



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

July 23, 2013

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-3305745, issued to XTO ENERGY, INC., is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.

James Martin
Chief

Operator's Well No: BOGCESS UNIT A 9H
Farm Name: XTO ENERGY INC
API Well Number: 47-3305745
Permit Type: Horizontal 6A Well
Date Issued: 07/23/2013

Promoting a healthy environment.

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
2. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the fill material shall be within plus or minus 2% (unless soil test results show a greater range of moisture content is appropriate and 95% compaction can still be achieved) of the optimum moisture content as determined by the standard proctor density test, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort. Each lift must meet 95 % compaction of the optimum density based on results from the standard proctor density test of the actual soils used in specific engineered fill sites. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
3. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
4. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
5. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
6. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
7. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
W.V.A. CODE §22-6A - WELL WORK PERMIT APPLICATION

1) Well Operator: XTO Energy, Inc. 494487940 Harrison Eagle Wallace
Operator ID County District Quadrangle

2) Operator's Well Number: Bogges Unit A 9H Well Pad Name: Bogges Unit A Pad

3 Elevation, current ground: 1183' Elevation, proposed post-construction: 1183'

4) Well Type: (a) Gas Oil
Other _____
(b) If Gas: Shallow Deep
Horizontal

5) Existing Pad? Yes or No: Yes

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):
Target Formation: Marcellus, Depth 7,089', Anticipated Thickness: 150', Associated pressure: 4,650 psi

7) Proposed Total Vertical Depth: 7,093'

8) Formation at Total Vertical Depth: Marcellus

9) Proposed Total Measured Depth: 13,350'

10) Approximate Fresh Water Strata Depths: 114', 125'

11) Method to Determine Fresh Water Depth: Offsetting Reports

12) Approximate Saltwater Depths: 1012'

13) Approximate Coal Seam Depths: Pittsburg Coal was strip mined at this location

14) Approximate Depth to Possible Void (coal mine, karst, other): None anticipated - Pittsburg Coal was strip mined

15) Does land contain coal seams tributary or adjacent to, active mine? No

16) Describe proposed well work: Drill a new horizontal Marcellus well, utilizing synthetic mud and a closed loop system for both drilling and completion. Install new casing with centralizers. If a void is encountered, if we do encounter a void we will set 13 3/8" - 50' deeper than the void or in good solid rock (whichever is first). A cement basket will be run on the backside of the 13 3/8" casing and cement will be pumped down the inside of the pipe up to the void. A top out job on the annulus will be done from surface to the top of the void (cement basket).

17) Describe fracturing/stimulating methods in detail:
1. Acid Stage - Typically 1500 gallons of 7.5% hydrochloric acid to clear the perforation path in the wellbore. 1500 gals 15% HCl acid. 2. Sand / Proppant Stages - Several stages of pumping water combined with sand (0.1 pounds per gallon to 3 pounds per gallon) at a targeted 60 bpm rate. The sand size may vary from 100 mesh to 30/50 mesh size. 12,500 bbls slick water with 220,000 lbs 40/70, 270,000 lbs 100 mesh sands and 2,200 gals FR 133, 30/50 mesh size. 12,500 bbls slick water with 220,000 lbs 40/70, 270,000 lbs 100 mesh sands and 2,200 gals FR 133, 1,500 gals Dloplex 201 and 1,190 gals antiscalant 30. 3. Flush Stage - Slickwater water stage to fill the wellbore to fluid the sand from the wellbore. Depending on the water quality, a biocide, friction reducer, iron control, and scale inhibitor may be injected during the completion as well. All chemicals utilized during the completion will be reported as appropriate.

18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 6.78 +/-

19) Area to be disturbed for well pad only, less access road (acres): 5.26 +/-

RECEIVED
Office of Oil and Gas

JUL 18 2013

WV Department of
Environmental Protection



Memo to File

1/2/13

Re: Boggess Unit A Location Coal

On Wednesday January 2, 2013 I called Kenny Ashton with the WVGES and asked about potential coal seams and mining operations under our planned Boggess Unit A location. I provided him with the following NAD 83 coordinates: 39.376147, -80.385799.

Later that day Mr. Ashton called back and said that the Pittsburgh coal at this location had been stripped. He also said that we are in no danger of hitting the nearby O & R mine because our surface location is at the same elevation of the mine.

Tim Sands

A handwritten signature in black ink, appearing to be 'Tim Sands', written over a horizontal line.

Regulatory Compliance Technician

RECEIVED
Office of Oil and Gas

JUL 15 2013

WV Department of
Environmental Protection

WW - 6B
(3/13)

20)

CASING AND TUBING PROGRAM

TYPE	Size	New or Used	Grade	Weight per ft.	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill -up (Cu. Ft.)
Conductor	20"	New	H-40	94#	40'	40'	50 cuft - C.T.S.
Fresh Water	13 3/8"	New	MS-50	48#	375'	375'	400 cuft - C.T.S.
Coal							
Intermediate	9 5/8"	New	J-55	36#	2700'	2700'	Lead 800'/Tail 800' - C.T.S.
Production	5 1/2"	New	CYP-110	17#	13350'	13350'	2700 cuft
Tubing							
Liners							

