

FINAL

APPROVED

NAME: *Julia Fu*

DATE: *2/10/2016*

Well Operator's Report of Well Work



Where energy meets innovation.

Well Number: 514390

API: 47 - 017 - 06443

Submission: Initial Amended *2nd dy*

Notes: Add'l Injection Test - 1.02, 2.01, 21.01, 27.01

Reperfs- 8.1, 26.1

Correction to Production Cement Top (MD)

RECEIVED
Office of Oil and Gas

DEC 21 2015

WV Department of
Environmental Protection

AX WS 03/25/2016

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

API 47 - 017 - 06443 County DODDRIDGE District WEST UNION
Quad WEST UNION 7.5' Pad Name WEU49 Field/Pool Name _____
Farm name MARY FARR SECRIST Well Number 514390
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 4,345,075 Easting 518,427
Landing Point of Curve Northing 4,344,912 Easting 518,342
Bottom Hole Northing 4,343,468 Easting 519,045

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)
Synthetic base Mud 12.4 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 03/13/2014 Date drilling commenced 06/24/2014 Date drilling ceased 3/31/2015
Date completion activities began 5/3/2015 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 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 6, 83, 236, 408, 483 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by: _____

03/25/2016

API 47- 017 - 06443 Farm name MARY FARR SECRIST Well number 514390

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"	1058'	NEW	J-55 54.5LB/FT	317', 721'	Y
Coal							
Intermediate 1	12.375"	9.625"	5241'	NEW	P-110 40LB/FT	2938', 4459'	Y
Intermediate 2							
Intermediate 3							
Production	8.5"	5.5"	12,484'	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	960	15.6	1.19	1142.4	0	8
Coal							
Intermediate 1	CLASS A / CLASS A	377 / 335	14.2 / 15.6	1.28 / 1.19	881.21	0	8
Intermediate 2							
Intermediate 3							
Production	CLASS A / CLASS H	295 / 715	14.2 / 15.2	1.26 / 1.97	1780.25	5,083'	8
Tubing							

Drillers TD (ft) 12,484' Loggers TD (ft) 6684'

Deepest formation penetrated Marcellus Plug back to (ft) 4952'

Plug back procedure Pumped 2 bbls fresh water, mixed and pumped 29 bbls, of 15.6, 2% CaCl followed by 2 bbls fresh water, pulled up to 5704' and pumped 2 bbls fresh water, mixed and pumped 27 bbls 15.6 ppg cement followed by 2 bbls fresh water, pulled up to 5316' and pumped 2 bbls fresh water, mixed and pumped 44 bbls 15.6 ppg cement followed by 2 bbls fresh water, pulled up to 4633' and pumped 2 bbls fresh water, mixed and pumped 49 bbls 15.6 ppg cement followed by 10 bbls fresh water.

Kick off depth (ft) 5,372'

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- 69', 560', 1014'

INTERMEDIATE- 278', 785', 1292', 1798', 2304', 2811', 2039', 3471', 3926', 4382', 4806', 5198'

PRODUCTION- Composite body centralizers installed every joint from TD to 5,380'

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 - 6443 Farm name MARY FARR SECRIST Well number 514390

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.

03/25/2016

API 47- 017 - 06443 Farm name MARY FARR SECRET Well number 514390

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>Marcellus</u>	<u>6,682'</u>	<u>TVD</u>	<u>7,023'</u> <u>MD</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 1,724 psi Bottom Hole N/A psi DURATION OF TEST 66.0 hrs

OPEN FLOW Gas 10,347 mcfpd Oil 0 bpd NGL 105.6 bpd Water 649.8 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	<u>0</u>		<u>0</u>		

Please insert additional pages as applicable.

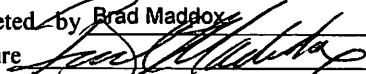
Drilling Contractor ALPHA HUNTER DRILLING (RIG 4)
Address P.O. BOX 430 City RENO State OH Zip 45773

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

API 47- 017 - 6443 Farm name MARY FARR SECRIST Well number 514390

Drilling Contractor Orion Drilling
Address 601 Aviation Way City Reynoldsville State PA Zip 15851

Logging Company WEATHERFORD WIRELINE
Address P.O. BOX 784 City DALLAS State TX Zip 75320

Logging Company VAUGHN ENERGY SERVICES
Address P.O. BOX 561021 City CORPUS CHRISTI State TX Zip 78246

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

Logging Company Gyrodata
Address 601 Maver Street City Bridgeville State PA Zip 15017

514390 Final Formations API #47-017-06443

Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
FRESH WATER ZONE	1		497	
SAND/SHALE	1		350	
REDSTONE COAL	350		353	
SAND/SHALE	353		493	
PITTSBURGH COAL	493		495	
SAND/SHALE	495		1,428.00	
MAXTON	1,428.00		1,861.00	
BIG LIME	1,861.00		2,156.00	
WEIR	2,156.00		2,358.00	
BEREA	2,358.00		2,363.00	
GANTZ	2,363.00		2,484.00	
50F	2,484.00		2,567.00	
30F	2,567.00		2,610.00	
GORDON	2,610.00		2,721.00	
4TH	2,721.00		2,905.00	
BAYARD	2,905.00		3,229.00	
WARREN	3,229.00		3,293.00	
SPEECHLEY	3,293.00		3,930.00	
BALLTOWN A	3,930.00		4,227.00	
BRADFORD	4,227.00		4,426.00	
RILEY	4,426.00		4,867.00	
BENSON	4,867.00		5,121.00	
ALEXANDER	5,121.00		6,408.00	6,303.50
SONYEA	6,408.00	6,303.50	6,595.00	6,461.20
MIDDLESEX	6,595.00	6,461.20	6,670.00	6,516.70
GENESSEE	6,670.00	6,516.70	6,799.00	6,598.00
GENESE	6,799.00	6,598.00	6,853.00	6,625.40
TULLY	6,853.00	6,625.40	6,929.00	6,656.10
HAMILTON	6,929.00	6,656.10	7,023.00	6,682.00
MARCELLUS	7,023.00	6,682.00		



PHOENIX
TECHNOLOGY SERVICES USA INC.

EQT Production - Marcellus

Doddridge County, WV Grid

Doddridge County 514390

Well #514390

Main Wellbore

API 47-1706443

Design: 514390 As Drilled Surveys

Standard Survey Report

31 March, 2015



Where energy meets innovation.

