

2<sup>nd</sup> Amended

# APPROVED

NAME: *[Signature]*

DATE: 2/10/2016

## Well Operator's Report of Well Work



Where energy meets innovation.

Well Number: 514393

API: 47 - 017 - 06446

Submission:  Initial  Amended <sup>#2</sup> *2nd* *DJB*

Notes: Add'l inj test - 14.02, 42.01, 42.02  
Reperf's- 7.1, 11.1, 27.1, 40.1

Correction to Production Cement Top  
(MD)

RECEIVED  
Office of Oil and Gas

DEC 21 2015

WV Department of  
Environmental Protection

Ax 04/01/2016  
841670

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

API 47 - 017 - 06446 County DODDRIDGE District WEST UNION  
Quad WEST UNION 7.5' Pad Name WEU49 Field/Pool Name \_\_\_\_\_  
Farm name MARY FARR SECRIST Well Number 514393  
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 4,345,089 Easting 518,425  
Landing Point of Curve Northing 4,344,769 Easting 518,154  
Bottom Hole Northing 4,342,389 Easting 519,313

Elevation (ft) 1130 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)  
SBM 12.0 ppg – powdered hydrocarbon resin, calcium carbonate, ground almond hulls, barium sulfate, calcium chloride, lecithin liquid, organophilic clay,  
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 03/13/2014 Date drilling commenced 06/24/2014 Date drilling ceased 3/20/2015  
Date completion activities began 5/14/2015 Date completion activities ceased 5/26/2015  
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

Freshwater depth(s) ft 487 Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 1542 Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 340, 483 Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

Reviewed by:

04/01/2016

API 47-017 - 06446 Farm name MARY FARR SECRIST Well number 514393

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"	1,066'	NEW	J-55 54.5LB/FT	287'	Y
Coal							
Intermediate 1	12.375"	9.625"	5,243'	NEW	P-110 40LB/FT	2263',2931',4199'	Y
Intermediate 2							
Intermediate 3							
Production	8.5"	5.5"	16,633	NEW	P-110 20LB/FT		N
Tubing							
Packer type and depth set							

Comment Details \_\_\_\_\_

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	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 / 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	350/1170	14.2/15.2	1.26/1.97	2746	4,650'	8
Tubing							

Drillers TD (ft) 16,633' Loggers TD (ft) N/A  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 5,749'

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, 22  
 INTERMEDIATE- JOINTS: 1,10,22,34,45,56,66,77,88,99,110,121  
 PRODUCTION- JOINTS: 2-26D

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 - 06446 Farm name MARY FARR SECRIST Well number 514393

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
Marcellus	6,656'	TVD 7,620' MD

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 2,007 psi Bottom Hole N/A psi DURATION OF TEST 81.50 hrs

OPEN FLOW Gas 10,405 mcfpd Oil 0 bpd NGL 176.5 bpd Water 712.0 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME 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 <sub>2</sub> S, ETC)
	0		0		

Please insert additional pages as applicable.

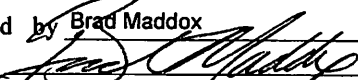
Drilling Contractor ALPHA HUNTER DRILLING (RIG 4)  
Address P.O. BOX 430 City RENO State OH Zip 45773

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

Please insert additional pages as applicable.

Completed by Brad Maddox Telephone 412-395-7053  
Signature  Title Director of Drilling Date 12/9/2015

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

API 47- 017 - 6446 Farm name MARY FARR SECRIST Well number 514393

Drilling Contractor Orion 17  
Address 674 Flato Road City Corpus Christi State TX Zip 78405

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

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

Cementing Company Nabors Cementing Company  
Address 2504 Smith Creek Road City Waynesburg State PA Zip 15370

Well 514393  
 Mary Farr Secrist  
 API: 47-170-6446

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	497	497
SAND/SHALE	1	1	350	350
COAL	350	350	353	353
SAND/SHALE	353	353	493	493
PITTSBURGH COAL	493	493	495	495
SAND/SHALE	495	495	1,428.00	1,428.00
MAXTON	1,428.00	1,428.00	1,861.00	1,861.00
BIG LIME	1,861.00	1,861.00	2,156.00	2,156.00
WEIR	2,156.00	2,156.00	2,358.00	2,358.00
BEREA	2,358.00	2,358.00	2,363.00	2,363.00
GANTZ	2,363.00	2,363.00	2,484.00	2,484.00
50F	2,484.00	2,484.00	2,567.00	2,567.00
30F	2,567.00	2,567.00	2,610.00	2,610.00
GORDON	2,610.00	2,610.00	2,721.00	2,721.00
4TH	2,721.00	2,721.00	2,905.00	2,905.00
BAYARD	2,905.00	2,905.00	3,229.00	3,229.00
WARREN	3,229.00	3,229.00	3,293.00	3,293.00
SPEECHLEY	3,293.00	3,293.00	3,930.00	3,930.00
BALLTOWN A	3,930.00	3,930.00	4,227.00	4,227.00
BRADFORD	4,227.00	4,227.00	4,426.00	4,426.00
RILEY	4,426.00	4,426.00	4,867.00	4,867.00
BENSON	4,867.00	4,867.00	5,121.00	5,121.00
ALEXANDER	5,121.00	5,121.00	6,334.00	6,245.00
SONYEA	6,334.00	6,245.00	6,886.00	6,444.20
MIDDLESEX	6,886.00	6,444.20	7,050.00	6,502.20
GENESSEE	7,050.00	6,502.20	7,284.00	6,576.30
GENESE0	7,284.00	6,576.30	7,419.00	6,610.20
TULLY	7,419.00	6,610.20	7,513.00	6,634.10
HAMILTON	7,513.00	6,634.10	7,620.00	6,656.00
MARCELLUS	7,620.00	6,656.00		



**PHOENIX**  
TECHNOLOGY SERVICES USA INC.

## **EQT Production - Marcellus**

**Doddridge County, WV Grid**

**Doddridge County 514393**

**Well #514393**

**Main Wellbore**

**API: 47-170-6446**

**Design: As Drilled Surveys**

## **Standard Survey Report**

**23 March, 2015**



**Where energy meets innovation.**

**04/01/2016**



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 514393
Company:	EQT Production - Marcellus	TVD Reference:	KB@23 @ 1153.0usft.
Project:	Doddridge County, WV Grid	MD Reference:	KB@23 @ 1153.0usft
Site:	Doddridge County 514393	North Reference:	Grid
Well:	Well #514393	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 514393

Site Position:		Northing:	277,539.80 usft	Latitude:	39 25
From:	Map	Easting:	1,635,665.40 usft	Longitude:	-80.79
Position Uncertainty:	0 0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.82 °

**Well** Well #514393

Well Position	+N/-S	0 0 usft	Northing:	277,539.80 usft	Latitude:	39° 15' 17.452 N
	+E/-W	0 0 usft	Easting:	1 635 665.40 usft	Longitude:	80° 47' 11.843 W
Position Uncertainty		0 0 usft	Wellhead Elevation:	usft	Ground Level:	1 130.0 usft

**Wellbore** Main Wellbore

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	3/2/2015	-8.49	66.72	52,190

**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 (°)
	0 0	0 0	0 0	162.77

**Survey Program** Date 3/23/2015

From (')	To (usft)	Survey (Wellbore)	Tool Name	Description
0 00	5,665 0	514393 Gyrodata Gyros (Main Wellbore)	GYD_DP_MS	Gyrodata gyro-compassing and drop
0 00	16,633 0	514393 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	-1,153.0	0.0	0.0	0.0	0.00	0.00	0.00
110.0	0.35	219.34	110.0	-1,043.0	-0.3	-0.2	0.2	0.32	0.32	0.00
210.0	0.33	202.71	210.0	-943.0	-0.8	-0.5	0.6	0.10	-0.02	-16.63
310.0	0.22	195.47	310.0	-843.0	-1.2	-0.7	1.0	0.12	-0.11	-7.24
410.0	0.15	181.97	410.0	-743.0	-1.5	-0.7	1.2	0.08	-0.07	-13.50
510.0	0.15	195.23	510.0	-643.0	-1.8	-0.8	1.5	0.03	0.00	13.26
610.0	0.12	185.08	610.0	-543.0	-2.0	-0.8	1.7	0.04	-0.03	-10.15
710.0	0.14	170.81	710.0	-443.0	-2.2	-0.8	1.9	0.04	0.02	-14.27

