

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

RECEIVED

MAR 24 2016

WV GEOLOGICAL SURVEY  
MORGANTOWN, WV

API 47 - 033 - 05843 County Harrison District Eagle  
Quad Wallace Pad Name Bogges Unit A Field/Pool Name Marcellus  
Farm name XTO Energy Inc. Well Number Bogges A North Unit 7H  
Operator (as registered with the OOG) XTO Energy Inc.  
Address PO Box 1008 City Jane Lew State WV Zip 26378

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4358702 Easting 552901  
Landing Point of Curve Northing 4358718 Easting 552630  
Bottom Hole Northing 4360048 Easting 551598

Elevation (ft) 1,183' 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)  
Synthetic Oil Based Mud - Anchor Drilling Fluids

Date permit issued 2/9/15 Date drilling commenced 3/15/15 Date drilling ceased 5/19/15  
Date completion activities began 12/16/15 Date completion activities ceased 12/30/15  
Verbal plugging (Y/N) NA Date permission granted NA Granted by NA

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 870' Open mine(s) (Y/N) depths N  
Salt water depth(s) ft None Noted Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 512' - 517' Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

Reviewed by: \_\_\_\_\_

WR-35  
Rev. 8/23/13

Page \_\_\_ of \_\_\_

API 47-033 - 05843

Farm name XTO Energy Inc.

Well number Boggess A North Unit 7H

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	28"	24"	40'	New	PE&B - 94.62#		Grouted to Surface
Surface	17 1/2"	13 3/8"	570'	New	H-40 - 48#		Y
Coal							
Intermediate 1	12 3/8" & 12 1/4"	9 5/8"	2,677'	New	J-55 - 36#		Y
Intermediate 2							
Intermediate 3							
Production	8 3/4" & 8 1/2"	5 1/2"	13,136'	New	P-110 - 20#		TOC - 5,002'
Tubing							
Packer type and depth set							

Comment Details 22 bbls to surface on 13 3/8". 37 bbls to surface on 9 5/8". 5 1/2" - pump 108 bbl lead 50:50 Poz Premium Class H, 279 bbl tail Premium Class H.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	Redi-mix	5 yards				0	8
Surface	Class A	500	15.60	1.19	595	0	8
Coal							
Intermediate 1	Class A	965	15.60	1.19	1148	0	8
Intermediate 2							
Intermediate 3							
Production	Ld 50:50 Poz / TI Prem Class H	510 / 825	14.50 / 15.00	1.19 / 1.90	607 / 1568	5,002'	8
Tubing							

Drillers TD (ft) 13,166' MD

Loggers TD (ft) 13,166' MD

Deepest formation penetrated Marcellus

Plug back to (ft)

Plug back procedure

Kick off depth (ft) 5,900'

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

Surface/Mine: Bow Spring Centralizers Every 3rd Joint

Intermediate: Bow Spring Centralizers Every 3rd Joint

Production: Spiral Glide Centralizers Every Other Joint From TD to TOC

WAS WELL COMPLETED AS SHOT HOLE  Yes  No

DETAILS Well shot with 0.5" perf diameter HERO charges, 6 spf, 60 degree phasing, 4-5 clusters per stage

WAS WELL COMPLETED OPEN HOLE?  Yes  No

DETAILS

WERE TRACERS USED  Yes  No    TYPE OF TRACER(S) USED



API 47- 033 - 05843

Farm name XTO Energy Inc.

Well number Boggess A North Unit 7H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft	Perforated to MD ft.	Number of Perforations	Formation(s)
0	12/16/15	12,982'	13,038'	36	Marcellus
1	12/17/15	12,732'	12,902'	48	Marcellus
2	12/17/15	12,482'	12,650'	48	Marcellus
3	12/18/15	12,232'	12,400'	48	Marcellus
4	12/18/15	11,982'	12,152'	48	Marcellus
5	12/18/15	11,732'	11,902'	48	Marcellus
6	12/19/15	11,484'	11,672'	48	Marcellus
7	12/19/15	11,240'	11,410'	60	Marcellus
8	12/20/15	10,996'	11,166'	60	Marcellus
9	12/20/15	10,752'	10,922'	60	Marcellus
10	12/20/15	10,508'	10,678'	60	Marcellus
11	12/21/15	10,264'	10,434'	60	Marcellus
12	12/21/15	10,020'	10,190'	60	Marcellus
13	12/21/15	9,776'	9,946'	60	Marcellus
14	12/22/15	9,532'	9,702'	60	Marcellus
15	12/22/15	9,288'	9,458'	60	Marcellus