03/25/2016

Database:	FDM 5000.1 Single User Db	Local Co-ordinate Reference:	514390 Gyrodata Gyros
Company:	EQT Production - Marcellus	TVD Reference:	KR 57.3 15 17.011 N
Project:	0536F Jgs County WV Grid	MD Reference:	KR 47.3 11 770 W
Site:	Dominion County 414390	North Reference:	CRS
Well:	WV 87314390	Survey Calculation Method:	Maximum Tilt Vector
Wellbore:	Main Wellbore		
Design:	014390 As Drilled Surveys		

Project	Dominion 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	514390				
Site Position:		Northing:	277,495.10 usft	Latitude:	39.25
From:	Map	Easting:	1,635,670.50 usft	Longitude:	-80.79
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.82 °

Well	514390					
Well Position	+N/-S	0.0 usft	Northing:	277,495.10 usft	Latitude:	39° 15' 17.011 N
	+E/-W	0.0 usft	Easting:	1,635,670.50 usft	Longitude:	80° 47' 11.770 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,130.0 usft

Wellbore	514390				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	3/23/2015	-8.44	66.74	52,171

Design	514390 As Drilled Surveys				
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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	159.93	

Survey Program	Date	3/31/2015		
From (')	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	5,272.0	514390 Gyrodata Gyros (Main Wellbore)	GYD_DP_MS	Gyrodata gyro-compassing and drop
0.00	12,484.0	514390 PHX MWD (Main Wellbore)	MWD+IGRF	MWD+IGRF v3 standard declination

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
100.0	0.44	154.84	100.0	-1,053.0	-0.3	0.2	0.4	0.44	0.44	0.00
200.0	0.48	155.67	200.0	-953.0	-1.1	0.5	1.2	0.04	0.04	0.83
300.0	0.32	173.08	300.0	-853.0	-1.7	0.7	1.9	0.20	-0.16	17.41
400.0	0.31	168.72	400.0	-753.0	-2.3	0.8	2.4	0.03	-0.01	-4.36
500.0	0.29	172.34	500.0	-653.0	-2.8	0.9	2.9	0.03	-0.02	3.62
600.0	0.27	170.73	600.0	-553.0	-3.3	1.0	3.4	0.02	-0.02	-1.61
700.0	0.25	196.51	700.0	-453.0	-3.7	0.9	3.8	0.12	-0.02	25.78

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 514390
Company:	EQT Production - Marcellus	TVD Reference:	KB@23 @ 1153.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB@23 @ 1153.0usft
Site:	Doddridge County 514390	North Reference:	Grid
Well:	Well #514350	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	514390 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	0.35	165.30	800.0	-353.0	-4.2	0.9	4.3	0.19	0.10	-31.21
900.0	0.35	165.63	900.0	-253.0	-4.8	1.1	4.9	0.00	0.00	0.33
1,000.0	0.37	165.14	1,000.0	-153.0	-5.4	1.3	5.5	0.02	0.02	-0.49
1,100.0	0.60	176.35	1,100.0	-53.0	-6.3	1.4	6.3	0.25	0.23	11.21
1,200.0	0.83	188.42	1,200.0	47.0	-7.5	1.3	7.5	0.27	0.23	12.07
1,300.0	0.93	191.90	1,300.0	147.0	-9.0	1.0	8.8	0.11	0.10	3.48
1,400.0	1.00	192.20	1,399.9	246.9	-10.7	0.7	10.2	0.07	0.07	0.30
1,500.0	0.85	195.43	1,499.9	346.9	-12.2	0.3	11.6	0.16	-0.15	3.23
1,600.0	0.75	194.21	1,599.9	446.9	-13.6	-0.1	12.7	0.10	-0.10	-1.22
1,700.0	0.74	200.12	1,699.9	546.9	-14.8	-0.5	13.8	0.08	-0.01	5.91
1,800.0	0.69	202.00	1,799.9	646.9	-16.0	-0.9	14.7	0.06	-0.05	1.88
1,900.0	0.68	204.99	1,899.9	746.9	-17.1	-1.4	15.6	0.04	-0.01	2.99
2,000.0	0.68	204.03	1,999.9	846.9	-18.2	-1.9	16.4	0.01	0.00	-0.96
2,100.0	0.65	201.63	2,099.9	946.9	-19.2	-2.3	17.3	0.04	-0.03	-2.40
2,200.0	0.54	201.70	2,199.9	1,046.9	-20.2	-2.7	18.0	0.11	-0.11	0.07
2,300.0	0.54	203.72	2,299.9	1,146.9	-21.1	-3.1	18.7	0.02	0.00	2.02
2,400.0	0.53	202.91	2,399.9	1,246.9	-21.9	-3.4	19.4	0.01	-0.01	-0.81
2,500.0	0.48	203.80	2,499.9	1,346.9	-22.7	-3.8	20.0	0.05	-0.05	0.89
2,600.0	0.49	203.16	2,599.9	1,446.9	-23.5	-4.1	20.7	0.01	0.01	-0.64
2,700.0	0.48	198.64	2,699.9	1,546.9	-24.3	-4.4	21.3	0.04	-0.01	-4.52
2,800.0	0.47	201.46	2,799.9	1,646.9	-25.1	-4.7	21.9	0.03	-0.01	2.82
2,900.0	0.44	200.90	2,899.9	1,746.9	-25.8	-5.0	22.5	0.03	-0.03	-0.56
3,000.0	0.37	192.33	2,999.9	1,846.9	-26.5	-5.2	23.1	0.09	-0.07	-8.57
3,100.0	0.42	195.09	3,099.8	1,946.8	-27.2	-5.4	23.7	0.05	0.05	2.76
3,200.0	0.40	196.14	3,199.8	2,046.8	-27.8	-5.6	24.2	0.02	-0.02	1.05
3,300.0	0.47	192.91	3,299.8	2,146.8	-28.6	-5.7	24.9	0.07	0.07	-3.23
3,400.0	0.50	192.47	3,399.8	2,246.8	-29.4	-5.9	25.6	0.03	0.03	-0.44
3,500.0	0.53	192.88	3,499.8	2,346.8	-30.3	-6.1	26.3	0.03	0.03	0.41
3,600.0	0.53	197.10	3,599.8	2,446.8	-31.2	-6.4	27.1	0.04	0.00	4.22
3,700.0	0.60	191.27	3,699.8	2,546.8	-32.1	-6.6	27.9	0.09	0.07	-5.83
3,800.0	0.57	201.29	3,799.8	2,646.8	-33.1	-6.9	28.7	0.11	-0.03	10.02
3,900.0	0.55	211.97	3,899.8	2,746.8	-34.0	-7.3	29.4	0.11	-0.02	10.68
4,000.0	0.64	230.90	3,999.8	2,846.8	-34.7	-8.0	29.9	0.21	0.09	18.93
4,100.0	0.80	238.43	4,099.8	2,946.8	-35.5	-9.0	30.2	0.19	0.16	7.53
4,200.0	0.88	244.42	4,199.8	3,046.8	-36.1	-10.3	30.4	0.12	0.08	5.99
4,300.0	0.95	258.79	4,299.8	3,146.8	-36.6	-11.8	30.4	0.24	0.07	14.37
4,400.0	1.11	263.23	4,399.8	3,246.8	-36.9	-13.6	30.0	0.18	0.16	4.44
4,500.0	1.44	280.40	4,499.7	3,346.7	-36.8	-15.8	29.1	0.50	0.33	17.17
4,600.0	1.88	290.98	4,599.7	3,446.7	-36.0	-18.6	27.4	0.53	0.44	10.58
4,700.0	2.36	308.19	4,699.6	3,546.6	-34.1	-21.7	24.6	0.79	0.48	17.21
4,800.0	2.66	313.61	4,799.5	3,646.5	-31.3	-25.0	20.8	0.38	0.30	5.42
4,900.0	3.00	318.09	4,899.4	3,746.4	-27.7	-28.4	16.3	0.41	0.34	4.48

Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site: Doddridge County 514390
Company:	EQT Production - Marcellus	TVD Reference:	KB@23 @ 1153.0usft
Project:	Doddridge County, WV Gnd	MD Reference:	KB@23 @ 1153.0usft
Site:	Doddridge County 514390	North Reference:	Grid
Well:	Well #514390	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	514390 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)
5,000.0	2.69	326.17	4,999.3	3,846.3	-23.8	-31.5	11.6	0.51	-0.31	8.08
5,100.0	3.27	330.64	5,099.2	3,946.2	-19.4	-34.2	6.5	0.62	0.58	4.47
5,200.0	4.09	328.42	5,198.9	4,045.9	-13.9	-37.5	0.2	0.83	0.82	-2.22
Gyro Tie In=5272' MD										
5,272.0	4.69	329.59	5,270.7	4,117.7	-9.1	-40.3	-5.3	0.84	0.83	1.63
5,335.0	4.90	329.40	5,333.5	4,180.5	-4.6	-43.0	-10.4	0.33	0.33	-0.30
5,367.0	4.70	331.70	5,365.4	4,212.4	-2.3	-44.3	-13.1	0.87	-0.63	7.19
5,398.0	6.00	325.40	5,396.3	4,243.3	0.2	-45.8	-15.9	4.60	4.19	-20.32
5,430.0	8.40	323.30	5,428.0	4,275.0	3.4	-48.2	-19.8	7.54	7.50	-6.56
5,462.0	10.40	322.20	5,459.6	4,306.6	7.6	-51.3	-24.8	6.27	6.25	-3.44
5,493.0	12.50	322.40	5,490.0	4,337.0	12.5	-55.1	-30.6	6.78	6.77	0.65
5,525.0	14.80	322.50	5,521.1	4,368.1	18.5	-59.7	-37.8	7.19	7.19	0.31
5,557.0	17.10	323.40	5,551.8	4,398.8	25.5	-65.0	-46.2	7.23	7.19	2.81
5,588.0	19.30	323.50	5,581.3	4,428.3	33.3	-70.8	-55.5	7.10	7.10	0.32
5,652.0	23.40	323.30	5,640.9	4,487.9	52.0	-84.7	-77.8	6.41	6.41	-0.31
5,682.0	25.60	320.70	5,668.2	4,515.2	61.7	-92.3	-89.7	8.17	7.33	-8.67
5,714.0	27.50	313.50	5,696.8	4,543.8	72.2	-102.1	-102.8	11.67	5.94	-22.50
5,746.0	30.00	305.80	5,724.9	4,571.9	82.0	-113.9	-116.1	13.95	7.81	-24.06
5,777.0	32.00	298.60	5,751.4	4,598.4	90.4	-127.4	-128.7	13.58	6.45	-23.23
5,809.0	33.40	291.70	5,778.4	4,625.4	97.7	-143.0	-140.9	12.44	4.38	-21.56
5,841.0	33.80	290.70	5,805.0	4,652.0	104.1	-159.6	-152.6	2.13	1.25	-3.13
5,872.0	33.80	285.80	5,830.8	4,677.8	109.5	-175.9	-163.3	8.79	0.00	-15.81
5,904.0	33.80	283.60	5,857.4	4,704.4	114.1	-193.1	-173.4	3.82	0.00	-6.88
5,936.0	33.50	283.20	5,884.0	4,731.0	118.2	-210.4	-183.2	1.17	-0.94	-1.25
5,967.0	31.70	284.00	5,910.1	4,757.1	122.1	-226.6	-192.4	5.97	-5.81	2.58
5,999.0	31.80	285.00	5,937.4	4,784.4	126.3	-242.9	-202.0	1.67	0.31	3.13
6,031.0	31.50	284.20	5,964.6	4,811.6	130.5	-259.2	-211.5	1.61	-0.94	-2.50
6,062.0	29.60	277.90	5,991.3	4,838.3	133.6	-274.6	-219.7	12.00	-6.13	-20.32
6,094.0	28.30	270.70	6,019.3	4,866.3	134.8	-290.0	-226.1	11.62	-4.06	-22.50
6,126.0	27.60	264.00	6,047.6	4,894.6	134.1	-305.0	-230.6	10.05	-2.19	-20.94
6,157.0	27.40	259.60	6,075.1	4,922.1	132.0	-319.2	-233.5	6.58	-0.65	-14.19
6,189.0	26.20	255.10	6,103.6	4,950.6	128.9	-333.2	-235.4	7.36	-3.75	-14.06
6,221.0	24.10	249.50	6,132.6	4,979.6	124.8	-346.2	-236.0	9.91	-6.56	-17.50
6,252.0	22.90	242.10	6,161.0	5,008.0	119.8	-357.4	-235.1	10.27	-3.87	-23.87
6,284.0	23.60	233.20	6,190.5	5,037.5	113.0	-368.1	-232.4	11.18	2.19	-27.81
6,316.0	23.90	226.30	6,219.8	5,066.8	104.7	-377.9	-228.0	8.73	0.94	-21.56
6,347.0	23.80	220.60	6,248.1	5,095.1	95.6	-386.5	-222.4	7.44	-0.32	-18.39
6,379.0	24.70	214.60	6,277.3	5,124.3	85.2	-394.5	-215.4	8.19	2.81	-18.75
6,411.0	26.00	207.00	6,306.2	5,153.2	73.4	-401.5	-206.7	10.94	4.06	-23.75
6,442.0	28.30	203.80	6,333.8	5,180.8	60.6	-407.5	-196.8	8.79	7.42	-10.32
6,474.0	30.20	199.50	6,361.7	5,208.7	46.1	-413.3	-185.1	8.85	5.94	-13.44
6,505.0	32.60	193.70	6,388.2	5,235.2	30.6	-417.9	-172.2	12.44	7.74	-18.71
6,537.0	34.90	191.50	6,414.8	5,261.8	13.3	-421.7	-157.2	8.14	7.19	-6.88

