

JK

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: 4/25/14  
API #: 47-049-02222

Farm name: John Markovich Operator Well No.: Four States Unit A 3H

LOCATION: Elevation: 1,249' Quadrangle: Shinnston 7.5'

District: Lincoln County: Marion  
Latitude: 8,930' Feet South of 39 Deg. 30 Min. 00 Sec.  
Longitude 11,420' Feet West of 80 Deg. 15 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	24"	70'	70'	135 cuft
Agent: Gary Beall	13 3/8"	571'	571'	649 cuft
Inspector: <b>Bill Hendershot</b>	9 5/8"	3,106'	3,106'	1,301 cuft
Date Permit Issued: <u>8/02/2012</u>	5 1/2"	11,825'	11,825'	2437 cuft
Date Well Work Commenced: <u>2/28/2013</u>				
Date Well Work Completed: <u>2/2/14</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>7,624'</u>				
Total Measured Depth (ft): <u>11,850'</u>				
Fresh Water Depth (ft.): <u>75', 548'</u>				
Salt Water Depth (ft.): <u>None noted</u>				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): <u>412', 545'</u>				
Void(s) encountered (N/Y) Depth(s) <u>N</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' - 7624'  
Gas: Initial open flow 0 MCF/d Oil: Initial open flow NA Bbl/d  
Final open flow 2651 MCF/d Final open flow NA Bbl/d  
Time of open flow between initial and final tests 24 Hours  
Static rock Pressure 2794 psig (surface pressure) after 24 Hours

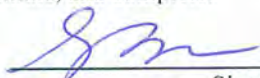
Second producing formation \_\_\_\_\_ Pay zone depth (ft) \_\_\_\_\_  
Gas: Initial open flow \_\_\_\_\_ MCF/d Oil: Initial open flow \_\_\_\_\_ Bbl/d  
Final open flow \_\_\_\_\_ MCF/d Final open flow \_\_\_\_\_ Bbl/d  
Time of open flow between initial and final tests \_\_\_\_\_ Hours  
Static rock Pressure \_\_\_\_\_ psig (surface pressure) after \_\_\_\_\_ Hours

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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

4-28-14

Date

05/23/2014

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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 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; 11524'-11750'; 60 shots; Slick water frac; Avg treating 8815 psi@83 bpm; 112200#s 100 mesh; 343000#s 30/50 mesh; 10412 bbl water

Stg 2 Marcellus; 11218'-11444'; 60 shots; Slick water frac; Avg treating 8794 psi@77 bpm; 132700#s 100 mesh; 343500#s 30/50 mesh; 11170 bbl water

Stg 3 Marcellus; 10912'-11138'; 60 shots; Slick water frac; Avg treating 8459 psi@81 bpm; 111660#s 100 mesh; 340537#s 30/50 mesh; 10069 bbl water

Stg 4 Marcellus; 10606'-10832'; 60 shots; Slick water frac; Avg treating 8283 psi@81 bpm; 111700#s 100 mesh; 342900#s 30/50 mesh; 9910 bbl water

Stg 5 Marcellus; 10300'-10526'; 60 shots; Slick water frac; Avg treating 8172 psi@85 bpm; 113900#s 100 mesh; 338100#s 30/50 mesh; 10005 bbl water

See additional page

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

Formations Encountered:	Top Depth	/	Bottom Depth
Surface:			

See attached

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**Four States Unit A 3H**  
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Stg 6 Marcellus; 9994'-10220'; 60 shots; Slick water frac; Avg treating 8501 psi@82 bpm; 112300#s 100 mesh; 337400#s 30/50 mesh; 10024 bbl water

Stg 7 Marcellus; 9688'-9914'; 60 shots; Slick water frac; Avg treating 7684 psi@85 bpm; 111200#s 100 mesh; 341700#s 30/50 mesh; 9978 bbl water

Stg 8 Marcellus; 9382'-9608'; 60 shots; Slick water frac; Avg treating 7883 psi@82 bpm; 114500#s 100 mesh; 334600#s 30/50 mesh; 9915 bbl water

Stg 9 Marcellus; 9076'-9302'; 60 shots; Slick water frac; Avg treating 8280psi@76 bpm; 110900#s 100 mesh; 336700#s 30/50 mesh; 11154 bbl water

Stg 10 Marcellus; 8770'-8996'; 60 shots; Slick water frac; Avg treating 7310 psi@81 bpm; 111500#s 100 mesh; 336100#s 30/50 mesh; 9864 bbl water

Stg 11 Marcellus; 8464'-8690'; 60 shots; Slick water frac; Avg treating 7262 psi@79 bpm; 110700#s 100 mesh; 338000#s 30/50 mesh; 9790 bbl water

Stg 12 Marcellus; 8158'-8384'; 60 shots; Slick water frac; Avg treating 7311 psi@81 bpm; 110000#s 100 mesh; 340300#s 30/50 mesh; 9838 bbl water

Stg 13 Marcellus; 7852'-8078'; 60 shots; Slick water frac; Avg treating 6928 psi@79 bpm; 129600#s 100 mesh; 334000#s 30/50 mesh; 9983 bbl water