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations 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)
0	12/16/15	77	7,982	6,250	4,909	172,940	9,167	0
1	12/17/15	81.9	7,435	5,708	5,673	308,060	9,052	0
2	12/17/15	82.0	7,417	5,704	5,410	280,120	8,796	0
3	12/18/15	80.0	7,385	5,525	5,403	374,740	9,320	0
4	12/18/15	81.1	7,610	5,817	5,546	379,640	9,581	0
5	12/19/15	81.0	7,961	5,645	5,615	251,560	9,815	0
6	12/19/15	85.2	7,677	6,126	5,393	336,260	8,893	0
7	12/20/15	85.0	7,252	5,531	5,456	359,340	9,027	0
8	12/20/15	83.8	7,514	5,721	4,457	348,600	11,659	0
9	12/20/15	85.3	7,390	5,760	5,446	358,260	8,991	0
10	12/21/15	85.0	7,422	5,636	5,531	348,640	9,785	0
11	12/21/15	85.1	7,406	5,683	5,476	358,582	9,948	0
12	12/21/15	84.6	7,614	5,771	5,583	315,960	11,255	0
13	12/22/15	85	7,746	6,197	5,842	358,590	8,921	0
14	12/22/15	84.3	7,745	6,540	5,583	359,360	11,210	0
15	12/22/15	84.9	7,441	6,732	5,815	359,000	9,038	0

Please insert additional pages as applicable.



API 47- 033 - 05843 Farm name XTO Energy Inc. Well number Bogges A North Unit 7H

PRODUCING FORMATION(S)	DEPTHS		
Marcellus	7,070'	TVD	13,166' MD

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 1800 psi Bottom Hole 3500 psi DURATION OF TEST 24 hrs

OPEN FLOW Gas 2,062 mcfpd Oil 0 bpd NGL 0 bpd Water 300 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	0		0		
See attachment					

Please insert additional pages as applicable.

Drilling Contractor Sidewinder Drilling Inc.  
Address 952 Echo Lane City Houston State TX Zip 77024

Logging Company Phoenix Technology Services  
Address 12329 Cutten Rd City Houston State TX Zip 77066

Cementing Company C&J Services  
Address 3990 Rogerdale City Houston State TX Zip 77042

Stimulating Company Keane Group  
Address 100 7th Street City Pittsburgh State PA Zip 15222

Please insert additional pages as applicable.

Completed by Tim Sands Telephone 304-884-6000  
Signature *Tim Sands* Title Regulatory Compliance Technician Date 3/21/16



API: 47-033-05843  
 Farm Name: XTO Energy Inc.  
 Well Number: Boggess A North Unit 7H

Lithology / Formation	Top Depth In Ft. TVD	Bottom Depth In Ft TVD	Top Depth In Ft MD	Bottom Depth In Ft MD	Describe Rock Type and Record Quantity and Type of Fluid (Freshwater, Brine, Oil, Gas, H2S, ETC)
SOIL / GRAY SHALE	0	370	0	370	
GRAY / WHITE SAND	370	512	370	512	
COAL	512	517	512	517	
GRAY/ WHITE SAND	517	550	517	550	
GRAY SHALE	550	680	550	680	
GRAY/RED SHALE	680	740	680	740	
GRAY SAND	740	775	740	775	
GRAY SHALE	775	870	775	870	Fresh Water @ 870'
GRAY SAND	870	1000	870	1000	
GRAY SAND / SHALE	1000	1155	1000	1155	
RED SHALE	1155	1190	1155	1190	
GRAY SHALE	1190	1280	1190	1280	
RED SHALE	1280	1315	1280	1315	
GRAY SAND	1315	1505	1315	1505	
GRAY SHALE	1505	1665	1505	1665	
GRAY SAND	1665	1700	1665	1700	
GRAY SHALE / SAND	1700	1820	1700	1820	
GRAY SHALE	1820	2205	1820	2205	
GRAY SAND	2205	2360	2205	2360	
GRAY SHALE	2360	2425	2360	2425	
SAND / SHALE	2425	2800	2425	2800	
GRAY SHALE	2800	4710	2800	4710	
SAND / SHALE	4710	5002	4710	5002	
BURKETT SHALE	6801	6843	6945	7015	
TULLY LIMESTONE	6843	6896	7015	7112	
HAMILTON SHALE	6896	6953	7112	7230	
UPPER MARCELLUS	6953	7053	7230	7555	
LOWER MARCELLUS	7053	TD	7555	13166	

## Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date	11/11/2015
Job End Date	12/30/2015
State	West Virginia
County	Harrison
API Number	47-033-05843-00-00
Operator Name	XTO Energy/ExxonMobil
Well Name and Number	Bogess A North Unit 7H
Longitude	-80.23095000
Latitude	39.22338000
Datum	NAD27
Federal/Tribal Well	YES
True Vertical Depth	7,020
Total Base Water Volume (gal)	9,023,070
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	XTO	Carrier/Base Fluid	Water	NA	100.00000	90.31914	None
Sand (Proppant)	Keane	Proppant	Crystalline Silica, Quartz	NA	100.00000	9.04111	None
Hydrochloric Acid (15%)	FSTI	Acid	HCL	7647-01-0	15.00000	0.06203	None
Hydrochloric Acid (7.5%)	FSTI	Acid	HCL	7647-01-0	7.50000	0.00937	None
Bactron K 139	Nalco	Biocide	Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides	68424-85-1	30.00000	0.00599	None
			Glutaraldehyde	111-30-8	10.00000	0.00200	None
FFR 730	Nalco	Friction Reducer	Oxyalkylated alcohol A	Proprietary	5.00000	0.00338	None
AI 600P	Weatherford	Acid Inhibitor	Ethylene Glycol	107-21-1	40.00000	0.00053	None
			Dimethylformamide	68-12-2	20.00000	0.00027	None
			Nonyl Phenol Ethoxylate, Branched	127087-87-0	15.00000	0.00020	None





			Pyridine, alkyl deriva... quaternized with benzyl chloride	68909-18-2	15.00000	0.00020	None
			Cinnamaldehyde	104-55-2	15.00000	0.00020	None
			2-Butoxyethanol	111-76-2	5.00000	0.00007	None
			1-Octanol	111-87-5	5.00000	0.00007	None
			1-Decanol	112-30-1	5.00000	0.00007	None
			Methanol	67-56-1	2.50000	0.00003	None
			Triethyl Phosphate	78-40-0	2.50000	0.00003	None
			Alkyl Pyridine	68391-11-7	1.00000	0.00001	None
EC6330A	Nalco	Scale Inhibitor	Ethylene Glycol	107-21-1	5.00000	0.00061	None
			Sodium Phosphate, Tribasic	7601-54-9	5.00000	0.00061	None
FFR 760	Nalco	Friction Reducer	Hydrotreated Light Distillate	64742-47-8	30.00000	0.00007	None
			Alkyl Alcohol	Proprietary	10.00000	0.00002	None
			Oxyalkylated alcohol A	Proprietary	5.00000	0.00001	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)



SURVEYED LONGITUDE 80°23'09.6"

3,109'