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 514390
Company:	EQT Production - Marcellus	TVD Reference:	KB@23 @ 1153.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB@23 @ 1153.0usft
Site:	Doddridge County 514390	North Reference:	Grid
Well:	Well #514390	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	514390 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)
6,569.0	37.10	188.60	6,440.7	5,287.7	-5.2	-425.0	-140.9	8.70	6.88	-9.06
6,600.0	39.50	185.50	6,465.0	5,312.0	-24.3	-427.3	-123.8	9.92	7.74	-10.00
6,632.0	41.90	182.30	6,489.3	5,336.3	-45.1	-428.7	-104.7	9.94	7.50	-10.00
6,663.0	45.10	178.80	6,511.8	5,358.8	-66.4	-428.9	-84.8	12.92	10.32	-11.29
6,695.0	47.20	176.10	6,533.9	5,380.9	-89.5	-427.9	-62.8	8.95	6.56	-8.44
6,727.0	50.20	174.30	6,555.0	5,402.0	-113.4	-425.9	-39.6	10.28	9.38	-5.63
6,759.0	52.80	171.80	6,575.0	5,422.0	-138.3	-422.8	-15.2	10.17	8.13	-7.81
6,790.0	56.00	169.90	6,593.0	5,440.0	-163.2	-418.8	9.6	11.46	10.32	-6.13
6,822.0	59.00	168.20	6,610.2	5,457.2	-189.6	-413.7	36.2	10.39	9.38	-5.31
6,853.0	62.70	168.30	6,625.3	5,472.3	-216.1	-408.2	63.0	11.94	11.94	0.32
6,885.0	65.90	166.20	6,639.2	5,486.2	-244.3	-401.8	91.6	11.62	10.00	-6.56
6,917.0	68.10	164.50	6,651.7	5,498.7	-272.6	-394.4	120.9	8.44	6.88	-5.31
6,948.0	71.30	163.10	6,662.4	5,509.4	-300.7	-386.2	149.9	11.16	10.32	-4.52
6,980.0	74.60	160.70	6,671.8	5,518.8	-329.7	-376.7	180.5	12.56	10.31	-7.50
7,012.0	77.20	158.70	6,679.6	5,526.6	-358.8	366.0	211.5	10.14	8.13	-6.25
7,043.0	79.70	158.60	6,685.8	5,532.8	-387.1	-354.9	241.9	8.07	8.06	-0.32
7,075.0	81.70	159.20	6,691.0	5,538.0	-416.6	343.5	273.4	6.52	6.25	1.88
7,107.0	84.20	157.80	6,694.9	5,541.9	-446.1	331.9	305.2	8.94	7.81	-4.38
7,138.0	85.80	155.50	6,697.6	5,544.6	-474.5	-319.7	336.0	9.01	5.16	-7.42
7,170.0	86.90	153.00	6,699.7	5,546.7	-503.2	-305.8	367.8	8.52	3.44	-7.81
LP=7202 MD/6701 TVD										
7,202.0	88.30	152.90	6,701.0	5,548.0	-531.7	-291.3	399.5	4.39	4.38	-0.31
7,297.0	89.10	153.70	6,703.2	5,550.2	-616.6	-248.6	493.9	1.19	0.84	0.84
7,392.0	89.70	155.20	6,704.1	5,551.1	-702.3	-207.6	588.4	1.70	0.63	1.58
7,487.0	89.50	153.60	6,704.8	5,551.8	-787.9	-166.6	683.0	1.70	-0.21	-1.68
7,582.0	89.50	154.30	6,705.6	5,552.6	-873.3	-124.8	777.4	0.74	0.00	0.74
7,676.0	87.90	154.50	6,707.8	5,554.8	-958.0	-84.2	871.0	1.72	-1.70	0.21
7,772.0	87.60	153.50	6,711.5	5,558.5	-1,044.2	-42.2	966.4	1.09	-0.31	-1.04
7,866.0	86.00	156.20	6,715.2	5,562.2	-1,129.3	-2.3	1,059.9	2.90	0.43	2.87
Deepest Point of Well= 7961 MD/6718 TVD										
7,961.0	88.50	156.60	6,718.1	5,565.1	-1,216.3	35.7	1,154.7	0.67	0.53	0.42
8,056.0	92.20	157.90	6,717.5	5,564.5	-1,303.9	72.5	1,249.6	4.13	3.89	1.37
8,151.0	93.50	155.70	6,712.7	5,559.7	-1,391.1	109.8	1,344.3	2.69	1.37	-2.32
8,246.0	93.10	154.40	6,707.3	5,554.3	-1,477.1	149.9	1,438.8	1.43	-0.42	-1.37
8,341.0	94.00	152.50	6,701.4	5,548.4	-1,561.9	192.2	1,533.0	2.21	0.95	-2.00
8,435.0	96.40	153.30	6,692.9	5,539.9	-1,645.2	234.9	1,625.9	2.69	2.55	0.85
8,530.0	97.40	154.90	6,681.5	5,528.5	-1,730.0	276.1	1,719.7	1.98	1.05	1.68
8,626.0	97.20	156.30	6,669.3	5,516.3	-1,816.8	315.4	1,814.7	1.46	-0.21	1.46
8,720.0	96.20	156.70	6,658.3	5,505.3	-1,902.4	352.6	1,907.9	1.14	-1.06	0.43
8,815.0	97.00	155.90	6,647.4	5,494.4	-1,988.8	390.6	2,002.1	1.19	0.84	-0.84
8,910.0	96.40	154.60	6,636.3	5,483.3	-2,074.5	430.1	2,096.1	1.50	-0.63	-1.37
9,005.0	96.90	153.60	6,625.3	5,472.3	-2,159.3	471.3	2,190.0	1.17	0.53	-1.05
9,100.0	94.30	153.70	6,616.0	5,463.0	-2,244.1	513.2	2,283.9	2.74	-2.74	0.11

