

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 - 05729 County Harrison District Eagle
Quad Wallace Pad Name Bogges Unit A Field/Pool Name Marcellus
Farm name XTO Energy Inc. Well Number Bogges Unit A 1H
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 4358699 Easting 552902
Landing Point of Curve Northing 4358661 Easting 553001
Bottom Hole Northing 4357633 Easting 553832

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 5/3/13 Date drilling commenced 3/15/15 Date drilling ceased 6/2/15
Date completion activities began 12/16/15 Date completion activities ceased 12/29/15
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 517' 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 - 05729 Farm name XTO Energy Inc. Well number Boggess Unit A 1H

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"	489'	New	H-40 - 48#		Y
Coal							
Intermediate 1	12 3/8"	9 5/8"	2,670'	New	J-55 - 36#		Y
Intermediate 2							
Intermediate 3							
Production	8 1/2"	5 1/2"	11,705'	New	P-110 - 20#		TOC- 5,000'
Tubing							
Packer type and depth set							

Comment Details 13 3/8" - 24 bbbs to surface. 9 5/8" - 32 bbbs to surface. 5 1/2" - 105 bbl lead 50:50 Poz Class H, 226 bbl tail, Premium Class H.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Redi-Mix	5 yards				0'	8
Surface	Class A	425	15.60	1.19	505.75	0'	8
Coal							
Intermediate 1	Class A	970	15.60	1.19	1154.30	0'	8
Intermediate 2							
Intermediate 3							
Production	Ld 50.50 Poz Cla H / TL Prem. Cls H	495 / 670	14.50 / 15.00	1.19 / 1.90	589.05 / 1273	5000'	8
Tubing							

Drillers TD (ft) 11,738' MD Loggers TD (ft) 11,738' MD

Deepest formation penetrated Marcellus Plug back to (ft)

Plug back procedure

Kick off depth (ft) 5,421'

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 spt, 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 - 05729

Farm name XTO Energy Inc.

Well number Boggess Unit A 1H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	12/16/15	11,470'	11,604'	48	Marcellus
2	12/17/15	11,264'	11,398'	48	Marcellus
3	12/17/15	11,058'	11,192'	48	Marcellus
4	12/17/15	10,852'	10,986'	48	Marcellus
5	12/18/15	10,646'	10,780'	48	Marcellus
6	12/18/15	10,440'	10,574'	48	Marcellus
7	12/18/15	10,234'	10,368'	48	Marcellus
8	12/19/15	10,030'	10,184'	60	Marcellus
9	12/20/15	9,826'	9,980'	60	Marcellus
10	12/20/15	9,622'	9,776'	60	Marcellus
11	12/20/15	9,418'	9,572'	60	Marcellus
12	12/21/15	9,214'	9,368'	60	Marcellus
13	12/21/15	9,010'	9,164'	60	Marcellus
14	12/21/15	8,806'	8,960'	60	Marcellus
15	12/21/15	8,602'	8,756'	60	Marcellus
16	12/22/15	8,398'	8,552'	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 (bbbls)	Amount of Nitrogen/other (units)
1	12/16/15	81	7,588	6,250	4,681	323,000	7,407	0
2	12/17/15	81	7,491	7,096	4,764	304,200	7,504	0
3	12/17/15	82.2	7,728	6,996	5,124	277,800	7,466	0
4	12/17/15	82	7,775	5,934	5,024	310,140	7,752	0
5	12/18/15	81	7,438	6,492	5,046	306,240	7,443	0
6	12/18/15	83	7,864	6,792	5,520	202,760	8,000	0
7	12/18/15	85	7,582	6,504	5,155	303,740	8,181	0
8	12/19/15	85	7,796	6,594	5,493	303,480	10,661	0
9	12/20/15	85	7,663	6,291	5,204	302,900	7,711	0
10	12/20/15	85.1	7,640	6,191	5,713	303,700	7,973	0
11	12/20/15	86	7,477	6,375	4,999	303,100	7,661	0
12	12/21/15	84	7,779	6,363	5,836	273,500	9,135	0
13	12/21/15	85.8	7,522	6,209	5,927	303,260	7,523	0
14	12/21/15	85	7,412	6,297	5,881	303,650	7,561	0
15	12/21/15	84	7,475	6,462	5,124	304,080	7,441	0
16	12/22/15	83.9	7,588	6,701	5,928	282,460	9,105	0

Please insert additional pages as applicable.