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Site:	Doddridge County 514393	North Reference:	Grid
Well:	Well #514393	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)
810.0	0.13	194.01	810.0	-343.0	-2.5	-0.8	2.1	0.06	-0.01	23.20
910.0	0.14	194.47	910.0	-243.0	-2.7	-0.9	2.3	0.01	0.01	0.46
1,010.0	0.22	192.24	1,010.0	-143.0	-3.0	-0.9	2.6	0.08	0.08	-2.23
1,110.0	0.28	185.21	1,110.0	-43.0	-3.4	-1.0	3.0	0.07	0.06	-7.03
1,210.0	0.36	192.32	1,210.0	57.0	-4.0	-1.1	3.5	0.09	0.08	7.11
1,310.0	0.37	190.37	1,310.0	157.0	-4.6	-1.2	4.0	0.02	0.01	-1.95
1,410.0	0.46	190.41	1,410.0	257.0	-5.3	-1.4	4.7	0.09	0.09	0.04
1,510.0	0.54	193.82	1,510.0	357.0	-6.2	-1.5	5.4	0.09	0.08	3.41
1,610.0	0.60	198.38	1,610.0	457.0	-7.1	-1.8	6.3	0.08	0.06	4.56
1,710.0	0.77	206.45	1,710.0	557.0	-8.2	-2.3	7.2	0.20	0.17	8.07
1,810.0	0.93	213.71	1,810.0	657.0	-9.5	-3.0	8.2	0.19	0.16	7.26
1,910.0	0.90	212.33	1,909.9	756.9	-10.8	-3.9	9.2	0.04	-0.03	-1.38
2,010.0	0.82	212.28	2,009.9	856.9	-12.1	-4.7	10.2	0.08	-0.08	-0.05
2,110.0	0.68	213.13	2,109.9	956.9	-13.2	-5.4	11.0	0.14	-0.14	0.85
2,210.0	0.60	208.01	2,209.9	1,056.9	-14.2	-6.0	11.8	0.10	-0.08	-5.12
2,310.0	0.54	204.81	2,309.9	1,156.9	-15.1	-6.4	12.5	0.07	-0.06	-3.20
2,410.0	0.53	205.47	2,409.9	1,256.9	15.9	-6.8	13.2	0.01	-0.01	0.66
2,510.0	0.50	204.38	2,509.9	1,356.9	-16.7	-7.2	13.8	0.03	-0.03	-1.09
2,610.0	0.49	210.09	2,609.9	1,456.9	-17.5	-7.6	14.5	0.05	-0.01	5.71
2,710.0	0.51	207.00	2,709.9	1,556.9	-18.3	-8.0	15.1	0.03	0.02	-3.09
2,810.0	0.47	215.40	2,809.9	1,656.9	-19.0	-8.4	15.6	0.08	-0.04	8.40
2,910.0	0.37	209.15	2,909.9	1,756.9	-19.6	-8.8	16.1	0.11	-0.10	-6.25
3,010.0	0.36	200.85	3,009.9	1,856.9	-20.2	-9.1	16.6	0.05	-0.01	-8.30
3,110.0	0.38	210.86	3,109.9	1,956.9	-20.8	-9.4	17.0	0.07	0.02	10.01
3,210.0	0.34	206.96	3,209.9	2,056.9	-21.3	-9.7	17.5	0.05	-0.04	-3.90
3,310.0	0.41	216.77	3,309.9	2,156.9	-21.9	-10.0	17.9	0.09	0.07	9.81
3,410.0	0.39	219.46	3,409.9	2,256.9	-22.4	-10.5	18.3	0.03	-0.02	2.69
3,510.0	0.40	220.67	3,509.9	2,356.9	-22.9	-10.9	18.7	0.01	0.01	1.21
3,610.0	0.42	222.31	3,609.9	2,456.9	-23.5	-11.4	19.0	0.02	0.02	1.64
3,710.0	0.46	229.87	3,709.9	2,556.9	-24.0	-12.0	19.4	0.07	0.04	7.56
3,810.0	0.47	230.87	3,809.9	2,656.9	-24.5	-12.6	19.7	0.01	0.01	1.00
3,910.0	0.50	242.42	3,909.9	2,756.9	-25.0	-13.3	19.9	0.10	0.03	11.55
4,010.0	0.64	253.01	4,009.9	2,856.9	-25.3	-14.2	20.0	0.17	0.14	10.59
4,110.0	0.73	257.65	4,109.9	2,956.9	-25.6	-15.4	19.9	0.11	0.09	4.64
4,210.0	0.78	266.63	4,209.8	3,056.8	-25.8	-16.7	19.7	0.13	0.05	8.98
4,310.0	0.97	275.04	4,309.8	3,156.8	-25.8	-18.2	19.2	0.23	0.19	8.41
4,410.0	1.02	284.14	4,409.8	3,256.8	-25.5	-19.9	18.5	0.17	0.05	9.10
4,510.0	1.15	290.43	4,509.8	3,356.8	-24.9	-21.7	17.4	0.18	0.13	6.29
4,610.0	1.29	288.19	4,609.8	3,456.8	-24.2	-23.7	16.1	0.15	0.14	-2.24
4,710.0	1.23	294.62	4,709.8	3,556.8	-23.4	-25.7	14.7	0.15	-0.06	6.43
4,810.0	1.18	299.59	4,809.7	3,656.7	-22.5	-27.6	13.3	0.12	-0.05	4.97
4,910.0	1.20	298.19	4,909.7	3,756.7	-21.5	-29.4	11.8	0.04	0.02	-1.40



Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 514393
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Site:	Doddridge County 514393	North Reference:	Grid
Well:	Well #514393	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	1.19	308.95	5,009.7	3,856.7	-20.3	-31.2	10.2	0.22	-0.01	10.76	
5,110.0	1.31	309.12	5,109.7	3,956.7	-18.9	-32.9	8.4	0.12	0.12	0.17	
5,210.0	1.61	318.02	5,209.6	4,056.6	-17.2	-34.7	6.1	0.38	0.30	8.90	
5,310.0	1.82	319.33	5,309.6	4,156.6	-14.9	-36.7	3.4	0.21	0.21	1.31	
5,410.0	2.29	334.26	5,409.5	4,256.5	-11.9	-38.6	0.0	0.71	0.47	14.93	
5,510.0	2.88	353.31	5,509.4	4,356.4	-7.6	-39.7	-4.5	1.03	0.59	19.05	
5,610.0	3.65	3.50	5,609.3	4,456.3	-2.0	-39.8	-9.9	0.96	0.77	10.19	
<b>Gyro Tilt In= 5665' MD</b>											
5,665.0	4.05	11.83	5,664.1	4,511.1	1.7	-39.3	-13.3	1.25	0.73	15.15	
5,690.0	4.40	13.30	5,689.1	4,536.1	3.5	-38.9	-14.9	1.47	1.40	5.88	
5,722.0	4.60	20.50	5,721.0	4,568.0	5.9	-38.2	-16.9	1.87	0.63	22.50	
5,754.0	4.00	4.30	5,752.9	4,599.9	8.2	-37.7	-19.0	4.21	-1.88	-50.63	
5,785.0	4.30	317.60	5,783.8	4,630.8	10.1	-38.4	-21.0	10.64	0.97	-150.65	
5,817.0	7.30	293.30	5,815.6	4,662.6	11.8	-41.0	-23.4	11.92	9.38	-75.94	
5,849.0	10.90	288.70	5,847.2	4,694.2	13.6	-45.8	-26.5	11.47	11.25	-14.38	
5,880.0	14.10	285.60	5,877.5	4,724.5	15.6	-52.2	-30.3	10.54	10.32	-10.00	
5,912.0	17.30	277.20	5,908.3	4,755.3	17.2	-60.7	-34.4	12.24	10.00	-26.25	
5,944.0	18.40	274.90	5,938.8	4,785.8	18.2	-70.4	-38.3	4.08	3.44	-7.19	
5,975.0	21.20	271.00	5,967.9	4,814.9	18.7	-80.9	-41.9	9.98	9.03	-12.58	
6,007.0	23.70	270.20	5,997.5	4,844.5	18.9	-93.1	-45.6	7.87	7.81	-2.50	
6,039.0	27.20	267.00	6,026.4	4,873.4	18.5	-106.9	-49.3	11.75	10.94	-10.00	
6,070.0	30.40	263.60	6,053.6	4,900.6	17.3	-121.7	-52.6	11.59	10.32	-10.97	
6,102.0	33.70	260.60	6,080.7	4,927.7	14.9	-138.5	-55.3	11.45	10.31	-9.38	
6,134.0	37.10	263.00	6,106.8	4,953.8	12.3	-156.9	-58.2	11.48	10.63	7.50	
6,165.0	39.90	264.20	6,131.0	4,978.0	10.1	-176.1	-61.8	9.35	9.03	3.87	
6,197.0	42.30	263.50	6,155.1	5,002.1	7.9	-197.0	-65.9	7.64	7.50	-2.19	
6,229.0	44.40	261.60	6,178.4	5,025.4	5.0	-218.7	-69.6	7.72	6.56	-5.94	
6,260.0	47.80	259.70	6,199.9	5,046.9	1.4	-240.8	-72.7	11.82	10.97	-6.13	
6,292.0	51.80	258.90	6,220.5	5,067.5	-3.2	-264.8	-75.4	12.64	12.50	-2.50	
6,324.0	55.70	258.90	6,239.5	5,086.5	-8.1	-290.1	-78.2	12.19	12.19	0.00	
6,355.0	59.60	259.20	6,256.1	5,103.1	-13.1	-315.8	-81.1	12.61	12.58	0.97	
6,387.0	62.80	258.90	6,271.5	5,118.5	-18.4	-343.3	-84.1	10.03	10.00	-0.94	
6,419.0	66.30	257.80	6,285.2	5,132.2	-24.3	-371.6	-86.9	11.37	10.94	-3.44	
6,450.0	68.80	257.60	6,297.1	5,144.1	-30.4	-399.6	-89.4	8.09	8.06	-0.65	
6,482.0	71.30	257.40	6,308.0	5,155.0	-36.9	-429.0	-91.9	7.83	7.81	-0.63	
6,545.0	73.80	260.40	6,326.9	5,173.9	-48.4	-488.0	-98.3	6.03	3.97	4.76	
6,577.0	74.10	260.40	6,335.7	5,182.7	-53.6	-518.3	-102.4	0.94	0.94	0.00	
6,608.0	72.40	260.80	6,344.6	5,191.6	-58.4	-547.6	-106.5	5.62	-5.48	1.29	
6,640.0	70.60	261.50	6,354.8	5,201.8	-63.1	-577.5	-110.9	6.00	-5.63	2.19	
6,671.0	68.70	261.90	6,365.6	5,212.6	-67.3	-606.3	-115.4	6.25	-6.13	1.29	
6,703.0	68.70	260.30	6,377.2	5,224.2	-71.9	-635.8	-119.7	4.66	0.00	-5.00	
6,735.0	68.00	256.00	6,389.0	5,236.0	-78.0	-664.9	-122.5	12.68	-2.19	-13.44	
6,767.0	68.00	251.20	6,401.0	5,248.0	-86.4	-693.3	-122.9	13.91	0.00	-15.00	