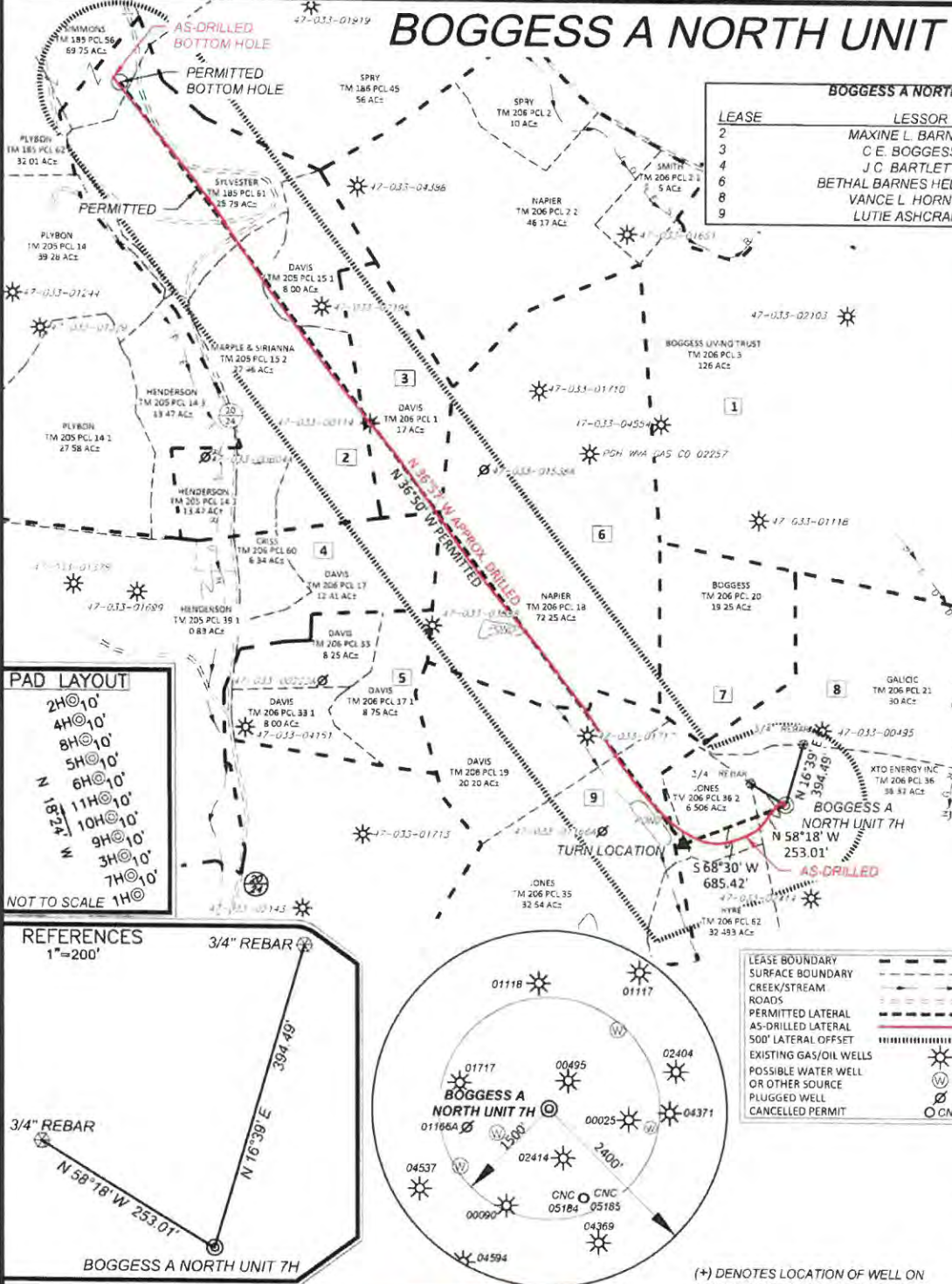
LATITUDE: 39°25'00"

LONGITUDE: 80°22'30"

# BOGGESS A NORTH UNIT 7H

LEASE	LESSOR	ACREAGE
2	MAXINE L. BARNES et al	71.74±
3	C. E. BOGGESS et al	19.25±
4	J. C. BARTLETT et al	25±
6	BETHAL BARNES HELDRETH et al	72±
8	VANCE L. HORNOR et al	186.5±
9	LUTIE ASHCRAFT et al	57±

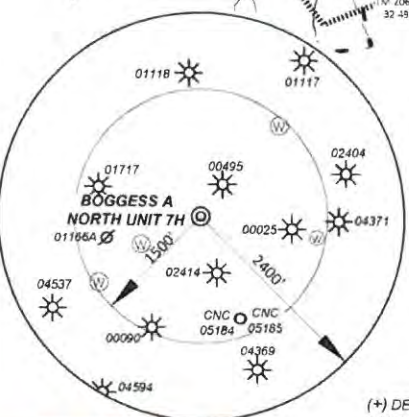
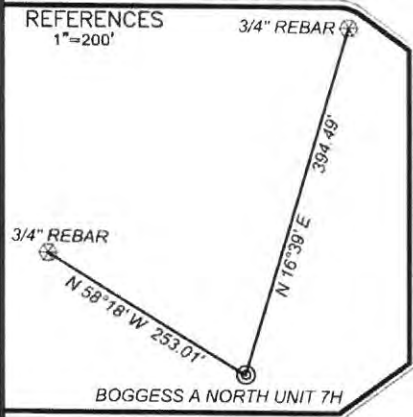
AS-DRILLED BOGGESS A NORTH UNIT 7H SURFACE HOLE	AS-DRILLED BOGGESS A NORTH UNIT 7H BOTTOM HOLE
STATE PLANE COORDINATES NORTH ZONE-NAD 27 (N) 320323 (E) 1749542	STATE PLANE COORDINATES NORTH ZONE-NAD 27 (N) 324810 (E) 1745340
L & L DECIMAL NAD 27 39 376085 -80 385998	L & L DECIMAL NAD 27 39 388298 -80 401020
UTM (NAD 83) ZONE 17 METERS (N) 4358702 (E) 552901	UTM (NAD 83) ZONE 17 METERS (N) 4360048 (E) 551598
PERMITTED BOGGESS A NORTH UNIT 7H SURFACE HOLE	PERMITTED BOGGESS A NORTH UNIT 7H BOTTOM HOLE
STATE PLANE COORDINATES NORTH ZONE-NAD 27 (N) 320323 (E) 1749542	STATE PLANE COORDINATES NORTH ZONE-NAD 27 (N) 324774 (E) 1745392
L & L DECIMAL NAD 27 39 376086 -80 385997	L & L DECIMAL NAD 27 39 388193 -80.400869
UTM (NAD 83) ZONE 17 METERS (N) 4358702 (E) 552901	UTM (NAD 83) ZONE 17 METERS (N) 4360037 (E) 551611



