,876.2	4,652.2	196.6	643.7	474.9	1.59	-1.59	0.00
6,233.0	72.40	65.40	5,895.4	4,671.4	221.3	698.4	511.5	1.16	0.48	-1.11
6,296.0	73.40	65.70	5,913.9	4,689.9	246.2	753.2	548.0	1.65	1.59	0.48
6,358.0	72.70	65.90	5,932.0	4,708.0	270.5	807.3	584.3	1.17	-1.13	0.32
6,422.0	73.30	66.10	5,950.7	4,726.7	295.4	863.2	621.8	0.98	0.94	0.31

Phoenix Technologies

Survey Report

Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 515842
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 1224.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB @ 1224.0usft
Site:	Doddridge County 515842	North Reference:	Grid
Well:	Well #515842	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515842 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)	
6,484.0	72.70	66.70	5,968.8	4,744.8	319.1	917.6	658.5	1.34	-0.97	0.97	
6,548.0	68.70	67.50	5,989.9	4,765.9	342.6	973.2	696.5	6.36	-6.25	1.25	
6,611.0	68.80	67.30	6,012.8	4,788.8	365.2	1,027.4	733.7	0.34	0.16	-0.32	
6,674.0	70.00	67.20	6,034.9	4,810.9	388.0	1,081.8	770.9	1.91	1.90	-0.16	
6,736.0	69.00	66.80	6,056.7	4,832.7	410.7	1,135.3	807.3	1.72	-1.61	-0.65	
6,799.0	69.50	66.20	6,079.0	4,855.0	434.2	1,189.3	843.8	1.19	0.79	-0.95	
6,862.0	69.50	66.80	6,101.0	4,877.0	457.7	1,243.4	880.5	0.89	0.00	0.95	
6,925.0	67.80	67.30	6,124.0	4,900.0	480.6	1,297.4	917.3	2.80	-2.70	0.79	
6,988.0	67.60	67.00	6,147.9	4,923.9	503.2	1,351.1	954.0	0.54	-0.32	-0.48	
7,051.0	68.70	66.60	6,171.3	4,947.3	526.3	1,404.9	990.5	1.84	1.75	-0.63	
7,115.0	69.60	66.40	6,194.1	4,970.1	550.1	1,459.7	1,027.6	1.44	1.41	-0.31	
7,177.0	70.20	66.70	6,215.4	4,991.4	573.3	1,513.1	1,063.8	1.07	0.97	0.48	
7,240.0	70.20	66.00	6,236.8	5,012.8	597.0	1,567.4	1,100.5	1.05	0.00	-1.11	
7,303.0	70.50	65.60	6,257.9	5,033.9	621.4	1,621.6	1,136.7	0.76	0.48	-0.63	
7,366.0	70.50	65.40	6,279.0	5,055.0	646.0	1,675.6	1,172.7	0.30	0.00	-0.32	
7,429.0	70.00	66.60	6,300.3	5,076.3	670.1	1,729.8	1,209.1	1.96	-0.79	1.90	
7,492.0	68.50	67.50	6,322.6	5,098.6	693.1	1,784.0	1,246.1	2.73	-2.38	1.43	
7,555.0	68.40	67.20	6,345.7	5,121.7	715.7	1,838.1	1,283.1	0.47	-0.16	-0.48	
7,618.0	69.20	66.70	6,368.5	5,144.5	738.7	1,892.1	1,320.0	1.47	1.27	-0.79	
7,681.0	69.80	66.90	6,390.6	5,166.6	761.9	1,946.4	1,356.8	1.00	0.95	0.32	
7,745.0	71.30	67.00	6,411.9	5,187.9	785.5	2,001.9	1,394.6	2.35	2.34	0.16	
7,808.0	71.60	67.10	6,431.9	5,207.9	808.8	2,056.9	1,432.1	0.50	0.48	0.16	
7,871.0	69.90	66.70	6,452.7	5,228.7	832.1	2,111.6	1,469.4	2.76	-2.70	-0.63	
7,935.0	69.40	66.10	6,474.9	5,250.9	856.2	2,166.6	1,506.5	1.18	-0.78	-0.94	
7,998.0	69.90	65.30	6,496.9	5,272.9	880.5	2,220.4	1,542.5	1.43	0.79	-1.27	
8,060.0	70.00	64.10	6,518.1	5,294.1	905.4	2,273.1	1,577.2	1.83	0.16	-1.94	
8,124.0	70.70	66.10	6,539.6	5,315.6	930.7	2,327.7	1,613.4	3.14	1.09	3.13	
8,155.0	72.50	70.10	6,549.4	5,325.4	941.7	2,355.0	1,632.3	13.55	5.81	12.90	
8,186.0	74.70	74.50	6,558.2	5,334.2	950.7	2,383.4	1,653.0	15.35	7.10	14.19	
8,218.0	75.10	78.60	6,566.5	5,342.5	957.9	2,413.4	1,676.1	12.43	1.25	12.81	
8,250.0	75.00	82.30	6,574.8	5,350.8	963.0	2,443.9	1,700.6	11.18	-0.31	11.56	
8,281.0	75.00	85.70	6,582.8	5,358.8	966.2	2,473.7	1,725.4	10.59	0.00	10.97	
8,312.0	74.50	90.30	6,591.0	5,367.0	967.2	2,503.5	1,751.2	14.41	-1.61	14.84	
8,344.0	73.50	95.10	6,599.8	5,375.8	965.8	2,534.3	1,779.0	14.75	-3.13	15.00	
8,376.0	73.10	98.20	6,609.0	5,385.0	962.2	2,564.7	1,807.5	9.36	-1.25	9.69	
8,407.0	73.00	99.60	6,618.0	5,394.0	957.6	2,594.0	1,835.5	4.33	-0.32	4.52	
8,439.0	74.70	102.70	6,626.9	5,402.9	951.7	2,624.1	1,864.9	10.71	5.31	9.69	
8,471.0	75.90	108.70	6,635.0	5,411.0	943.3	2,653.9	1,895.1	18.52	3.75	18.75	
8,503.0	75.80	111.60	6,642.9	5,418.9	932.6	2,683.0	1,925.8	8.79	-0.31	9.06	
8,535.0	76.00	114.40	6,650.7	5,426.7	920.5	2,711.6	1,956.7	8.51	0.63	8.75	
8,567.0	77.20	117.60	6,658.1	5,434.1	906.9	2,739.6	1,987.8	10.43	3.75	10.00	
8,598.0	78.50	121.30	6,664.6	5,440.6	892.0	2,766.0	2,018.1	12.40	4.19	11.94	
8,630.0	79.20	124.20	6,670.8	5,446.8	875.0	2,792.4	2,049.4	9.16	2.19	9.06	

Phoenix Technologies
Survey Report

Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site Deddridge County 515642
Company:	EQT Production - Marcalus	TVD Reference:	KB @ 1224.0usft
Project:	Deddridge County WV Grid	MD Reference:	KB @ 1224.0usft
Site:	Deddridge County 515642	North Reference:	Grid
Well:	Well #515642	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	515642 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)
8,662.0	78.90	126.30	6,676.9	5,452.9	856.8	2,818.0	2,080.6	6.51	-0.94	6.56
8,693.0	78.80	129.20	6,682.9	5,458.9	838.2	2,842.1	2,110.6	9.18	-0.32	9.35
8,725.0	77.80	131.90	6,689.4	5,465.4	817.9	2,865.9	2,141.2	8.83	-3.13	8.44
8,755.0	77.70	134.50	6,695.7	5,471.7	797.8	2,887.2	2,169.5	8.48	-0.33	8.67
8,787.0	78.20	137.40	6,702.4	5,478.4	775.3	2,909.0	2,199.3	9.00	1.56	9.06
8,818.0	79.40	141.60	6,708.4	5,484.4	752.2	2,928.7	2,227.6	13.84	3.87	13.55
8,850.0	79.80	144.00	6,714.2	5,490.2	727.1	2,947.8	2,256.2	7.48	1.25	7.50
8,881.0	82.50	147.10	6,719.0	5,495.0	701.9	2,965.1	2,283.4	13.17	8.71	10.00
8,913.0	83.70	148.80	6,722.8	5,498.8	674.9	2,981.9	2,311.0	6.47	3.75	5.31
8,945.0	85.30	151.30	6,725.9	5,501.9	647.3	2,997.8	2,338.0	9.25	5.00	7.81
8,976.0	87.20	153.50	6,727.9	5,503.9	619.9	3,012.2	2,363.6	9.37	6.13	7.10
LPE 600P MD/ST29 TVD										
9,008.0	89.10	156.20	6,729.0	5,505.0	591.0	3,025.8	2,389.2	10.31	5.94	8.44
9,071.0	90.30	157.10	6,729.3	5,505.3	533.1	3,050.7	2,438.5	2.38	1.90	1.43
9,133.0	90.50	156.70	6,728.9	5,504.9	476.1	3,075.1	2,486.8	0.72	0.32	-0.65
9,197.0	90.60	156.10	6,728.2	5,504.2	417.5	3,100.7	2,537.1	0.95	0.16	-0.94
9,260.0	91.10	156.70	6,727.3	5,503.3	359.7	3,125.9	2,586.6	1.24	0.79	0.95
9,322.0	91.60	156.30	6,725.8	5,501.8	302.9	3,150.6	2,635.2	1.03	0.81	-0.65
9,385.0	92.20	156.50	6,723.8	5,499.8	245.2	3,175.8	2,684.6	1.00	0.95	0.32
9,448.0	90.00	156.00	6,722.6	5,498.6	187.6	3,201.2	2,734.2	3.58	-3.49	-0.79
9,511.0	88.90	154.80	6,723.2	5,499.2	130.3	3,227.4	2,784.3	2.58	-1.75	-1.90
9,574.0	89.50	155.20	6,724.0	5,500.0	73.2	3,254.0	2,834.7	1.14	0.95	0.63
9,637.0	89.80	155.40	6,724.4	5,500.4	16.0	3,280.4	2,884.9	0.57	0.48	0.32
9,700.0	89.00	154.10	6,725.1	5,501.1	-41.0	3,307.2	2,935.5	2.42	-1.27	-2.06
9,763.0	89.30	154.10	6,726.0	5,502.0	-97.7	3,334.7	2,986.5	0.48	0.48	0.00
9,826.0	89.50	153.60	6,726.7	5,502.7	-154.2	3,362.5	3,037.7	0.85	0.32	-0.79
9,889.0	89.90	153.10	6,727.0	5,503.0	-210.5	3,390.8	3,089.1	1.02	0.63	-0.79
9,952.0	88.10	153.40	6,728.1	5,504.1	-266.8	3,419.1	3,140.7	2.90	-2.86	0.48
10,015.0	87.60	153.20	6,730.5	5,506.5	-323.0	3,447.4	3,192.1	0.85	-0.79	-0.32
10,078.0	87.90	153.10	6,732.9	5,508.9	-379.2	3,475.8	3,243.7	0.50	0.48	-0.16
10,140.0	88.80	154.10	6,734.7	5,510.7	-434.7	3,503.4	3,294.2	2.17	1.45	1.61
10,203.0	89.70	154.10	6,735.6	5,511.6	-491.4	3,530.9	3,345.2	1.43	1.43	0.00
10,266.0	90.10	153.30	6,735.7	5,511.7	-547.9	3,558.8	3,396.4	1.42	0.63	-1.27
10,328.0	90.00	153.30	6,735.6	5,511.6	-603.2	3,586.7	3,447.1	0.16	-0.16	0.00
10,391.0	90.10	153.70	6,735.6	5,511.6	-659.6	3,614.8	3,498.5	0.65	0.16	0.63
10,454.0	90.50	153.90	6,735.2	5,511.2	-716.1	3,642.6	3,549.7	0.71	0.63	0.32
10,517.0	90.30	152.50	6,734.8	5,510.8	-772.4	3,671.0	3,601.3	2.24	-0.32	-2.22
10,580.0	91.80	153.70	6,733.6	5,509.6	-828.5	3,699.5	3,652.9	3.05	2.38	1.90
10,643.0	92.50	154.30	6,731.3	5,507.3	-885.1	3,727.1	3,703.9	1.46	1.11	0.95
10,705.0	91.60	154.60	6,729.0	5,505.0	-941.0	3,753.8	3,753.8	1.53	-1.45	0.48
10,768.0	90.90	154.50	6,727.7	5,503.7	-997.9	3,780.9	3,804.5	1.12	-1.11	-0.16
10,831.0	90.10	155.00	6,727.1	5,503.1	-1,054.9	3,807.8	3,855.1	1.50	-1.27	0.79