Modification
SDW
6/6/13

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield
Conductor	20"	24"	0.438"	960	Type 1	1.19
Fresh Water	13 3/8"	17.5"	0.33"	2,160	Type 1	1.19
Coal						
Intermediate	9 5/8"	12.25"	0.352"	3,520	Type 1	Lead 1.26/Tail 1.19
Production	5 1/2"	8.75" 8.5"/7.875"	0.304"	10,640	Type 1	1.32
Tubing						
Liners						

PACKERS

Kind:				
Sizes:				
Depths Set:				

Received

JUN 10 2013

Office of Oil and Gas
WV Dept. of Environmental Protection

WW - 6B
(1/12)

21) Describe centralizer placement for each casing string. _____

Conductor: none

Fresh Water: 1"-6" above float shoe, 1 at float collar, & 1 at every 4th joint to surface

Intermediate: 1"-6" above float shoe, 1 at float collar, & 1 at every 4th joint to surface

Production: 1 at every 3rd joint from top of cement to landing point

22) Describe all cement additives associated with each cement type. _____

Conductor - Type 1 - no additives

Fresh Water - Tail - Type 1 - 2% Calcium Chloride, Super Flake

Intermediate - Lead - Type 1 - 2% Calcium Chloride, Super Flake

Tail - Type 1 - 2% Calcium Chloride, Super Flake

Production - Tail 50/50 POZ - Type 1 - Sodium Chloride, Bentonite, Super Flake, Air-Out, R-1, AG-350

23) Proposed borehole conditioning procedures. _____

See attached sheet

*Note: Attach additional sheets as needed.

Received
Office of Oil & Gas

APR 1 2013

33-5745

Bogges A 9H Detailed Casing and Cementing Program

Type	Hole Size (Inches)	Casing Design/Program								Cementing Program			
		Csg Size (in)	Length (ft)	Top/Bottom of String	Grade	Weight (ppf)	Wall Thickness	Burst Pressure Rating	Centralizer Placement	Type	Yield (cu. ft/sk)	Additives (trade names are Superior Well Services)	Estimated Volume (cu. ft.)
Conductor	24	20	40	0' / 40	H-40	94	0.438	960	none	Type 1	1.19	none	50
Coal	19	16	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Surface / Fresh Water	17.5	13 3/8	375	0' / 375	MS-50	48	0.33"	2160	1-6" above float shoe 1-at float collar 1-every 4th jt to surface	Tail -Type 1	1.19	Calcium chloride, Super Flake	400
Intermediate	12.25	9 5/8	3600	0' / 3600'	J-55	36	0.352"	3520	1-6" above float shoe 1-at float collar 1-every 4th jt to surface	Lead-Type 1	1.26	Calcium Chloride, Super Flake	800
										Tail -Type 1	1.19	Calcium chloride, Super Flake	800
Production	8.75/ 8.5/ 7.875	5 1/2	13.350	0' / 13350'	CYP-110	17		10640	centralizers will be run every 3rd joint from top of cement to landing point	Tail-50/50 POZ:Type 1	1.32	Sodium chloride, bentonite, Super Flake, Air-Out, R-1, AG-350	2700
Tubing													
Liners													

Bogges A 9H Proposed Directional Data

Hole Section	Hole Size	Drilling Fluid	Condition Procedures			
			Drilling	At TD	Running Casing	Prior to Cementing
Conductor	24	Air/Water	Hole will be circulated with high pressure air	Hole will be blown clean with air prior to pulling out of hole to run casing	Hole will be filled with fluid and circulated to surface if conditions require	Casing will be filled with fluid and returns taken at surface prior to pumping cement
Coal	20	Air/Water	Hole will be circulated with high pressure air	Hole will be blown clean with air prior to pulling out of hole to run casing	Hole will be filled with fluid and circulated to surface if conditions require	Casing will be filled with fluid and returns taken at surface prior to pumping cement
Fresh Water	17.5	Air/Water	Hole will be circulated with high pressure air	Hole will be blown clean with air prior to pulling out of hole to run casing	Hole will be filled with fluid and circulated to surface if conditions require	Casing will be filled with fluid and returns taken at surface prior to pumping cement
Intermediate	12.25	Air/Water	Hole will be circulated with high pressure air	Hole will be blown clean with air prior to pulling out of hole to run casing	Hole will be filled with fluid and circulated to surface if conditions require	Casing will be filled with fluid and returns taken at surface prior to pumping cement
Production	8.75 8.577.875"	Air / Non-aqueous based mud	cuttings out of the hole, MW will be approximately 11.5ppg-14.0ppg for stability and overbalance. As required, the hole will be circulated at high pump rate	The hole will be circulated at maximum possible pump rate and the drill string will be rotated at the maximum rpm.	Hole will be circulated as necessary while running casing.	Hole will be circulated at least one bottoms up prior to pumping cement.
Tubing						
Liners						

Bogges A 9H Proposed Directional Data

	Measured Depth	Inclination Angle	Azimuth Direction	
Proposed Angle/Direction of Well		90	148	Lateral
Approx. Depth at which well deviates from vertical				Nudge
Angle and Direction of Non-vertical wellbore until target depth is reached	4000	20	206	Curve/Throw

