

APPROVED

NAME: *Julia A. Fink*
DATE: *1/29/15*

Well Operator's Report of Well Work



Where energy meets innovation.

Well Number: 513153

API: 47 - 017 - 06503

Submission: Initial Amended

Notes: w/o Flowback

Correction to Production Cement Top
(MD)

RECEIVED
Office of Oil and Gas

DEC 21 2015

WV Department of
Environmental Protection

02/05/2016

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

API 47-017-06503 County DODDRIDGE District Southwest
Quad OXFORD 7.5' Pad Name OXFORD 159 Field/Pool Name _____
Farm name JUSTIN L. HENDERSON ET AL Well Number 513153
Operator (as registered with the OOG) EQT Production Company
Address 625 Liberty Ave. EQT Plaza, Suite 1700 City Pittsburgh State PA Zip 15222

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,339,877.7 Easting 520,532.8
Landing Point of Curve Northing 4,340,087.7 Easting 520,447.2
Bottom Hole Northing 5,342,115.0 Easting 519,460.4

Elevation (ft) 1,252 GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
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 07/30/2014 Date drilling commenced 11/21/2014 Date drilling ceased 5/13/2015
Date completion activities began 6/28/2015 Date completion activities ceased 7/8/2015
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 264, 325, 411 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1312, 1379 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 256, 323, 484, 626, 742, 745 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

02/05/2016

API 47-017 - 06503

Farm name JUSTIN L. HENDERSON ET AL Well number 513153

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"	1,106'	NEW	J-55 54.5LB/FT	None	Y
Coal							
Intermediate 1	12.375"	9.625"	5,280'	NEW	P-110 40LB/FT	None	Y
Intermediate 2							
Intermediate 3							
Production	8.5"	5.5"	14,700'	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	926	15.6	1.20	1,111.2	0	8
Coal							
Intermediate 1	CLASS A / A / A	459 / 364 / 1,127	14.2 / 15.6 / 15.6	1.24 / 1.18 / 1.18	2,328.54	0	8
Intermediate 2							
Intermediate 3							
Production	Class A 50/50 POZ / H	555 / 995	14.2 / 15.2	1.26 / 1.97	2659.45	3,291'	8
Tubing							

Drillers TD (ft) 14,720'

Loggers TD (ft) 6778'

Deepest formation penetrated Onondaga

Plug back to (ft) 5,438 ft

Plug back procedure Pumped Isolation plug # 1 with 2 bbls H2O, 39.5 bbls of 14.2 ppg cmt, 1 bbls H2O, Trip out of hole to @ 5,560', Pump Isolation plug # 2 with 1 bbls H2O, 39.5 bbls of 14.2 ppg cmt, 1 bbls H2O, Trip out of hole to @ 5,111', pump kickoff plug with 1 bbls H2O, 38.5 bbls Class A cmt (sks 193) at 1.12 yield, 16.0 ppg 20 bbls H2O, Trip out of hole

Kick off depth (ft) 5448'

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: 1,9,20

INTERMEDIATE- RAN AT LEAST EVERY 500' FEET JOINTS: 1, 12, 24, 37, 50, 62, 74, 86, 98, 109, 121

PRODUCTION- Ran 225 centralizers on every joint from 14899' to 5183'

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 - 06503 Farm name JUSTIN L. HENDERSON ET AL Well number 513153

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

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

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

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

Well #513153 Final Formations				
Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
FRESH WATER ZONE	1	1	411	411
SAND/SHALE	1	1	256	256
WASHINGTON COAL	256	256	258	258
SAND/SHALE	258	258	323	323
WAYNESBURG A COAL	323	323	325	325
SAND/SHALE	325	325	484	484
UNIONTOWN COAL	484	484	486	486
SAND/SHALE	486	486	626	626
SEWICKLEY	626	626	628	628
SAND/SHALE	628	628	742	742
REDSTONE COAL	742	742	743	743
SAND/SHALE	743	743	745	745
PITTSBURGH COAL	745	745	749	749
SAND/SHALE	749	749	2,030.00	2,029.80
BIG LIME	2,030.00	2,029.80	2,174.00	2,173.70
SAND/SHALE	2,174.00	2,173.70	2,323.00	2,322.70
WEIR	2,323.00	2,322.70	2,437.00	2,436.70
SAND/SHALE	2,437.00	2,436.70	2,531.00	2,530.60
GANTZ	2,531.00	2,530.60	2,608.00	2,607.60
50F	2,608.00	2,607.60	2,684.00	2,683.50
SAND/SHALE	2,684.00	2,683.50	2,730.00	2,729.50
30F	2,730.00	2,729.50	2,765.00	2,764.50
SAND/SHALE	2,765.00	2,764.50	2,779.00	2,778.50
GORDON	2,779.00	2,778.50	2,870.00	2,869.50
4TH SAND	2,870.00	2,869.50	3,051.00	3,050.40
BAYARD	3,051.00	3,050.40	3,151.00	3,150.30
SAND/SHALE	3,151.00	3,150.30	3,388.00	3,387.10
WARREN	3,388.00	3,387.10	3,447.00	3,446.10
SAND/SHALE	3,447.00	3,446.10	3,459.00	3,458.10
SPEECHLEY	3,459.00	3,458.10	3,703.00	3,701.90
SAND/SHALE	3,703.00	3,701.90	4,139.00	4,136.80
BALLTOWN A	4,139.00	4,136.80	4,253.00	4,250.30
SAND/SHALE	4,253.00	4,250.30	4,338.00	4,334.80
RILEY	4,338.00	4,334.80	4,484.00	4,480.00
SAND/SHALE	4,484.00	4,480.00	5,009.00	5,002.10
BENSON	5,009.00	5,002.10	5,049.00	5,041.90
SAND/SHALE	5,049.00	5,041.90	5,180.00	5,172.30
ALEXANDER	5,180.00	5,172.30	6,211.00	6,156.80
RHINESTREET UPPER	6,211.00	6,156.80	6,362.00	6,306.60
RHINESTREET	6,362.00	6,306.60	6,438.00	6,380.10
SONYEA	6,438.00	6,380.10	6,608.00	6,533.20
MIDDLESEX	6,608.00	6,533.20	6,662.00	6,575.80
GENESSEE	6,662.00	6,575.80	6,762.00	6,643.00
GENESEO	6,762.00	6,643.00	6,853.00	6,688.80
TULLY	6,853.00	6,688.80	6,908.00	6,710.50
HAMILTON	6,908.00	6,710.50	6,996.00	6,735.60
MARCELLUS	6,996.00	6,735.60		

02/05/2016



EQT Production - Marcellus

Doddridge County, WV Grid

Doddridge County 513153

Well #513153

Main Wellbore

Design: 513153 As Drilled

Standard Survey Report

14 May, 2015

EQT

Where energy meets innovation.

Database:	COMPASS 5000 1 Build 73	Local Co-ordinate Reference:	Site Designation: PHX 513153
Company:	PHX Technology Services	TVD Reference:	1825.00 (1975.00)
Project:	PHX MWD (Main Wellbore)	MD Reference:	14720.00 (1275.00)
Site:	West Virginia County 513153	North Reference:	14720.00
Well:	Well 4512163	Survey Calculation Method:	Minimum Curvature
Wellbore:	Main Wellbore		
Design:	13183 MWD		

Project			
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					
Site Position:		Northing:	260,323.30 usft	Latitude:	39.21
From:	Map	Easting:	1,642,296.70 usft	Longitude:	-80.76
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	-0.81°

Well						
Well Position	+N/-S	0.0 usft	Northing:	260,323.30 usft	Latitude:	39° 12' 28.227" N
	+E/-W	0.0 usft	Easting:	1,642,296.70 usft	Longitude:	80° 45' 44.474" W
Position Uncertainty:	0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,252.0 usft	

Wellbore		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	4/21/2015	-7.78	66.68	52,235

Design		
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Audit Notes:

Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
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Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	335.34

Survey Program	Date	From (')	To (usft)	Survey (Wellbore)	Tool Name	Description
	5/14/2015	0.00	5,410.0	513153 Gyrodatta Gyro (Main Wellbore)	GYD_DP_MS	Gyrodatta gyro-compassing and drop
		0.00	14,720.0	513153 PHX MWD (Main Wellbore)	PHX+MWD+HDGM	PHX+OWSG MWD + HDGM

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Subsea Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	-1,275.0	0.0	0.0	0.0	0.00	0.00	0.00
110.0	0.16	294.33	110.0	-1,165.0	0.1	-0.1	0.1	0.15	0.15	0.00
210.0	0.12	312.16	210.0	-1,065.0	0.2	-0.3	0.3	0.06	-0.04	17.83
310.0	0.15	291.39	310.0	-965.0	0.3	-0.5	0.5	0.06	0.03	-20.77
410.0	0.16	276.38	410.0	-865.0	0.4	-0.8	0.7	0.04	0.01	-15.01
510.0	0.16	282.07	510.0	-765.0	0.4	-1.1	0.8	0.02	0.00	5.69
610.0	0.12	290.05	610.0	-665.0	0.5	-1.3	1.0	0.04	-0.04	7.98
710.0	0.13	289.98	710.0	-565.0	0.6	-1.5	1.1	0.01	0.01	-0.07

Database:	PHX 5000 - Single User 14	Local Co-ordinate Reference:	Site Coordinate System: NAD 83
Company:	U-T Production - Mustang	TVD Reference:	Base Station: 1274 Bush
Project:	Washington County, WV Coal	MD Reference:	KR022 @ 10% push
Site:	Washington County, WV	North Reference:	Mag
Well:	WV #1 3155	Survey Calculation Method:	Minimum Curvature
Wellbore:	Manwellbore		
Design:	1275 A1 1275		

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 10	277 80	810 0	-465 0	0 6	-1 7	1 3	0 04	-0 03	-12 18
910.0	0 21	268 30	910 0	-365 0	0 6	-2 0	1 4	0 11	0 11	-9 50
1,010.0	0 55	268 96	1,010 0	-265 0	0 6	-2 6	1 6	0 34	0 34	0 66
1,110.0	0 59	276 20	1,110 0	-165 0	0 6	-3 6	2 1	0 08	0 04	7 24
1,210.0	0 63	301 24	1,210 0	-65 0	1 0	-4 6	2 8	0 27	0 04	25 04
1,310.0	1 04	296.82	1,310 0	35 0	1 7	-5 9	4 0	0 41	0 41	-4 42
1,410.0	1 18	297 35	1,410 0	135 0	2 6	-7 6	5 5	0 14	0 14	0 53
1,510.0	1 40	299 17	1,509 9	234 9	3 6	-9 6	7 3	0 22	0 22	1 82
1,610.0	1 29	299 17	1,609 9	334 9	4 8	-11 7	9 2	0 11	-0 11	0 00
1,710.0	1 29	299 24	1,709 9	434 9	5 9	-13 6	11 0	0 00	0 00	0 07
1,810.0	1 31	300 39	1,809 9	534 9	7 0	-15 6	12 9	0 03	0 02	1 15
1,910.0	1 33	301 65	1,909 8	634 8	8 2	-17 6	14 8	0 04	0 02	1 26
2,010.0	1 35	297.76	2,009 8	734 8	9 3	-19 6	16 7	0 09	0 02	-3 87
2,110.0	1 40	296.91	2,109 8	834 8	10 5	-21 7	18 6	0 05	0 05	-0 87
2,210.0	1 50	296.79	2,209 7	934 7	11 6	-24 0	20 5	0 10	0 10	-0 12
2,310.0	1 57	297 76	2,309 7	1,034 7	12 8	-26 4	22 7	0 07	0 07	0 97
2,410.0	1 58	297.64	2,409 7	1,134 7	14 1	-28 8	24 8	0 01	0 01	-0 12
2,510.0	1 64	300.44	2,509 6	1,234 6	15 5	-31 3	27 1	0 10	0 06	2 80
2,610.0	1 67	301.59	2,609 6	1,334 6	17 0	-33 7	29 5	0 04	0 03	1 15
2,710.0	1 72	303 07	2,709 5	1,434 5	18 5	-36 2	32 0	0 07	0 05	1 48
2,810.0	1 78	304.36	2,809 5	1,534 5	20 2	-38 8	34 6	0 07	0 06	1 29
2,910.0	1 87	306.45	2,909 4	1,634 4	22 1	-41 4	37 3	0 11	0 09	2 09
3,010.0	1 91	305.74	3,009 4	1,734 4	24 0	-44 0	40 2	0 05	0 04	-0 71
3,110.0	1 95	305.37	3,109 3	1,834 3	26 0	-46 8	43 1	0 04	0 04	-0 37
3,210.0	2 06	302 42	3,209 3	1,934 3	27 9	-49 7	46 1	0 15	0 11	-2 95
3,310.0	2 15	302 58	3,309 2	2,034 2	29 9	-52 8	49 2	0 09	0 09	0 16
3,410.0	2 25	305 41	3,409 1	2,134 1	32 0	-55 9	52 5	0 15	0 10	2 63
3,510.0	2 36	306 95	3,509 0	2,234 0	34 4	-59 2	56 0	0 13	0 11	1 54
3,610.0	2 36	309 08	3,609 0	2,334 0	37 0	-62 4	59 6	0 09	0 00	2 13
3,710.0	2 42	310 17	3,708 9	2,433 9	39 6	-65 6	63 4	0 08	0 06	1 09
3,810.0	2 70	309 33	3,808 8	2,533 8	42 5	-69 1	67 4	0 28	0 28	-0 84
3,910.0	3 78	303 69	3,908 6	2,633 6	45 8	-73 6	72 3	1 12	1 08	-5 64
4,010.0	4 73	304 44	4,008 3	2,733 3	50 0	-79 8	78 7	0 95	0 95	0 75
4,110.0	5 46	306 43	4,107 9	2,832 9	55 1	-87 0	86 4	0 75	0 73	1 99
4,210.0	5 71	306 72	4,207 5	2,932 5	60 9	-94 8	94 9	0 25	0 25	0 29
4,310.0	5 86	309.13	4,307 0	3,032 0	67 1	-102 8	103 9	0 29	0 15	2 41
4,410.0	5 85	311 78	4,406 4	3,131 4	73 7	-110 5	113 1	0 27	0 00	2 65
4,510.0	6 04	315 11	4,505 9	3,230 9	80 9	-118 1	122 7	0 39	0 18	3 33
4,610.0	6 14	319 99	4,605 3	3,330 3	88 7	-125 2	132 8	0 53	0 10	4 88
4,710.0	6 22	324 34	4,704 8	3,429 8	97 2	-131 8	143 3	0 47	0 08	4 35
4,810.0	6 05	327 79	4,804 2	3,529 2	106 0	-137 8	153 8	0 41	-0 17	3 45
4,910.0	5 89	330 81	4,903 6	3,628 6	115 0	-143 1	164 2	0 35	-0 16	3 02



Database:	PHX 5000 1 Build 73	Local Co-ordinate Reference:	PHX 5000 1 Build 73
Company:	EQT Production Services	TVD Reference:	PHX 5000 1 Build 73
Project:	Greene County, W.V. 019	MD Reference:	PHX 5000 1 Build 73
Site:	Greene County 211153	North Reference:	PHX 5000 1 Build 73
Well:	PHX 5000 1	Survey Calculation Method:	Minimum Curvature
Wellbore:	PHX 5000 1		
Design:	PHX 5000 1		