Phoenix Technologies
Survey Report

Database:		Local Co-ordinate Reference:	
Company:		TVD Reference:	
Project:		MD Reference:	
Site:		North Reference:	
Well:		Survey Calculation Method:	
Wellbore:			
Design:			

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)
10,894.0	89.70	155.90	6,727.2	5,503.2	-1,112.2	3,833.9	3,905.2	1.56	-0.63	1.43
10,956.0	90.30	156.20	6,727.2	5,503.2	-1,168.8	3,859.1	3,954.1	1.08	0.97	0.48
11,019.0	88.50	156.30	6,727.9	5,503.9	-1,226.5	3,884.5	4,003.7	2.86	-2.86	0.16
11,082.0	87.60	156.50	6,730.0	5,506.0	-1,284.2	3,909.7	4,053.1	1.46	-1.43	0.32
11,145.0	87.90	156.50	6,732.5	5,508.5	-1,341.9	3,934.8	4,102.5	0.48	0.48	0.00
11,208.0	87.90	155.70	6,734.8	5,510.8	-1,399.5	3,960.3	4,152.2	1.27	0.00	-1.27
11,271.0	88.10	155.30	6,737.0	5,513.0	-1,456.8	3,986.4	4,202.2	0.71	0.32	-0.63
11,334.0	88.00	154.50	6,739.2	5,515.2	-1,513.8	4,013.1	4,252.7	1.28	-0.16	-1.27
11,397.0	88.20	154.40	6,741.2	5,517.2	-1,570.6	4,040.3	4,303.4	0.35	0.32	-0.16
11,460.0	88.80	154.60	6,742.9	5,518.9	-1,627.5	4,067.4	4,354.1	1.00	0.95	0.32
11,523.0	89.50	156.00	6,743.8	5,519.8	-1,684.7	4,093.7	4,404.3	2.48	1.11	2.22
11,586.0	89.90	156.40	6,744.2	5,520.2	-1,742.3	4,119.1	4,453.9	0.90	0.63	0.63
11,649.0	89.90	156.50	6,744.3	5,520.3	-1,800.1	4,144.3	4,503.4	0.16	0.00	0.16
11,713.0	90.20	156.80	6,744.2	5,520.2	-1,858.8	4,169.7	4,553.4	0.66	0.47	0.47
11,776.0	90.00	155.40	6,744.1	5,520.1	-1,916.4	4,195.2	4,603.1	2.24	-0.32	-2.22
11,839.0	89.20	152.10	6,744.5	5,520.5	-1,972.9	4,223.1	4,654.3	5.39	-1.27	-5.24
11,902.0	88.70	150.50	6,745.7	5,521.7	-2,028.2	4,253.3	4,707.1	2.66	-0.79	-2.54
11,965.0	88.70	150.20	6,747.1	5,523.1	-2,082.9	4,284.5	4,760.4	0.48	0.00	-0.48
12,028.0	88.80	150.90	6,748.5	5,524.5	-2,137.8	4,315.4	4,813.5	1.12	0.16	1.11
12,091.0	89.40	151.30	6,749.5	5,525.5	-2,192.9	4,345.9	4,866.4	1.14	0.95	0.63
D=6750' TVD										
12,154.0	89.80	152.60	6,749.9	5,525.9	-2,248.5	4,375.5	4,918.7	2.16	0.63	2.06
S=TVD										
12,196.0	90.60	154.40	6,749.8	5,525.8	-2,286.1	4,394.2	4,953.0	4.69	1.90	4.29
S=TVD										
12,250.0	90.60	154.40	6,749.2	5,525.2	-2,334.8	4,417.6	4,996.5	0.00	0.00	0.00