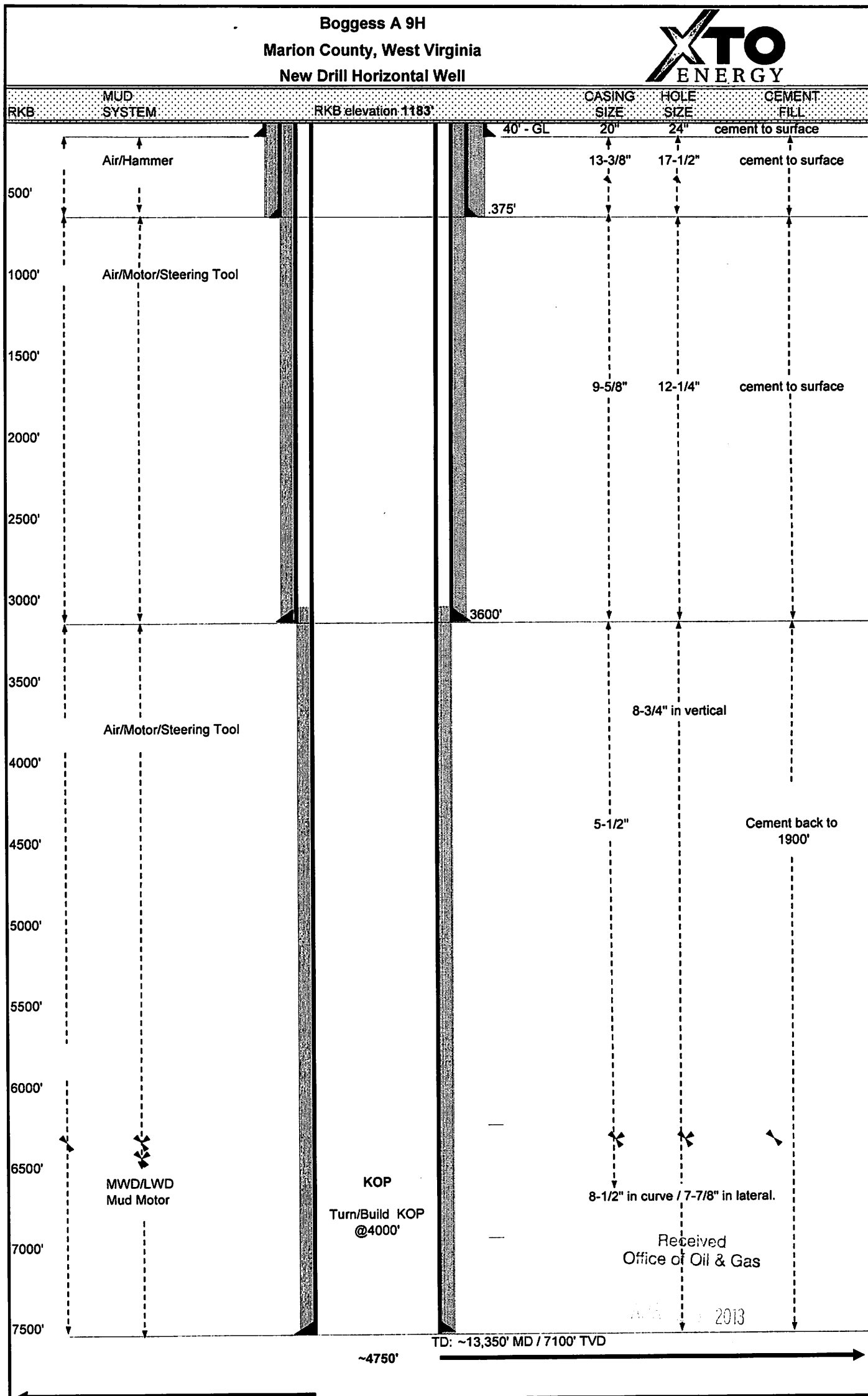
Other directional data

KOP 6000
 LP 8550
 approx. TD 13350 (rounded up)

(no nudge, just drill to KOP)

Received
Office of Oil & Gas

April 11, 2013



WW-9
Rev. 1/12

API No. 47 - 33 - 5745
Operator's Well No. Bogness Unit A 9H

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
CONSTRUCTION AND RECLAMATION PLAN AND SITE REGISTRATION APPLICATION FORM
GENERAL PERMIT FOR OIL AND GAS PIT WASTE DISCHARGE

Operator Name XTO Energy, Inc. OP Code 494487940

Watershed Reeses Run - A tributary of Little Tenmile Creek Quadrangle Wallace

Elevation 1183' County Harrison District Eagle

Description of anticipated Pit Waste: None - closed loop system - drilling fluids, formation cuttings, fluid & flowback to be stored in tanks & boxes until disposal.