**PAD LAYOUT**

2H@10'
4H@10'
8H@10'
5H@10'
6H@10'
11H@10'
10H@10'
9H@10'
3H@10'
7H@10'
1H@10'

NOT TO SCALE



LEASE BOUNDARY	---
SURFACE BOUNDARY	----
CREEK/STREAM	~~~~~
ROADS	=====
PERMITTED LATERAL	-----
AS-DRILLED LATERAL	-----
500' LATERAL OFFSET	-----
EXISTING GAS/OIL WELLS	☀
POSSIBLE WATER WELL OR OTHER SOURCE	⊙
PLUGGED WELL	⊙
CANCELLED PERMIT	⊙

- NOTES ON SURVEY**
- NO OCCUPIED DWELLINGS OR BUILDINGS 2500 SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY WITHIN 625' OF THE CENTER OF THE WELL PAD WERE OBSERVED.
  - NO WATER WELLS OR DEVELOPED SPRINGS USED FOR HUMAN OR DOMESTIC ANIMAL CONSUMPTION WERE FOUND WITHIN 250'.
  - SURFACE OWNERSHIP TAKEN FROM THE HARRISON COUNTY TAX ASSESSOR AND COUNTY CLERK OFFICES IN JULY, 2014.
  - WELL LATITUDE AND LONGITUDE FROM SURVEY GRADE (OPUS SOLUTION).
  - TIES TO CORNERS AND REFERENCES BASED ON WV STATE PLANE COORDINATE SYSTEM, NAD 27 NORTH ZONE.
  - LEASE INFORMATION PROVIDED BY XTO ENERGY INC.

600 Marketplace, Suite 200  
Bridgeport, WV 26330  
Toll Free 855-488-9539  
Fax 304-933-3327



**Civil & Environmental Consultants, Inc.**

DATE AUGUST 13, 2015  
SCALE 1" = 1000' ACCURACY 1/2500  
OPERATORS BOGGESS A NORTH UNIT 7H (AS-DRILLED)  
WELL No. 47 - 033 - 05843  
API No.

TYPE OF WELL:

GAS:  
Production  Storage  \*Deep  \*Shallow

PROPOSED WORK ON LOCATION:

Drill  Drill Deeper  Redrill  Convert   
Fracture/Stimulate  \*Plug off to Formation   
Perforate New Formation  Plug and Abandon   
Clean/ Replug  Other Than Above   
If "Other" Please see Details below—  
DETAILS OF PROPOSED WORK \_\_\_\_\_

\*TARGET FORMATION MARCELLUS  
ACTUAL DEPTH TVD: 7,070' TMD: 13,166'

WELL OPERATOR XTO ENERGY INC.  
ADDRESS 810 HOUSTON STREET  
FORT WORTH, TEXAS 76102



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 rules issued and prescribed by the Division of Environmental Protection.

*Richard E. Adams*

STATE OF WEST VIRGINIA  
DIVISION OF ENVIRONMENTAL PROTECTION  
OFFICE OF OIL AND GAS



WELL AREA & LOCATION INFORMATION:

ELEVATION SOURCE GPS (OPUS)  
ELEVATION 1183'  
WATERSHED REESES RUN DISTRICT EAGLE  
COUNTY HARRISON TOPO QUAD WALLACE  
SURFACE OWNER XTO ENERGY INC.  
ACREAGE 36.32 ±  
ROYALTY OWNER VANCE L. HORNOR, G.P. HORNOR, J.H. HORNOR, M.L. HORNOR, V.L. HORNOR INVESTMENT COMPANY, et al  
LEASE ACREAGE 406.49 ±

DESIGNATED AGENT GARY BEALL  
ADDRESS P.O. BOX 100B  
JANE LEW, WV 26385

SURVEYED LATITUDE 39°22'33.9"