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WR-35  
Rev (9-11)

WV GEOLOGICAL SURVEY  
MORGANTHAU, WV

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

DATE: 3/27/2013  
API #: 47-4902210

Farm name: Bower, Richard and Jocelyn Operator Well No.: Brennan Unit A 5H

LOCATION: Elevation: 1256 Quadrangle: Mannington 7.5'

District: Lincoln County: Marion  
Latitude: 15020 Feet South of 39 Deg. 32 Min. 30 Sec.  
Longitude 1110 Feet West of 80 Deg. 17 Min. 30 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"	632'	632'	531 sx
Inspector: Bill Hendershot	9-5/8"	3103'	3103'	1041 sx
Date Permit Issued: 5/18/2012	5-1/2"	12006'	12006'	1705 sx
Date Well Work Commenced: 6/18/2012				
Date Well Work Completed: 1/5/2013				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): 7626'				
Total Measured Depth (ft): 11,511'				
Fresh Water Depth (ft.): 65'				
Salt Water Depth (ft.): None Noted				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 140'				
Void(s) encountered (N/Y) Depth(s) N				

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

Producing formation Marcellus Pay zone depth (ft) 7520-7655  
Gas: Initial open flow N/A MCF/d Oil: Initial open flow \_\_\_\_\_ Bbl/d  
Final open flow 3219 MCF/d Final open flow \_\_\_\_\_ Bbl/d  
Time of open flow between initial and final tests N/A Hours  
Static rock Pressure \_\_\_\_\_ psig (surface pressure) after \_\_\_\_\_ 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

3-28-13  
Date



Brennan Unit A 5H		47-049-02210	
Formation Name or Type	Top	Bottom	
SS,SLT,SH	0	80	
SS	80	128	
SH	128	140	
COAL	140	150	
SS,SH	150	170	
SH	170	178	
SS	178	202	
SS,SH	202	460	
SH	460	506	
SS	506	525	
SS,SH	525	630	
SS, LS SLST, SH	630	650	
SH, SLST, LS, SS	650	680	
SH, SLST, SS	680	710	
SH, SLST, SS	710	740	
SS, SLST	740	770	
SH, SLST	770	860	
SH, LS, SLST	860	890	
SH, SLST	890	980	
LS, SH	980	1010	
SH, SLST, SS	1010	1040	
SLST, SS	1040	1070	
SS	1070	1190	
SH, SLST	1190	1220	
LS, SH, SLST	1220	1250	
SH, LS, SS	1250	1360	
SH, SS	1360	1420	
SS, SH	1420	1510	
SS, SH, SLST	1510	1550	
SS, SH	1550	1670	
SH, SS	1670	1700	
SS, SH	1700	1910	
SS, SH, LS	1910	2060	
SS, SH, SLTST	2060	2090	
SH, SS, SLTST	2090	2150	
SLTST, SH	2150	2180	
SH, SLTST, SS	2180	2270	
SH, SLTST	2270	2480	
SH, SS	2480	2600	
SH, SS, SLTST	2600	2720	
SS, SH, SLTST	2720	2780	
SH, SLTST, SS	2780	2850	
SLTST, SH, SS	2850	2970	
SH, SLTST, SS	2970	3050	
SH, SS	3050	3130	
SH	3130	3220	
SH, SLTST	3220	3340	
SH, SS, SLTST	3340	3400	
SH, SLTST	3400	3640	
SH	3640	3790	

**BRENNAN A 5H**

FORMATION	TVD
BIG INJUN*	1955
BIG INJUN BASE*	2021
GREENBRIER*	2051
GREENBRIER BASE*	2085
SQUAW*	2094
SQUAW BASE*	2105
GANTZ*	2493
GANTZ BASE*	2510
50FT*	2541
50FT BASE*	2639
30FT*	2653
30FT BASE*	2702
GORDON*	2721
GORDON BASE*	2747
LWR GORDON*	2853
LWR GORDON BASE*	2896
4TH SAND*	2928
4TH SAND BASE*	2935
5TH SAND*	2987
5TH SAND BASE*	3022
LWR SPEECHLEY*	3607
LWR SPEECH. BASE*	3627
UP BALLTOWN*	3827
UP BALLTOWN BASE*	3840
BALLTOWN*	3891
BALLTOWN BASE*	3922
GENESEO SHALE	7378
GENESEO BASE	7411
TULLY LIMESTONE	7411
TULLY BASE	7461
HAMILTON SHALE	7461
HAMILTON BASE	7521
UPPER MARCELLUS	7521
UP MARCELLUS BASE	7611
PURCELL LIMESTONE	7611
PURCELL BASE	7614
LOWER MARCELLUS	7614
LO MARCELLUS BASE**	7671