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes X No _____

Will a synthetic liner be used in the pit? No Pit - Closed Loop System. If so, what mil.? None

Proposed Disposal Method For Treated Pit Wastes:

- ____ Land Application
- Underground Injection (UIC Permit Number See additional page)
- ____ Reuse (at API Number _____)
- ____ Off Site Disposal (Supply form WW-9 for disposal location)
- ____ Other (Explain _____)

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Cond/Surf/Intrm on air/water, prod. on air to 7100', then switch to synthetic

-If oil based, what type? Synthetic, petroleum, etc. Synthetic

Additives to be used? See additional page

Will closed loop system be used? Yes

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Landfill

-If left in pit and plan to solidify what medium will be used? Cement, lime, None - Closed Loop System

-Landfill or offsite name/permit number? Meadowbrook Landfill - #SWF 1032, S&S Landfill - #SWF 4902

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto 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. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature [Signature]

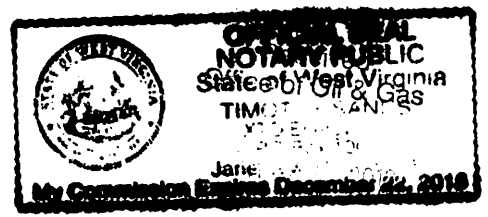
Company Official (Typed Name) Gary Beall

Company Official Title Production Superintendent

Subscribed and sworn before me this 9th day of April, 2013

[Signature] Notary Public

My commission expires 12/22/18



33-5745

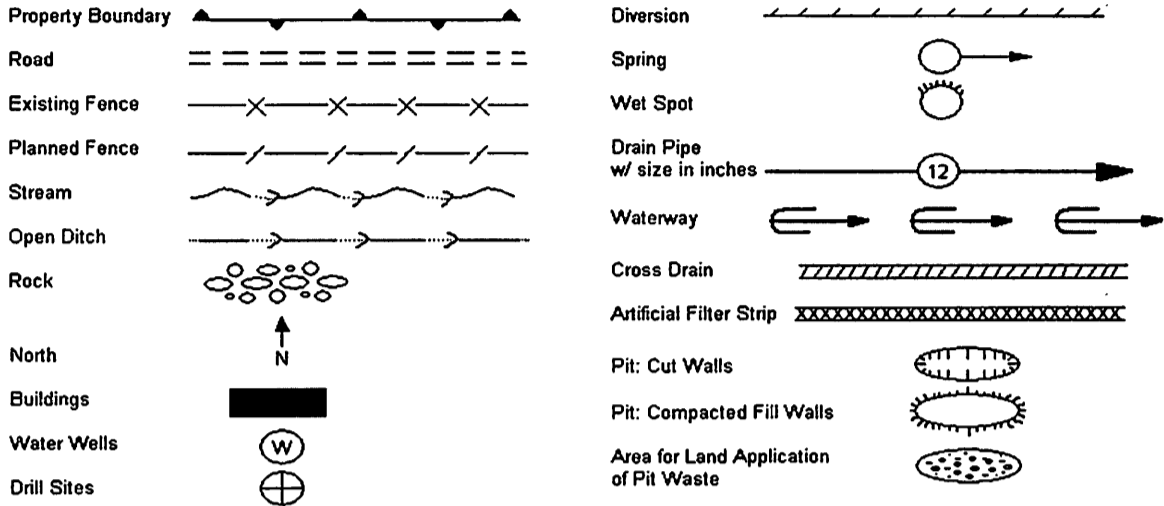
Disposal Facilities	
Name	API
Hattie L Flower (SWIW #4) 1	3416728462
David R. Hill Inc.	3405924067
ROJ Disposal Well, Gallia County, OH	3405320968
Warren Disposal Well	3412124037
Travis Well	3412123995
Everett Mason W-1590 SWIS (Ritchie Hunter)	4708509721
Helen Hall F 1-19 Disposal Well	3416729577
M.E. Elder	4708505151
Camp Creek Disposal	4705500319
AOP (BW4 Well, Eureka, WV)	4707302523

Received
Office of Oil & Gas

SEP 11 2013

WW-9
Rev. 1/12

API No. 47 - 33 - 5745
Operator's Well No. Bogness Unit A 9H



Proposed Revegetation Treatment: Acres Disturbed 6.78+/- Prevegetation pH _____

Lime 2-6 Tons/acre or to correct to pH _____

Fertilizer (10-20-20 or equivalent) 678 - 1000 lbs/acre (500 lbs minimum)

Mulch 3 Tons/acre

Seed Mixtures

Seed Type	Area I	lbs/acre	Seed Type	Area II	lbs/acre
Timothy		50	Tall Fescue		40
			Birdsfoot Trefoil		10

Attach:
Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [Signature]
Comments: _____

Title: Oil & Gas Inspector Date: 24 APR 13

Field Reviewed? Yes No

Received
Office of Oil & Gas

APR 25 2013

33-5745

XTO Well Site Safety Plan

Boggess Unit A

1103 Reeses Run Road
Lumberport, WV 26386

Detail of Well Work

Drill and stimulate a new horizontal well, using a closed loop system for both drilling and completion operations. Well will be hydraulically fractured, with freshwater being pumped onto the site and stored in working tanks. Flowback will be stored in tanks until disposed of at UIC's or recycled for other completion operations.

Emergency Point of Contact

Office 304-884-6000

JD Dean - EH&S Coordinator

Office - 304-884-6015

Cell - 304-871-0174

Pager - 304-987-5119

Todd Snider – EH&S Coordinator

Office – 304-884-6012

Cell – 304-871-0290

Pager – 304-987-5125

Scott Arnold – Drilling Superintendent

724-713-7987

24 hr Well Operator Contact Information

Office 304-884-6000

Plan Provided to Local Emergency Planning Agencies

A copy of this plan will be provided to local emergency planning agencies at least seven days prior to the commencement of work.