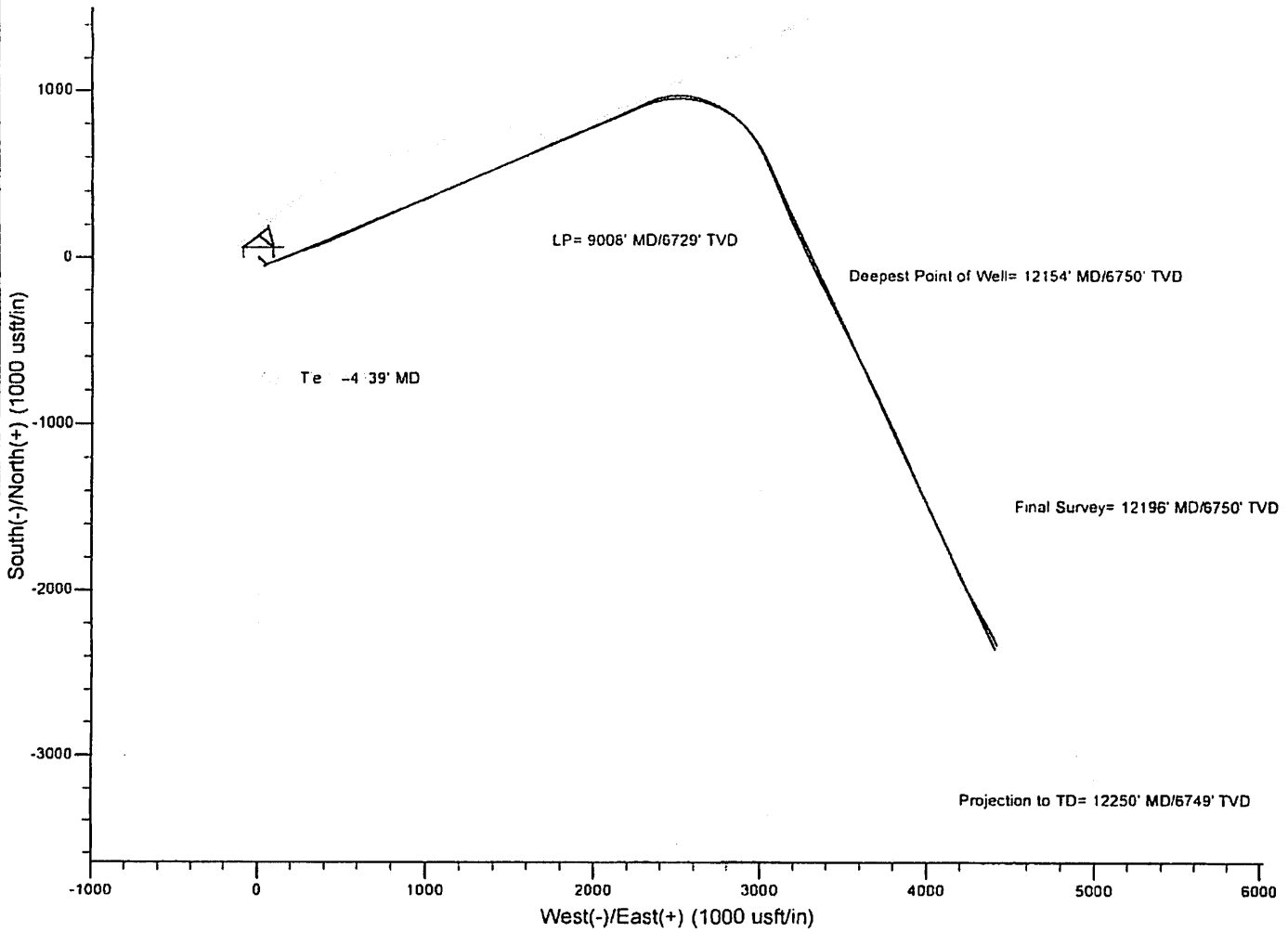
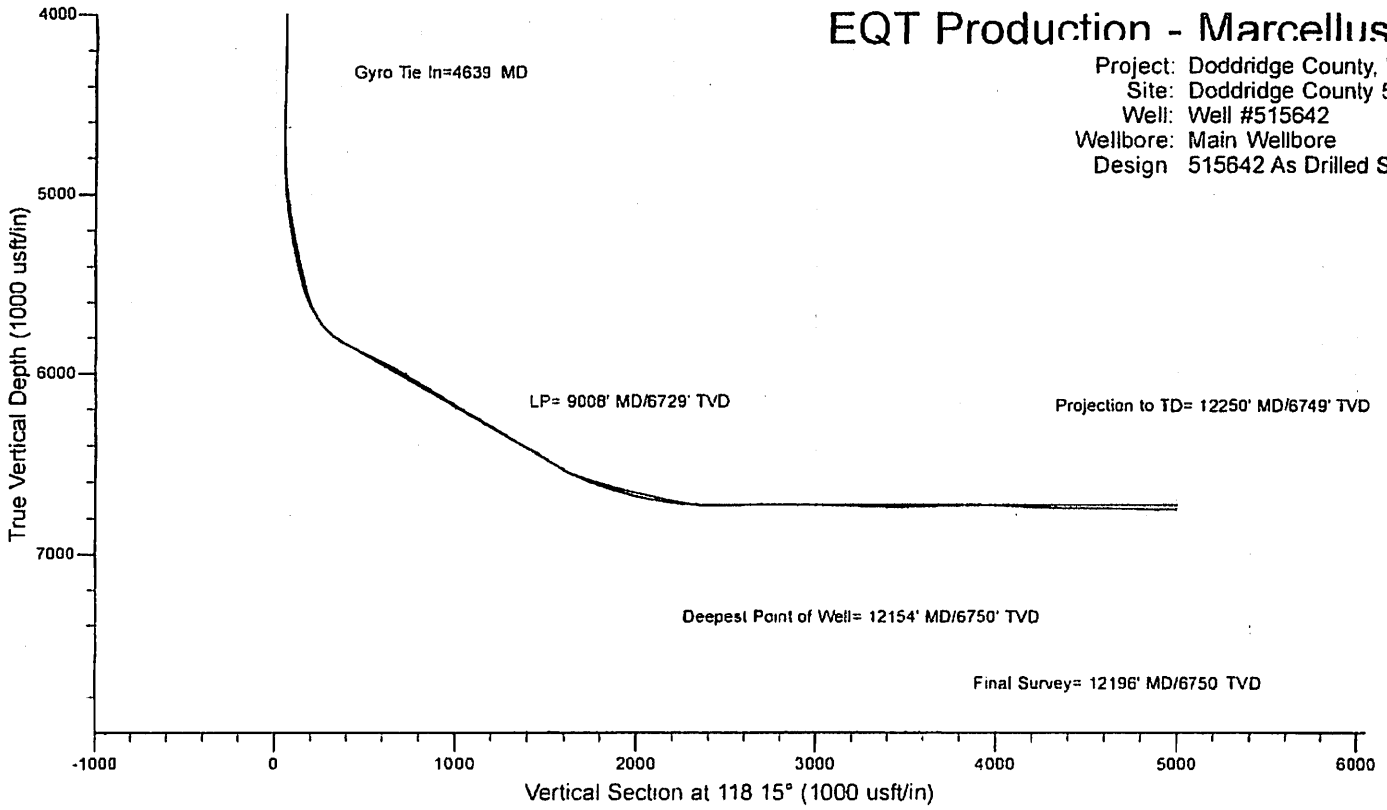
Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,639.0	4,638.2	-52.2	33.9	Gyro Tie In=4639' MD
9,008.0	6,729.0	591.0	3,025.8	LP= 9008' MD/6729' TVD
12,154.0	6,749.9	-2,248.5	4,375.5	Deepest Point of Well= 12154' MD/6750' TVD
12,196.0	6,749.8	-2,286.1	4,394.2	Final Survey= 12196' MD/6750' TVD
12,250.0	6,749.2	-2,334.8	4,417.6	Projection to TD= 12250' MD/6749' TVD