Database:	EDM 5000.1 Single User DB	Local Co-ordinate Reference:	
Company:	EQT Production - Marcellus	TVD Reference:	
Project:	Doddridge County, WV Grid	MD Reference:	
Site:	Doddridge County 514393	North Reference:	
Well:	Well #514393	Survey Calculation Method:	
Wellbore:			
Design:	As		

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)
6,798.0	68.70	247.10	6,412.4	5,259.4	-96.6	-720.2	-121.1	12.50	2.26	-13.23
6,830.0	68.40	243.30	6,424.2	5,271.2	-109.1	-747.3	-117.2	11.09	-0.94	-11.88
6,861.0	69.20	240.60	6,435.4	5,282.4	-122.7	-772.8	-111.8	8.52	2.58	-8.71
6,893.0	69.80	236.10	6,446.6	5,293.6	-138.4	-798.3	-104.3	13.30	1.88	-14.06
6,925.0	69.40	232.70	6,457.7	5,304.7	-155.9	-822.7	-94.9	10.04	-1.25	-10.63
6,956.0	69.20	229.60	6,468.7	5,315.7	-174.1	-845.2	-84.2	9.38	-0.65	-10.00
6,988.0	68.90	226.80	6,480.1	5,327.1	-194.0	-867.5	-71.8	8.23	-0.94	-8.75
7,020.0	69.50	224.10	6,491.5	5,338.5	-215.0	-888.8	-58.0	8.11	1.88	-8.44
7,051.0	69.00	221.70	6,502.5	5,349.5	-236.2	-908.6	-43.6	7.42	-1.61	-7.74
7,083.0	69.30	218.70	6,513.9	5,360.9	-259.0	-927.9	-27.5	8.81	0.94	-9.38
7,115.0	69.60	215.30	6,525.1	5,372.1	-283.0	-945.9	-10.0	9.99	0.94	-10.63
7,146.0	70.50	212.10	6,535.7	5,382.7	-307.2	-962.0	8.4	10.13	2.90	-10.32
7,178.0	72.20	208.60	6,545.9	5,392.9	-333.4	-977.4	28.8	11.64	5.31	-10.94
7,210.0	73.30	206.40	6,555.4	5,402.4	-360.5	-991.5	50.5	7.41	3.44	-6.88
7,241.0	73.50	203.00	6,564.3	5,411.3	-387.5	-1,003.9	72.6	10.53	0.65	-10.97
7,273.0	73.90	200.20	6,573.3	5,420.3	-416.0	-1,015.2	96.5	8.49	1.25	-8.75
7,305.0	75.30	197.80	6,581.8	5,428.8	-445.2	-1,025.2	121.4	8.45	4.38	-7.50
7,336.0	76.00	195.00	6,589.4	5,436.4	-474.0	-1,033.7	146.4	9.04	2.26	-9.03
7,368.0	75.50	191.30	6,597.3	5,444.3	-504.2	-1,040.8	173.2	11.31	-1.56	-11.56
7,400.0	75.50	188.40	6,605.3	5,452.3	-534.7	-1,046.1	200.8	8.77	0.00	-9.06
7,431.0	75.00	184.90	6,613.2	5,460.2	-564.5	-1,049.5	228.2	11.04	-1.61	-11.29
7,463.0	74.90	180.90	6,621.5	5,468.5	-595.3	-1,051.1	257.2	12.08	-0.31	-12.50
7,495.0	75.60	177.90	6,629.7	5,476.7	-626.3	-1,050.8	286.8	9.33	2.19	-9.38
7,526.0	76.80	174.50	6,637.1	5,484.1	-656.3	-1,048.8	316.1	11.33	3.87	-10.97
7,558.0	77.90	171.40	6,644.1	5,491.1	-687.3	-1,044.9	346.8	10.06	3.44	-9.69
7,590.0	78.80	168.60	6,650.6	5,497.6	-718.1	-1,039.5	377.9	9.02	2.81	-8.75
7,621.0	80.70	166.50	6,656.1	5,503.1	-747.9	-1,032.9	408.3	9.06	6.13	-6.77
7,653.0	81.90	164.20	6,660.9	5,507.9	-778.5	-1,024.9	439.9	8.03	3.75	-7.19
7,685.0	83.10	161.50	6,665.1	5,512.1	-808.8	-1,015.6	471.6	9.17	3.75	-8.44
7,716.0	84.60	159.30	6,668.4	5,515.4	-837.9	-1,005.2	502.4	8.56	4.84	-7.10
7,748.0	86.50	157.60	6,670.9	5,517.9	-867.5	-993.5	534.2	7.96	5.94	-5.31
LP= 7780' MD/8673' TVD										
7,780.0	87.90	157.20	6,672.5	5,519.5	-897.1	-981.2	566.0	4.55	4.38	-1.25
7,874.0	89.60	154.40	6,674.5	5,521.5	-982.8	-942.7	659.3	3.48	1.81	-2.98
7,969.0	88.20	154.80	6,676.3	5,523.3	-1,068.6	-902.0	753.3	1.53	-1.47	0.42
8,064.0	88.70	154.70	6,678.9	5,525.9	-1,154.4	-861.5	847.4	0.54	0.53	-0.11
8,159.0	88.20	155.00	6,681.5	5,528.5	-1,240.4	-821.1	941.4	0.61	-0.53	0.32
8,254.0	88.80	154.70	6,684.0	5,531.0	-1,326.4	-780.7	1,035.5	0.71	0.63	-0.32
8,349.0	87.70	154.10	6,686.9	5,533.9	-1,412.0	-739.7	1,129.4	1.32	-1.16	-0.63
8,443.0	88.20	154.70	6,690.2	5,537.2	-1,496.7	-699.1	1,222.4	0.83	0.53	0.64
8,538.0	87.00	154.90	6,694.2	5,541.2	-1,582.6	-658.7	1,316.4	1.28	-1.26	0.21
8,634.0	86.00	154.10	6,700.1	5,547.1	-1,669.1	-617.5	1,411.2	1.33	-1.04	-0.83
8,728.0	86.30	154.00	6,705.4	5,553.4	-1,753.4	-576.4	1,503.9	0.34	0.32	-0.11



Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 514393
Company:	EQT Production - Marcellus	TVD Reference:	KB@23 @ 1153.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB@23 @ 1153.0usft
Site:	Doddridge County 514393	North Reference:	Grid
Well:	Well #514393	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)
8 823.0	89.50	154.60	6,709.9	5,556.9	-1,839.0	-535.3	1 597.8	3.43	3.37	0.63
Deepest Point of Well= 8918' MD/6710' TVD										
8,918.0	90.20	154.60	6,710.1	5,557.1	-1,924.8	-494.5	1 691.8	0.74	0.74	0.00
9,013.0	91.00	154.40	6,709.1	5,556.1	-2,010.5	-453.6	1 785.8	0.87	0.84	-0.21
9,108.0	91.30	153.80	6,707.2	5,554.2	-2,096.0	-412.1	1,879.7	0.71	0.32	-0.63
9,203.0	89.90	154.70	6,706.2	5,553.2	-2,181.5	-370.8	1 973.7	1.75	-1.47	0.95
9,298.0	90.20	155.90	6,706.1	5,553.1	-2,267.8	-331.2	2 067.9	1.30	0.32	1.26
9,393.0	90.60	155.50	6,705.5	5,552.5	-2,354.4	-292.1	2,162.1	0.60	0.42	-0.42
9,488.0	89.80	156.00	6,705.1	5,552.1	-2,441.0	-253.0	2 256.4	0.99	-0.84	0.53
9,583.0	90.30	156.30	6,705.1	5,552.1	-2,527.9	-214.6	2,350.8	0.61	0.53	0.32
9,678.0	91.10	155.90	6,703.9	5,550.9	-2,614.7	-176.1	2,445.2	0.94	0.84	-0.42
9,773.0	91.70	156.40	6,701.6	5,548.6	-2,701.6	-137.7	2,539.5	0.82	0.63	0.53
9,868.0	90.40	156.20	6,699.8	5,546.8	-2,788.6	-99.6	2,633.9	1.38	-1.37	-0.21
9,963.0	91.50	156.80	6,698.3	5,545.3	-2,875.7	-61.7	2 728.3	1.32	1.16	0.63
10,057.0	90.40	155.40	6,696.7	5,543.7	-2,961.6	-23.6	2,821.6	1.89	-1.17	-1.49
10,152.0	90.40	155.60	6,696.0	5,543.0	-3,048.1	15.8	2,915.9	0.21	0.00	0.21
10,247.0	92.60	154.20	6,693.5	5,540.5	-3,134.1	56.1	3,009.9	2.74	2.32	-1.47
10,342.0	93.70	152.60	6,688.3	5,535.3	-3,218.9	98.5	3,103.5	2.04	1.16	-1.68
10,437.0	94.10	153.90	6,681.9	5,528.9	-3,303.5	141.2	3,197.0	1.43	0.42	1.37
10,532.0	94.60	154.30	6,674.7	5,521.7	-3,388.7	182.6	3,290.6	0.67	0.53	0.42
10,627.0	95.00	153.60	6,666.7	5,513.7	-3,473.8	224.1	3,384.2	0.85	0.42	-0.74
10,722.0	96.70	153.40	6,657.0	5,504.0	-3,558.3	266.3	3,477.5	1.80	1.79	-0.21
10,818.0	96.20	154.50	6,646.2	5,493.2	-3,644.0	308.2	3,571.7	1.25	-0.52	1.15
10,912.0	96.00	154.50	6,636.3	5,483.3	-3,728.4	348.4	3,664.2	0.21	-0.21	0.00
11,007.0	96.90	155.00	6,625.6	5,472.6	-3,813.8	388.7	3,757.7	1.08	0.95	0.53
11,102.0	97.50	155.20	6,613.7	5,460.7	-3,899.3	428.4	3,851.1	0.67	0.63	0.21
11,197.0	93.90	155.50	6,604.2	5,451.2	-3,985.2	467.8	3,944.8	3.80	-3.79	0.32
11,292.0	94.10	155.90	6,597.6	5,444.6	-4,071.5	506.8	4,038.9	0.47	0.21	0.42
11,387.0	93.70	156.40	6,591.2	5,438.2	-4,158.2	545.1	4,133.0	0.67	-0.42	0.53
11,482.0	90.60	156.90	6,587.6	5,434.6	-4,245.4	582.7	4,227.4	3.31	-3.26	0.53
11,577.0	90.90	157.60	6,586.3	5,433.3	-4,333.0	619.5	4,322.0	0.80	0.32	0.74
11,671.0	90.80	155.30	6,585.0	5,432.0	-4,419.1	657.0	4,415.4	2.45	-0.11	-2.45
11,766.0	88.90	152.80	6,585.2	5,432.2	-4,504.5	698.6	4,509.3	3.31	-2.00	-2.63
11,861.0	89.10	152.40	6,586.9	5,433.9	-4,588.9	742.3	4,602.8	0.47	0.21	-0.42
11,957.0	89.30	154.20	6,588.2	5,435.2	-4,674.6	785.4	4,697.4	1.89	0.21	1.88
12,052.0	89.80	154.60	6,588.9	5,435.9	-4,760.3	826.5	4,791.4	0.67	0.53	0.42
12,147.0	90.10	154.00	6,589.0	5,436.0	-4,845.9	867.7	4,885.4	0.71	0.32	-0.63
12,243.0	90.50	154.40	6,588.5	5,435.5	-4,932.3	909.5	4,980.3	0.59	0.42	0.42
12,338.0	90.90	154.60	6,587.4	5,434.4	-5,018.1	950.4	5,074.3	0.47	0.42	0.21
12,432.0	91.30	154.00	6,585.6	5,432.6	-5,102.7	991.1	5,167.3	0.77	0.43	-0.64
12,527.0	91.60	153.90	6,583.2	5,430.2	-5,188.1	1,032.8	5,261.1	0.33	0.32	-0.11
12,622.0	91.60	154.20	6,580.5	5,427.5	-5,273.5	1,074.4	5,355.0	0.32	0.00	0.32