Evacuation Plan

In the event of an emergency, all personnel on location (employee or contractor) shall report to the muster point. Site foreman's will conduct head counts and relay further instructions pertaining to evacuation. Our Evacuation Plan for the public must entail a well coordinated advance meeting with local county Emergency Management Association to convey all pad coordinates in that county so they can be placed in their response system. After that is accomplished, a live drill will be held with the responders to make certain all emergencies, public notification and/or evacuations can be successfully achieved. Emergency evacuations can be made by 911 center performing a reverse 911 call which will notify all people in the effected area. XTO incident command will also have a group that can also aid in the door to door efforts, coordinated with the State police and Deputy Sheriff's Office. In the event of a pipeline or well blow out without fire, county responders can now track the gas plume and decide evacuation areas once they have the determined amount of gas flow and wind directions and with that, software will allow them to get ignition sources

shut down and evacuation safely accomplished. The following counties have held live drills with successful results:

Marion County – November 2010.

Emergency & Contractor Contacts

Emergency: 911: Site Address: 1103 Reeses Run Road, Lumberport, WV 26386

Received
Office of Oil & Gas

APR 23 2013

Contractor / Rig #	Drilling Foreman	Drilling Foreman	Rig #	Cell #
Union 62	Steve Davenport	Scott Schroer	(832) 200-7370	(412) 370-5215
Nomac 310	Flo Segundo (940) 453-0272	Gary Moore	(281) 840-6530	(412) 979-5710
Union 61	Eldon Adams	Jerry Nietert	(281) 840-6539	(724) 541-3925

YAU
24 APR 13

✓ 4/26



Water Management Plan: Primary Water Sources



WMP- 01241

API/ID Number: 047-033-05745

Operator:

XTO Energy

Boggess Unit A 9H

Important:

For each proposed primary water source (including source intakes for purchased water sources) identified in your water management plan, and summarized herein, DEP has made an evaluation concerning water availability over the specified date range. DEP's assessment is based on the following considerations:

- Statistical analysis of historical USGS stream gauge data (transferred to un-gauged locations as necessary);
- Identification of sensitive aquatic life (endangered species, mussels, etc.);
- Quantification of known existing demands on the water supply (Large Quantity Users);
- Minimum flows required by the Army Corps of Engineers; and
- Designated stream uses.

Based on these factors, DEP has provided, for each intake location (and origination point for purchased water), a reference gauge location and discharge flow reading which must be surpassed prior to withdrawals. Additionally, DEP has established a minimum passby flow at the withdrawal location which must also be surpassed prior to withdrawals. These thresholds are considered terms of the permit and are enforceable as such.

DEP is aware that some intake points will be used for mutiple wells and well sites. In these cases, the thresholds set by the Water Management Plan are to be interepreted as total withdrawal limits for each location over the specified date range regardless of how many wells are supported by that intake.

For all purchased water intakes, determinations of water availability are made at the original source intake location. It is the responsibility of the Oil and Gas Operator, not the seller, to cease withdrawal of water from the seller when flows are less than the minimum gauge reading at the stream gauge referenced by the Water Management Plan in order to protect stream uses.

Note that the determinations made herein are based on the best available data, but it is impossible to predict water availability in the future. While the DEP has carefully established these minimum withdrawal thresholds, it remains the operator's responsibility to protect aquatic life at all times. Approval to withdrawal is contingent upon permission from the land owner. It is the responsibility of the operator to secure and maintain permission prior to any withdrawals.

The operator is reminded that 24-48 hours prior to withdrawing (or purchasing) water, DEP must be notified by email at DEP.water.use@wv.gov.

APPROVED JUN 12 2013

Source Summary

WMP-01241

API Number:

047-033-05745

Operator:

XTO Energy

Bogges Unit A 9H

Stream/River

● Source **West Fork River (Location B)**

Owner: **Nick & Merelyn Deemus**

Start Date

End Date

Total Volume (gal)

Max. daily purchase (gal)

Intake Latitude:

Intake Longitude:

6/1/2013

6/1/2014

100,000

39.451231

-80.269158



Regulated Stream?

Stonewall Jackson Dam

Ref. Gauge ID:

3061000

WEST FORK RIVER AT ENTERPRISE, WV

Max. Pump rate (gpm):

1,792

Min. Gauge Reading (cfs):

153.58

Min. Passby (cfs)

146.25

DEP Comments:

Source Detail

WMP- 01241

API/ID Number: 047-033-05745

Operator: XTO Energy

Boggess Unit A 9H

Source ID: 18087 Source Name: West Fork River (Location B)
 Nick & Merelyn Deemus

Source Latitude: 39.451231
 Source Longitude: -80.269158

HUC-8 Code: 5020002

Drainage Area (sq. mi.): 815.05 County: Marion

Anticipated withdrawal start date: 6/1/2013

Anticipated withdrawal end date: 6/1/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 100,000

Trout Stream?

Tier 3?

Regulated Stream? Stonewall Jackson Dam

Max. Pump rate (gpm): 1,792

Proximate PSD?

Max. Simultaneous Trucks: 8

Gauged Stream?