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	5.73	332.99	5,003.1	3,728.1	123.9	-147.9	174.3	0.27	-0.16	2.18
5,110.0	5.44	337.04	5,102.6	3,827.6	132.7	-152.0	184.0	0.49	-0.29	4.05
5,210.0	5.51	337.64	5,202.2	3,927.2	141.5	-155.7	193.6	0.09	0.07	0.60
5,310.0	5.11	340.76	5,301.8	4,026.8	150.2	-158.9	202.8	0.49	-0.40	3.12
5,410.0	4.45	359.07	5,401.4	4,126.4	158.2	-160.5	210.8	1.65	-0.66	18.31
5,474.0	4.00	49.30	5,465.3	4,190.3	162.2	-158.8	213.7	5.64	-0.70	78.48
5,505.0	7.30	94.90	5,496.1	4,221.1	162.7	-156.0	213.0	17.19	10.65	147.10
5,537.0	12.10	110.20	5,527.7	4,252.7	161.4	-150.9	209.6	16.90	15.00	47.81
5,569.0	15.90	118.60	5,558.7	4,283.7	158.1	-143.9	203.7	13.44	11.88	26.25
5,600.0	17.30	127.40	5,588.4	4,313.4	153.3	-136.5	196.3	9.27	4.52	28.39
5,631.0	17.90	140.70	5,618.0	4,343.0	146.8	-129.8	187.6	13.09	1.94	42.90
5,663.0	20.40	147.30	5,648.2	4,373.2	138.3	-123.7	177.3	10.32	7.81	20.63
5,695.0	22.90	146.80	5,678.0	4,403.0	128.4	-117.2	165.6	7.83	7.81	-1.56
5,726.0	23.70	150.40	5,706.4	4,431.4	117.9	-110.9	153.4	5.27	2.58	11.61
5,747.0	24.92	151.92	5,725.6	4,450.6	110.4	-106.7	144.8	6.51	5.79	7.25
5,757.0	25.50	152.60	5,734.6	4,459.6	106.6	-104.7	140.6	6.51	5.84	6.77
5,789.0	27.90	152.40	5,763.2	4,488.2	93.8	-98.1	126.2	7.51	7.50	-0.63
5,821.0	30.20	150.50	5,791.2	4,516.2	80.2	-90.6	110.7	7.74	7.19	-5.94
5,852.0	32.40	149.10	5,817.7	4,542.7	66.3	-82.5	94.7	7.47	7.10	-4.52
5,884.0	32.00	146.60	5,844.7	4,569.7	51.9	-73.5	77.8	4.35	-1.25	-7.81
5,915.0	28.40	144.40	5,871.5	4,596.5	39.0	-64.6	62.4	12.15	-11.61	-7.10
5,947.0	24.80	142.60	5,900.1	4,625.1	27.5	-56.1	48.4	11.53	-11.25	-5.63
5,979.0	20.40	139.20	5,929.7	4,654.7	17.9	-48.4	36.5	14.34	-13.75	-10.63
6,010.0	16.70	135.00	5,959.1	4,684.1	10.7	-41.7	27.1	12.68	-11.94	-13.55
6,042.0	14.20	127.60	5,989.9	4,714.9	5.0	-35.4	19.3	9.93	-7.81	-23.13
6,074.0	11.90	117.00	6,021.1	4,746.1	1.1	-29.3	13.3	10.35	-7.19	-33.13
6,106.0	9.50	104.70	6,052.5	4,777.5	-1.0	-23.8	9.0	10.31	-7.50	-38.44
6,137.0	7.40	91.20	6,083.2	4,808.2	-1.7	-19.4	6.5	9.28	-6.77	-43.55
6,168.0	5.70	67.40	6,114.0	4,839.0	-1.2	-15.9	5.6	10.22	-5.48	-76.77
6,200.0	5.40	52.20	6,145.8	4,870.8	0.4	-13.3	5.9	4.67	-0.94	-47.50
6,231.0	5.30	48.10	6,176.7	4,901.7	2.2	-11.1	6.6	1.27	-0.32	-13.23
6,263.0	5.30	40.00	6,208.6	4,933.6	4.3	-9.0	7.7	2.34	0.00	-25.31
6,294.0	6.70	29.40	6,239.4	4,964.4	7.0	-7.2	9.4	5.74	4.52	-34.19
6,326.0	8.50	22.60	6,271.1	4,996.1	10.8	-5.4	12.1	6.28	5.63	-21.25
6,358.0	11.10	9.60	6,302.7	5,027.7	16.0	-4.0	16.2	10.62	8.13	-40.63
6,389.0	14.00	359.30	6,332.9	5,057.9	22.7	-3.5	22.1	11.78	9.35	-33.23
6,421.0	16.30	352.10	6,363.8	5,088.8	31.0	-4.2	30.0	9.27	7.19	-22.50
6,452.0	18.50	345.30	6,393.4	5,118.4	40.1	-6.0	39.0	9.65	7.10	-21.94
6,483.0	21.00	343.20	6,422.6	5,147.6	50.2	-8.9	49.3	8.38	8.06	-6.77
6,515.0	24.00	342.50	6,452.1	5,177.1	61.9	-12.5	61.5	9.41	9.38	-2.19
6,546.0	27.40	342.70	6,480.1	5,205.1	74.7	-16.5	74.8	10.97	10.97	0.65



Database:	PHX Well - 67559 - 54829.D	Local Co-ordinate Reference:	67559 - 54829.D
Company:	EQT Production - Marcellus	TVD Reference:	67559 - 54829.D
Project:	Address: 0.000000 - 0.000000	MD Reference:	67559 - 54829.D
Site:	Address: 0.000000 - 0.000000	North Reference:	67559 - 54829.D
Well:	67559 - 54829	Survey Calculation Method:	Least Squares
Wellbore:	67559 - 54829		
Design:	67559 - 54829		

