

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 #: 47-001-03133

Farm name: Ward, A.M. & Jean W. Operator Well No.: Ward 2245H

LOCATION: Elevation: 1284' Quadrangle: Brownnton

District: Union County: Barbour  
Latitude: 10,601' Feet South of 39 Deg. 10 Min. 00 Sec.  
Longitude 14,023 Feet West of 80 Deg. 10 Min. 00 Sec.

Company: XTO Energy Inc

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
PO Box 1008, Jane Lew, WV 26378	20"	40'	40'	CTS
Agent: Gary Beall	13-3/8"	294'	294'	CTS
Inspector: Bryan Harris	9-5/8"	2644'	2644'	CTS
Date Permit Issued: 4/23/2010	5-1/2"	10505'	10505'	Lead 220bbbls/Tail 1300 sx
Date Well Work Commenced: 2/2/2011				
Date Well Work Completed: 10/1/2012				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): 7,666				
Total Measured Depth (ft): 10,505				
Fresh Water Depth (ft.): None Noted				
Salt Water Depth (ft.): 1,288'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): None Noted				
Void(s) encountered (N/Y) Depth(s) None Noted				

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

Producing formation Marcellus Pay zone depth (ft) 7602-7731

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 1480 psig (surface pressure) after 17 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

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

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list GR, ROP, Directional Survey, Total Gas, Mudlogs

**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; 10,259'-10,446'; 72 shots; Slick water frac; Avg treating 5596 psi@86 bpm; 104,283#s 100 mesh; 302,869#s 30/50 mesh; 9224 bbl water, 0 bbl treated water

Stg 2 Marcellus; 9844'-10,175'; 60 shots; Slick water frac; Avg treating 5596 psi@81 bpm; 102,874#s 100 mesh; 240,855#s 30/50 mesh; 9018 bbl water, 0 bbl treated water

Stg 3 Marcellus; 9616'-9789'; 60 shots; Slick water frac; Avg treating 6629 psi@94 bpm; 102,885#s 100 mesh; 302,348#s 30/50 mesh; 9903 bbl water, 0 bbl treated water

Stg 4 Marcellus; 9317'-9547'; 60 shots; Slick water frac; Avg treating 5556 psi@94 bpm; 102,230#s 100 mesh; 300,902#s 30/50 mesh; 9995 bbl water, 0 bbl treated water

Stg 5 Marcellus; 9003'-9233'; 60 shots; Slick water frac; Avg treating 5308 psi@83 bpm; 100,196#s 100 mesh; 302,814#s 30/50 mesh; 9389 bbl water, 0 bbl treated water

Stg 6 Marcellus; 8689'-8919'; 60 shots; Slick water frac; Avg treating 5648 psi@84 bpm; 101,500#s 100 mesh; 301,317#s 30/50 mesh; 9379 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	100-130
SS & SH- Brown	130-200
SH - Red	200-215
SH - Brown/Grey	215-595
SH - Red	595-620
SH & SS-Grey	620-735
SS-White	735-790
SS & SH Grey	790-1000
SH- Black	1000-1040
SS & SH-Grey	1040-1375
SH - Red	1375-1420
SH & SS-Grey	1420-1823

continued on attached page

Well Name: Ward 2245H

API # 47-001-03104

**Perforated Intervals, Fracturing, or Stimulation**

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Stg 7 Marcellus; 8375'-8605'; 60 shots; Slick water frac; Avg treating 5619 psi@83 bpm; 100,435#s 100 mesh; 300,548#s 30/50 mesh; 9727 bbl water

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Stg 8 Marcellus; 8061'-8242'; 60 shots; Slick water frac; Avg treating 6138 psi@82 bpm; 99,496#s 100 mesh; 250,067#s 30/50 mesh; 8518 bbl water

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Ward 2246H 47-001-03133 Continued

FORMATION	TVD
BIG INJUN*	1823
GANTZ SAND*	2060
60FT SAND*	2107
30FT SAND*	2205
GORDON SAND*	2280
4TH SAND*	2537
5TH SAND*	2621
UPPER BALLTOWN*	3439
BALLTOWN*	3517
LOWER BALLTOWN*	3723
GENESEO SHALE	7418
TULLY LIMESTONE	7447
HAMILTON SHALE	7484
MARCELLUS SHALE	7602
PURCELL LIMESTONE	7664

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

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Office of Oil & Gas

MAY 29 2012

WV Department of  
Environmental Protection

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	9/24/2012
State:	West Virginia
County:	Barbour
API Number:	47-001-03133
Operator Name:	XTO Energy
Well Name and Number:	Ward 2245H
Longitude:	-80.215855
Latitude:	39.1372195
Long/Lat Projection:	NAD27
Production Type:	Gas
True Vertical Depth (TVD):	7,666
Total Water Volume (gal)*:	3,156,426

## 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%	0.889817	
Sand		Proppant	sand	14808-60-7	100.00000%	0.105313	
Biocide - Bactron K1	Champion Technologies, Inc.	Biocide	Whole Product				
			Glutaraldehyde	111-30-8	5.00000%	0.000017	
			Quaternary ammonium compounds, be	68424-85-1	10.00000%	0.000035	
			Ethanol	64-17-5	5.00000%	0.000017	
			Other -(non hazardous)		80.00000%	0.000279	
Friction Reducer - F1	Champion Technologies, Inc.	Friction Reducer	Whole Product				
			Hydrotreated light distillates	64742-47-8	30.00000%	0.000153	
			Sorbitan Monoleate	1338-43-8	5.00000%	0.000026	
			Acrylamide	79-06-1	0.10000%	0.000001	
			Other -(non hazardous)		64.90000%	0.000331	
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%	0.000055	
Acid - 7.5% HCl Acid Universal		Acid	Whole Product				
			Hydrochloric Acid (15-40%) blended dc	7647-01-0	7.50000%	0.000296	
			Other -(non hazardous)		92.50000%	0.003645	

\* 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

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	Units	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8	Total
Iron Control	gal									0.00
Acid	gal	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	12,000.00
Biocide	gal	147	145	163	158	163	156	156	145	1,233.00
Fresh Water - Pupdown	gal	8,880.00	8,314.00	192	616	106	9,300.00	485	8,518.00	36,411.00
Fresh Water		344	704	9,711.00	9,379.00	9,283.00	79	9,242.00		
Friction Reducer	gal	210	202	244	277	209	201	197	214	1,754.00
Sand	bb	104,283.00	102,874.00	302,348.00	300,902.00	302,814.00	301,317.00	300,548.00	99,496.00	1,814,582.00
Sand	gal	302,869.00	240,855.00	102,885.00	102,230.00	100,196.00	101,500.00	100,435.00	250,067.00	1,301,037.00
Scale Inhibitor	lb	28	26	31	29	28	30	30	28	230.00
Water - Recycled	lb									0.00