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

\*\* Base projected from offset logs due to not actually drilling through this base

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SH, SLTST	3790	4060
SH	4060	4420
SH, SLTST	4420	4570
SH	4570	5140
SH, SLTST	5140	5290
SH	5290	5770
SH, SLTST	5770	5860
SH	5860	7500
LS, SH	7500	7600
SH, LS	7600	7730
SH	7730	7900
SH, LS	7900	7920
SH	7920	9920
SH, LS	9920	9940
SH	9940	11528

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Well Name: Brennan Unit A 5H

API # 47-049-02210

**Preforated Intervals, Fracturing or Stimulating**

Stg 7 Marcellus; 9286'-9516'; 60 shots; Slick water frac; Avg treating 7175 psi@ 83 bpm; 108,674 #100 mesh; 301,576 #s 30/50 mesh; 9985 bbl water, 0 bbl treated water

Stg 8 Marcellus; 8966'-9196'; 60 shots; Slick water frac; Avg treating 7346 psi@ 77 bpm; 107,920 #100 mesh; 316,698 #s 30/50 mesh; 10172 bbl water, 0 bbl treated water

Stg 9 Marcellus; 8646'-8876'; 60 shots; Slick water frac; Avg treating 7318 psi@ 84 bpm; 108,224 #100 mesh; 328,471 #s 30/50 mesh; 10184 bbl water, 0 bbl treated water

Stg 10 Marcellus; 8326'-8556'; 60 shots; Slick water frac; Avg treating 6983 psi@ 77 bpm; 107,871 #100 mesh; 326,649 #s 30/50 mesh; 10139 bbl water, 0 bbl treated water

Stg 11 Marcellus; 8006'-8236'; 60 shots; Slick water frac; Avg treating 7256 psi@ 80 bpm; 108,329 #100 mesh; 328,640 #s 30/50 mesh; 10004 bbl water, 0 bbl treated water

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# Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	10/23/2012
State:	West Virginia
County:	Marion
API Number:	47-049-02210
Operator Name:	XTO Energy
Well Name and Number:	Brennan 5H
Longitude:	-80.2956285
Latitude:	39.5003788
Long/Lat Projection:	NAD27
Production Type:	Gas
True Vertical Depth (TVD):	7,628
Total Water Volume (gal):	4,743,480

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## 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%	0.8874	
Sand		Proppant	sand	14808-60-7	100.00000%	0.1060	
Biocide - MC 8520	Multi-Chem	Biocide	Whole Product				
			4,4 -Dimethyloxazolidine	51200-87-4	95.00000%	0.0001	
			3,4,4-Trimethyloxazolidine	75673-43-7	4.50000%	0.0000	
			2-Amino-2-Methyl-1-Propanol	124-68-5	0.50000%	0.0000	
Biocide - MC 8650	Multi-Chem	Biocide	Whole Product				
			Glutaraldehyde	111-30-8	60.00000%	0.0000	
			Other -(non hazardous)		40.00000%	0.0000	
Friction Reducer - MC MX-14-5	Multi-Chem	Friction Reducer	Whole Product				
			Hydrotreated light distillates (10-30%)	64742-47-8	30.00000%	0.0002	
			Other -(non hazardous)		70.00000%	0.0004	
Scale Inhibitor - MC-MX-588-2	Multi-Chem	Scale Inhibitor	Whole Product				
			Other -(non hazardous)		100.00000%	0.0001	
Acid - 7.5% HCl Acid	Universal	Acid	Whole Product				
			Hydrochloric Acid (15-40%) blended down to 7.5%	7647-01-0	7.50000%	0.0004	
			Other -(non hazardous)		92.50000%	0.0053	

\* 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.