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)
6 578 0	31 30	343.10	6,507 9	5,232 9	89 7	-21 1	90 3	12.20	12 19	1 25
6 610 0	34 50	344.10	6,534 8	5,259 8	106 4	-26 0	107 5	10.14	10 00	3 13
6 642 0	38 60	343.50	6,560 5	5,285 5	124 7	-31.3	126 4	12.86	12.81	-1.88
6 673 0	42 60	342 10	6,584 0	5,309 0	143 9	-37 3	146 4	13 23	12 90	-4 52
6 704 0	46 50	341.40	6 606.1	5,331.1	164.6	-44 1	168 0	12 68	12 58	-2 26
6,736 0	51 00	341.70	6,627 2	5,352 2	187 4	-51 7	191 9	14 08	14 06	0 94
6,767 0	55 10	342 00	6,645.8	5,370 8	210 9	-59 4	216 5	13 25	13 23	0 97
6,799 0	58 70	342 60	6,663 3	5,388 3	236 5	-67 6	243 1	11 36	11 25	1 88
6 831 0	62 60	342 20	6 679 0	5 404 0	263 1	-76 0	270 8	12 24	12 19	-1 25
6,884 0	67 00	341 50	6,701 6	5 426 6	308 6	-91 0	318 4	8 39	8 30	-1 32
6 925 0	71 10	338 40	6,716 2	5,441 2	344 6	-104 1	356 6	12 24	10 00	-7 56
6,957 0	73 90	336 10	6,725 8	5,450 8	372 7	-115 9	387 1	11 11	8 75	-7 19
6,989 0	76.50	334.40	6,734 0	5,459 0	400 8	-128 8	418 0	9 61	8 13	-5 31
7,020 0	79 30	334.50	6,740 5	5,465 5	428 1	-141 9	448 3	9 04	9 03	0 32
7,051 0	82 50	334.60	6,745 4	5,470 4	455 8	-155 1	478 9	10 33	10 32	0 32
7,084 0	85 20	334.60	6,749 0	5,474 0	485 4	-169 1	511 7	8 18	8 18	0 00
7,116 0	86 00	334.90	6,751.4	5,476 4	514 3	-182 8	543 6	2 67	2 50	0 94
7 178 0	87 20	335 00	6,755 1	5,480 1	570 3	-209 0	605 5	1 94	1 94	0 16
7 272 0	89 40	334 80	6 757 9	5 482 9	655 4	-248 8	699 5	2 35	2 34	-0 21
7,367 0	89.60	334 10	6 758 7	5,483 7	741 1	-289 8	794 4	0 77	0 21	-0 74
7,461 0	91 30	335 00	6,758 0	5,483 0	826 0	-330 2	888 4	2 05	1 81	0 96
7,556 0	91 10	332.70	6,756 0	5,481 0	911 2	-372 0	983 4	2 43	-0 21	-2 42
7,650 0	91.60	332 60	6,753 8	5,478 8	994 7	-415.2	1,077.2	0 54	0 53	-0 11
7,744 0	92 00	334 80	6 750 8	5,475 8	1,078 9	-456 8	1,171 1	2 38	0 43	2 34
7,838 0	91 90	333 90	6,747.6	5,472.6	1,163.6	-497.5	1,265.1	0 96	-0 11	-0 96
7,933 0	92 10	334.50	6,744.3	5,469.3	1,249.1	-538.8	1,360 0	0 67	0 21	0 63
8,027 0	91 70	332.60	6,741.2	5,466.2	1,333.2	-580.7	1,453.9	2 06	-0 43	-2 02
8,122 0	92 40	335.50	6,737.8	5,462.8	1,418.6	-622 2	1,548.8	3 14	0 74	3 05
8,216 0	91.60	333 90	6,734.5	5,459.5	1,503.5	-662.4	1,642.7	1 90	-0 85	-1 70
8,310 0	91 40	333 90	6,732 0	5,457 0	1,587 9	-703 7	1,736 7	0 21	-0 21	0 00
8,405 0	93 20	335 50	6,728 2	5,453 2	1,673 7	-744 3	1,831 6	2 53	1 89	1 68
8,499 0	93 20	333 90	6,723 0	5,448 0	1,758 5	-784 4	1,925 4	1 70	0 00	-1 70
8,593 0	93 30	337 20	6,717 6	5,442 6	1,844 0	-823 2	2,019 3	3 51	0 11	3 51
8,688 0	93 10	335 80	6,712 3	5,437 3	1,930 9	-861 0	2,114 1	1 49	-0 21	-1 47
8,782 0	90 70	331 80	6,709 2	5,434 2	2,015 2	-902 5	2,208 0	4 96	-2 55	-4 26
8,877 0	91 40	334 30	6,707 5	5,432 5	2,099 9	-945 5	2,302 9	2 73	0 74	2 63
8,971 0	91 80	336 60	6,704 9	5,429 9	2,185 3	-984 6	2,396 8	2 48	0 43	2 45
9,066 0	92 00	336 20	6,701 7	5,426 7	2,272 3	-1,022 6	2,491 8	0 47	0 21	-0 42
9,161 0	92 00	335 90	6,698 4	5,423 4	2,359 1	-1,061 1	2,586 7	0 32	0 00	-0 32
9,255 0	90 90	333 40	6,696 0	5,421 0	2,444 0	-1,101 4	2,680 7	2 90	-1 17	-2 66
9,350 0	91 80	336 20	6,693 8	5,418 8	2,530 0	-1,141 8	2,775 6	3 10	0 95	2 95



Database:	COMPASS 5000 1 Single Data File	Local Co-ordinate Reference:	NAZ Densitude (Datum: 1911)
Company:	Oil Production, Mexico	TVD Reference:	KB=73.9 1275.0usft
Project:	Waldridge County, NY Coal	MD Reference:	KB=73.9 1275.0usft
Site:	Waldridge County 212113	North Reference:	NAZ
Well:	WAB 00 43 163	Survey Calculation Method:	Minimum Squares
Wellbore:	WAB 00 43 163		
Design:	10103 AS 01000		

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)
13,508.0	88.40	335.60	6,651.4	5,376.4	6,296.7	-2,896.6	6,931.0	0.53	0.00	0.53
13,603.0	88.30	335.30	6,654.2	5,379.2	6,383.1	-2,936.0	7,025.9	0.33	-0.11	-0.32
13,697.0	88.00	333.90	6,657.2	5,382.2	6,467.9	-2,976.3	7,119.9	1.52	-0.32	-1.49
13,791.0	88.10	333.50	6,660.4	5,385.4	6,552.2	-3,018.0	7,213.8	0.44	0.11	-0.43
13,886.0	88.60	336.50	6,663.1	5,388.1	6,638.2	-3,058.1	7,308.7	3.20	0.53	3.16
13,980.0	90.80	336.90	6,663.6	5,388.6	6,724.5	-3,095.3	7,402.7	2.38	2.34	0.43
14,075.0	91.70	335.90	6,661.6	5,386.6	6,811.6	-3,133.3	7,497.7	1.42	0.95	-1.05
14,169.0	91.40	335.20	6,659.0	5,384.0	6,897.1	-3,172.2	7,591.6	0.81	-0.32	-0.74
14,264.0	90.90	334.60	6,657.1	5,382.1	6,983.1	-3,212.5	7,686.6	0.82	-0.53	-0.63
14,358.0	90.30	334.10	6,656.1	5,381.1	7,067.9	-3,253.2	7,780.6	0.83	-0.64	-0.53
14,452.0	89.90	334.60	6,656.0	5,381.0	7,152.6	-3,293.9	7,874.6	0.68	-0.43	0.53
14,546.0	88.00	336.00	6,657.7	5,382.7	7,238.0	-3,333.1	7,968.6	2.51	-2.02	1.49
14,641.0	88.00	336.30	6,661.0	5,386.0	7,324.8	-3,371.5	8,063.5	0.32	0.00	0.32
14,662.0	88.10	336.10	6,661.7	5,386.7	7,344.0	-3,380.0	8,084.5	1.06	0.48	0.95
14,720.0	88.10	336.10	6,663.6	5,388.6	7,397.0	-3,403.5	8,142.4	0.00	0.00	0.00