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 514393
Company:	EQT Production - Marcellus	TVD Reference:	KB@23 @ 1153.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB@23 @ 1153.0usft
Site:	Doddridge County 514393	North Reference:	Grid
Well:	Well #514393	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)	
12,717.0	89.50	154.80	6,579.6	5,426.6	-5,359.2	1,115.3	5,449.0	2.30	-2.21	0.63	
12,812.0	88.20	155.60	6,581.5	5,428.5	-5,445.4	1,155.1	5,543.1	1.61	-1.37	0.84	
12,906.0	88.40	155.60	6,584.3	5,431.3	-5,531.0	1,193.9	5,636.4	0.21	0.21	0.00	
13,001.0	88.50	155.50	6,586.9	5,433.9	-5,617.4	1,233.2	5,730.6	0.15	0.11	-0.11	
13,096.0	88.60	155.50	6,589.3	5,436.3	-5,703.8	1,272.6	5,824.8	0.11	0.11	0.00	
13,191.0	89.20	155.40	6,591.1	5,438.1	-5,790.2	1,312.1	5,919.0	0.64	0.63	-0.11	
13,286.0	90.10	155.00	6,591.7	5,438.7	-5,876.5	1,351.9	6,013.2	1.04	0.95	-0.42	
13,380.0	91.50	154.90	6,590.4	5,437.4	-5,961.6	1,391.7	6,106.3	1.49	1.49	-0.11	
13,475.0	92.00	154.60	6,587.5	5,434.5	-6,047.5	1,432.2	6,200.3	0.61	0.53	-0.32	
13,570.0	91.10	155.30	6,584.9	5,431.9	-6,133.5	1,472.4	6,294.4	1.20	-0.95	0.74	
13,665.0	91.70	154.60	6,582.6	5,429.6	-6,219.6	1,512.6	6,388.5	0.97	0.63	-0.74	
13,759.0	89.80	156.10	6,581.3	5,428.3	-6,305.0	1,551.8	6,481.7	2.58	-2.02	1.60	
13,854.0	88.70	156.20	6,582.6	5,429.6	-6,391.9	1,590.3	6,576.0	1.16	-1.16	0.11	
13,949.0	89.50	156.10	6,584.1	5,431.1	-6,478.7	1,628.7	6,670.4	0.85	0.84	-0.11	
14,043.0	88.40	156.70	6,585.8	5,432.8	-6,564.9	1,666.3	6,763.8	1.33	-1.17	0.64	
14,138.0	88.80	156.20	6,588.1	5,435.1	-6,651.9	1,704.2	6,858.2	0.67	0.42	-0.53	
14,233.0	88.90	155.70	6,590.0	5,437.0	-6,738.7	1,742.9	6,952.5	0.54	0.11	-0.53	
14,328.0	88.80	155.50	6,591.9	5,438.9	-6,825.2	1,782.2	7,046.7	0.24	-0.11	-0.21	
14,423.0	90.50	155.40	6,592.5	5,439.5	-6,911.6	1,821.6	7,141.0	1.79	1.79	-0.11	
14,518.0	90.50	153.70	6,591.7	5,438.7	-6,997.3	1,862.5	7,235.0	1.79	0.00	-1.79	
14,612.0	90.20	152.70	6,591.1	5,438.1	-7,081.2	1,904.8	7,327.7	1.11	-0.32	-1.06	
14,707.0	92.00	153.30	6,589.3	5,436.3	-7,165.9	1,948.0	7,421.3	2.00	1.89	0.63	
14,802.0	92.40	153.00	6,585.6	5,432.6	-7,250.6	1,990.8	7,514.9	0.53	0.42	-0.32	
14,896.0	91.40	154.00	6,582.5	5,429.5	-7,334.6	2,032.8	7,607.6	1.50	-1.06	1.06	
14,991.0	91.70	153.30	6,579.9	5,426.9	-7,419.7	2,074.9	7,701.4	0.80	0.32	-0.74	
15,086.0	92.00	153.40	6,576.9	5,423.9	-7,504.6	2,117.5	7,795.0	0.33	0.32	0.11	
15,181.0	92.60	154.40	6,573.1	5,420.1	-7,589.8	2,159.3	7,888.8	1.23	0.63	1.05	
15,276.0	92.80	154.50	6,568.6	5,415.6	-7,675.5	2,200.2	7,982.7	0.24	0.21	0.11	
15,370.0	92.40	155.10	6,564.3	5,411.3	-7,760.4	2,240.2	8,075.7	0.77	-0.43	0.64	
15,465.0	92.50	153.90	6,560.3	5,407.3	-7,846.1	2,281.0	8,169.6	1.27	0.11	-1.26	
15,560.0	93.30	154.10	6,555.5	5,402.5	-7,931.4	2,322.6	8,263.4	0.87	0.84	0.21	
15,655.0	91.50	156.40	6,551.5	5,398.5	-8,017.6	2,362.4	8,357.5	3.07	-1.89	2.42	
15,750.0	90.10	157.20	6,550.2	5,397.2	-8,104.9	2,399.8	8,452.0	1.70	-1.47	0.84	
15,844.0	90.40	156.90	6,549.7	5,396.7	-8,191.4	2,436.4	8,545.5	0.45	0.32	-0.32	
15,940.0	91.30	156.90	6,548.3	5,395.3	-8,279.7	2,474.1	8,641.0	0.94	0.94	0.00	
16,034.0	90.60	158.40	6,546.8	5,393.8	-8,366.6	2,509.8	8,734.6	1.76	-0.74	1.60	
16,129.0	88.00	157.90	6,547.9	5,394.9	-8,454.8	2,545.2	8,829.3	2.79	-2.74	-0.53	
16,224.0	87.10	156.90	6,552.0	5,399.0	-8,542.4	2,581.6	8,923.8	1.42	-0.95	-1.05	
16,319.0	86.90	156.20	6,557.0	5,404.0	-8,629.5	2,619.4	9,018.1	0.77	-0.21	-0.74	
16,414.0	87.40	156.20	6,561.7	5,408.7	-8,716.3	2,657.7	9,112.3	0.53	0.53	0.00	
16,508.0	87.80	155.60	6,565.6	5,412.6	-8,802.0	2,696.0	9,205.6	0.77	0.43	-0.64	
Final Survey= 16580' MD/6568' TVD											
16,580.0	88.00	155.00	6,568.3	5,415.3	-8,867.4	2,726.1	9,276.9	0.88	0.26	-0.83	



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 514393
Company:	EQT Production - Marcellus	TVD Reference:	KB@23 @ 1153.0usft
Project:	Doddridge County, WV Grd	MD Reference:	KB@23 @ 1153.0usft
Site:	Doddridge County 514393	North Reference:	Grid
Well:	Well #514393	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	As Drilled Surveys		

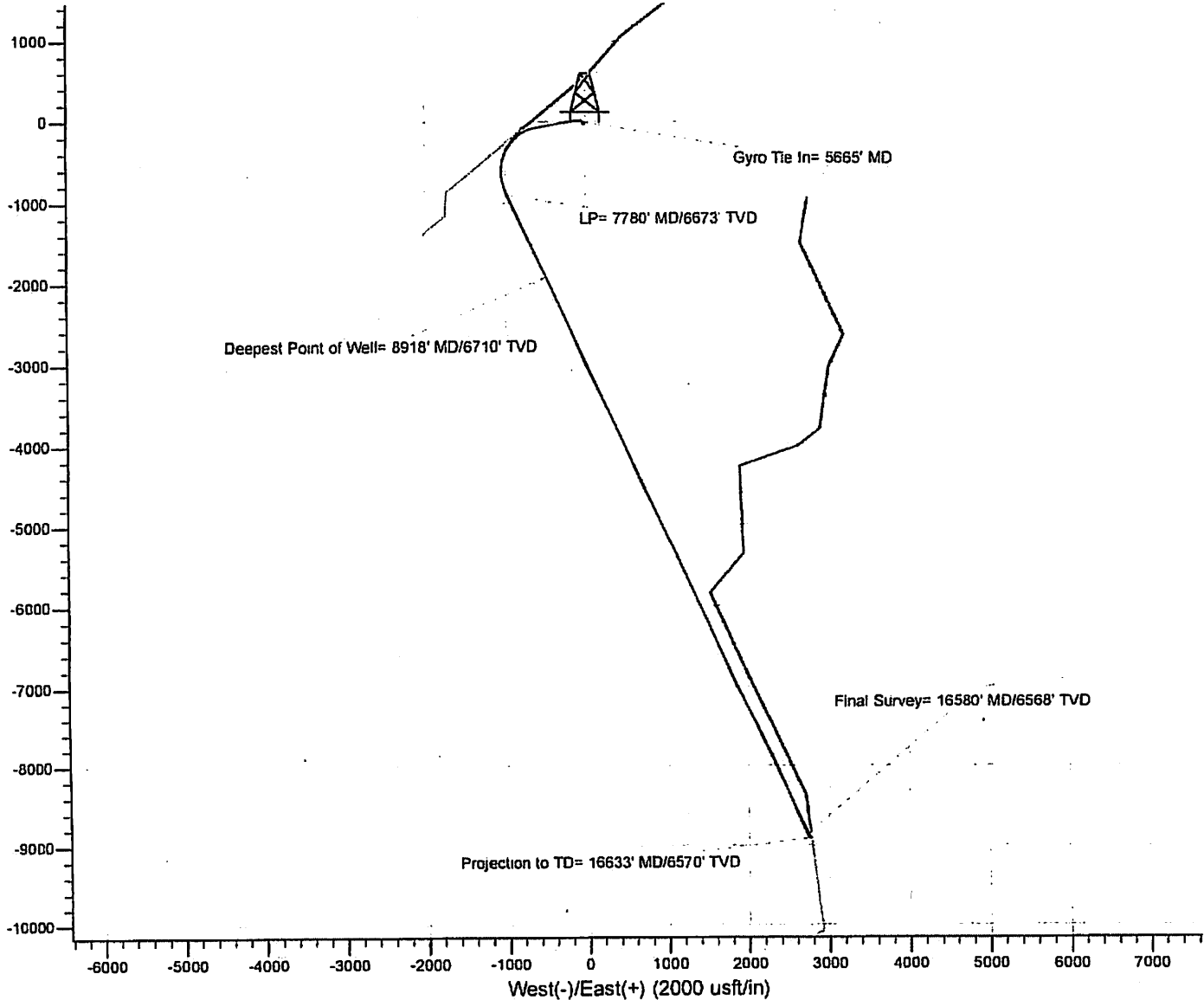
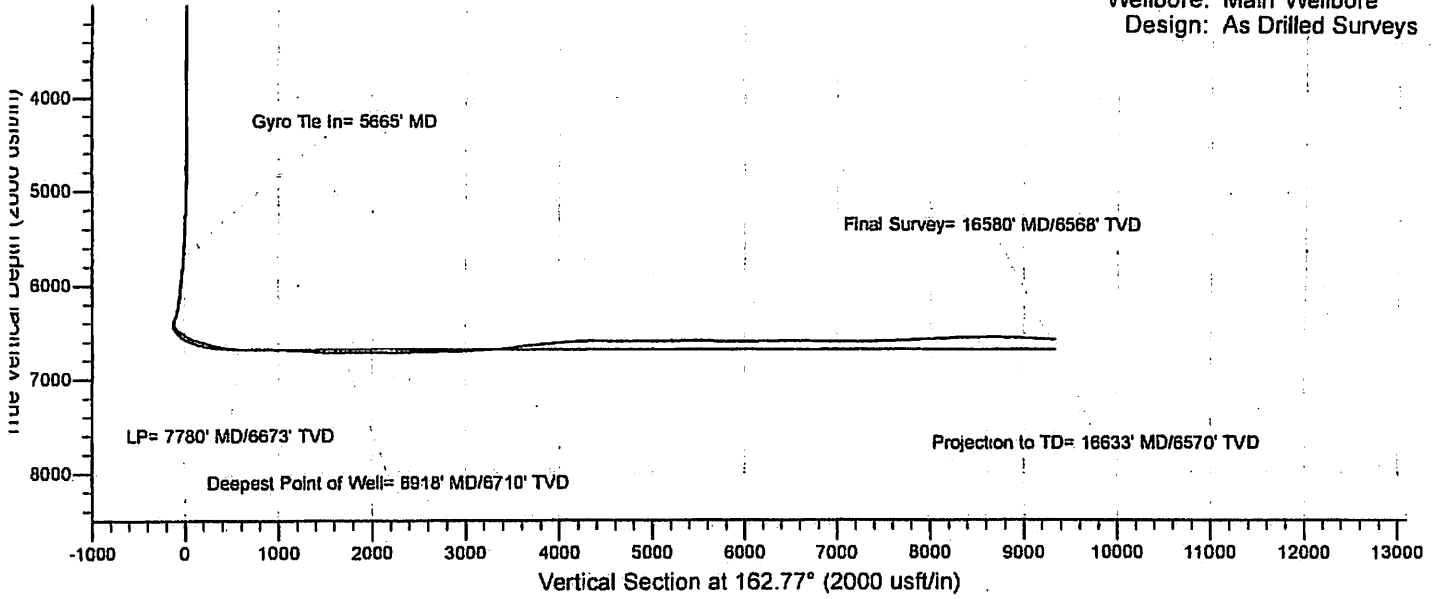
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Projection to TD= 16633' MD/6570' TVD										
16,633.0	88.00	155.00	6,570.1	5,417.1	-8,915.4	2,748.5	9,329.4	0.00	0.00	0.00