Checked By: _____ Approved By: _____ Date: _____

04/01/2016

EQT Production - Marcellus

Project: Doddridge County, WV Grid
Site: Doddridge County 515642
Well: Well #515642
Wellbore: Main Wellbore
Design: 515642 As Drilled Surveys



515642 - 47-017-06574-0000- Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	1/30/2015	12,238.00	12,240.00	10	MARCELLUS
1	4/18/2015	12,093.00	12,155.00	28	MARCELLUS
2	4/18/2015	11,913.00	12,035.00	42	MARCELLUS
3	4/18/2015	11,733.00	11,855.00	42	MARCELLUS
4	4/19/2015	11,553.00	11,675.00	42	MARCELLUS
5	4/19/2015	11,373.00	11,493.00	42	MARCELLUS
6	4/19/2015	11,373.00	11,493.00	42	MARCELLUS
7	4/19/2015	11,015.00	11,135.00	42	MARCELLUS
8	4/19/2015	10,833.00	10,955.00	42	MARCELLUS
9	4/20/2015	10,653.00	10,775.00	42	MARCELLUS
10	4/20/2015	10,473.00	10,595.00	42	MARCELLUS
11	4/20/2015	10,293.00	10,415.00	42	MARCELLUS
12	4/20/2015	10,113.00	10,235.00	42	MARCELLUS
13	4/21/2015	9,933.00	10,055.00	42	MARCELLUS
14	4/22/2015	9,753.00	9,871.00	42	MARCELLUS
15	4/22/2015	9,573.00	9,693.00	42	MARCELLUS
16	4/22/2015	9,394.00	9,515.00	42	MARCELLUS
17	4/22/2015	9,217.00	9,335.00	42	MARCELLUS
18	4/22/2015	9,033.00	9,155.00	42	MARCELLUS
19	4/23/2015	8,853.00	8,975.00	42	MARCELLUS

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/18/2015
Job End Date:	4/23/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06574-00-00
Operator Name:	EQT Production
Well Name and Number:	515642
Longitude:	-80.76340200
Latitude:	39.25577200
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,750
Total Base Water Volume (gal):	5,354,118
Total Base Non Water Volume:	0



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	88.27584	None
Sand (Proppant)	FTS International	Proppant	Crystalline Silica	14808-60-7	100.00000	11.35927	None
MC MX 437-5	Multi-Chem	Calcium nitrate solution	Calcium nitrate	10124-37-5	60.00000	0.05723	None
Hydrochloric Acid (15%)	FTS International	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.03043	None
FRW-900	FTS International	Friction reducer	Hydrotreated light distillate	64742-47-8	30.00000	0.00843	None
			Alkyl Alcohol	Proprietary	10.00000	0.00281	None
			Oxyalkylated alcohol A	Proprietary	5.00000	0.00140	None
LTB-1	FTS International	Breaker	Ammonium persulfate	7727-54-0	75.00000	0.00328	None
			Cured acrylic resin	Proprietary	16.00000	0.00070	None
			Silica, Crystalline-Quartz	14808-60-7	10.00000	0.00044	None
CS-500-SI	FTS International	Scale inhibitor	Ethylene glycol	107-21-1	10.00000	0.00247	None

APB-1	FTS International	Breaker					
			Ammonium persulfate	7727-54-0	95.00000	0.00244	None
FRW-600	FTS International	Friction reducer					
			Hydrotreated light distillate	64742-47-8	30.00000	0.00121	None
			Ammonium acetate	631-61-8	6.00000	0.00024	None
FE-100L	FTS International	Iron control					
			Citric acid	77-92-9	55.00000	0.00069	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
			Quaternary ammonium compound	Proprietary	10.00000	0.00003	None
			Dimethylformamide	68-12-2	10.00000	0.00003	None
			Aromatic aldehyde	Proprietary	10.00000	0.00003	None
FRW-200	FTS International	Friction reducer					
			Petroleum distillate hydrotreated light	64742-47-8	26.00000	0.00020	None
HVG-1	FTS International	Gelling agent					
			Petroleum distillate	64742-47-8	55.00000	0.00005	None
			Guar gum	9000-30-0	50.00000	0.00004	None
			Clay	14808-60-7	2.00000	0.00000	None
			Surfactant	68439-51-0	2.00000	0.00000	None
NE-100	FTS International	Non-emulsifier					
			2-Propanol	67-63-0	10.00000	0.00004	None
			2-Butoxyethanol	111-76-2	10.00000	0.00004	None
			Dodecylbenzenesulfonic acid	27176-87-0	5.00000	0.00002	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)

Welcome Michelle N., Operator - OpNo. E1210363 [Log Out]



Submission to FracFocus using Excel Spreadsheets has been turned off.

[FIND A WELL BY STATE](#)

[ABOUT PROJECT PARTNERS](#)

(Note: Clicking the FracFocus, FIND A WELL links will open a new window.)