Design Annotations

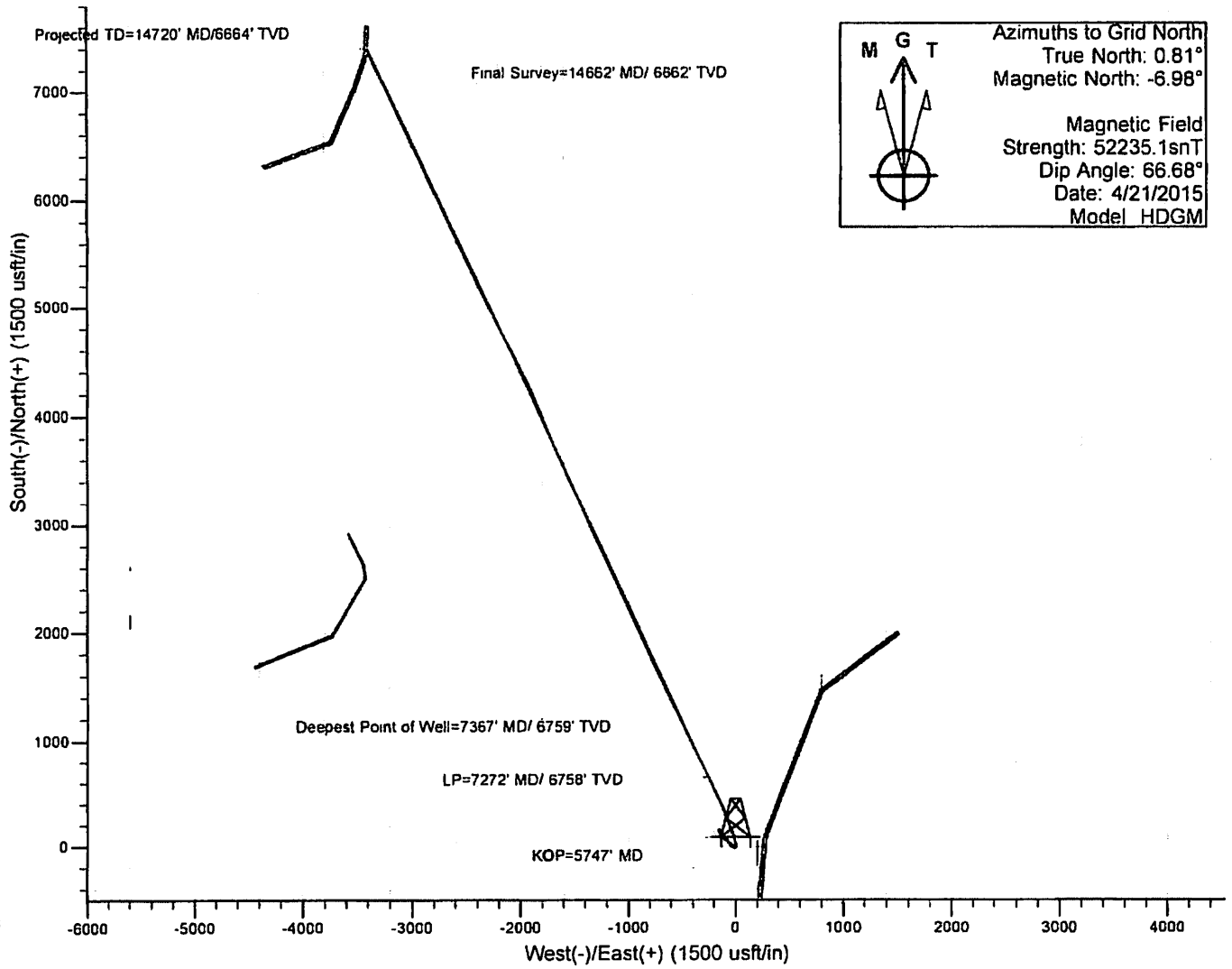
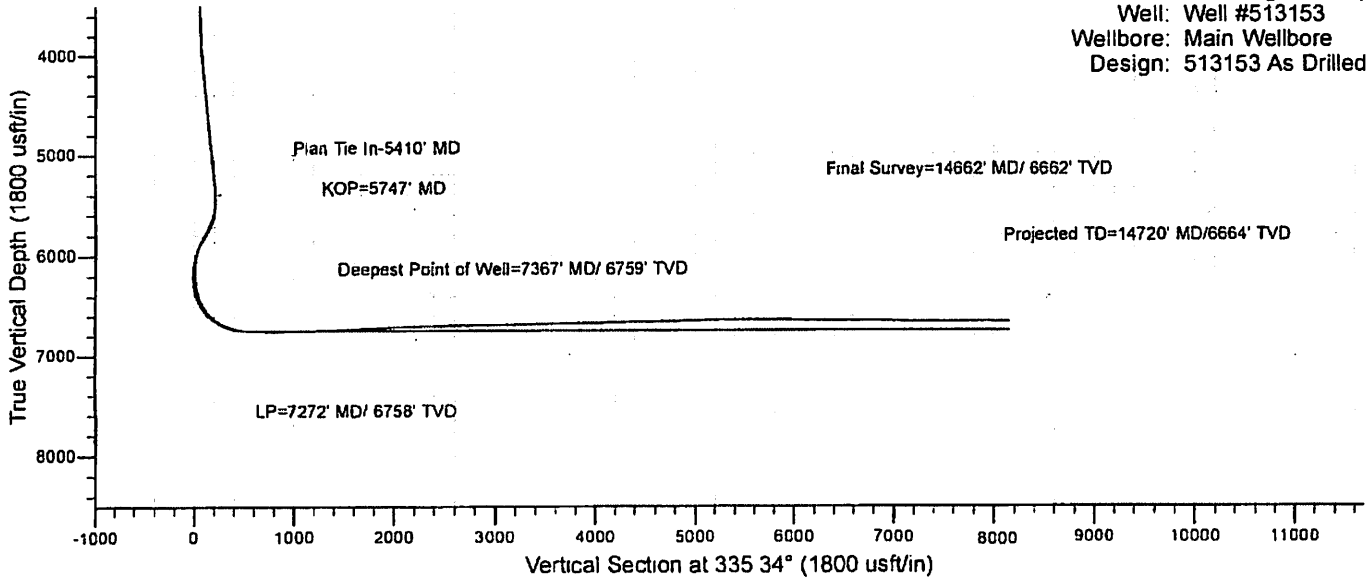
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,410.0	5,401.4	158.2	-160.5	Plan Tie In-5410' MD
5,747.0	5,725.6	110.4	-106.7	KOP=5747' MD
7,272.0	6,757.9	655.4	-248.8	LP=7272' MD/ 6758' TVD
7,367.0	6,758.7	741.1	-289.8	Deepest Point of Well=7367' MD/ 6759' TVD
14,662.0	6,661.7	7,344.0	-3,380.0	Final Survey=14662' MD/ 6662' TVD
14,720.0	6,663.6	7,397.0	-3,403.5	Projected TD=14720' MD/6664' TVD

Checked By: _____ Approved By: _____ Date: _____



EQT Production - Marcellus

Project: Doddridge County, WV Grid
 Site: Doddridge County 513153
 Well: Well #513153
 Wellbore: Main Wellbore
 Design: 513153 As Drilled