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site: Doddridge County 514390
Company:	EQT Production - Marcellus	TVD Reference:	KB @ 23 @ 1153.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB @ 23 @ 1153.0usft
Site:	Doddridge County 514390	North Reference:	Crd
Well:	Well #514390	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	514390 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)
9,195.0	92 00	154.20	6,610.8	5,457.8	-2,329.3	554.9	2,378.3	2.48	-2.42	0.53
9,290.0	91 30	155.40	6,608.1	5,455.1	-2,415.2	595.3	2,472.8	1.46	-0.74	1.26
9,385.0	91 50	155.20	6,605.7	5,452.7	-2,501.5	635.0	2,567.5	0.30	0.21	-0.21
9,480.0	89 50	154.30	6,604.9	5,451.9	-2,587.4	675.5	2,662.1	2.31	-2.11	-0.95
9,575.0	89 10	153.50	6,606.1	5,453.1	-2,672.7	717.3	2,756.6	0.94	-0.42	-0.84
9,670.0	88 70	155.70	6,607.9	5,454.9	-2,758.5	758.1	2,851.1	2.35	-0.42	2.32
9,765.0	88 40	155.90	6,610.3	5,457.3	-2,845.1	797.0	2,945.9	0.38	-0.32	0.21
9,860.0	89 90	155.70	6,611.7	5,458.7	-2,931.8	835.9	3,040.6	1.59	1.56	-0.21
9,955.0	89 30	154.90	6,612.4	5,459.4	-3,018.1	875.6	3,135.3	1.05	-0.63	-0.84
10,049.0	89.10	154.40	6,613.7	5,460.7	-3,103.0	915.9	3,228.9	0.57	-0.21	-0.53
10,144.0	91 10	155.70	6,613.5	5,460.5	-3,189.1	955.9	3,323.5	2.51	2.11	1.37
10,239.0	91 30	154.60	6,611.5	5,458.5	-3,275.3	995.8	3,418.2	1.18	0.21	-1.16
10,334.0	91.10	153.70	6,609.5	5,456.5	-3,360.8	1,037.3	3,512.7	0.97	-0.21	-0.95
10,429.0	90 70	153.70	6,608.1	5,455.1	-3,445.9	1,079.3	3,607.1	0.42	-0.42	0.00
10,524.0	92.40	158.60	6,605.5	5,452.5	-3,532.8	1,117.7	3,701.8	5.46	1.79	5.16
10,619.0	90 10	158.50	6,603.4	5,450.4	-3,621.2	1,152.5	3,796.8	2.42	-2.42	-0.11
10,714.0	89 50	158.30	6,603.7	5,450.7	-3,709.5	1,187.4	3,891.7	0.67	-0.63	-0.21
10,809.0	89 00	156.90	6,605.0	5,452.0	-3,797.3	1,223.6	3,986.6	1.56	-0.53	-1.47
10,904.0	88 60	156.40	6,607.0	5,454.0	-3,884.5	1,261.3	4,081.5	0.67	-0.42	-0.53
10,999.0	88 00	156.20	6,609.8	5,456.8	-3,971.5	1,299.4	4,176.2	0.67	-0.63	-0.21
11,094.0	91 00	154.70	6,610.6	5,457.6	-4,057.9	1,338.9	4,270.9	3.53	3.16	-1.58
11,189.0	90 60	153.10	6,609.3	5,456.3	-4,143.2	1,380.7	4,365.4	1.74	-0.42	-1.68
11,284.0	90 70	153.00	6,608.2	5,455.2	-4,227.8	1,423.7	4,459.7	0.15	0.11	-0.11
11,379.0	90 20	153.20	6,607.5	5,454.5	-4,312.6	1,466.7	4,554.0	0.57	-0.53	0.21
11,474.0	91 20	154.60	6,606.3	5,453.3	-4,397.9	1,508.5	4,648.5	1.81	1.05	1.47
11,569.0	91 20	153.30	6,604.3	5,451.3	-4,483.2	1,550.2	4,742.9	1.37	0.00	-1.37
11,663.0	90 90	154.20	6,602.6	5,449.6	-4,567.5	1,591.8	4,836.4	1.01	-0.32	0.96
11,758.0	89 30	150.50	6,602.4	5,449.4	-4,651.6	1,635.9	4,930.5	4.24	-1.68	-3.89
11,853.0	90 90	149.30	6,602.3	5,449.3	-4,733.8	1,683.5	5,024.1	2.11	1.68	-1.26
11,949.0	90 90	153.00	6,600.8	5,447.8	-4,817.9	1,729.8	5,118.9	3.85	0.00	3.85
12,044.0	91 90	155.80	6,598.4	5,445.4	-4,903.5	1,770.9	5,213.4	3.13	1.05	2.95
12,139.0	91 30	154.50	6,595.8	5,442.8	-4,989.7	1,810.8	5,308.1	1.51	-0.63	-1.37
12,235.0	91 80	157.40	6,593.2	5,440.2	-5,077.3	1,849.9	5,403.8	3.06	0.52	3.02
12,330.0	88 90	158.10	6,592.6	5,439.6	-5,165.2	1,885.8	5,498.7	3.14	-3.05	0.74
12,424.0	88 20	157.40	6,595.0	5,442.0	-5,252.2	1,921.4	5,592.6	1.05	-0.74	-0.74
Final Survey= 12431' MD/6595' TVD										
12,431.0	87 80	157.50	6,595.2	5,442.2	-5,258.6	1,924.1	5,599.6	5.89	-5.71	1.43
Projection to TD= 12484' MD/8597' TVD										
12,484.0	87 80	157.50	6,597.3	5,444.3	-5,307.6	1,944.4	5,652.5	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Doddridge County 514390
Company:	EQT Production - Marcellus	TVD Reference:	KB@23 @ 1153.0usft
Project:	Doddridge County, WV Grid	MD Reference:	KB@23 @ 1153.0usft
Site:	Doddridge County 514390	North Reference:	Grid
Well:	Well #514390	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	514390 As Drilled Surveys		