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,665.0	5,664.1	1.7	-39.3	Gyro Tie In= 5665' MD
7,780.0	6,672.5	-897.1	-981.2	LP= 7780' MD/6673' TVD
8,918.0	6,710.1	-1,924.8	-494.5	Deepest Point of Well= 8918' MD/6710' TVD
16,580.0	6,568.3	-8,867.4	2,726.1	Final Survey= 16580' MD/6568' TVD
16,633.0	6,570.1	-8,915.4	2,748.5	Projection to TD= 16633' MD/6570' TVD

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_



Project: Doddridge County, WV Grid  
Site: Doddridge County 514393  
Well: Well #514393  
Wellbore: Main Wellbore  
Design: As Drilled Surveys





**514390 - 47-017-6443-0000- Perforations**

<b>Stage Number</b>	<b>Perforation Date</b>	<b>Top Perf Depth (ftKB)</b>	<b>Bottom Perf Depth (ftKB)</b>	<b>Number of Shots</b>	<b>Formation</b>
Initiation Sleeve	4/24/2015	16,631.00	16,633.00	10	MARCELLUS
1	5/14/2015	16,486.00	16,548.00	28	MARCELLUS
2	5/14/2015	16,308.00	16,428.00	42	MARCELLUS
3	5/14/2015	16,122.00	16,246.00	42	MARCELLUS
4	5/14/2015	15,948.00	16,068.00	42	MARCELLUS
5	5/15/2015	15,766.00	15,888.00	42	MARCELLUS
6	5/15/2015	15,586.00	15,708.00	42	MARCELLUS
7	5/15/2015	15,406.00	15,528.00	42	MARCELLUS
7.1	5/15/2015	15,396.00	15,428.00	28	MARCELLUS
8	5/16/2015	15,226.00	15,348.00	42	MARCELLUS
9	5/16/2015	15,046.00	15,168.00	42	MARCELLUS
10	5/16/2015	14,866.00	14,988.00	42	MARCELLUS
11	5/16/2015	14,688.00	14,808.00	42	MARCELLUS
11.1	5/16/2015	14,678.00	14,718.00	28	MARCELLUS
12	5/17/2015	14,504.00	14,626.00	42	MARCELLUS
13	5/17/2015	14,326.00	14,448.00	42	MARCELLUS
14	5/17/2015	14,146.00	14,268.00	42	MARCELLUS
15	5/18/2015	13,966.00	14,088.00	42	MARCELLUS
16	5/18/2015	13,786.00	13,908.00	42	MARCELLUS
17	5/18/2015	13,606.00	13,728.00	42	MARCELLUS
18	5/18/2015	13,426.00	13,549.00	42	MARCELLUS
19	5/19/2015	13,246.00	13,368.00	42	MARCELLUS
20	5/19/2015	13,066.00	13,188.00	42	MARCELLUS
21	5/19/2015	12,886.00	13,008.00	42	MARCELLUS
22	5/19/2015	12,706.00	12,828.00	42	MARCELLUS
23	5/19/2015	12,526.00	12,648.00	42	MARCELLUS
24	5/20/2015	12,346.00	12,468.00	42	MARCELLUS
25	5/20/2015	12,166.00	12,288.00	42	MARCELLUS
26	5/20/2015	11,986.00	12,108.00	42	MARCELLUS
27	5/20/2015	11,806.00	11,928.00	42	MARCELLUS
27.1	5/20/2015	11,796.00	11,819.00	28	MARCELLUS
28	5/21/2015	11,626.00	11,744.00	42	MARCELLUS
29	5/21/2015	11,446.00	11,568.00	42	MARCELLUS
30	5/21/2015	11,266.00	11,388.00	42	MARCELLUS
31	5/21/2015	11,086.00	11,208.00	42	MARCELLUS
32	5/21/2015	10,906.00	11,028.00	42	MARCELLUS
33	5/22/2015	10,726.00	10,848.00	42	MARCELLUS
34	5/22/2015	10,546.00	10,668.00	42	MARCELLUS
35	5/22/2015	10,366.00	10,488.00	42	MARCELLUS
36	5/22/2015	10,186.00	10,308.00	42	MARCELLUS
37	5/22/2015	10,006.00	10,124.00	42	MARCELLUS
38	5/22/2015	9,826.00	9,948.00	42	MARCELLUS
39	5/23/2015	9,648.00	9,768.00	42	MARCELLUS
40	5/23/2015	9,464.00	9,588.00	42	MARCELLUS
40.1	5/23/2015	9,490.00	9,552.00	28	MARCELLUS
41	5/23/2015	9,286.00	9,408.00	42	MARCELLUS
42	5/24/2015	9,106.00	9,228.00	42	MARCELLUS
43	5/25/2015	8,926.00	9,048.00	42	MARCELLUS
44	5/25/2015	8,746.00	8,868.00	42	MARCELLUS
45	5/25/2015	8,566.00	8,688.00	42	MARCELLUS
46	5/26/2015	8,386.00	8,508.00	42	MARCELLUS
47	5/26/2015	8,206.00	8,326.00	42	MARCELLUS
48	5/26/2015	8,026.00	8,148.00	42	MARCELLUS
49	5/26/2015	7,850.00	7,968.00	42	MARCELLUS
50	5/26/2015	7,666.00	7,788.00	42	MARCELLUS