513153 - 47-017-06503-0000 - Stimulated Stages

Stage Number	Stimulation Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
Initiation Sleeve	6/28/2015	21.1	6,022.00	7,616.00	3,413.00	0	730	0
1	6/28/2015	90.1	7,625.00	7,995.00	3,373.00	299,172	7953	0
2	6/28/2015	90.1	7,707.00	8,471.00	3,557.00	305,528	7122	0
3	6/29/2015	89.4	7,805.00	8,952.00	4,323.00	303,185	6914	0
4	6/29/2015	91.9	8,161.00	8,722.00	4,915.00	302,774	7319	0
5	6/29/2015	42.9	7,246.00	9,285.00	4,437.00	0	2613	0
5.1	6/29/2015	54.2	8,824.00	9,144.00	6,792.00	0	4241	0
6	6/29/2015	93.3	7,873.00	8,673.00	3,305.00	505,763	10558	0
7	6/30/2015	91.9	8,119.00	9,109.00	4,423.00	259,547	6854	0
8	6/30/2015	92.4	8,082.00	8,570.00	3,906.00	298,911	7119	0
9	6/30/2015	86.5	8,113.00	8,888.00	4,581.00	241,206	8141	0
10	6/30/2015	93.6	8,071.00	8,553.00	4,209.00	305,354	7026	0
11	7/1/2015	93.4	7,885.00	8,832.00	4,734.00	303,701	8062	0
12	7/1/2015	93.2	7,854.00	9,131.00	5,269.00	297,394	7246	0
13	7/1/2015	90.7	8,013.00	8,985.00	4,965.00	299,321	6914	0
14	7/2/2015	88.2	7,914.00	9,664.00	4,023.00	286,695	7335	0
15	7/2/2015	95.1	8,049.00	9,433.00	4,571.00	250,032	8115	0
16	7/3/2015	78.3	7,298.00	8,179.00	5,071.00	248,179	8296	0
17	7/3/2015	90.1	7,780.00	9,111.00	5,031.00	297,883	6489	0
18	7/4/2015	88.7	7,355.00	8,101.00	5,227.00	301,213	7956	0
19	7/4/2015	82.3	7,755.00	8,311.00	4,706.00	265,680	7857	0
20	7/5/2015	95	7,862.00	8,755.00	4,753.00	299,191	7,135	0
21	7/5/2015	78.60	7,914.00	9,470.00	4,863	288,528	9,555	0
21:01	7/5/2015	18.50	5,618.00	5,734.00	0	0	1,205	0
22	7/6/2015	90.60	7,892.00	9,132.00	5,137	281,256	6,684	0
23	7/6/2015	84.30	7,765.00	8,464.00	4,198	301,405	7513	0
24	7/6/2015	82.80	7,612.00	9,336.00	4,641	300,827	8605	0
25	7/6/2015	95.6	8,120.00	8,879.00	4,912.00	289,826	7693	0
26	7/6/2015	91.5	8,007.00	9,464.00	4,957.00	299,615	6987	0
27	7/6/2015	100.00	7,561.00	7,893.00	5,018	300,807	6,488	0
28	7/7/2015	98.50	7,593.00	7,910.00	5,146	301,263	6,558	0
29	7/7/2015	100.10	7,827.00	9,036.00	4,864	307,246	8,180	0
30	7/7/2015	90.20	8,014.00	9,123.00	5,008	303,464	7,403	0
31	7/7/2015	86.20	7,868.00	9,121.00	3,920	302,117	7,228	0
32	7/7/2015	79.70	7,535.00	9,006.00	4,782	247,485	6,296	0
32:01	7/8/2015	7.40	3,924.00	6,490.00	0	0	1,568	0
33	7/8/2015	90.30	7,897.00	8,750.00	4,648	305,033	7,637	0
34	7/8/2015	91.10	7,803.00	7,907.00	5,090	297,995	7,203	0
35	7/8/2015	94.90	7,381.00	7,754.00	4,900	298,352	6,693	0
36	7/9/2015	75.10	7,653.00	9,124.00	5,018	279,294	8,080	0
36:01	7/9/2015	10.10	4,523.00	6,316.00	0	0	1,050	0
37	7/9/2015	97.20	7,429.00	7,665.00	5,421	301,081	6,972	0
38:01	7/9/2015	16.20	6,032.00	7,003.00	5,152	0	2,421	0
38	7/10/2015	98.10	7,675.00	9,822.00	4,649	283,584	9,826	0
38:02	7/10/2015	8.30	5,862.00	6,894.00	0	0	2,642	0
39	7/10/2015	93.80	7,118.00	8,153.00	5,060	292,642	6,720	0
40	7/10/2015	88.10	7,248.00	7,927.00	5,570	252,845	6,138	0
41	7/11/2015	91.00	7,152.00	8,119.00	5,443	262,809	6,364	0
42	7/11/2015	98.60	7,330.00	7,607.00	5,725	302,083	7,056	0

513153-47-017-06503-0000- Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	6/28/2015	14,698.50	14,700.00	10	MARCELLUS
1	6/28/2015	14,545.00	14,674.00	7	MARCELLUS
2	6/28/2015	14,365.00	14,487.00	7	MARCELLUS
3	6/29/2015	14,185.00	14,304.00	7	MARCELLUS
4	6/29/2015	14,005.00	14,127.00	7	MARCELLUS
5	6/29/2015	13,827.00	13,947.00	7	MARCELLUS
5.1	6/29/2015	13,800.00	13,820.00	7	MARCELLUS
6	6/29/2015	13,645.00	13,768.00	7	MARCELLUS
7	6/30/2015	13,465.00	13,587.00	7	MARCELLUS
8	6/30/2015	13,285.00	13,407.00	7	MARCELLUS
9	6/30/2015	13,105.00	13,227.00	7	MARCELLUS
10	6/30/2015	12,925.00	13,045.00	7	MARCELLUS
11	7/1/2015	12,745.00	12,864.00	7	MARCELLUS
12	7/1/2015	12,568.00	12,687.00	7	MARCELLUS
13	7/1/2015	12,385.00	12,507.00	7	MARCELLUS
14	7/2/2015	12,205.00	12,327.00	7	MARCELLUS
15	7/2/2015	12,025.00	12,147.00	7	MARCELLUS
16	7/3/2015	11,845.00	11,967.00	7	MARCELLUS
17	7/3/2015	11,665.00	11,785.00	7	MARCELLUS
18	7/3/2015	11,485.00	11,607.00	7	MARCELLUS
19	7/4/2015	11,305.00	11,427.00	7	MARCELLUS
20	7/4/2015	11,125.00	11,247.00	7	MARCELLUS
21	7/5/2015	10,945.00	11,067.00	7	MARCELLUS
22	7/5/2015	10,765.00	10,887.00	7	MARCELLUS
23	7/6/2015	10,585.00	10,707.00	7	MARCELLUS
24	7/6/2015	10,405.00	10,525.00	7	MARCELLUS
25	7/6/2015	10,225.00	10,344.00	7	MARCELLUS
26	7/6/2015	10,045.00	10,167.00	7	MARCELLUS
27	7/6/2015	9,868.00	9,987.00	7	MARCELLUS
28	7/7/2015	9,685.00	9,807.00	7	MARCELLUS
29	7/7/2015	9,505.00	9,627.00	7	MARCELLUS
30	7/7/2015	9,325.00	9,449.00	7	MARCELLUS
31	7/7/2015	9,147.00	9,267.00	7	MARCELLUS
32	7/7/2015	8,963.00	9,085.00	7	MARCELLUS
33	7/8/2015	8,785.00	8,905.00	7	MARCELLUS
34	7/8/2015	8,605.00	8,727.00	7	MARCELLUS
35	7/8/2015	8,425.00	8,547.00	7	MARCELLUS
36	7/9/2015	8,245.00	8,368.00	7	MARCELLUS
37	7/9/2015	8,065.00	8,187.00	7	MARCELLUS
38	7/9/2015	7,885.00	8,007.00	7	MARCELLUS
38.1	7/9/2015	7,865.00	7,877.00	7	MARCELLUS
39	7/10/2015	7,685.00	7,807.00	7	MARCELLUS
40	7/10/2015	7,505.00	7,627.00	7	MARCELLUS
41	7/11/2015	7,325.00	7,447.00	7	MARCELLUS
42	7/11/2015	7,145.00	7,267.00	7	MARCELLUS

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/28/2015
Job End Date:	7/8/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06503-00-00
Operator Name:	EQT Production
Well Name and Number:	513153
Longitude:	-80.76235400
Latitude:	39.20784100
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,736
Total Base Water Volume (gal):	13,555,920
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	89.84802	None
Sand (Proppant)	FTS International	Proppant	Crystalline Silica	14808-60-7	100.00000	9.58673	None
MC MX 437-5	Multi-Chem	Calcium nitrate solution	Calcium nitrate	10124-37-5	60.00000	0.05899	None
Hydrochloric Acid (15%)	FTS International	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.04335	None
FRW-900	FTS International	Friction reducer	Hydrotreated light distillate	64742-47-8	30.00000	0.02529	None
			Alkyl Alcohol	Proprietary	10.00000	0.00843	None
			Oxyalkylated alcohol A	Proprietary	5.00000	0.00421	None
CS-500-SI	FTS International	Scale inhibitor	Ethylene glycol	107-21-1	10.00000	0.00845	None
HVG-1	FTS International	Gelling agent	Petroleum distillate	64742-47-8	55.00000	0.00281	None
			Guar gum	9000-30-0	50.00000	0.00256	None
			Surfactant	68439-51-0	2.00000	0.00010	None