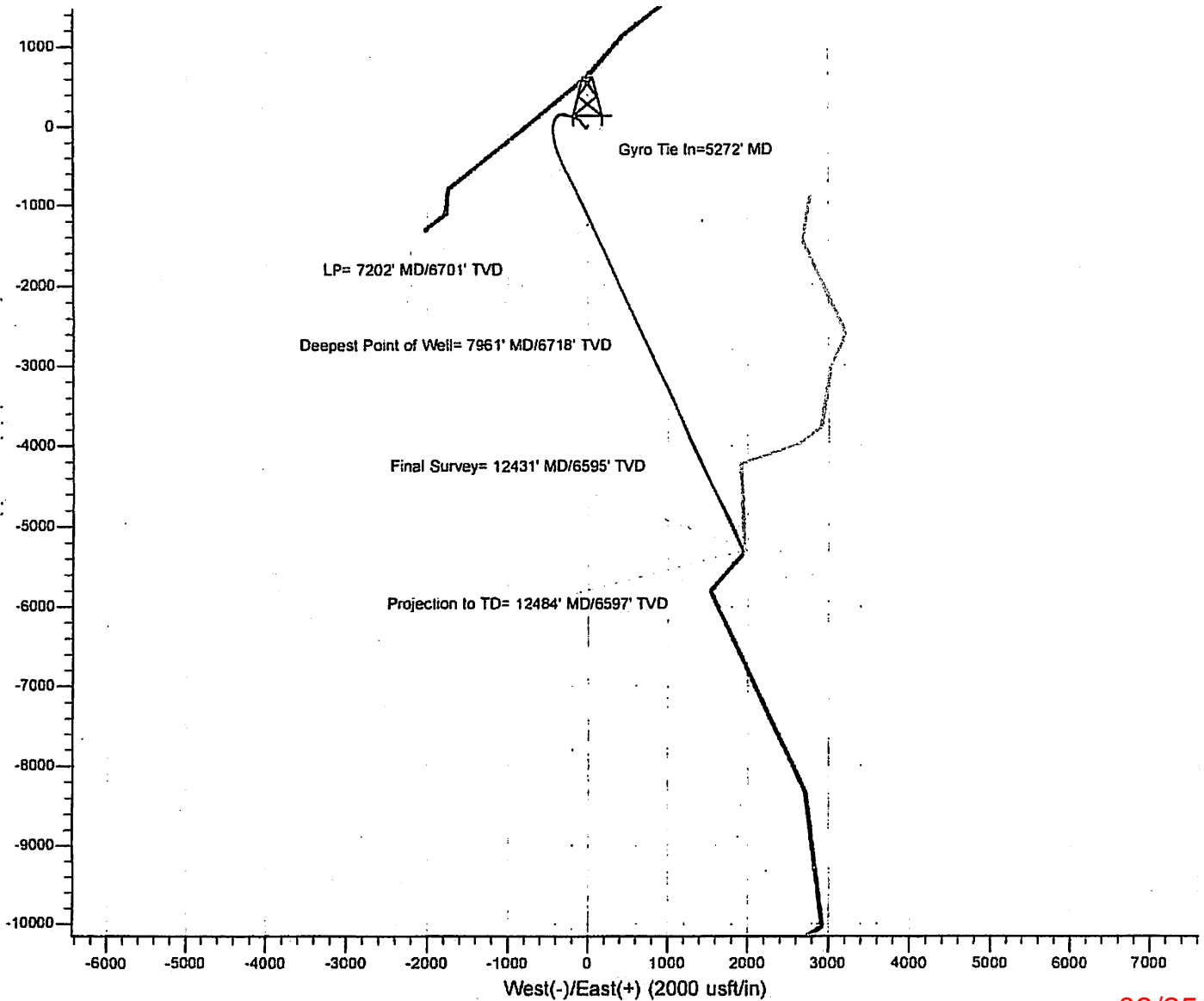
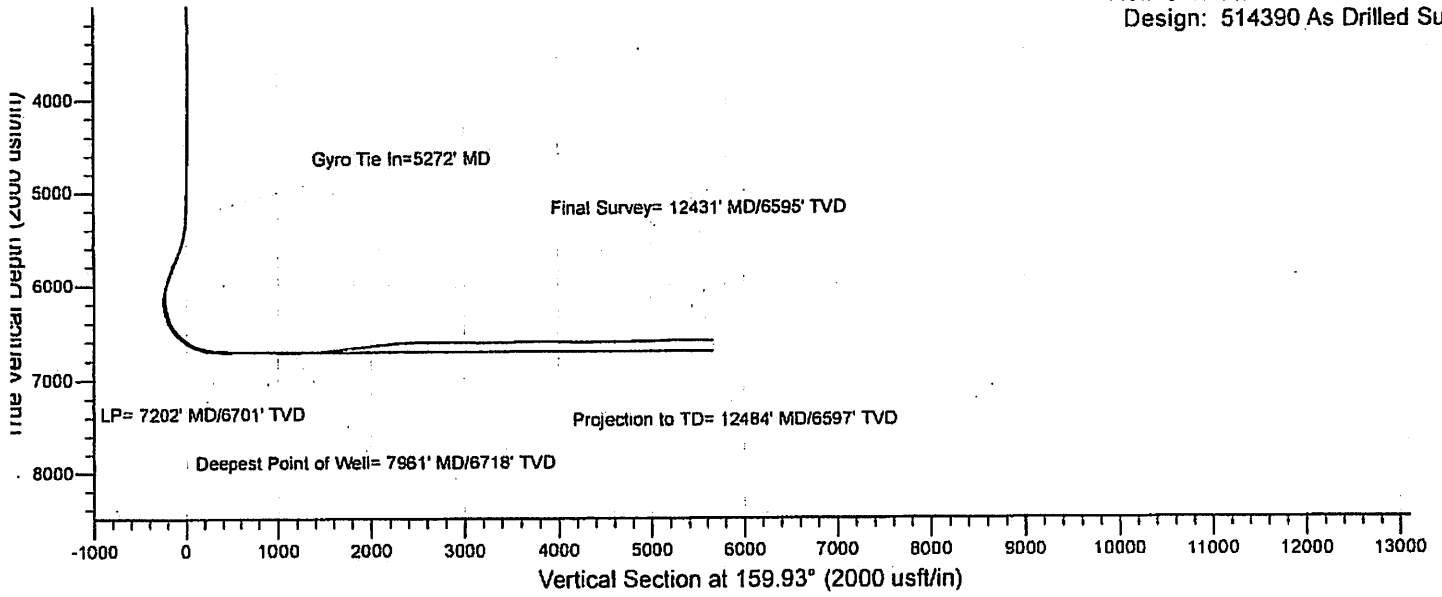
Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,272.0	5,270.7	-9.1	-40.3	Gyro Tie In=5272' MD
7,202.0	6,701.0	-531.7	-291.3	LP= 7202' MD/6701' TVD
7,961.0	6,718.1	-1,216.3	35.7	Deepest Point of Well= 7961' MD/6718' TVD
12,431.0	6,595.2	-5,258.6	1,924.1	Final Survey= 12431' MD/6595' TVD
12,484.0	6,597.3	-5,307.6	1,944.4	Projection to TD= 12484' MD/6597' TVD