Prepare Disclosure for FracFocus Submission

[Disclosure Lists](#) | [Dashboard](#)

Disclosure has been submitted.

Note: This window expires with 10 minutes of inactivity. After that you will be taken back to the dashboard.

[Preview Disclosure PDF](#) [Validate Disclosure](#) [Submit To FracFocus](#)

Hydraulic Fracturing Data

[Edit](#)

Job Start Date 4/18/2015 Job End Date 4/23/2015 API Number 47-017-06574-00-00 State & County West Virginia --- Doddridge

Well Name 515642

Longitude -80.763402 Latitude 39.255772 Datum NAD83 Federal/Tribal Well?

True Vertical Depth (ft) 6750 Total Water Vol (gal) 5354118 Total Non Water Vol 0 Total Mass (lbs) 50614204



MSDS Chemical Ingredients

[New Additive](#) [Select Additive](#) [Add Additive](#)

	Trade Name	Supplier	Purpose	Ingredients	CAS #	% High Additive	% HF Job	Comments	Ingredient Mass
Edit	Water	FTS International	Carrier/Base Fluid	Water	7732-18-5	100%	88.2758423496%	None	44680114.71
Edit	Sand (Proppant)	FTS International	Proppant	Crystalline Silica	14808-60-7	100%	11.3592659251%	None	5749402
Edit	MC MX 437-5	Multi-Chem	Calcium nitrate solution	Calcium nitrate	10124-37-5	60%	.0572334883%	None	28968.274
Edit	Hydrochloric Acid (15%)	FTS International	Acidizing	Hydrochloric Acid	7647-01-0	15%	.0304317417%	None	15402.784
Edit	FRW-900	FTS International	Friction reducer	Hydrotreated light distillate	64742-47-8	30%	.0084267607%	None	4265.138
				Alkyl Alcohol	Proprietary	10%	.0028089202%	None	1421.713
				Ozyalkylated alcohol A	Proprietary	5%	.0014044601%	None	710.856
Edit	LTB-1	FTS International	Breaker	Ammonium persulfate	7727-54-0	75%	.003277736%	None	1659
				Cured acrylic resin	Proprietary	16%	.0006992504%	None	353.92
				Silica, Crystalline-Quartz	14808-60-7	10%	.0004370315%	None	221.2
Edit	CS-500-SI								

		FTS International	Scale inhibitor	Ethylene glycol	107-21-1	10%	.0024730376%	None	1251.708
<input type="button" value="Edit"/>	APB-1	FTS International	Breaker						
		FTS International	Breaker	Ammonium persulfate	7727-54-0	95%	.0024400265%	None	1235
<input type="button" value="Edit"/>	FRW-600	FTS International	Friction reducer						
		FTS International	Friction reducer	Hydrotreated light distillate	64742-47-8	30%	.0012111363%	None	613.007
		FTS International	Friction reducer	Ammonium acetate	631-61-8	6%	.0002422273%	None	122.601
<input type="button" value="Edit"/>	FE-100L	FTS International	Iron control						
		FTS International	Iron control	Citric acid	77-92-9	55%	.0006901736%	None	349.326
<input type="button" value="Edit"/>	CI-150	FTS International	Acid Corrosion Inhibitor						
		FTS International	Acid Corrosion Inhibitor	Organic amine resin salt	Proprietary	30%	.0001028323%	None	52.048
		FTS International	Acid Corrosion Inhibitor	Isopropanol	67-63-0	30%	.0001028323%	None	52.048
		FTS International	Acid Corrosion Inhibitor	Ethylene glycol	107-21-1	30%	.0001028323%	None	52.048
		FTS International	Acid Corrosion Inhibitor	Quaternary ammonium compound	Proprietary	10%	.0000342774%	None	17.349
		FTS International	Acid Corrosion Inhibitor	Dimethylformamide	68-12-2	10%	.0000342774%	None	17.349
		FTS International	Acid Corrosion Inhibitor	Aromatic aldehyde	Proprietary	10%	.0000342774%	None	17.349
<input type="button" value="Edit"/>	FRW-200	FTS International	Friction reducer						
		FTS International	Friction reducer	Petroleum distillate hydrotreated light	64742-47-8	26%	.0002037059%	None	103.104
<input type="button" value="Edit"/>	HVG-1	FTS International	Gelling agent						
		FTS International	Gelling agent	Petroleum distillate	64742-47-8	55%	.0000487411%	None	24.67
		FTS International	Gelling agent	Guar gum	9000-30-0	50%	.0000443101%	None	22.427
		FTS International	Gelling agent	Clay	14808-60-7	2%	.0000017724%	None	0.897
		FTS International	Gelling agent	Surfactant	68439-51-0	2%	.0000017724%	None	0.897
<input type="button" value="Edit"/>	NE-100	FTS International	Non-emulsifier						
		FTS International	Non-emulsifier	2-Propanol	67-63-0	10%	.0000359097%	None	18.175
		FTS International	Non-emulsifier	2-Butoxyethanol	111-76-2	10%	.0000359097%	None	18.175
		FTS International	Non-emulsifier	Dodecylbenzenesulfonic acid	27176-87-0	5%	.0000179549%	None	9.088