514390 - 47-017-6443-0000- 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	5/14/2015	15.8	6,343.00	8,093.00	4,704.00	0	672	0
1	5/14/2015	94.5	8,706.00	9,245.00	2,671.00	275,196	10,639	0
2	5/14/2015	96.5	8,329.00	9,117.00	2,773.00	298,648	10,143	0
3	5/14/2015	96.7	8,434.00	9,082.00	3,075.00	300,070	10,137	0
4	5/15/2015	97.3	8,462.00	9,063.00	3,092.00	300,721	8,433	0
5	5/15/2015	101.8	7,954.00	9,016.00	3,103.00	300,465	8,298	0
6	5/15/2015	100.1	8,436.00	9,000.00	3,078.00	300,110	8,237	0
7	5/15/2015	86.9	8,923.00	9,199.00	4,593.00	57,509	6,041	0
7.1	5/15/2015	56.8	8,733.00	9,218.00	6,062.00	15,162	7,589	0
8	5/16/2015	99.7	8,562.00	8,923.00	3,184.00	401,564	11,321	0
9	5/16/2015	96.4	8,143.00	8,990.00	3,102.00	300,144	8,084	0
10	5/16/2015	94.3	8,820.00	9,144.00	3,533.00	299,974	8,082	0
11	5/16/2015	96.6	8,383.00	9,252.00	4,778.00	93,450	4,399	0
11.1	5/17/2015	99.3	8,237.00	8,742.00	5,239.00	206,809	7,191	0
12	5/17/2015	99.7	8,194.00	9,395.00	4,228.00	300,995	8,114	0
13	5/17/2015	100.4	8,392.00	8,840.00	4,166.00	301,437	8,373	0
14	5/17/2015	96.8	8,551.00	8,789.00	8,051.00	227,563	6,516	0
14.02	5/18/2015	9.9	4,851.00	5,712.00	4,648.00	0	672	0
15	5/18/2015	99.9	8,267.00	9,081.00	4,072.00	300,959	8,203	0
16	5/18/2015	98	8,137.00	8,416.00	4,214.00	298,209	8,047	0
17	5/18/2015	98.6	7,840.00	8,369.00	3,423.00	299,429	8,233	0
18	5/19/2015	99.60	8,044.00	8,994.00	3,958	283,643	7,895	0
19	5/19/2015	100.10	7,974.00	8,865.00	4,863	300,745	8,194	0
20	5/19/2015	99.60	7,724.00	8,806.00	3,371	299,420	8,105	0
21	5/19/2015	100.10	7,527.00	8,593.00	4,012	298,205	8,136	0
22	5/19/2015	99.50	7,728.00	8,299.00	3,688	298,485	7,965	0
23	5/20/2015	100.30	7,765.00	8,180.00	3,779	298,095	8,028	0
24	5/20/2015	100.4	7,793.00	8,734.00	4,258.00	299,306	8,051	0
25	5/20/2015	101.1	7,946.00	8,970.00	3,569.00	300,456	8,134	0
26	5/20/2015	101.3	8,057.00	8,667.00	4,794.00	298,657	8,028	0
27	5/20/2015	93.4	8,258.00	8,953.00	4,410.00	187,752	6,121	0
27.1	5/21/2015	88.6	8,220.00	9,112.00	5,636.00	102,572	5,511	0
28	5/21/2015	98.9	7,724.00	8,307.00	3,747.00	299,878	8,034	0
29	5/21/2015	95.5	8,411.00	9,259.00	5,368.00	226,442	7,250	0
30	5/21/2015	99	8,352.00	8,923.00	5,255.00	282,922	7,631	0
31	5/21/2015	93.30	8,136.00	8,603.00	5,628	297,926	7,938	0
32	5/21/2015	95.60	8,052.00	8,722.00	5,519	295,298	7,850	0
33	5/22/2015	93.90	8,024.00	9,071.00	5,409	298,982	8,191	0
34	5/22/2015	100.40	8,040.00	8,315.00	5,536	298,712	7,992	0
35	5/22/2015	100.80	7,749.00	8,190.00	5,109	301,196	7,906	0
36	5/22/2015	98.80	7,928.00	8,278.00	5,321	302,165	7,336	0
37	5/22/2015	99.90	7,954.00	8,268.00	5,150	299,523	7,234	0
38	5/23/2015	96.90	8,232.00	9,447.00	5,433	237,371	7,045	0
39	5/23/2015	99.40	8,069.00	9,397.00	4,823	272,420	7,562	0
40	5/23/2015	79.50	9,095.00	9,270.00	5,489	2,705	2,370	0
40.1	5/23/2015	52.70	7,716.00	8,506.00	6,102	1,827	3,439	0
41	5/24/2015	96.70	7,687.00	7,933.00	5,117	504,884	12,433	0
42	5/24/2015	92.30	8,292.00	9,820.00	6,002	282,266	8,714	0
42.01	5/24/2015	2.50	6,132.00	9,161.00	7,530	0	182	0
42.02	5/25/2015	9.00	4,631.00	6,504.00	5,116	0	3,345	0
43	5/25/2015	97.00	7,689.00	9,082.00	5,229	300,102	7,762	0
44	5/25/2015	99.00	7,464.00	8,128.00	4,409	300,971	7,383	0
45	5/25/2015	99.70	7,415.00	8,220.00	4,950	300,519	7,129	0
46	5/26/2015	100.30	7,204.00	7,810.00	5,167	301,332	7,226	0
47	5/26/2015	100.70	7,109.00	7,554.00	4,470	300,875	7,151	0
48	5/26/2015	101.40	7,114.00	7,561.00	5,265	300,026	7,120	0
49	5/26/2015	100.20	7,196.00	8,078.00	3,555	299,305	7,138	0
50	5/26/2015	100.40	7,062.00	7,927.00	3,257	300,611	7,132	0



# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date	5/14/2015
Job End Date	5/26/2015
State	West Virginia
County	Doddridge
API Number	47-017-06446-00-00
Operator Name	EQT Production
Well Name and Number	514393
Longitude	-80.78662300
Latitude	39.25484800
Datum	NAD83
Federal/Tribal Well	NO
True Vertical Depth	6,656
Total Base Water Volume (gal)	17,727,990
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	90.67783	None
Sand (Proppant)	FTS International	Proppant	Crystalline Silica	14808-60-7	100.00000	8.85939	None
MC MX 437-5	Multi-Chem	Calcium nitrate solution	Calcium nitrate	10124-37-5	60.00000	0.10502	None
FRW-900	FTS International	Friction reducer	Hydrotreated light distillate	64742-47-8	30.00000	0.02540	None
			Alkyl Alcohol	Proprietary	10.00000	0.00847	None
			Oxyalkylated alcohol A	Proprietary	5.00000	0.00423	None
Hydrochloric Acid (15%)	FTS International	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.02627	None
CS-500-SI	FTS International	Scale inhibitor	Ethylene glycol	107-21-1	10.00000	0.00255	None
HVG-1	FTS International	Gelling agent	Petroleum distillate	64742-47-8	55.00000	0.00040	None
			Guar gum	9000-30-0	50.00000	0.00036	None
			Surfactant	58439-51-0	2.00000	0.00001	None

			Clay	14808-60-7	2.00000	0.00001	None
FE-100L	FTS International	Iron control					
			Citric acid	77-92-9	55.00000	0.00059	None
CI-150	FTS International	Acid Corrosion Inhibitor					
			Isopropanol	67-63-0	30.00000	0.00010	None
			Ethylene glycol	107-21-1	30.00000	0.00010	None
			Organic amine resin salt	Proprietary	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-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	0.00001	None
APB-1	FTS International	Breaker					
			Ammonium persulfate	7727-54-0	95.00000	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 ]

**Hydraulic Fracturing**  
DISCLOSURE



**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.

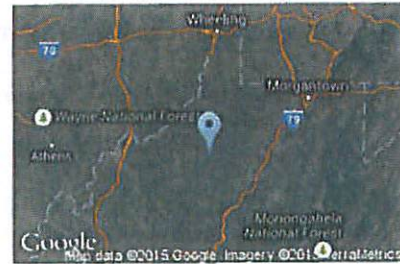
**Hydraulic Fracturing Data**

Job Start Date 5/14/2015    Job End Date 5/26/2015    API Number 47-017-06446-00-00    State & County West Virginia --- Doddridge

Well Name 514393

Longitude -80.786623    Latitude 39.254848    Datum NAD83    Federal/Tribal Well?