Max. Truck pump rate (gpm): 224

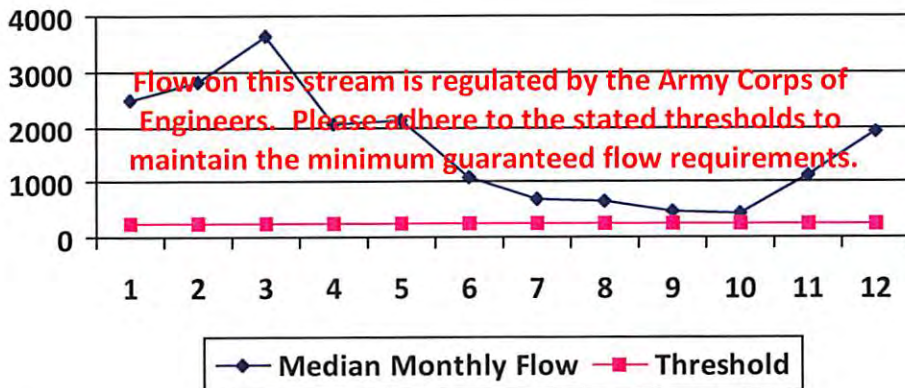
Reference Gaug: 3061000 WEST FORK RIVER AT ENTERPRISE, WV

Drainage Area (sq. mi.): 759.00

Gauge Threshold (cfs): 234

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	2,497.56	-	-
2	2,812.00	-	-
3	3,621.98	-	-
4	2,071.45	-	-
5	2,126.25	-	-
6	1,065.40	-	-
7	690.28	-	-
8	659.10	-	-
9	458.60	-	-
10	449.63	-	-
11	1,128.29	-	-
12	1,926.34	-	-

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs):	-
Upstream Demand (cfs):	3.34
Downstream Demand (cfs):	0.00
Pump rate (cfs):	3.99
Headwater Safety (cfs):	0.00
Ungauged Stream Safety (cfs):	0.00
Min. Gauge Reading (cfs):	-
Passby at Location (cfs):	-

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.



Water Management Plan: Secondary Water Sources



WMP-01241

API/ID Number: 047-033-05745

Operator:

XTO Energy

Boggess Unit A 9H

Important:

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Lake/Reservoir

Source ID:	18088	Source Name	Jones Pond		Source start date:	6/1/2013
					Source end date:	6/1/2014
	Source Lat:	39.371637	Source Long:	-80.389884	County	Harrison
	Max. Daily Purchase (gal)		Total Volume from Source (gal):			100,000

DEP Comments:

Important:

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Multi-site impoundment

Source ID:	18089	Source Name	Harbert East Impoundment		Source start date:	6/1/2013
					Source end date:	6/1/2014
Source Lat:	39.385972	Source Long:	-80.34262	County	Harrison	
Max. Daily Purchase (gal)				Total Volume from Source (gal):	4,500,000	

DEP Comments:

The intake identified above has been defined in a previous water management plan. The thresholds established in that plan govern this water management plan unless otherwise noted.

Reference: WMP-248

Source ID:	18090	Source Name	McClelland Impoundment		Source start date:	6/1/2013
					Source end date:	6/1/2014
Source Lat:	39.44971	Source Long:	-80.324501	County	Marion	
Max. Daily Purchase (gal)				Total Volume from Source (gal):	800,000	

DEP Comments:

The intake identified above has been defined in a previous water management plan. The thresholds established in that plan govern this water management plan unless otherwise noted.

Reference: WMP-120

Important:

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Source ID:	18091	Source Name	Martin Impoundment		Source start date:	6/1/2013	
					Source end date:	6/1/2014	
		Source Lat:	39.41513	Source Long:	-80.32151	County	Harrison
		Max. Daily Purchase (gal)		Total Volume from Source (gal):		100,000	

DEP Comments:

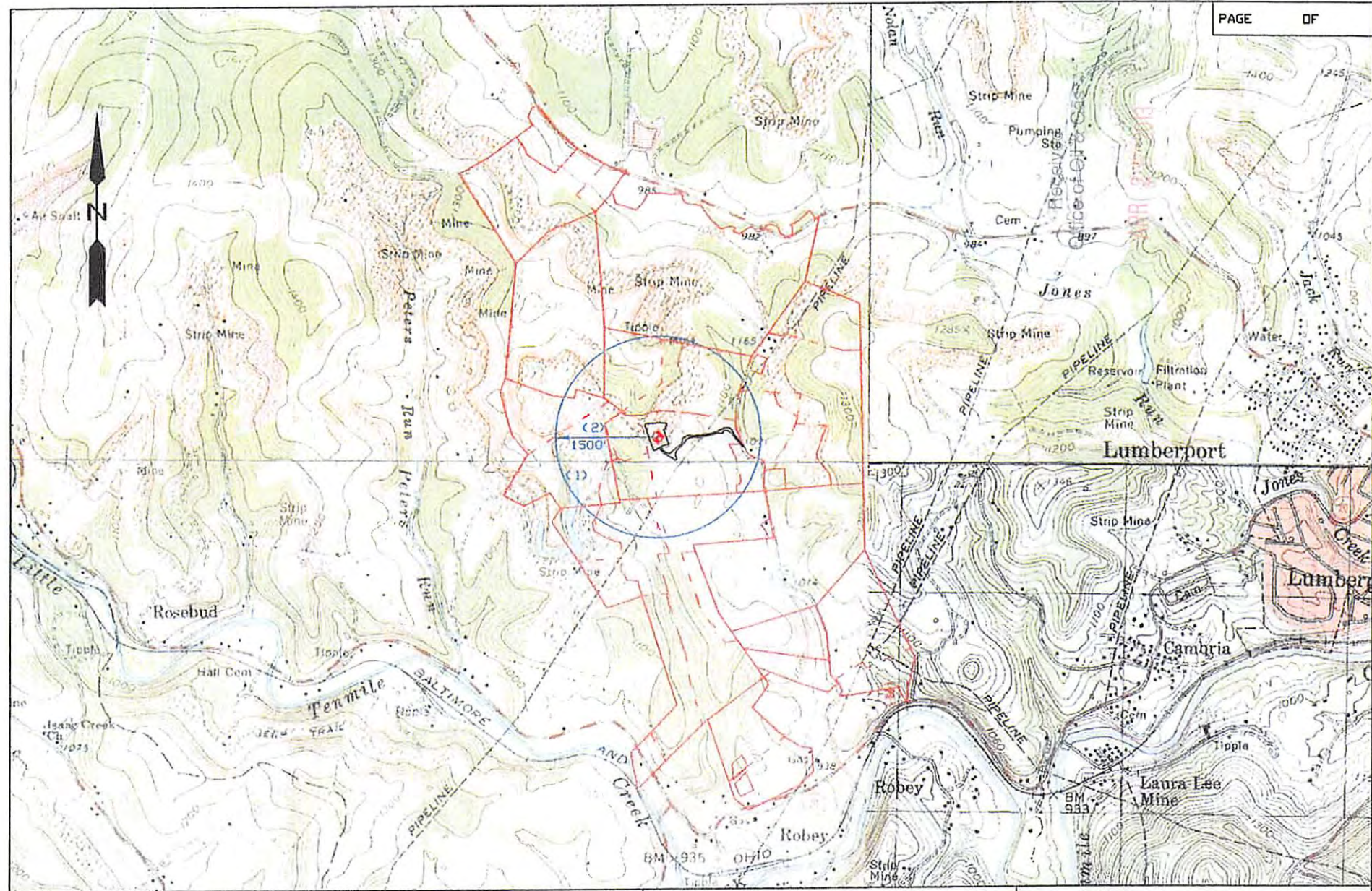
The intake identified above has been defined in a previous water management plan. The thresholds established in that plan govern this water management plan unless otherwise noted.

Reference: WMP-805

Recycled Frac Water

Source ID:	18092	Source Name	Various		Source start date:	6/1/2013	
					Source end date:	6/1/2014	
		Source Lat:		Source Long:		County	
		Max. Daily Purchase (gal)		Total Volume from Source (gal):		100,000	

DEP Comments:



1/4

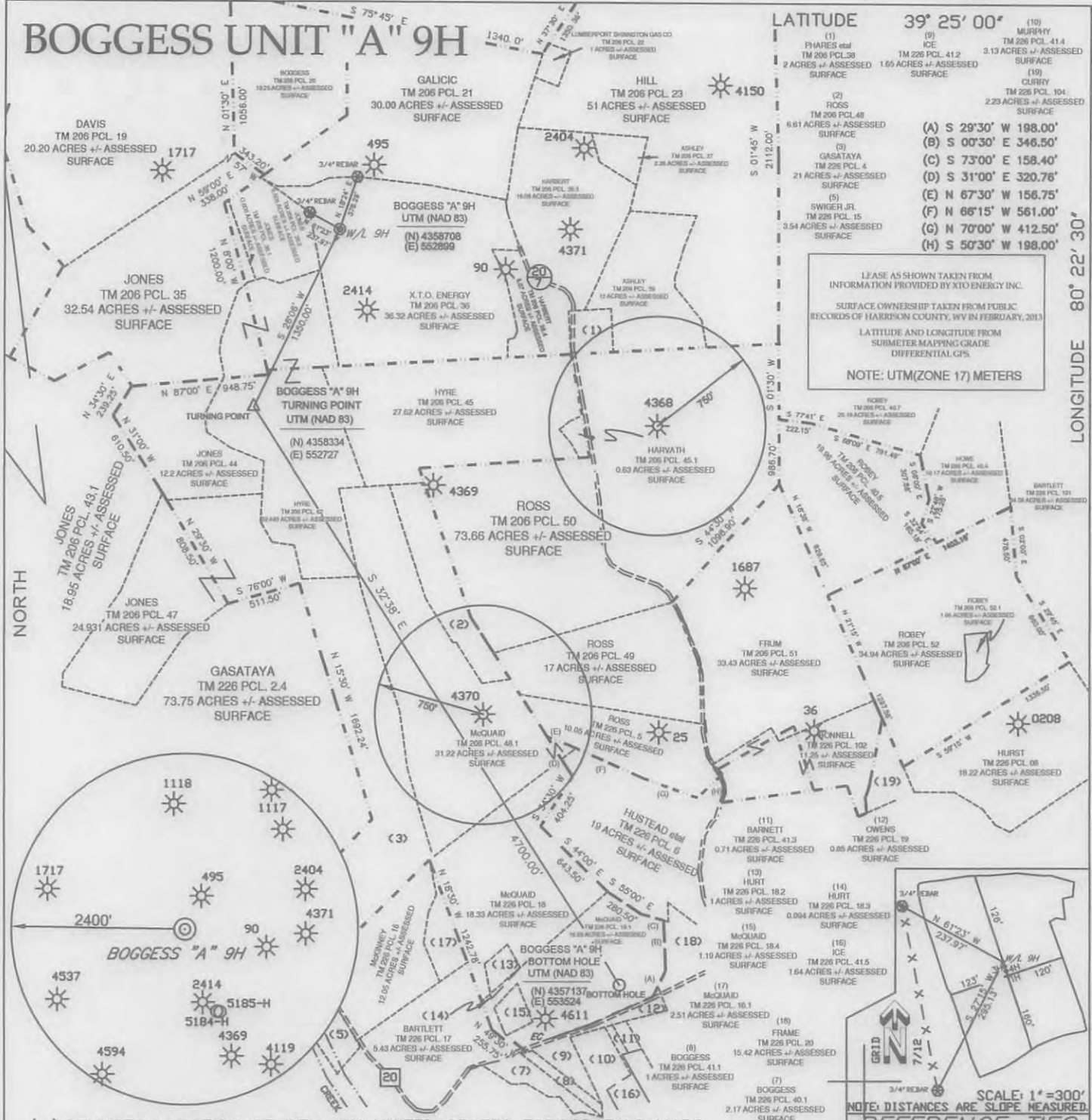
COMPANY: WELL NO. : BOGGESS "A"	QUADRANGLE: WALLACE	COUNTY: HARRISON	DISTRICT: EAGLE
WATERSHED: REESES RUN A TRIBUTARY OF TENMILE CREEK	DATE: 9/7/12	DRAWN BY: REA	ADAMS LAND SURVEYING, PLLC P. O. BOX 584 TROY, WV 26443 304-462-7971

33-5745

BOGCESS UNIT "A" 9H

LATITUDE	39° 25' 00"	(10)
(1) PHARES	TM 206 PCL. 39	MURPHY
2 ACRES +/- ASSESSED SURFACE	1.65 ACRES +/- ASSESSED SURFACE	TM 226 PCL. 41.4
(2) ROSS	TM 206 PCL. 40	CE
6.61 ACRES +/- ASSESSED SURFACE	2.23 ACRES +/- ASSESSED SURFACE	(19) CURRY
(3) GASATAYA	TM 226 PCL. 4	TM 226 PCL. 104
21 ACRES +/- ASSESSED SURFACE	2.23 ACRES +/- ASSESSED SURFACE	2.23 ACRES +/- ASSESSED SURFACE
(4) SWIGER JR.	TM 226 PCL. 15	3.13 ACRES +/- ASSESSED SURFACE
3.54 ACRES +/- ASSESSED SURFACE		
(A) S 29°30' W 198.00'		
(B) S 00°30' E 346.50'		
(C) S 73°00' E 158.40'		
(D) S 31°00' E 320.76'		
(E) N 67°30' W 156.75'		
(F) N 66°15' W 561.00'		
(G) N 70°00' W 412.50'		
(H) S 50°30' W 198.00'		

LEASE AS SHOWN TAKEN FROM INFORMATION PROVIDED BY XTO ENERGY INC.
 SURFACE OWNERSHIP TAKEN FROM PUBLIC RECORDS OF HARRISON COUNTY, WV IN FEBRUARY, 2013
 LATITUDE AND LONGITUDE FROM SURMETER MAPPING GRADE DIFFERENTIAL G.S.
 NOTE: UTM(ZONE 17) METERS



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

SCALE: 1"=300'
NOTE: DISTANCES ARE SLOPE MEASURED
REFERENCE TIES

FILE NO. BOGCESS WELLS REV
 DRAWING NO. 9H.DWG
 SCALE 1"=1000'
 MINIMUM DEGREE OF ACCURACY 1:200
 PROVEN SOURCE OF ELEVATION DGPS (SUBMETER GRADE)

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 REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENERGY.
 (SIGNED) Richard E. Adams
 P.S. 986



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



ADAMS LAND SURVEYING, PLLC
 P.O. BOX 584
 TROY, WV 26443
 (304)462-7971

DATE FEBRUARY 12, 2013
 OPERATOR'S WELL NO. 9H
 API WELL NO.

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL
 (IF "GAS,") PRODUCTION STORAGE X DEEP SHALLOW
 LOCATION: ELEVATION 1183' WATERSHED REESES RUN A TRIBUTARY OF LITTLE TENMILE CREEK
 DISTRICT EAGLE COUNTY HARRISON
 QUADRANGLE WALLACE
 SURFACE OWNER XTO ENERGY INC. ACREAGE 36.32 +/-
 OIL & GAS ROYALTY OWNER BOGCESS et al LEASE ACREAGE 341.25 +/-

PROPOSED WORK: DRILL X CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY)
 PLUG AND ABANDON CLEAN OUT AND REPLUG
 FORMATION TARGET MARCELLUS ESTIMATED DEPTH TVD: 7093, TMD: 11,200
 WELL OPERATOR XTO ENERGY INC. DESIGNATED AGENT GARY BEALL
 ADDRESS 810 HOUSTON STREET ADDRESS P.O. BOX 1008 JANE LEW, WV 26385
 FORT WORTH, TEXAS 76102

FORM WW-6

COUNTY NAME PERMIT

SURVEYED LATITUDE 39° 22' 34.1"