API 47- 033 - 05729 Farm name XTO Energy Inc. Well number Bogges Unit A 1H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
Marcellus	-7,100'	TVD	11,738' MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump
 SHUT-IN PRESSURE Surface 1600 psi Bottom Hole 3200 psi DURATION OF TEST 24 hrs
 OPEN FLOW Gas 2364 mcfpd Oil 0 bpd NGL 0 bpd Water 250 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP		BOTTOM		DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ 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 Cullen 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: 47-033-05729
 Farm Name: XTO Energy Inc.
 Well Number: Boggess Unit A 1H

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	Fresh water @ 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	
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	5400	4710	5400	
BURKETT SHALE	6810	6848	6866	6910	
TULLY LIMESTONE	6848	6890	6910	6972	
HAMILTON SHALE	6890	6957	6972	7050	
UPPER MARCELLUS	6957	7017	7050	7140	
PURCELL	7017	7046	7140	7210	
LOWER MARCELLUS	7046	TD	7210	11738	

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date	11/10/2015
Job End Date	12/29/2015
State	West Virginia
County	Harrison
API Number	47-033-05729-00-00
Operator Name	XTO Energy/ExxonMobil
Well Name and Number	Bogges Unit A 1H
Longitude	-80.38580100
Latitude	39.37614500
Datum	NAD27
Federal/Tribal Well	YES
True Vertical Depth	7,122
Total Base Water Volume (gal)	7,099,974
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	90.06089	None
Sand (Proppant)	Keane	Proppant	Crystalline Silica, Quartz	NA	100.00000	9.35641	None
Hydrochloric Acid (15%)	ESTI	Acid	HCL	7647-01-0	15.00000	0.06760	None
Bactron K 139	Nalco	Biocide	Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	30.00000	0.00524	None
FFR 730	Nalco	Friction Reducer	Glutaraldehyde	111-30-8	10.00000	0.00175	None
Hydrochloric Acid (7.5%)	ESTI	Acid	Oxyalkylated alcohol A	Proprietary	5.00000	0.00319	None
AI 600P	Weatherford	Acid Inhibitor	HCL	7647-01-0	7.50000	0.00298	None
			Ethylene Glycol	107-21-1	40.00000	0.00042	None
			Dimethylformamide	68-12-2	20.00000	0.00021	None
			Nonyl Phenol Ethoxylate, Branched	127087-87-0	15.00000	0.00016	None



			Pyridine, alkyl derives, quaternized with benzyl chloride	88909-18-2	15.00000	0.00010	None
			Cinnamaldehyde	104-55-2	15.00000	0.00010	None
			1-Decanol	112-30-1	5.00000	0.00005	None
			1-Octanol	111-87-5	5.00000	0.00005	None
			2-Butoxyethanol	111-76-2	5.00000	0.00005	None
			Methanol	67-56-1	2.50000	0.00003	None
			Triethyl Phosphate	78-40-0	2.50000	0.00003	None
			Alkyl Pyridine	88991-11-7	1.00000	0.00001	None
EC6330A	Naico	Scale Inhibitor	Ethylene Glycol	107-21-1	5.00000	0.00050	None
			Sodium Phosphate, Tribasic	7601-54-9	5.00000	0.00050	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).

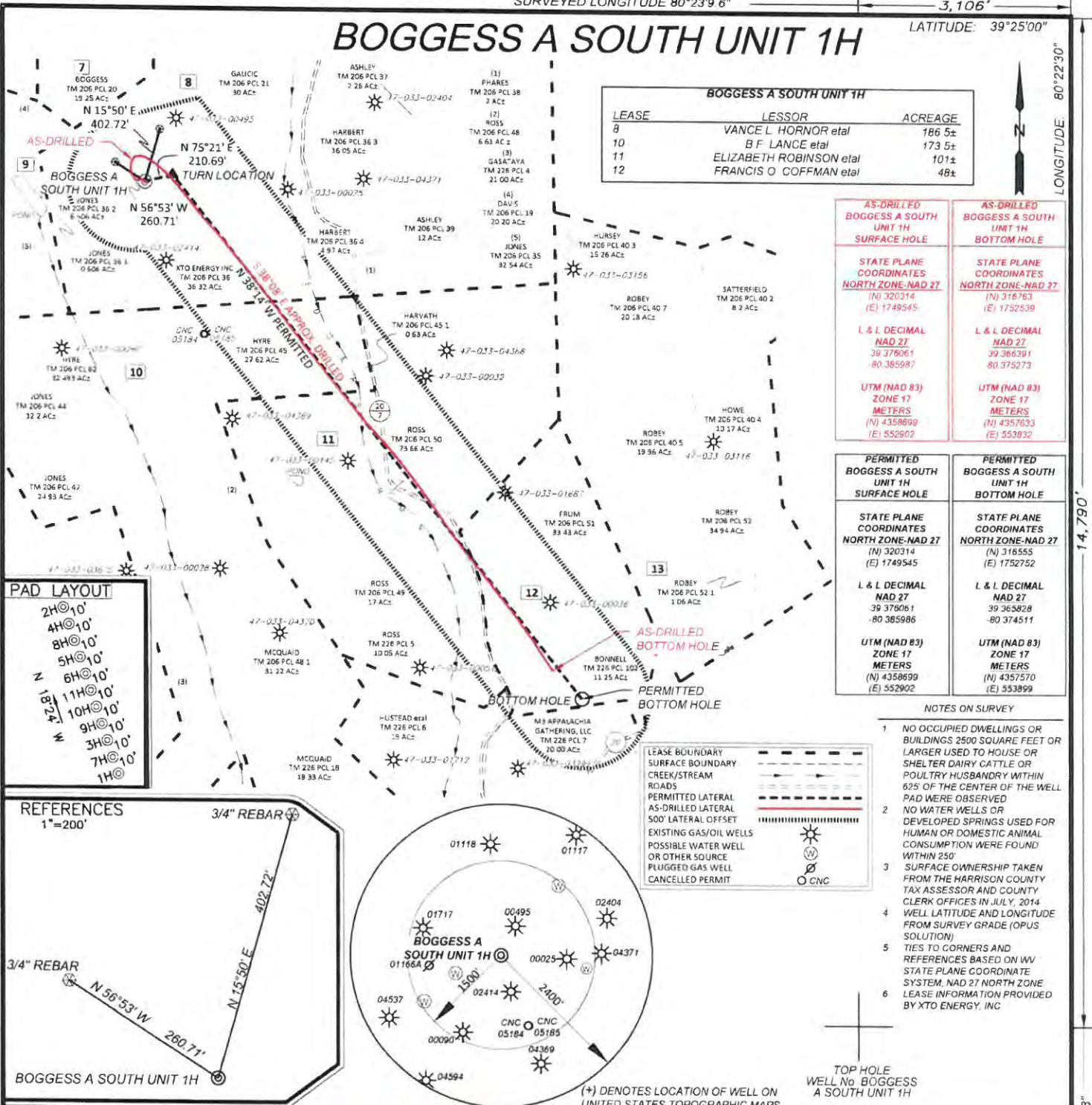
SURVEYED LONGITUDE 80°23'9.6"