Checked By: _____ Approved By: _____ Date: _____



Project: Doddridge County, WV Grid
Site: Doddridge County 514390
Well: Well #514390
Wellbore: Main Wellbore
Design: 514390 As Drilled Surveys



514390 - 47-017-6443-0000 - Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	4/25/2015	12,482.00	12,484.00	10	MARCELLUS
1	5/4/2015	12,337.00	12,399.00	32	MARCELLUS
2	5/5/2015	12,157.00	12,279.00	40	MARCELLUS
3	5/5/2015	11,977.00	12,099.00	40	MARCELLUS
4	5/5/2015	11,797.00	11,919.00	40	MARCELLUS
5	5/5/2015	11,617.00	11,739.00	40	MARCELLUS
6	5/6/2015	11,437.00	11,559.00	40	MARCELLUS
7	5/6/2015	11,257.00	11,379.00	40	MARCELLUS
8	5/6/2015	11,077.00	11,199.00	40	MARCELLUS
8.1	5/6/2015	11,054.00	11,127.00	28	MARCELLUS
9	5/7/2015	10,874.00	10,996.00	40	MARCELLUS
10	5/7/2015	10,694.00	10,816.00	40	MARCELLUS
11	5/7/2015	10,514.00	10,636.00	40	MARCELLUS
12	5/8/2015	10,334.00	10,456.00	40	MARCELLUS
13	5/8/2015	10,154.00	10,276.00	40	MARCELLUS
14	5/8/2015	9,974.00	10,100.00	40	MARCELLUS
15	5/8/2015	9,794.00	9,916.00	40	MARCELLUS
16	5/9/2015	9,616.00	9,736.00	40	MARCELLUS
17	5/9/2015	9,432.00	9,556.00	40	MARCELLUS
18	5/9/2015	9,254.00	9,376.00	40	MARCELLUS
19	5/9/2015	9,074.00	9,196.00	40	MARCELLUS
20	5/9/2015	8,894.00	9,016.00	40	MARCELLUS
21	5/10/2015	8,714.00	8,836.00	40	MARCELLUS
22	5/10/2015	8,534.00	8,656.00	40	MARCELLUS
23	5/11/2015	8,354.00	8,477.00	40	MARCELLUS
24	5/11/2015	8,174.00	8,296.00	40	MARCELLUS
25	5/11/2015	7,994.00	8,116.00	40	MARCELLUS
26	5/11/2015	7,813.00	7,936.00	40	MARCELLUS
26.1	5/12/2015	7,802.00	7,865.00	28	MARCELLUS
27	5/12/2015	7,634.00	7,754.00	40	MARCELLUS
28	5/12/2015	7,454.00	7,576.00	40	MARCELLUS
29	5/12/2015	7,274.00	7,396.00	40	MARCELLUS
30	5/13/2015	7,094.00	7,216.00	40	MARCELLUS

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/3/2015
Job End Date:	5/13/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06443-00-00
Operator Name:	EQT Production
Well Name and Number:	514390
Longitude:	-80.78660300
Latitude:	39.25472500
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,682
Total Base Water Volume (gal):	10,908,618
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	90.78585	None
Sand (Proppant)	FTS International	Proppant	Crystalline Silica	14808-60-7	100.00000	8.84270	None
MC MX 437-5	Multi-Chem	Calcium nitrate solution	Calcium nitrate	10124-37-5	60.00000	0.05608	None
FRW-900	FTS International	Friction reducer	Hydrotreated light distillate	64742-47-8	30.00000	0.02288	None
			Alkyl Alcohol	Proprietary	10.00000	0.00763	None
			Oxyalkylated alcohol A	Proprietary	5.00000	0.00381	None
Hydrochloric Acid (15%)	FTS International	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.02605	None
CS-500-SI	FTS International	Scale inhibitor	Ethylene glycol	107-21-1	10.00000	0.00251	None
HVG-1	FTS International	Gelling agent	Petroleum distillate	64742-47-8	55.00000	0.00073	None
			Guar gum	9000-30-0	50.00000	0.00067	None
			Surfactant	68439-51-0	2.00000	0.00003	None

			Clay	14808-60-7	2.00000	0.00003	None
FE-100L	FTS International	Iron control					
			Citric acid	77-92-9	55.00000	0.00058	None
CI-150	FTS International	Acid Corrosion Inhibitor					
			Isopropanol	67-63-0	30.00000	0.00009	None
			Organic amine resin salt	Proprietary	30.00000	0.00009	None
			Ethylene glycol	107-21-1	30.00000	0.00009	None
			Aromatic aldehyde	Proprietary	10.00000	0.00003	None
			Dimethylformamide	68-12-2	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	0.00002	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]



Please use the FracFocus API submission process or create disclosures online

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](#)

i Disclosure has been submitted.

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

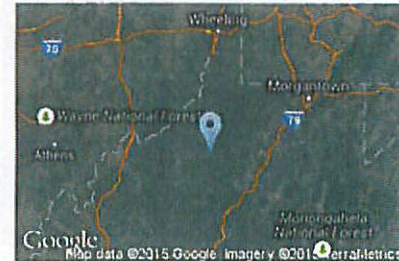
Hydraulic Fracturing Data

Job Start Date 5/3/2015 Job End Date 5/13/2015 API Number 47-017-06443-00-00 State & County West Virginia --- Doddridge

Well Name 514390

Longitude -80.786603 Latitude 39.254725 Datum NAD83 Federal/Tribal Well?

True Vertical Depth (ft) 6682 Total Water Vol (gal) 10908618 Total Non Water Vol 0 Total Mass (lbs) 100271595



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%	90.7858476418%	None	91032417.21
<input type="button" value="Edit"/>	Sand (Proppant)	FTS International	Proppant	Crystalline Silica	14808-60-7	100%	8.8426996946%	None	8866716
<input type="button" value="Edit"/>	MC MX 437-5	Multi-Chem	Calcium nitrate solution	Calcium nitrate	10124-37-5	60%	.0560757285%	None	56228.027
<input type="button" value="Edit"/>	FRW-900	FTS International	Friction reducer	Hydrotreated light distillate	64742-47-8	30%	.0228817309%	None	22943.877
				Alkyl Alcohol	Proprietary	10%	.0076272436%	None	7647.959
				Oxyalkylated alcohol A	Proprietary	5%	.0038136218%	None	3823.979
<input type="button" value="Edit"/>	Hydrochloric Acid (15%)	FTS International	Acidizing	Hydrochloric Acid	7647-01-0	15%	.0260523644%	None	26123.121
<input type="button" value="Edit"/>	CS-500-SI	FTS International	Scale inhibitor	Ethylene glycol	107-21-1	10%	.002506165%	None	2512.972
<input type="button" value="Edit"/>	HVG-1	FTS International	Gelling agent	Petroleum distillate	64742-47-8	55%	.0007331719%	None	735.163
				Guar gum	9000-30-0	50%	.00066652%	None	668.33