			Clay	14808-60-7	2.00000	0.00010	None
APB-1	FTS International	Breaker					
			Ammonium persulfate	7727-54-0	95.00000	0.00152	None
FE-100L	FTS International	Iron control					
			Citric acid	77-92-9	55.00000	0.00086	None
CI-150	FTS International	Acid Corrosion Inhibitor					
			Ethylene glycol	107-21-1	30.00000	0.00016	None
			Isopropanol	67-63-0	30.00000	0.00016	None
			Organic amine resin salt	Proprietary	30.00000	0.00016	None
			Dimethylformamide	68-12-2	10.00000	0.00005	None
			Aromatic aldehyde	Proprietary	10.00000	0.00005	None
			Quaternary ammonium compound	Proprietary	10.00000	0.00005	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	0.00002	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 Samantha S., 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](#)

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 6/28/2015	Job End Date 7/8/2015	API Number 47-017-06503-00-00	State & County West Virginia --- Doddridge
Well Name 513153			
Longitude -80.762354	Latitude 39.207841	Datum NAD83	Federal/Tribal Well?
True Vertical Depth (ft) 6735.6	Total Water Vol (gal) 13555920	Total Non Water Vol 0	Total Mass (lbs) 125906123



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%	89.8480153158%	None	113124152.4
<input type="button" value="Edit"/>	Sand (Proppant)	FTS International	Proppant	Crystalline Silica	14808-60-7	100%	9.5867347369%	None	12070286
<input type="button" value="Edit"/>	MC MX 437-5	Multi-Chem	Calcium nitrate solution	Calcium nitrate	10124-37-5	60%	.0589906064%	None	74272.785
<input type="button" value="Edit"/>	Hydrochloric Acid (15%)	FTS International	Acidizing	Hydrochloric Acid	7647-01-0	15%	.0433493052%	None	54579.429
<input type="button" value="Edit"/>	FRW-900	FTS International	Friction reducer	Hydrotreated light distillate	64742-47-8	30%	.0252857032%	None	31836.248
				Alkyl Alcohol	Proprietary	10%	.0084285677%	None	10612.083
				Oxyalkylated alcohol A	Proprietary	5%	.0042142839%	None	5306.041
<input type="button" value="Edit"/>	CS-500-SI	FTS International	Scale inhibitor	Ethylene glycol	107-21-1	10%	.0084483107%	None	10636.94
<input type="button" value="Edit"/>	HVG-1	FTS International	Gelling agent	Petroleum distillate	64742-47-8	55%	.0028136825%	None	3542.599
				Guar gum	9000-30-0	50%	.0025578932%	None	3220.544

Trade Name	Supplier	Purpose	Ingredients	CAS #	% High Additive	% HF Job	Comments	Ingredient Mass			
<input type="button" value="Edit"/> APB-1	FTS International	Breaker	Surfactant	68439-51-0	2%	.0001023157%	None	128.822			
			Clay	14808-60-7	2%	.0001023157%	None	128.822			
<input type="button" value="Edit"/> FE-100L	FTS International	Iron control	Ammonium persulfate	7727-54-0	95%	.0015209962%	None	1915.027			
			Citric acid	77-92-9	55%	.00086461%	None	1088.597			
<input type="button" value="Edit"/> CI-150	FTS International	Acid Corrosion Inhibitor	Ethylene glycol	107-21-1	30%	.0001614172%	None	203.234			
			Isopropanol	67-63-0	30%	.0001614172%	None	203.234			
			Organic amine resin salt	Proprietary	30%	.0001614172%	None	203.234			
			Dimethylformamide	68-12-2	10%	.0000538057%	None	67.745			
			Aromatic aldehyde	Proprietary	10%	.0000538057%	None	67.745			
			Quaternary ammonium compound	Proprietary	10%	.0000538057%	None	67.745			
			<input type="button" value="Edit"/> NE-100	FTS International	Non-emulsifier	2-Propanol	67-63-0	10%	.0000341207%	None	42.96
						2-Butoxyethanol	111-76-2	10%	.0000341207%	None	42.96
Dodecylbenzenesulfonic acid	27176-87-0	5%				.0000170604%	None	21.48			

Non-MSDS Chemical Ingredients

Trade Name Supplier Purpose Ingredients CAS # % High Additive % HF Job Comments Ingredient Mass

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Van Horn, Stacy

From: Corey Donaldson <Corey.Donaldson@ftsi.com>
Sent: Tuesday, October 06, 2015 10:25 AM
To: Van Horn, Stacy
Subject: RE: OXF 159- 513153 H1

zero

From: Van Horn, Stacy [mailto:SVanHorn@eqt.com]
Sent: Tuesday, October 06, 2015 10:22 AM
To: Corey Donaldson
Subject: RE: OXF 159- 513153 H1

What do you have for HVG-1 for stage 37?

From: Corey Donaldson [mailto:Corey.Donaldson@ftsi.com]
Sent: Tuesday, October 06, 2015 10:09 AM
To: Van Horn, Stacy
Subject: RE: OXF 159- 513153 H1

It should be 35 gals of gel. The 49 gals was a typo on my end, and APB should be 4lbs.

Stage #	Pumpdown Volume (bbls)	Date of Stimulation	Average Pressure (psi)	Average Rate (bpm)	Maximum Pressure	Maximum Rate
38.01		7/9/2015				
38	86	7/9/2015				
38.02	75	7/10/2015	7675	98.1	9822	102.1

From: Van Horn, Stacy [mailto:SVanHorn@eqt.com]
Sent: Tuesday, October 06, 2015 9:58 AM
To: Corey Donaldson
Subject: RE: OXF 159- 513153 H1

Thank you. Also, for stage 38 you guys have 49 gal for HVG-1. We have 5 gal. Please confirm.

Operations Summary
STAGE 38.1 of 42 - Frac- Re-perf
06:26-WS/RW: FTSI 'B' frac Stage 38.1- Re-perf of 42 of Marcellus shale with 1,000 Gallons of 15% HCl acid & slick water using 148,786 lbs -10% (98.9%), 134,798 lbs - 40/70 (90.2 %) Total Prop 283,584 lbs (94.6 %). Max sand concentration 2.32 ppg. BDP 6,299 psi, MTP 9,822 psi, ATP 7.67 MTR 102.1 bpm, ATR 98.1 bpm. 100% Impaired 8,301 bbls (120.9%). Flushed wellbore @ 10.2 bpm @ 8,169 w/ 184 bbls (88.0 %). Shut down @ ISIP 4,649psi, Frac Gradient 1.12, 5 min 4,126 psi. Chemicals: B-10 Buffer - 0 gal (0 %), FRW 900- 388 gal (182 %), HVG-1 Gel- 5 gal (25 %), APB - 1 lb (66 %), CS-500 Scale - 112 gal (155 %), Bio(MX 437-6) - 282.62 gal (123 %), Bio(MX8-2477) - 28.35 gal (123 %). Chemical total includes p volumes). Shut in UMW (17 ¼ turns back ¼ turn) @ 09:06 hrs W/ 4,111 psi.

Thank you,

Stacy

From: Corey Donaldson [<mailto:Corey.Donaldson@ftsi.com>]
Sent: Tuesday, October 06, 2015 9:11 AM
To: Van Horn, Stacy
Subject: RE: OXF 159- 513153 H1

The 254,371 is the total 100 Mesh used on that combined stage. So it would be 3,465 lbs for stage 5 and 250,906 lbs for stage 6.

From: Van Horn, Stacy [<mailto:SVanHorn@eqt.com>]
Sent: Tuesday, October 06, 2015 9:02 AM
To: Corey Donaldson
Subject: OXF 159- 513153 H1

Hello Corey,

Can you double check the 100 mesh volumes for combined stages 5 and 6? Our records indicate that 3,465 lbs were run on the first attempt (see screen shots below). Was this volume just excluded on the post job report or is this included in the 254,371? I am thinking the total should be 257,836.

STAGE 5 of 42 Frac

11:53 – LS: FTSI "B" frac Stage 5 of 42 of Marcellus shale with 1,000 Gallons of 15% HCl acid & slick water using 34

STAGE 5.01 of 42 Frac


17:38 – LS/CK: FTSI "B" frac Stage 5.1 of 42 of Marcellus shale with 1,000 Gallons of 15% HCl acid & slick water using

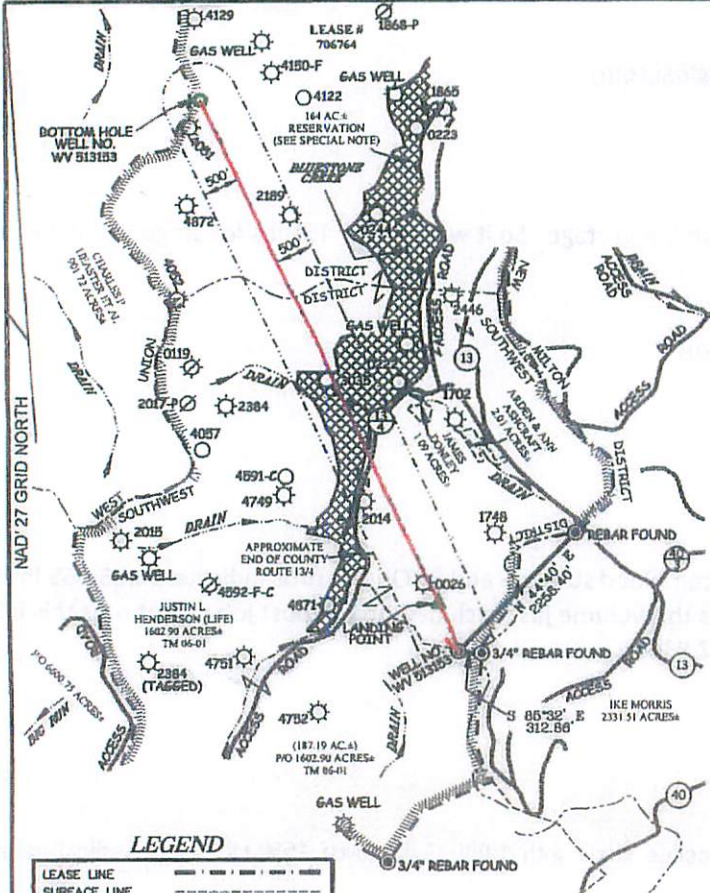
STAGE 6 of 42 Frac

22:10 – CK: FTSI "B" frac Stage 6 of 42 of Marcellus shale with 500 Gallons of 15% HCl acid & slick water using 254371

Thank you,

Stacy Van Horn
Associate Engineering Technician
SVanHorn@eqt.com
EQT Production
EQT Plaza
625 Liberty Avenue
Pittsburgh, PA 15222
412.395.2329
412.258.0417

 **Where energy meets innovation.**



LATITUDE 38°12'30"
SPECIAL NOTE
 THERE IS NO SURVEY OR LEGAL DESCRIPTION DEFINING THE ACTUAL LOCATION OF THE 164 ACRE MEADOWLAND RESERVATION. DUE TO THE PASSAGE OF TIME SINCE THE RESERVATION WAS CREATED IT APPEARS THERE IS NO LIVING PERSON(S) WITH KNOWLEDGE OF ITS TRUE LOCATION. LOCATION OF RESERVATION SHOWN HEREON COMPILED FROM: "A" A MAP TITLED "CARNEGIE NATURAL GAS CO. LEEMAN MAXWELL LEASES, DODDRIDGE COUNTY, WEST VA" "B" PERIMETER OF RESERVATION AS SHOWN BY GLENN TRADER "CARETAKER OF HENDERSONS" PORTION OF MAXWELL LANDS" WHICH WAS LOCATED USING A MAPPING GRADE GPS RECEIVER "C" DETAILS SHOWN ON 1939 USDA AERIAL PHOTOGRAPHY OBTAINED FROM THE WV GEOLOGICAL SURVEY. SLS RECOMMENDS THAT PROPER LEGAL STEPS BE TAKEN TO CONFIRM CONCURRENCE OF ALL APPROPRIATE PARTIES RELATIVE TO THE RESERVATION AS SHOWN HEREON. THIS PLAT IS SUBJECT TO ANY ADDITIONAL INFORMATION (UNDISCOVERED TO DATE) WHICH MAY CHANGE THE LOCATION AND/OR CONFIGURATION OF THE RESERVATION AS SHOWN HEREON.

NOTES ON SURVEY

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

**EQT PRODUCTION COMPANY
 LEEMAN MAXWELL LEASE
 2,164 ACRES ±
 WELL NO. WV 513153**

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

NAD'27 S.P.C.(FT)	N. 260,323.3	E. 1,642,266.7
NAD'27 GEO.	LAT-(N) 39.207841	LONG-(W) 80.782354
NAD'83 UTM (M)	N. 4,339,877.7	E. 520,532.6

LANDING POINT

NAD'27 S.P.C.(FT)	N. 261,017.1	E. 1,642,027.1
NAD'27 GEO.	LAT-(N) 39.209735	LONG-(W) 80.783340
NAD'83 UTM (M)	N. 4,340,087.7	E. 520,447.2

BOTTOM HOLE

NAD'27 S.P.C.(FT)	N. 267,723.8	E. 1,638,869.7
NAD'27 GEO.	LAT-(N) 39.228026	LONG-(W) 80.774711
NAD'83 UTM (M)	N. 4,342,115.0	E. 519,460.4

**AS DRILLED COORDINATES
 FOR WELL NO. WV513153**

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

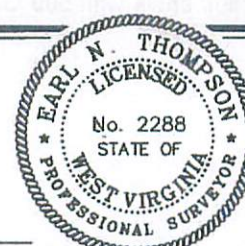
NAD'27 S.P.C.(FT)	N. 260,323.3	E. 1,642,266.7
NAD'27 GEO.	LAT-(N) 39.207841	LONG-(W) 80.782354
NAD'83 UTM (M)	N. 4,339,877.7	E. 520,532.6

BOTTOM HOLE

NAD'27 S.P.C.(FT)	N. 267,720.1	E. 1,638,893.3
NAD'27 GEO.	LAT-(N) 39.228018	LONG-(W) 80.774733
NAD'83 UTM (M)	N. 4,342,113.8	E. 519,458.4

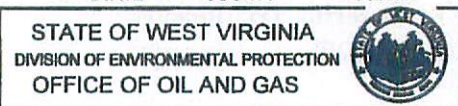


I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE JANUARY 06, 20 14
 REVISED 3/24/14, 07/25/14 & 05/27/15
 OPERATORS WELL NO. WV 513153
 API WELL NO. 47-017-06503H
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 7889AD513153
 HORIZONTAL & VERTICAL SCALE 1" = 2000'
 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 1,270'(GROUND) 1,252'(PROPOSED) WATERSHED BLUESTONE CREEK
 DISTRICT SOUTHWEST COUNTY DODDRIDGE QUADRANGLE OXFORD 7.5'

SURFACE OWNER JUSTIN L. HENDERSON (LIFE) ACREAGE 187.19 OF 1,602.90±
 ROYALTY OWNER LEEMAN MAXWELL HRS ACREAGE 2,164±

PROPOSED WORK: LEASE NO. 706764
 DRILL 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 6.663'

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

02/05/2016