Non-MSDS Chemical Ingredients

Trade Name	Supplier	Purpose	Ingredients	CAS #	% High Additive	% HF Job	Comments	Ingredient Mass
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**AS DRILLED COORDINATES
FOR WELL NO. WV 515642**

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)
 NAD27 S.P.C.(FT) N. 277,783.2 E. 1,642,245.0
 NAD27 GEO. LAT-(N) 39.255772 LONG-(W) 80.763403
 NAD83 UTM (M) N. 4,345,198.6 E. 520,428.3
BOTTOM HOLE
 NAD27 S.P.C.(FT) N. 275,448.5 E. 1,648,662.4
 NAD27 GEO. LAT-(N) 39.249532 LONG-(W) 80.747690
 NAD83 UTM (M) N. 4,344,507.8 E. 521,786.0

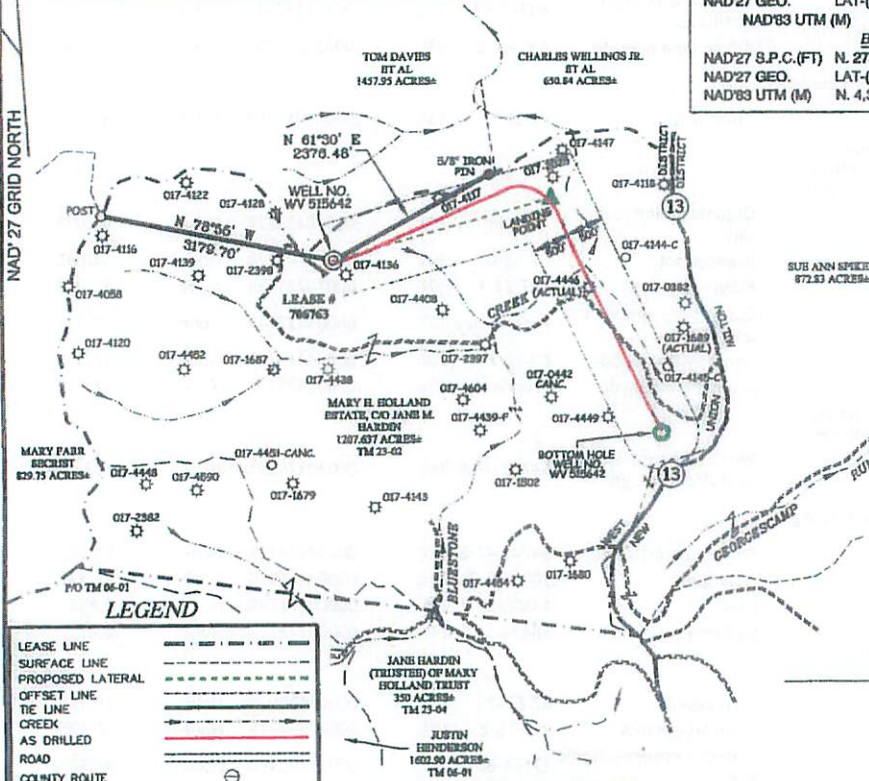
**EQT PRODUCTION COMPANY
LEEMAN MAXWELL LEASE
1000 ACRES±
WELL NO. WV 515642**

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)
 NAD27 S.P.C.(FT) N. 277,783.2 E. 1,642,245.0
 NAD27 GEO. LAT-(N) 39.255772 LONG-(W) 80.763403
 NAD83 UTM (M) N. 4,345,198.6 E. 520,428.3
LANDING POINT
 NAD27 S.P.C.(FT) N. 278,598.2 E. 1,645,171.6
 NAD27 GEO. LAT-(N) 39.258122 LONG-(W) 80.763109
 NAD83 UTM (M) N. 4,345,459.8 E. 521,315.8
BOTTOM HOLE
 NAD27 S.P.C.(FT) N. 275,426.2 E. 1,648,650.8
 NAD27 GEO. LAT-(N) 39.249470 LONG-(W) 80.747730
 NAD83 UTM (M) N. 4,344,500.9 E. 521,782.5

NAD 27 GRID NORTH

LONGITUDE 80°45'00"

13.074'



LEGEND

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

NOTES ON SURVEY

- 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.
- AS DRILLED INFORMATION PROVIDED BY EQT.



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*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE MAY 30, 20 14
 REVISED 08/06/14 & 01/13/15
 OPERATORS WELL NO. WV 515642
 API WELL NO. 47
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 8051ASDRILLED515642
 HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORNS NETWORK)
 SCALE 1" = 2000'

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

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

LOCATION:
 ELEVATION 1,224'(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±
 LEASE NO. 708763

PROPOSED WORK:
 DRILL CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE 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 6861'

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

04/01/2016