			Surfactant	68439-51-0	2%	.0000266608%	None	26.733
			Clay	14808-60-7	2%	.0000266608%	None	26.733
<input type="button" value="Edit"/>	FE-100L	FTS International	Iron control					
			Citric acid	77-92-9	55%	.0005752316%	None	576.794
<input type="button" value="Edit"/>	CI-150	FTS International	Acid Corrosion Inhibitor					
			Isopropanol	67-63-0	30%	.0000939266%	None	94.182
			Organic amine resin salt	Proprietary	30%	.0000939266%	None	94.182
			Ethylene glycol	107-21-1	30%	.0000939266%	None	94.182
			Aromatic aldehyde	Proprietary	10%	.0000313089%	None	31.394
			Dimethylformamide	68-12-2	10%	.0000313089%	None	31.394
			Quaternary ammonium compound	Proprietary	10%	.0000313089%	None	31.394
<input type="button" value="Edit"/>	NE-100	FTS International	Non-emulsifier					
			2-Propanol	67-63-0	10%	.0000263654%	None	26.437
			2-Butoxyethanol	111-76-2	10%	.0000263654%	None	26.437
			Dodecylbenzenesulfonic acid	27176-87-0	5%	.0000131827%	None	13.218
<input type="button" value="Edit"/>	APB-1	FTS International	Breaker					
			Ammonium persulfate	7727-54-0	95%	.000019896%	None	19.95

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 514390**

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

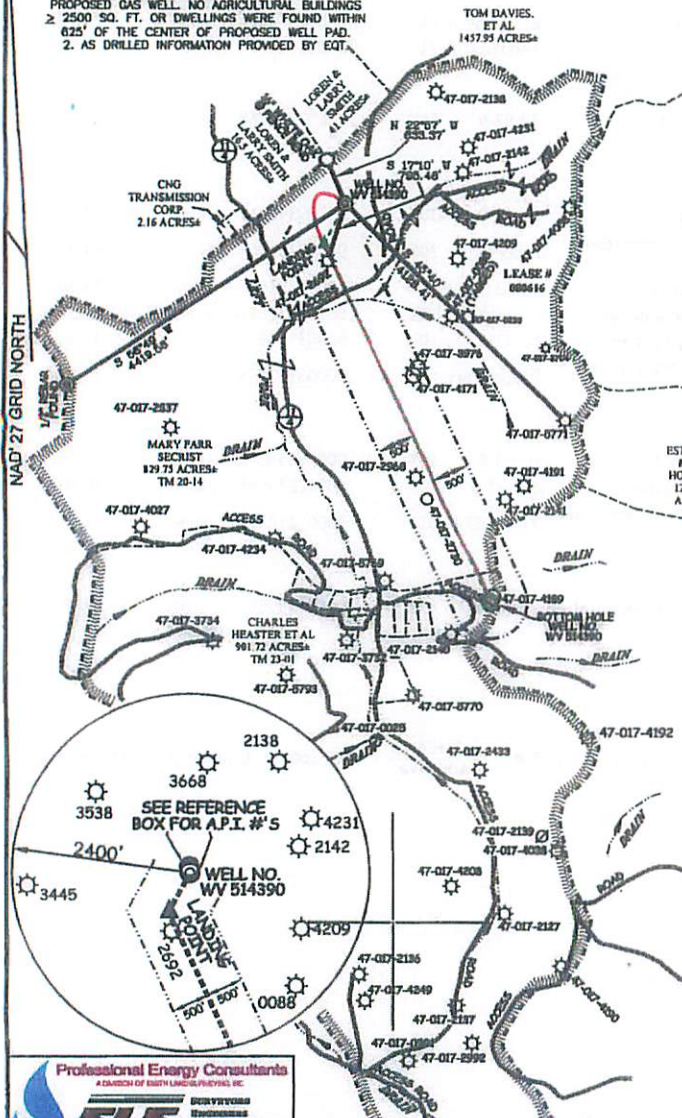
NAD'27 S.P.C.(FT) N. 277,495.1 E. 1,635,670.5
 NAD'27 GEO. LAT-(N) 39.254725 LONG-(W) 80.788603
 NAD'83 UTM (M) N. 4,345,075.4 E. 518,420.9

LANDING POINT

NAD'27 S.P.C.(FT) N. 278,962.3 E. 1,635,382.5
 NAD'27 GEO. LAT-(N) 39.253251 LONG-(W) 80.787583
 NAD'83 UTM (M) N. 4,344,911.6 E. 518,341.8

BOTTOM HOLE

NAD'27 S.P.C.(FT) N. 272,188.1 E. 1,637,600.7
 NAD'27 GEO. LAT-(N) 39.240226 LONG-(W) 80.779489
 NAD'83 UTM (M) N. 4,343,467.8 E. 519,044.6



LEGEND

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



**AS DRILLED COORDINATES
FOR WELL NO. WV 514390**

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

NAD'27 S.P.C.(FT) N. 277,495.1 E. 1,635,670.5
 NAD'27 GEO. LAT-(N) 39.254725 LONG-(W) 80.788603
 NAD'83 UTM (M) N. 4,345,075.4 E. 518,420.9

BOTTOM HOLE

NAD'27 S.P.C.(FT) N. 272,187.7 E. 1,637,614.8
 NAD'27 GEO. LAT-(N) 39.240231 LONG-(W) 80.779471
 NAD'83 UTM (M) N. 4,343,468.4 E. 519,048.2



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*

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE SEPTEMBER 09, 20 13
 REVISED 12/02/13, 07/01/14, 07/31/14 & 04/14/15
 OPERATORS WELL NO. WV 514390
 API WELL NO. 47-017-06443-H
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 7871AD514390
 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 LIQUID INJECTION WASTE DISPOSAL IF "GAS" PRODUCTION STORAGE DEEP SHALLOW

LOCATION: ELEVATION 1,166'(GROUND) 1,130'(PROPOSED) WATERSHED LEFT FORK OF ARNOLD CREEK
 DISTRICT WEST UNION COUNTY DODDRIDGE QUADRANGLE WEST UNION 7.5'
 SURFACE OWNER MARY FARR SECRET ACREAGE 829.75±
 ROYALTY OWNER LEWIS MAXWELL HRS ACREAGE 2654±
 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 6,622'

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

03/25/2016

COUNTY NAME PERMIT