3,106'

LATITUDE: 39°25'00"

BOGGESS A SOUTH UNIT 1H

LONGITUDE 80°22'30"

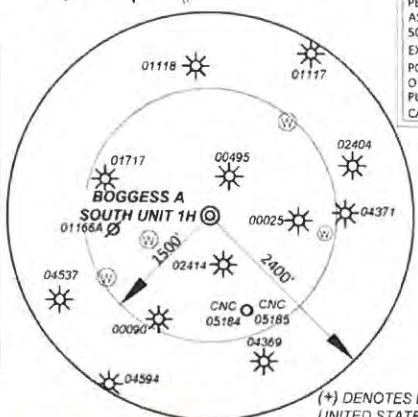
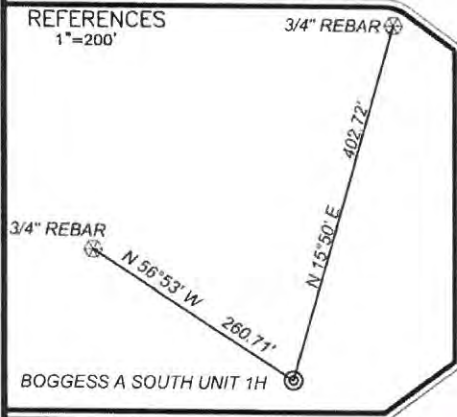


LEASE	LESSOR	ACREAGE
8	VANCE L. HORNOR et al	186.5±
10	B F LANCE et al	173.5±
11	ELIZABETH ROBINSON et al	101±
12	FRANCIS O. COFFMAN et al	48±

AS-DRILLED BOGGESS A SOUTH UNIT 1H SURFACE HOLE	AS-DRILLED BOGGESS A SOUTH UNIT 1H BOTTOM HOLE
STATE PLANE COORDINATES NORTH ZONE-NAD 27 (N) 320314 (E) 1749545	STATE PLANE COORDINATES NORTH ZONE-NAD 27 (N) 316763 (E) 1752539
L & L DECIMAL NAD 27 39.378061 -80.385987	L & L DECIMAL NAD 27 39.366391 80.375273
UTM (NAD 83) ZONE 17 METERS (N) 4358699 (E) 552902	UTM (NAD 83) ZONE 17 METERS (N) 4357633 (E) 553832
PERMITTED BOGGESS A SOUTH UNIT 1H SURFACE HOLE	PERMITTED BOGGESS A SOUTH UNIT 1H BOTTOM HOLE
STATE PLANE COORDINATES NORTH ZONE-NAD 27 (N) 320314 (E) 1749545	STATE PLANE COORDINATES NORTH ZONE-NAD 27 (N) 316555 (E) 1752752
L & L DECIMAL NAD 27 39.378061 -80.385986	L & L DECIMAL NAD 27 39.365828 -80.374511
UTM (NAD 83) ZONE 17 METERS (N) 4358699 (E) 552902	UTM (NAD 83) ZONE 17 METERS (N) 4357570 (E) 553899

PAD LAYOUT

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



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

- 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 GAS WELL
CANCELLED PERMIT
- (+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
- TOP HOLE
WELL No. BOGGESS A SOUTH UNIT 1H

99 Cambridge Place 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 WELL No. BOGGESS A SOUTH UNIT 1H (AS-DRILLED)
47 - 033 - 05729
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: 7,122', TMD: 11,738'

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 509 ±

DESIGNATED AGENT GARY BEALL
ADDRESS P.O. BOX 1008
JANE LEW, WV 26385

SURVEYED LATITUDE 39°22'33.8"