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Formation Name or Type	Top (MD)	Bottom (MD)
Hard Rock	0	3
Gray Shale	3	110
Gray Shale	110	135
Gray / White Sand	135	200
Gray Shale	200	290
Gray Shale / Sand	290	412
Coal	412	417
Gray Shale	417	470
Gray Sand / Shale	470	545
Fractured Coal Seam	545	548
Sand/Shale	548	680
Sand/Siltstone/Shale	680	2480
Shale/Sand	2480	3240
Shale/Sand/Siltstone	3240	4620
Shale/Siltstone	4620	5910
Shale	5910	6150
Shale/Siltstone	6150	6320
Shale	6320	7342
Geneseo Shale	7343	7397
Tully Limestone	7398	7451
Hamilton Shale	7452	7528
Upper Marcellus Shale	7529	7708
Purcell Limestone	7709	7715
Lower Marcellus Shale	7716	TD

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FORMATION	TVD
BIG LIME*	1873
BIG LIME BASE*	1954
BIG INJUN*	1954
BIG INJUN BASE*	2006
SQUAW*	2034
SQUAW BASE*	2047
BEREA*	2305
BEREA BASE*	2313
GANTZ*	2428
GANTZ BASE*	2445
50FT SAND*	2479
50FT SAND BASE*	2525
30FT SAND*	2592
30FT SAND BASE*	2635
GORDON*	2665
GORDON BASE*	2685
LOWER GORDON*	2796
LOWER GORDON BASE*	2824
4TH SAND*	2860
4TH SAND BASE*	2889
5TH SAND*	2934
5TH SAND BASE*	2959
LOWER SPEECHLEY*	3540
LOWER SPEECHLEY BASE*	3550
UPPER BALLTOWN*	3757
UPPER BALLTOWN BASE*	3800
BALLTOWN*	3830
BALLTOWN BASE*	3925
LOWER BALLTOWN*	3958
LOWER BALLTOWN BASE*	3992
GENESEO SHALE	7298
TULLY LIMESTONE	7349
HAMILTON SHALE	7395
MARCELLUS SHALE	7456
PURCELL LIMESTONE	7558
LOWER MARCELLUS	7560

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

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**\*\*CELLS WITH BLUE BACKGROUND ARE THE ONLY CELLS TO BE EDITED\*\***

Fracture Start Date/Time:	12/10/13 05:00
Fracture End Date/Time:	2/27/14 05:00
State:	West Virginia
County:	Marion
API Number:	47-049-02222-0000
Operator Number:	X1210129
Well Name:	Four States A 3H
Federal Well:	No
Longitude:	
Latitude:	
Long/Lat Projection:	NAD27
True Vertical Depth (TVD):	7,630
Total Clean Fluid Volume (gal):	5,613,930



**Ingredients Section:**

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Mass per Component (LBS)	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments	
Water	XTO	Carrier/Baso Fluid	Water	7732-18-5	100.00%	46,846,246	88.42217%		
Sand (Proppant)	Universal	Proppant	Silica Substrate		100.00%	5,899,700	11.15519%		
Hydrochloric Acid (10%)	PPG Industries	Acidizing	Hydrochloric Acid	7647-01-0	10.00%	0	0.00000%		
Hydrochloric Acid (7.5%)	PPG Industries	Acidizing	Other - (non-hazardous)		85.00%	0	0.00000%		
Acid Inhibitor, Unuhib-G	GeoSole	Acid Inhibitor	Hydrochloric Acid	7647-01-0	7.50%	14,685	0.02772%		
			Proprietary Blend Surfactants		35.00%	181,109	0.34183%		
			Short Chained Glycol Ether		50.00%	42	0.00006%		
			Ethoxylated Alcohol	112-34-5	35.00%	30	0.00006%		
Bioicide, ECG16A	Nalco	Bioicide	Dihomocoumarin	5252-45-5	5.00%	284	0.00055%		
			2,2-Dibromo-1-nitropropionamide	10272-01-2	30.00%	1,706	0.00322%		
			Polyethylene Glycol	25572-68-3	60.00%	3,411	0.00644%		
			Other - (non-hazardous)		5.00%	284	0.00054%		
Clay Stabilizer, CClc-Clck-G	Slurree	Clay Stabilizer	Water	7732-18-5	15.00%	0	0.00000%		
			Other - (non-hazardous)		85.00%	0	0.00000%		
Fretton Reducer, Unislick ST-50 (CESI Chemical)	CESI Chemical	Fretton Reducer	Petroleum distillates, hydro-treated light	68742-47-8	30.00%	8,136	0.01568%		
			Other - (non-hazardous)		70.00%	18,985	0.03583%		
Scale Inhibitor, ScaleHib-A	Nalco	Scale Inhibitor	Ethylene Glycol	107-21-1	30.00%	1,750	0.00330%		
			Other - (non-hazardous)		70.00%	4,083	0.00771%		
Gel Breaker, LEB-10X	Universal	Gel Breaker	Ethylene Glycol	107-21-1	40.00%	0	0.00000%		
			Other - (non-hazardous)		60.00%	0	0.00000%		
Unijel SF	Universal	Gel	Guar Gum	9000-30-4	99.00%	0	0.00000%		
			Other - (non-hazardous)		1.00%	0	0.00000%		
Slurry Gel, WGA-7 SLR	Universal	Gel	Guar Gum	9000-30-0	50.00%	0	0.00000%		
			Petroleum Distillate	64742-47-8	55.00%	0	0.00000%		
			Clay		5.00%	0	0.00000%		
			Surfactant		5.00%	0	0.00000%		
			Buffer		5.00%	0	0.00000%		
Total Slurry Mass (Lbs)							52,962,463		

\*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 to the supplier who provided it. The Occupational Safety and Health Administration's (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary," "trade secret," and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.

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