

WR-35  
Rev (9-11)

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

DATE: 11/8/12  
API #: 47-001-03104

Farm name: Ward, A.M. & Jean W. Operator Well No.: Ward 2241H

LOCATION: Elevation: 1284' Quadrangle: Brownnton

District: Union County: Barbour  
Latitude: 10.698' Feet South of 39 Deg. 10 Min. 00 Sec.  
Longitude 4.816 Feet West of 80 Deg. 12 Min. 30 Sec.

Company: XTO Energy Inc

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
<u>PO Box 1008, Jane Lew, WV 26378</u>	<u>20"</u>	<u>40'</u>	<u>40'</u>	<u>CTS</u>
Agent: <u>Gary Beall</u>	<u>13-3/8"</u>	<u>295'</u>	<u>295'</u>	<u>CTS</u>
Inspector: <u>Bryan Harris</u>	<u>9-5/8"</u>	<u>2646'</u>	<u>2646'</u>	<u>CTS</u>
Date Permit Issued: <u>2/12/2010</u>	<u>5-1/2"</u>	<u>10313'</u>	<u>10313'</u>	<u>Lead 239bbbls/Tail 293bbbls</u>
Date Well Work Commenced: <u>1/14/2011</u>				
Date Well Work Completed: <u>10/4/2012</u>				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): <u>7,590</u>				
Total Measured Depth (ft): <u>10,313</u>				
Fresh Water Depth (ft.): <u>None Noted</u>				
Salt Water Depth (ft.): <u>1,295'</u>				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): <u>None Noted</u>				
Void(s) encountered (N/Y) Depth(s) <u>None Noted</u>				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 7598-7727

Gas: Initial open flow 0 MCF/d Oil: Initial open flow n/a Bbl/d

Final open flow 0 MCF/d Final open flow n/a Bbl/d

Time of open flow between initial and final tests shut in before gas produced Hours

Static rock Pressure 650 psig (surface pressure) after 12 Hours

Second producing formation \_\_\_\_\_ Pay zone depth (ft) \_\_\_\_\_

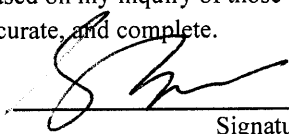
Gas: Initial open flow \_\_\_\_\_ MCF/d Oil: Initial open flow \_\_\_\_\_ Bbl/d

Final open flow \_\_\_\_\_ MCF/d Final open flow \_\_\_\_\_ Bbl/d

Time of open flow between initial and final tests \_\_\_\_\_ Hours

Static rock Pressure \_\_\_\_\_ psig (surface pressure) after \_\_\_\_\_ Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

  
Signature

11-8-12  
Date

Were core samples taken? Yes \_\_\_\_\_ No X

Were cuttings caught during drilling? Yes X No \_\_\_\_\_

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list MWD, Gamma Ray,

**NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.**

**Perforated Intervals, Fracturing, or Stimulating:**

Stg 1 Marcellus; 9995'-10242'; 60 shots; Slick water frac; Avg treating 8499 psi@0 bpm; 3,203 #s 100 mesh; 5,139 #s 30/50 mesh; 2,720 bbl water, 0 bbl treated water

Stg 2 Marcellus; 9722'-9872'; 60 shots; Slick water frac; Avg treating 6613 psi@79.4 bpm; 100,589#s 100 mesh; 304,342#s 30/50 mesh; 9673 bbl water, 0 bbl treated water

Stg 3 Marcellus; 9397'-9559'; 60 shots; Slick water frac; Avg treating 7099 psi@83 bpm; 101,047#s 100 mesh; 303,552#s 30/50 mesh; 9790 bbl water, 0 bbl treated water

Stg 4 Marcellus; 8987'-9233'; 60 shots; Slick water frac; Avg treating 6725 psi@79 bpm; 100,606#s 100 mesh; 279,755#s 30/50 mesh; 9576 bbl water, 0 bbl treated water

Stg 5 Marcellus; 8651'-8897'; 60 shots; Slick water frac; Avg treating 6705 psi@83 bpm; 101,869#s 100 mesh; 299,966#s 30/50 mesh; 9757 bbl water, 0 bbl treated water

Stg 6 Marcellus; 8373'-8503'; 60 shots; Slick water frac; Avg treating 6241 psi@84 bpm; 102,365#s 100 mesh; 302,325#s 30/50 mesh; 9749 bbl water, 0 bbl treated water