True Vertical Depth (ft) 6656    Total Water Vol (gal) 17727990    Total Non Water Vol 0    Total Mass (lbs) 163149109



**MSDS Chemical Ingredients**

	Trade Name	Supplier	Purpose	Ingredients	CAS #	% High Additive	% HF Job	Comments	Ingredient Mass
<input type="button" value="Edit"/>	Water	FTS International	Carrier/Base Fluid	Water	7732-18-5	100%	90.6778327545%	None	147940076.55
<input type="button" value="Edit"/>	Sand (Proppant)	FTS International	Proppant	Crystalline Silica	14808-60-7	100%	8.8593851688%	None	14454008
<input type="button" value="Edit"/>	MC MX 437-5	Multi-Chem	Calcium nitrate solution	Calcium nitrate	10124-37-5	60%	.1050180007%	None	171335.933
<input type="button" value="Edit"/>	FRW-900	FTS International	Friction reducer	Hydrotreated light distillate	64742-47-8	30%	.0254016179%	None	41442.513
				Alkyl Alcohol	Proprietary	10%	.008467206%	None	13814.171
				Oxyalkylated alcohol A	Proprietary	5%	.004233603%	None	6907.086
<input type="button" value="Edit"/>	Hydrochloric Acid (15%)	FTS International	Acidizing	Hydrochloric Acid	7647-01-0	15%	.0262703978%	None	42859.92
<input type="button" value="Edit"/>	CS-500-SI	FTS International	Scale inhibitor	Ethylene glycol	107-21-1	10%	.0025530768%	None	4165.322
<input type="button" value="Edit"/>	HVG-1	FTS International	Gelling agent	Petroleum distillate	64742-47-8	55%	.0003991965%	None	651.286
				Guar gum	9000-30-0	50%	.0003629059%	None	592.078

			Surfactant	68439-51-0	2%	.0000145162%	None	23.683
			Clay	14808-60-7	2%	.0000145162%	None	23.683
<input type="button" value="Edit"/>	FE-100L	FTS International	Iron control					
			Citric acid	77-92-9	55%	.00058757%	None	958.615
<input type="button" value="Edit"/>	CI-150	FTS International	Acid Corrosion Inhibitor					
			Isopropanol	67-63-0	30%	.000097225%	None	158.622
			Ethylene glycol	107-21-1	30%	.000097225%	None	158.622
			Organic amine resin salt	Proprietary	30%	.000097225%	None	158.622
			Dimethylformamide	68-12-2	10%	.0000324083%	None	52.874
			Aromatic aldehyde	Proprietary	10%	.0000324083%	None	52.874
			Quaternary ammonium compound	Proprietary	10%	.0000324083%	None	52.874
<input type="button" value="Edit"/>	NE-100	FTS International	Non-emulsifier					
			2-Butoxyethanol	111-76-2	10%	.0000278509%	None	45.439
			2-Propanol	67-63-0	10%	.0000278509%	None	45.439
			Dodecylbenzenesulfonic acid	27176-87-0	5%	.0000139255%	None	22.719
<input type="button" value="Edit"/>	APB-1	FTS International	Breaker					
			Ammonium persulfate	7727-54-0	95%	.0000157218%	None	25.65

**Non-MSDS Chemical Ingredients**

Trade Name	Supplier	Purpose	Ingredients	CAS #	% High Additive	% HF Job	Comments	Ingredient Mass
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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  
LEWIS MAXWELL LEASE  
2,654 ACRES±  
WELL NO. WV 514393  
(WEU49 H4)**

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

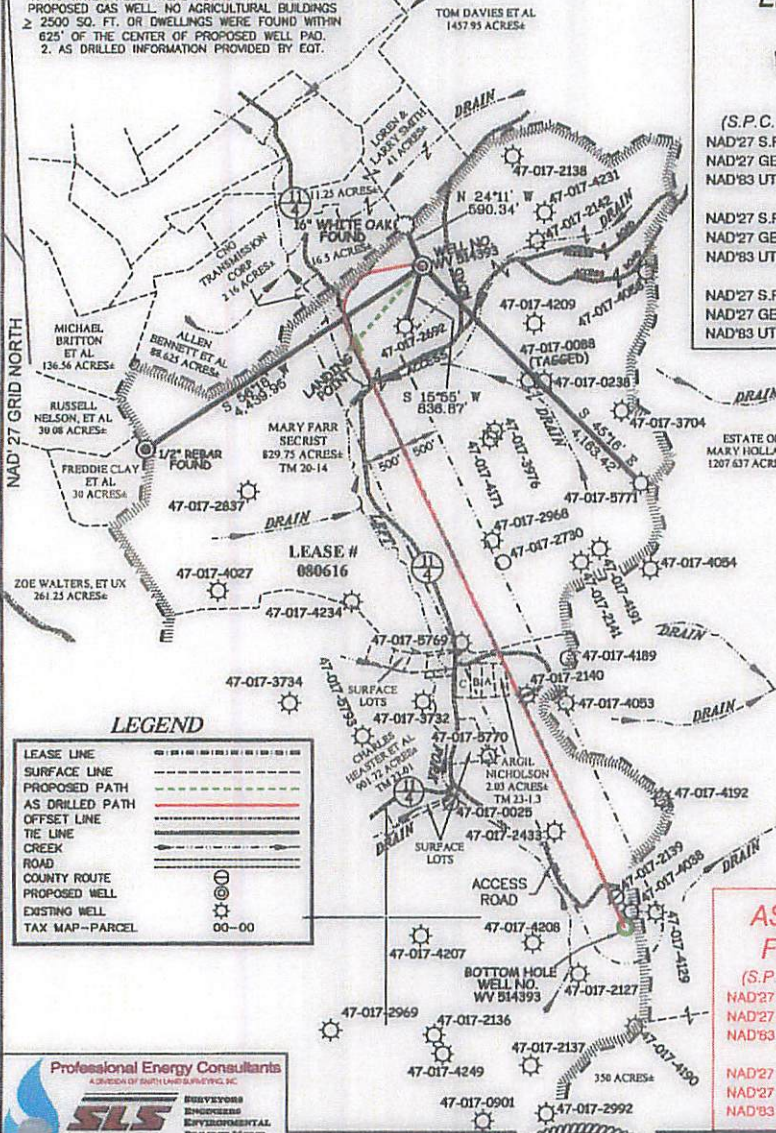
NAD'27 S.P.C.(FT) N. 277,539.8 E. 1,835,865.4  
 NAD'27 GEO. LAT-(N) 39.254848 LONG-(W) 80.786823  
 NAD'83 UTM (M) N. 4,345,069.0 E. 518,425.1

LANDING POINT

NAD'27 S.P.C.(FT) N. 278,505.5 E. 1,834,758.9  
 NAD'27 GEO. LAT-(N) 39.251972 LONG-(W) 80.786778  
 NAD'83 UTM (M) N. 4,344,769.2 E. 518,153.6

BOTTOM HOLE

NAD'27 S.P.C.(FT) N. 268,829.7 E. 1,838,429.5  
 NAD'27 GEO. LAT-(N) 39.230495 LONG-(W) 80.776416  
 NAD'83 UTM (M) N. 4,342,388.6 E. 519,312.5



**LEGEND**

- LEASE LINE
- SURFACE LINE
- PROPOSED PATH
- AS DRILLED PATH
- OFFSET LINE
- THE LINE
- CREEK
- ROAD
- COUNTY ROUTE
- PROPOSED WELL
- EXISTING WELL
- TAX MAP--PARCEL



**AS DRILLED COORDINATES  
FOR WELL NO. WV 514393**

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

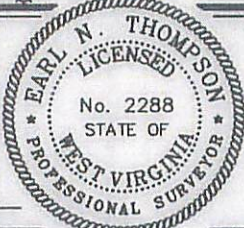
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BOTTOM HOLE

NAD'27 S.P.C.(FT) N. 268,829.7 E. 1,838,429.5  
 NAD'27 GEO. LAT-(N) 39.230495 LONG-(W) 80.776416  
 NAD'83 UTM (M) N. 4,342,388.6 E. 519,307.7

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. *Earl N. Thompson*  
2288



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.  
DATE SEPTEMBER 09, 20 13

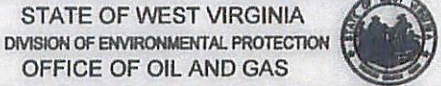
REVISED 12/02/13, 07/01/14 & 09/11/15

OPERATORS WELL NO. WV 514393

API WELL NO. 47-017-06446H  
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 7871P514393R4  
SCALE 1" = 2000'

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



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

LOCATION: ELEVATION 1,162 (GROUND) 1,130 (PROPOSED) WATERSHED LEFT FORK OF ARNOLD CREEK

DISTRICT WEST UNION COUNTY DODDRIDGE QUADRANGLE WEST UNION 7.5'

SURFACE OWNER MARY FARR SECRIST ACREAGE 829.75±  
ROYALTY OWNER LEWIS MAXWELL HRS ACREAGE 2654±

PROPOSED WORK: LEASE NO. 080616

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 6,622'

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

LONGITUDE 80°45'00" COUNTY NAME PERMIT

04/01/2016