**Plug Back Details Including Plug Type and Depth(s):**

Formations Encountered: \_\_\_\_\_ Top Depth \_\_\_\_\_ / \_\_\_\_\_ Bottom Depth  
Surface: \_\_\_\_\_

Shale - Grey	0-100
SS - Grey	100-125
SS & SH- Brown	125-195
SH - Red	195-210
SH - Brown/Grey	210-595
SH - Red	595-615
SH & SS-Grey	615-740
SS-White	740-790
SS & SH Grey	790-990
SH- Black	990-1040
SS & SH-Grey	1040-1375
SH - Red	1375-1410
SH & SS-Grey	1410-1823

continued on attached page

Well Name: Ward 2241H

API # 47-001-03104

**Preforated Intervals, Fracturing or Stimulating**

Stg 7 Marcellus; 8373'-8503'; 60 shots; Slick water frac; Avg treating 6459 psi@85 bpm; 79,743#100 mesh;  
278,242#s 30/50 mesh; 9096 bbl water

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Ward 2241H 47-001-03104 Continued

FORMATION	TVD
BIG INJUN*	1823
GANTZ SAND*	2080
60FT SAND*	2107
30FT SAND*	2205
GORDON SAND*	2280
4TH SAND*	2537
5TH SAND*	2621
UPPER BALLTOWN*	3439
BALLTOWN*	3617
LOWER BALLTOWN*	3723
GENESEO SHALE	7412
TULLY LIMESTONE	7434
HAMILTON SHALE	7470
MARCELLUS SHALE	7598
PURCELL LIMESTONE	7634

\* Tops projected from offset log due to air drilling and therefore not logging this section

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	Units	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Total
Iron Control	gal								0.00
Acid	gal	3,000.00	3,000.00	3,000.00	1,500.00	3,000.00	3,000.00	3,000.00	19,500.00
Biocide	gal	60	161	163	160	164	165	154	1,027.00
Fresh Water - Pupdown	gal	2,720.00	9,493.00	144	128	91	9,688.00	67	22,331.00
Fresh Water			180	9,646.00	9,448.00	9,666.00	61	9,029.00	
Friction Reducer	gal	140	248	229	272	253	241	206	1,589.00
Sand	bbf	5,139.00	100,589.00	101,047.00	279,755.00	101,869.00	102,365.00	278,242.00	969,006.00
Sand	gal	3,203.00	304,342.00	303,552.00	100,606.00	299,966.00	302,325.00	79,743.00	1,393,737.00
Scale Inhibitor	lb	10	29	30	30	31	32	29	191.00
Water - Recycled	lb								0.00

47-001-03104  
2023-10-10

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	9/24/2012
State:	West Virginia
County:	Barbour
API Number:	47-001-03104
Operator Name:	XTO Energy
Well Name and Number:	Ward 2241H
Longitude:	-80.2158399
Latitude:	39.1372451
Long/Lat Projection:	NAD27
Production Type:	Gas
True Vertical Depth (TVD):	7,590
Total Water Volume (gal)**:	2,535,162

## 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			water	7732-18-5	100.00000%	0.891389	
Sand		Proppant	sand	14808-60-7	100.00000%	0.099612	
Biocide - Bactron K1	Champion Technologies, Inc.	Biocide	Whole Product				
			Glutaraldehyde	111-30-8	5.00000%	0.000018	
			Quaternary ammonium compounds, be	68424-85-1	10.00000%	0.000036	
			Ethanol	64-17-5	5.00000%	0.000018	
			Other -(non hazardous)		80.00000%	0.000290	
Friction Reducer - Fl	Champion Technologies, Inc.	Friction Reducer	Whole Product				
			Hydrotreated light distillates	64742-47-8	30.00000%	0.000173	
			Sorbitan Monoleate	1338-43-8	5.00000%	0.000029	
			Acrylamide	79-06-1	0.10000%	0.000001	
			Other -(non hazardous)		64.90000%	0.000374	
Scale Inhibitor - Gyp	Champion Technologies, Inc.	Scale Inhibitor	Whole Product				
			Methanol	67-56-1	10.00000%	0.000007	
			Nonylphenol Ethoxylate	Proprietary	10.00000%	0.000007	
			Other -(non hazardous)		80.00000%	0.000057	
Acid - 7.5% HCl/Acid	Universal	Acid	Whole Product				
			Hydrochloric Acid (15-40%) blended d	7647-01-0	7.50000%	0.000599	
			Other -(non hazardous)		92.50000%	0.007389	

\* 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%

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed