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west virginia department of environmental protection

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Office of Oil and Gas  
601 57<sup>th</sup> Street, S.E.  
Charleston, WV 25304  
(304) 926-0450  
fax: (304) 926-0452

Austin Caperton, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Friday, May 18, 2018  
WELL WORK PERMIT  
Horizontal 6A / New Drill

XTO ENERGY, INC.  
810 HOUSTON STREET

FORT WORTH, TX 76102

Re: Permit approval for ICE SOUTH UNIT 10H  
47-033-05913-00-00

This well work permit 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 any additional specific 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 of 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.

Per 35 CSR 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- 0450.

James A. Martin  
Chief

Operator's Well Number: ICE SOUTH UNIT 10H  
Farm Name: XTO ENERGY INC  
U.S. WELL NUMBER: 47-033-05913-00-00  
Horizontal 6A New Drill  
Date Issued: 5/18/2018

# PERMIT CONDITIONS 4703305913

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. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. 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 one hundred (100) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. 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.
4. 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.
5. 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.
6. 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.
7. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
8. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
9. 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.
10. 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.

# PERMIT CONDITIONS 4703305913

11. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to [DEPOOGNotify@wv.gov](mailto:DEPOOGNotify@wv.gov).

WW-6B  
(04/15)

API NO. 47- \_\_\_\_\_  
 OPERATOR WELL NO. Ice South Unit 10H  
 Well Pad Name: Ice Pad

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
WELL WORK PERMIT APPLICATION

- 1) Well Operator: XTO Energy Inc.

<u>494487940</u>	<u>Harrison</u>	<u>Clay</u>	<u>Shinnston</u>
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Operator ID County District Quadrangle
- 2) Operator's Well Number: Ice South Unit 10H Well Pad Name: Ice Pad
- 3) Farm Name/Surface Owner: XTO Energy Inc. Public Road Access: CR 8/6 (Nutter Run)
- 4) Elevation, current ground: 1,352' Elevation, proposed post-construction: 1,364'
- 5) Well Type (a) Gas  Oil \_\_\_\_\_ Underground Storage \_\_\_\_\_  
 Other \_\_\_\_\_  
 (b) If Gas Shallow  Deep \_\_\_\_\_  
 Horizontal
- 6) Existing Pad: Yes or No No
- 7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Target Formation: Marcellus, Depth 7,378'-7,517', Anticipated Thickness: 150', Associated pressure: 4,650 psi
- 8) Proposed Total Vertical Depth: 7,498'
- 9) Formation at Total Vertical Depth: Marcellus
- 10) Proposed Total Measured Depth: 17,914
- 11) Proposed Horizontal Leg Length: 10,021
- 12) Approximate Fresh Water Strata Depths: 115', 250'
- 13) Method to Determine Fresh Water Depths: Offsetting Reports
- 14) Approximate Saltwater Depths: 1200'
- 15) Approximate Coal Seam Depths: 390', 490'
- 16) Approximate Depth to Possible Void (coal mine, karst, other): 480'-490'
- 17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes \_\_\_\_\_ No
- (a) If Yes, provide Mine Info: Name: \_\_\_\_\_  
 Depth: \_\_\_\_\_  
 Seam: \_\_\_\_\_  
 Owner: \_\_\_\_\_



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601 57<sup>th</sup> Street, S.E.  
Charleston, WV 25304  
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Austin Caperton, Cabinet Secretary  
dep.wv.gov

**ORDER  
ISSUED UNDER  
WEST VIRGINIA CODE, CHAPTER 22, ARTICLE 6A**

TO: XTO Energy, Inc.  
810 Houston Street  
Fort Worth, TX 76102

DATE: May 15, 2018  
ORDER NO.: 2018-W-1

**INTRODUCTION**

This Order (hereinafter “Order”) is issued by the Office of Oil and Gas (hereinafter “OOG”), by and through its Chief, pursuant to the authority of W. Va. Code §§ 22-1-1, 22-6-1 and 22-6A-1 *et seq.* to XTO Energy, Inc. (hereinafter “XTO” or “Operator”), collectively the “Parties.”

**FINDINGS OF THE CHIEF**

In support of this Order, the Chief hereby finds the following:

1. OOG, an office within the West Virginia Department of Environmental Protection, is the agency with the duty and authority to execute and enforce W. Va. Code §22-6-1 and §22-6A-1 *et seq.*, and the rules and regulations promulgated thereunder.
2. XTO is a “person” as defined by W. Va. Code §22-6-1(n), with a corporate address as 810 Houston Street, Fort Worth, Texas 76102
3. On May 19, 2017, XTO submitted a well work permit application identified as API# 47-033-05898. Then on November 1, 2017 and January 10, 2018, XTO Energy, Inc. also submitted well work permit applications identified as API#s 47-033-05913 and 47-033-05919. The three proposed wells are to be located on the Ice Pad in Clay District of Harrison County, West Virginia.
4. On May 19, 2017, XTO requested a waiver for Wetlands A and B outlined in Attachment 1, from well location restriction requirements in W. Va. Code §22-6A-12(b) for the well work permit applications identified as API#s 47-033-05898, 47-033-05913 and 47-033-05919.

## CONCLUSIONS OF LAW

1. West Virginia Code §22-1-6(d) requires, in part, that “in addition to other powers, duties and responsibilities granted and assigned to the secretary by this chapter, the secretary is authorized and empowered to... (3) Enter private lands to make surveys and inspections for environmental protection purposes; to investigate for violations of statutes or rules which the Office of Oil and Gas is charged with enforcing; to serve and execute warrants and processes; to make arrests; issue orders, which for the purposes of this chapter include consent agreements; and to otherwise enforce the statutes or rules which the Office of Oil and Gas is charged with enforcing.”
2. West Virginia Code §22-6A-2(a)(6) requires, in part, that “Concomitant with the broad powers to condition the issuance of well work permits, the secretary should also have broad authority to waive certain minimum requirements of this article when, in his or her discretion, such waiver is appropriate: *Provided*, That the secretary shall submit a written report of the number of waivers granted to the Legislature commencing January 1, 2013, and each year thereafter.”
3. West Virginia Code §22-6A-12(b) requires, in part, that “no well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the Office of Oil and Gas shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The Office of Oil and Gas may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary.”



## **ORDER**

West Virginia Code §22-6A-12(b) requires, in part, that “no well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland. The Office of Oil and Gas grants the request for a waiver for Wetlands A and B from well location restriction requirements in W. Va. Code §22-6A-12(b) for the well work permit applications identified as API#s 47-033-05898, 47-033-05913 and 47-033-05919. The Office of Oil and Gas hereby **ORDERS** that XTO shall meet the following site construction and operational requirements for the Ice Well Pad:

- a. A berm shall be constructed around the perimeter of the pad to contain any potential spills and storm water runoff. Berm is to be at least twenty-four inches (24”) in height;
- b. Erosion control blankets shall be installed on all slopes and down gradient locations of the pad as erosion and sediment controlling BMPs;
- c. Wetland A is not at risk sedimentation due to its location upslope of the well pad.
- d. Wetland B shall be protected by the berm constructed around the pad but due to its location across the slope from the pad it is unlikely to be at risk for sedimentation or impact. Extra care shall be provided during construction to ensure no impact to the wetland shall occur.
- e. Disturbed areas not used for operations shall be seeded and mulched per the seeding tables in the WVDEP-OOG Erosion and Sediment Control Manual;
- f. Drill cuttings and associated drilling mud shall be disposed of in a permitted landfill;
- g. Waste generated by the flowback treatment systems shall be sent to offsite disposal at a permitted landfill;
- h. Weekly site inspections shall be conducted to monitor and maintain the integrity of the BMP storm water controls;
- i. Weekly storm water and spill prevention inspections shall be conducted focusing on storm water and spill prevention BMPs and maintenance of these BMPs;
- j. Inspections of the storm water and spill prevention measures shall be conducted after any major storm event defined as a half inch (½”) rain within any twenty-four (24) hour period;
- k. Pad inspections shall be conducted no less than once a week to identify and mitigate potential deficiencies;
- l. All records from inspections shall be maintained on site for the life of the project and be available upon request.

Thus ORDERED, the 15th day of May, 2018.

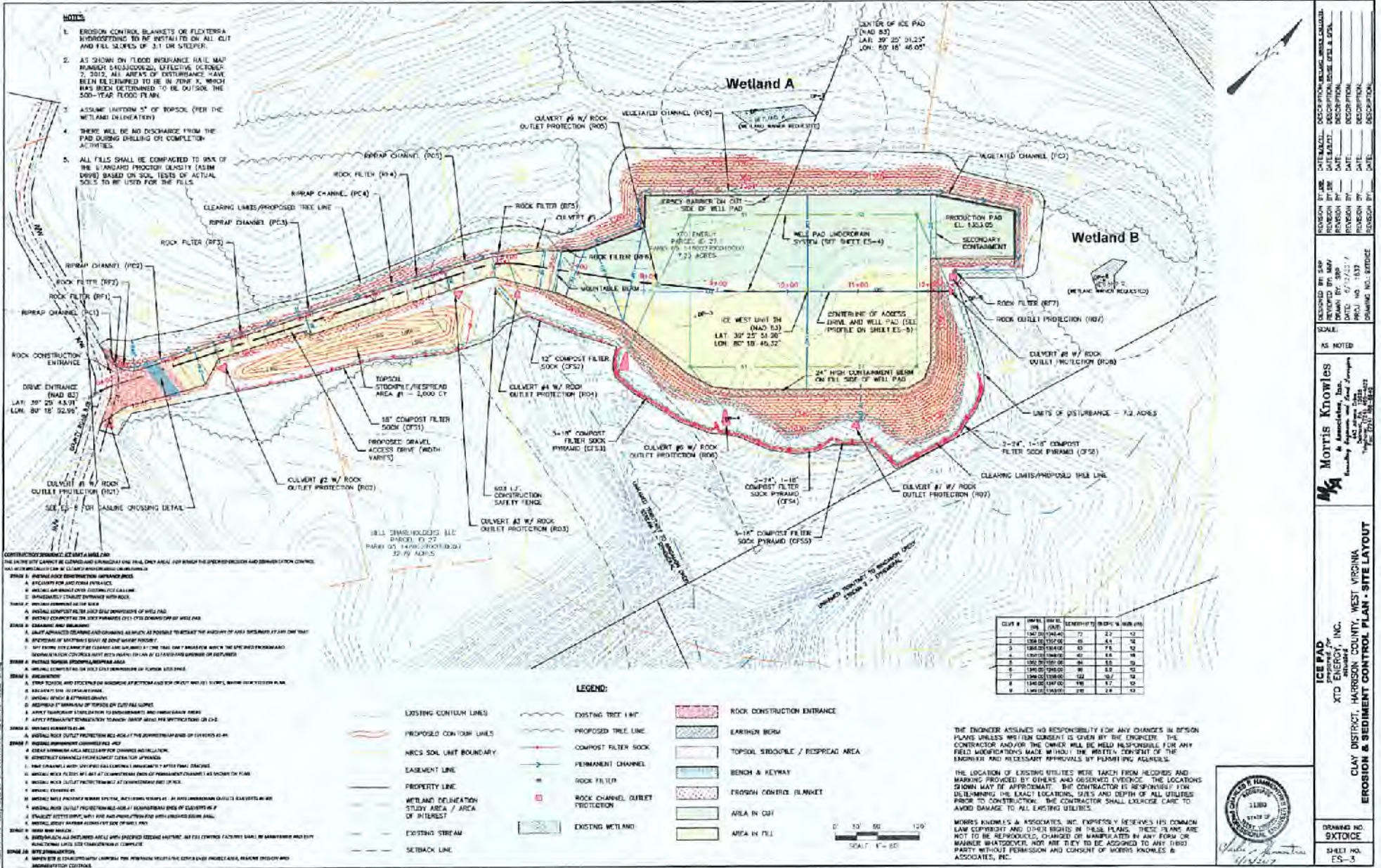
IN THE NAME OF THE STATE OF WEST VIRGINIA:

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

By:   
JAMES A. MARTIN, CHIEF



XTO Energy - Ice Pad Wetland Waiver Attachment 1





4703305913

WW-6B  
(04/15)

API NO. 47- \_\_\_\_\_ - \_\_\_\_\_  
 OPERATOR WELL NO. Ice South Unit 10H  
 Well Pad Name: Ice Pad

18) CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	24	New	PE&B	95	40	40	59 / CTS
Fresh Water	13.375	New	H40	48	550	550	515 / CTS
Coal							
Intermediate	9.625	New	J55	36	3,000	3,000	1,303 / CTS
Production	5.5	New	J55	20	17,914	17,914	3,601 / 5,823
Tubing							
Liners							

SDW  
10/30/2017

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	24	28	0.375	940	40	Standard	1.19
Fresh Water	13.375	17.5	0.33	1,730	470	Standard	1.19
Coal							
Intermediate	9.625	12.25	0.352	3,520	2,600	Standard	1.19
Production	5.5	8.5	0.361	12,640	6,100	50.50 PCZ / Class H Tub	1.13 / 1.18
Tubing							
Liners							

PACKERS

Kind:				
Sizes:				
Depths Set:				

Page 2 of 3  
 05/18/2018  
 Office of Oil and Gas

NOV - 1 2017

WV Department of  
 Environmental Protection

WW-6B  
(10/14)

API NO. 47- \_\_\_\_\_  
OPERATOR WELL NO. Ice South Unit 10H  
Well Pad Name: Ice Pad

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill a new horizontal Marcellus well, utilizing synthetic mud and a closed loop system for both drilling and completion. Install new casing with centralizers.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

1. Acid Stage - Typically 1500 gallons of 7.5% hydrochloric acid to clear the perforation path in the wellbore.  
2. Sand / Proppant Stages - Several stages of pumping water combined with sand at a targeted 80 bpm rate. The highest pressure and rate anticipated is 9,500 psig and 100 bpm. 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, 1,500 gals Bioplex 301 and 1,190 gals antiscale 30.  
3. Flush Stage - Slickwater water stage to fill the wellbore to flush 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.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 10.4 +/-

22) Area to be disturbed for well pad only, less access road (acres): 3.4 +/-

23) Describe centralizer placement for each casing string:

Conductor: None  
Fresh Water: Every 3rd joint from shoe to surface  
Mine: Every 3rd joint from shoe to surface (if applicable)  
Intermediate: Every 3rd joint from shoe to surface  
Production: Every 3rd joint from shoe to 1,000' above the kick-off point

24) Describe all cement additives associated with each cement type:

Conductor: None  
Fresh Water: Calcium Chloride and super flake  
Mine: Calcium Chloride and super flake (if applicable)  
Intermediate: Calcium Chloride and super flake  
Production: Calcium Chloride, Bentonite, super flake, Air-Out, CR-1, FL-300, SEC10

25) Proposed borehole conditioning procedures:

Conductor: Hole is auger drilled: No conditioning required.  
Fresh Water: Condition hole with air at TD until visibly clean, run casing, circulate and clear 1.5x pipe volume with fresh water before cementing.  
Mine: Condition hole with air at TD until visibly clean, run casing, circulate and clear 1.5x pipe volume with water before cementing (if applicable).  
Intermediate: Condition hole with air at TD until visibly clean, run casing, circulate and clear 1.5x pipe volume with water before cementing.  
Production: Circulate hole with synthetic based drilling fluid at TD (1 bottoms up for each 2,000' of lateral drilled). TOOH and circulate minimum of 1 bottoms up and until returns are minimal at the base of the curve. Run casing, circulate and ensure good returns before cementing.

\*Note: Attach additional sheets as needed.

Page 3 of 3  
05/18/2018

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**Ice South Unit 10H – Mine Void Encounter Plan**

Per communications with the WV Geology and Economic Survey there is a possible mine void in the Pittsburgh Coal seam under the Ice Pad in Harrison County, WV. In preparation for drilling through a mine void, we will nipple up an annular preventer to be able to handle any flow should the void actually be encountered. We expect it to come in around 480-490' TVD from GL. We plan to set 13 3/8" casing as a surface/coal protective string ~50' below the base of this void.

A cement basket will be run as close as possible to the top of the void.

A cement balance job will be performed to cement the shoe and the annulus below the mine if circulation cannot be established. A grout cement job will be performed on the annulus to cement above the mine.

Once cemented in place, we will continue on with our normal casing design, which would be to set 9 5/8" intermediate casing at ~3,000 ft.

Jake Coykendall  
XTO Energy  
Drilling Engineer  
724-766-6968  
Jacob\_coykendall@xtoenergy.com

05/18/2018

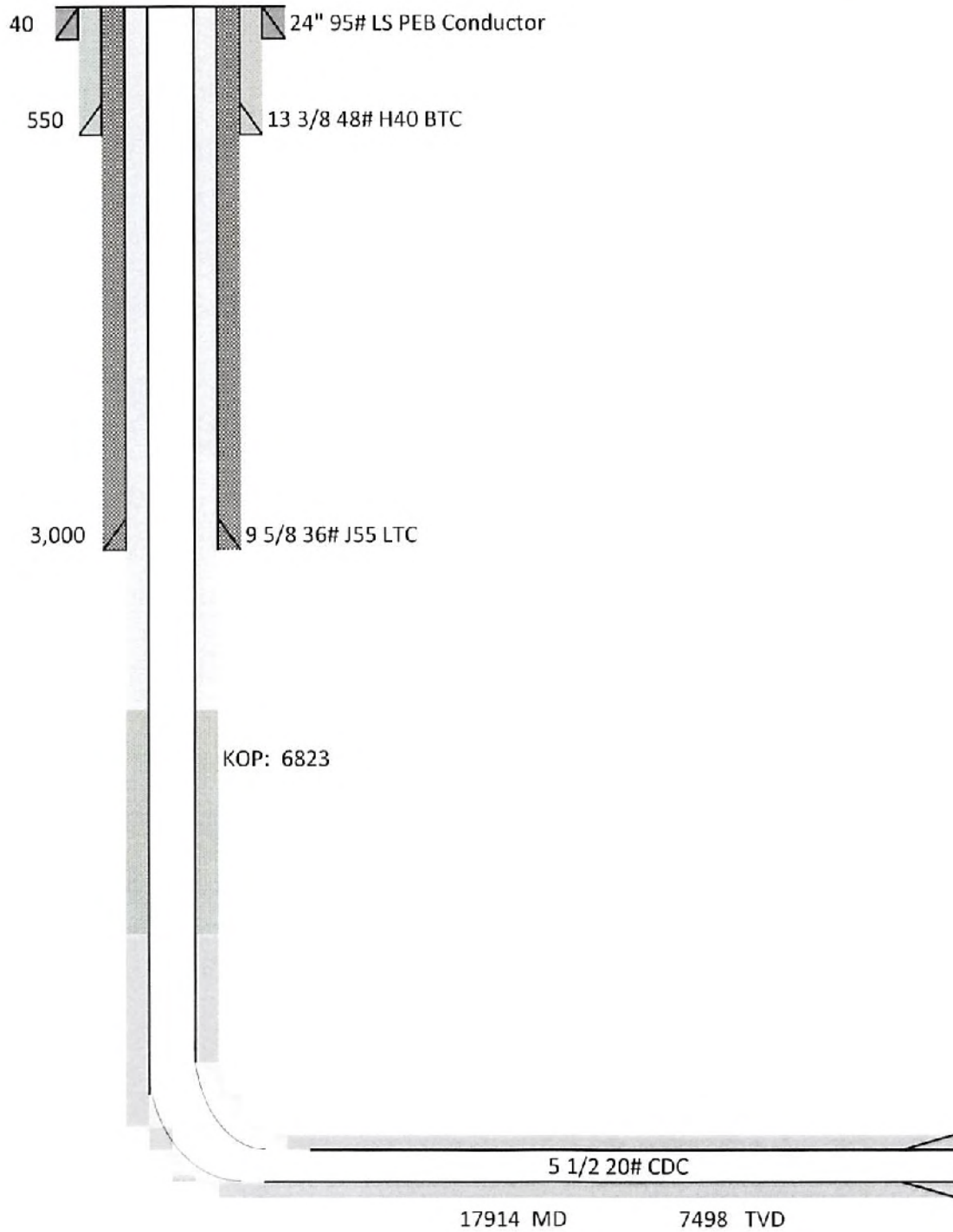
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Ice South 10H  
Marion County, West Virginia

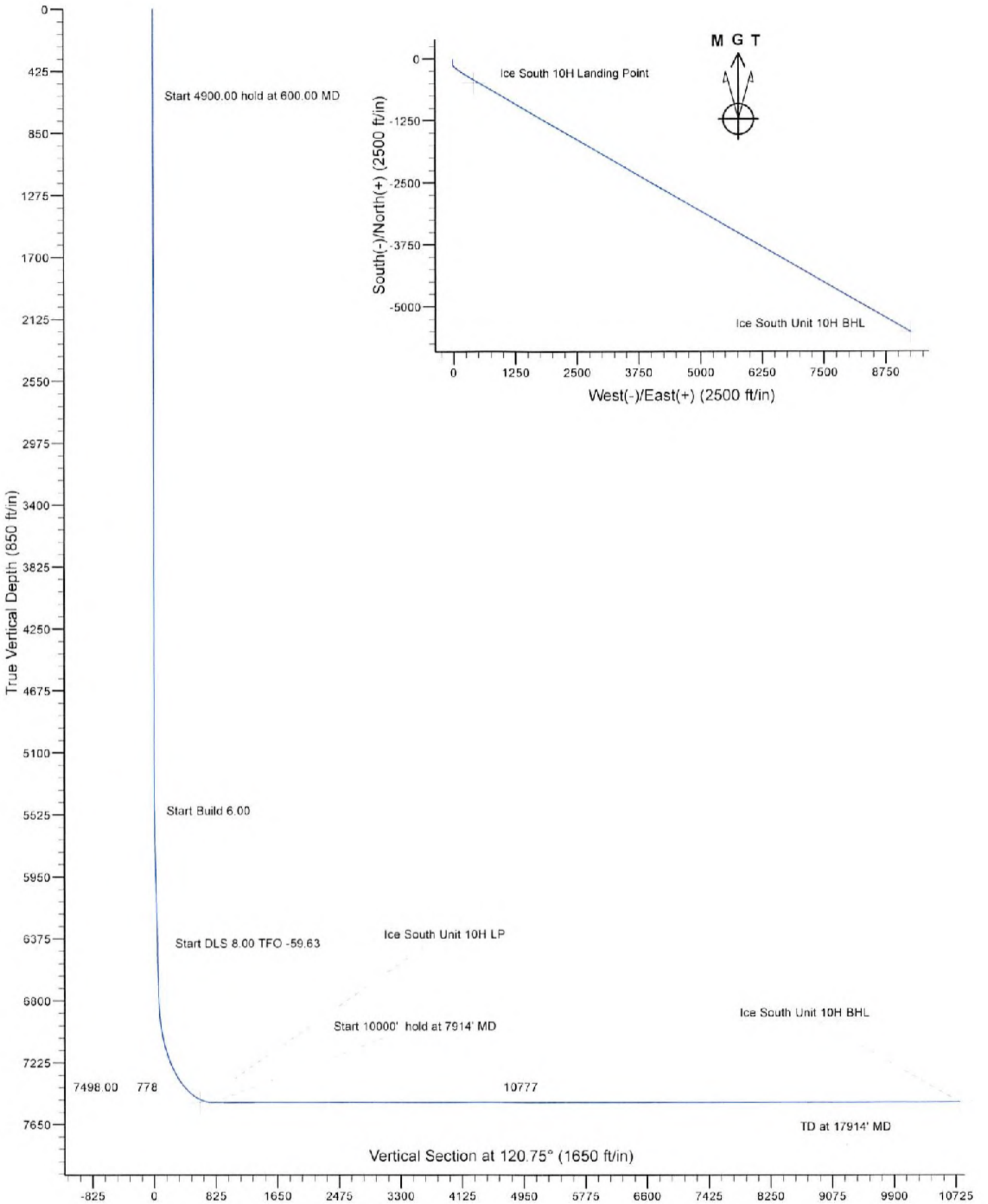


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4703305913

WW-9  
(4/16)

API Number 47 - \_\_\_\_\_ - \_\_\_\_\_  
Operator's Well No. Ice South Unit 10H

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name XTO Energy Inc. OP Code 494487940

Watershed (HUC 10) Lower West Fork River Quadrangle Shinnston

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

Will a pit be used? Yes  No

If so, please describe anticipated pit waste: \_\_\_\_\_

Will a synthetic liner be used in the pit? Yes  No  If so, what ml.? \_\_\_\_\_

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection ( UIC Permit Number 4703509721, 4708505151, 3416729577, 3412124086, 3412123995 )
- Reuse (at API Number \_\_\_\_\_)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain \_\_\_\_\_)

*SDW  
10/30/2017*

Will closed loop system be used? If so, describe: Depending on brand, system would entail 2 centrifuges & another cutting drying method: grinder, drying shakers or verti-g mud.

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Air/water to 7100', then switch to synthetic

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

Additives to be used in drilling medium? See additional page

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, sawdust) NA

-Landfill or offsite name/permit number? Meadowbrook Landfill - #SWF 1032

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

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

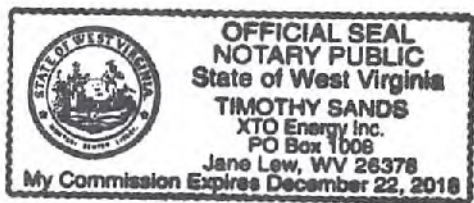
Company Official Title Production Superintendent

Subscribed and sworn before me this 24<sup>th</sup> day of October, 2017

*[Signature]* Notary Public

My commission expires December 22, 2018

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05/18/2018  
Environmental Protection



4703305913

Form WW-9

Operator's Well No. Ice South Unit 10H

XTO Energy Inc.

Proposed Revegetation Treatment: Acres Disturbed 10.4 +/- Prevegetation pH \_\_\_\_\_

Lime 3 Tons/acre or to correct to pH \_\_\_\_\_

Fertilizer type 10-20-20

Fertilizer amount 1000 lbs/acre

Mulch 3 Tons/acre

Seed Mixtures

**Temporary**

**Permanent**

Seed Type lbs/acre

Seed Type lbs/acre

Per plans

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: S. P. Wood II

Comments: Pre-seed/mulch all disturbed areas as soon as reasonably possible per regulation. Upgrade E&S as necessary per WV DEP E&S manual.

Title: BOG Inspector Date: 10/30/2017

Field Reviewed? (  ) Yes (  ) No

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XTO Drilling Additives

Product Name	CAS#
Anco Mul XL	8002-43-5
Kensol 48H	64742-47-8
ANCO BAR (Barite)	7727-43-7
ANCO Drill (A, N)	25083-02-03
Anco Mul Ow	68442-77-3
Anco Mul P	70321-73-2
Anco Mul S	71.36-3 & 64742-95-6
Anco Mul Thin	111-76-2
	112-34-5
	104-76-7
	84989-14-0
	57-55-6
ANCO Phalt S	NA
ANCO Trol	NA
Calcium Carbonate	14808-60-7
	1317-65-3
Calcium Chloride	10043-52-4
Cedar Fiber	11132-73-3
Cl-300A	NA
Graphite	7782-42-5
	14808-60-7
GSX-602 Petrogel 100	14808-60-7
	67-63-0
Lime	1305-62-0
	1305-78-8
	7631-86-9
	1309-48-4
Mica (F,C)	12001-26-2
	14808-60-7
Oil Dry	12174-11-7
	14808-60-7
Potassium Chloride (KCl)	7447-40-7
Salt	7647-14-5
Synthetic Based Mud	
Thunder Plug	
Walnut ( F,M & C)	NA
Claytone II	

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Revised (3/15)

## Site Safety Plan Table of Contents

### For H6A Well Work Permits and Deep Well Work Permits

*Please prepare a Site Safety Plan to accompany each applicable H6A and/or Deep well work permit, adhering to the following organizational and informational structure. Plans submitted must contain an index of the content entirety including page-number references.*

#### 1. Contacts, Schedules, and Meetings

- A. Emergency point of contact for the well operator covering all phases of activities and including 24 hour contact information (35-8 5.7.b.4)
- B. List of telephone numbers for (35-8 5.6.4):
  - 1) Operator
  - 2) Contractors
  - 3) DEP office and oil/gas inspector
  - 4) Local emergency response units
  - 5) Local ER personnel
  - 6) All schools and public facilities within a one mile radius of proposed well site (35-8 5.7.b.5)
- C. Method of notification of public of H<sub>2</sub>S gas presence and how access will be controlled. (applicable horizontal wells include all residents and emergency response personnel who may be affected by an event. Such events may include the presence of H<sub>2</sub>S, blow-outs, and flaring) (35-8 5.7.f.1)
- D. Pre-spud meeting held prior to drilling operations, including (35-8 5.7.h):
  - 1) Attendance log, including personnel to be employed and involved in drilling operations
  - 2) Notification of County oil and gas inspector or other designated Office of Oil and Gas representative
- E. Describe schedule for conducting regular well site safety meetings. Log attendance at all meetings and also initiate check in check out during drilling, completion, and workover phases. (35-8 5.7.h)

#### 2. Maps and Diagrams

- A. Plan view map of location, access road, pit(s), flare lines, nearby dwellings, note the north direction and the prevailing wind direction (35-8 5.7.b.1)
- B. Topographic map of well location, including
  - 1) 1 mile radius of well location
  - 2) UTM NAD 83 coordinates of well site entrance (35-8 5.7.b.2)
  - 3) UTM NAD 83 coordinates of the point the access road intersects the public route (35-8 5.7.b.2)
  - 4) Identify public route number and/or route name (35-8 5.7.b.2)
- C. Evacuation plan for the removal of personnel from the drilling location and residents in the surrounding area who have the potential to be affected by an emergency. (35-8 5.7.b.3)

#### 3. Well Work

- A. Detailed written descriptions of well work and procedure to be used during the drilling, completion, and production phases, including schematic plan views of each (35-8 5.7.a)
- B. Statement detailing how a copy of the plan will be provided to the local emergency planning committee or county emergency services office within at least 7 days from land disturbance or well work. (35-8 5.7.a)

SDW  
10/30/2017

05/18/2018

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WV Department of  
Environmental Protection

4703305913

XTO Energy Inc.  
Well Site Safety Plan

Well: Ice South Unit 10H

Pad: Ice  
1284 Odells Knob Road  
Shinnston, WV 26431

NAD 83 Coordinates  
39.431064  
-80.312613

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1 2017  
WV Department of  
Environmental Protection

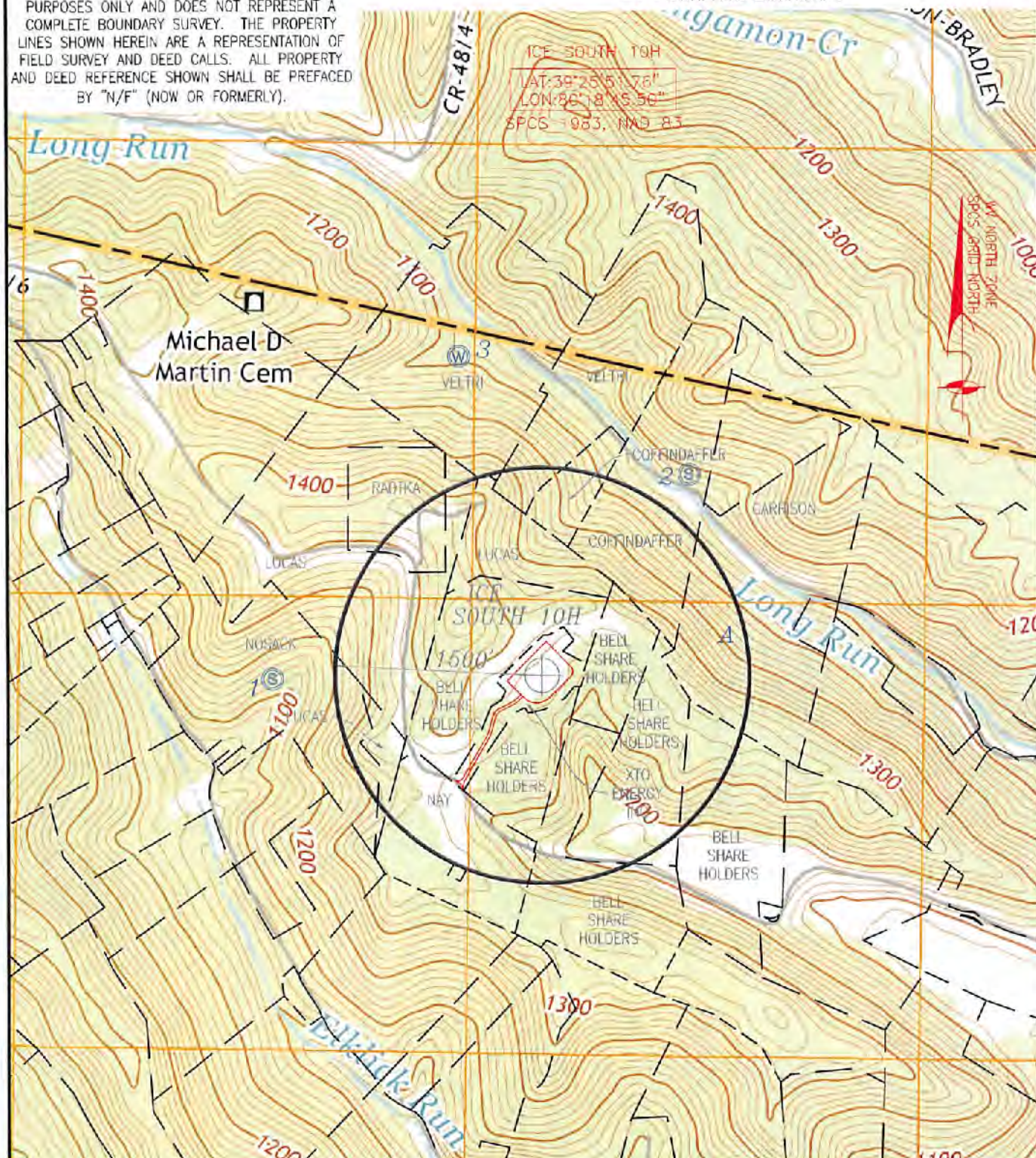


FORM W-9

NOTE: THIS PLAT IS FOR WELL LOCATION PURPOSES ONLY AND DOES NOT REPRESENT A COMPLETE BOUNDARY SURVEY. THE PROPERTY LINES SHOWN HEREIN ARE A REPRESENTATION OF FIELD SURVEY AND DEED CALLS. ALL PROPERTY AND DEED REFERENCE SHOWN SHALL BE PREFACED BY "N/F" (NOW OR FORMERLY).

LEGEND

- ⊙ WATER WELL
- ⊕ SPRING/POND/STREAM
- SURFACE BOUNDARY



VERIFIED SOURCES

POINT	NAME	ADDRESS	CITY	STATE	ZIP CODE	DISTANCE	BEARING	PARCEL I.D.
1	Michael & Cynthia Nosack	712 Bices Run Road	Shinnston	WV	26431	1950'	S 89°23'04" W	Tax Map 5-147, Parcel 87
2	Faris W. & Margaret J. Coffindafer	24 Glenview Drive	Bridgeport	WV	26330	1801'	N 36°26'58" E	Tax Map 5-148, Parcel 4
3	Tina M. Veltri	48 White Oak Drive	Bridgeport	WV	26330	2382'	N 14°31'16" W	Tax Map 11-58, Parcel 37

PROPERTIES THAT POTENTIALLY HAVE WATER SOURCES WITHIN 1500 FEET

POINT	NAME	ADDRESS	CITY	STATE	ZIP CODE	PARCEL I.D.
A	Charlotte Garrison	P.O. Box 23	Ida May	WV	26576	Tax Map 5-148, Parcel 6

ICE SOUTH UNIT 10H UNKNOWN SOURCES

CLAY DISTRICT, HARRISON COUNTY, WEST VIRGINIA | 8/9/2017 | JC2017-28 | SHEET 1 OF 1



2402 PENNSYLVANIA 66  
DELMONT, PA 15626  
(724) 757 - 2417  
www.jonesconsultant.com

Shinnston Quad (2014)  
Marion County, WV  
Scale: 1" = 1000'



190 THORN HILL ROAD  
WARRENDALE, PA 15086

05/18/2018

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BOTTOM HOLE ← TOP HOLE → 8375' 5916'

SCALE: 1" = 2400'

# ICE SOUTH UNIT 10H

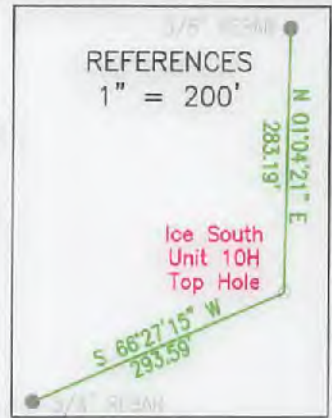
LATITUDE: 39°27'30" SCALE: 1" = 2000'  
(USE FOR BOTH TOP AND BOTTOM HOLES)

### NOTES ON SURVEY

1. NO DWELLINGS WITHIN 625' WERE FOUND.
2. NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' WERE FOUND.
3. TIES TO WELLS AND CORNERS ARE BASED ON STATE PLANE GRID NORTH WV NORTH ZONE NAD 83.
4. WELL ELEVATION ESTABLISHED BY RTK GPS NAVD 88.
5. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF HARRISON COUNTY IN OCTOBER 2017 AND FILES PROVIDED BY XTO ENERGY, INC.
6. WELLS SHOWN ARE TAKEN FROM RECORDS OF WVDEP AND SURVEYED LOCATIONS OF WELLS WITHIN 500' OF WELL BORE.

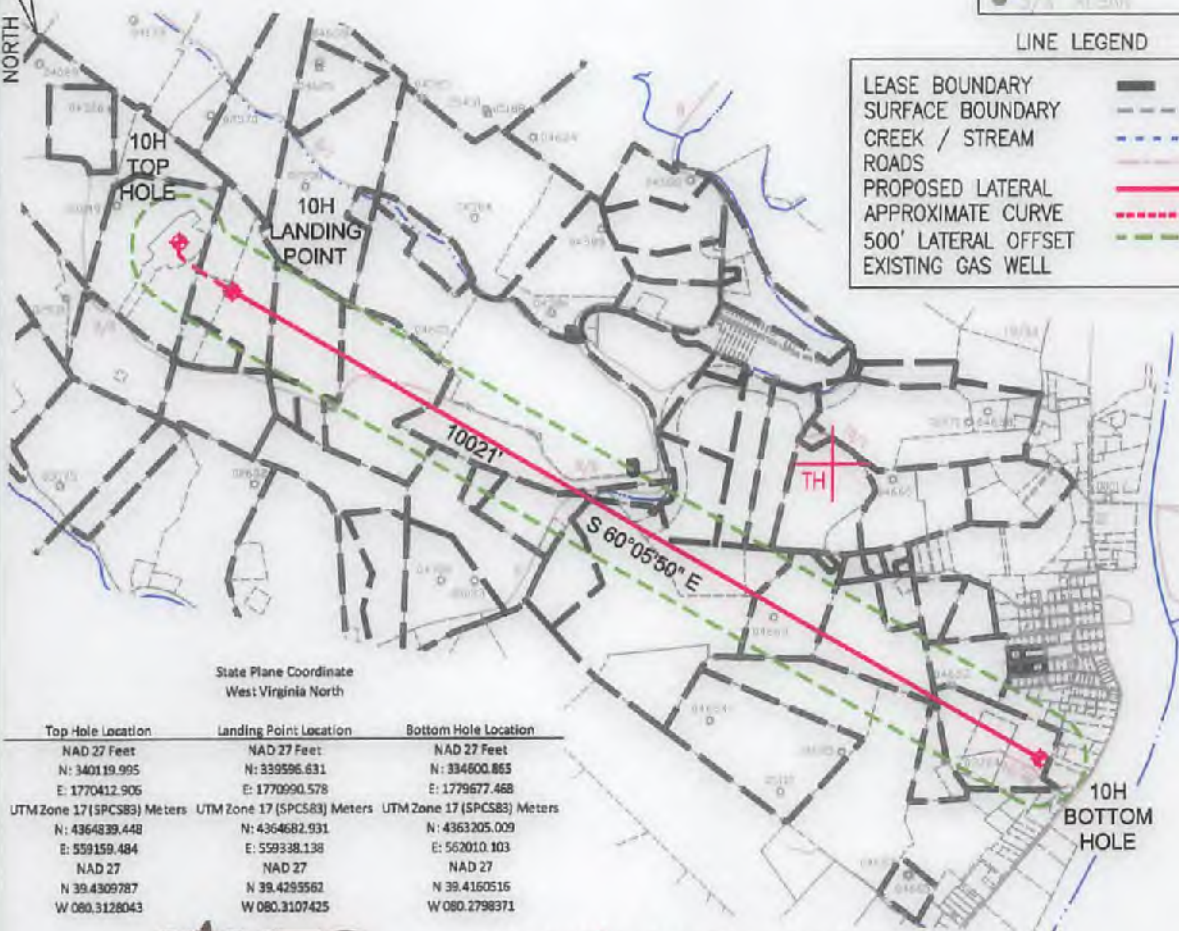
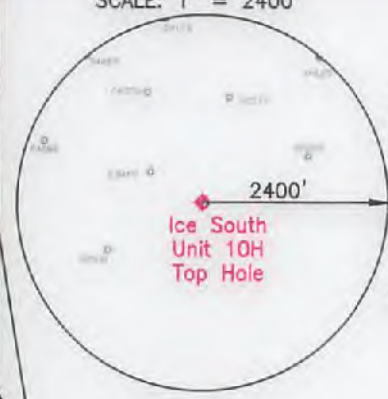
### REFERENCES

1" = 200'



### LINE LEGEND

LEASE BOUNDARY	— — — — —
SURFACE BOUNDARY	- - - - -
CREEK / STREAM	~~~~~
ROADS	— — — — —
PROPOSED LATERAL	— — — — —
APPROXIMATE CURVE	- - - - -
500' LATERAL OFFSET	- - - - -
EXISTING GAS WELL	☉



State Plane Coordinate  
West Virginia North

Top Hole Location	Landing Point Location	Bottom Hole Location
NAD 27 Feet N: 340119.995 E: 1770412.906	NAD 27 Feet N: 339596.631 E: 1770990.578	NAD 27 Feet N: 334600.865 E: 1779677.468
UTM Zone 17 (SPCS83) Meters N: 4364839.448 E: 559159.484	UTM Zone 17 (SPCS83) Meters N: 4364682.931 E: 559338.138	UTM Zone 17 (SPCS83) Meters N: 4363205.029 E: 562010.103
NAD 27 N 39.4309787 W 080.3128043	NAD 27 N 39.4289562 W 080.3107425	NAD 27 N 39.4160516 W 080.2798371



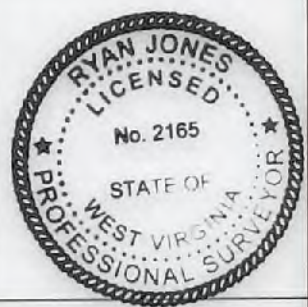
2402 PENNSYLVANIA 66 DELMONT, PA 15626  
(724) 757-2417 BH www.jonesconsultant.com

SHEET 1 OF 2

FILE #: JC2017-28  
DRAWING #: ICE SOUTH UNIT 10H  
SCALE: 1" = 2000'  
MINIMUM DEGREE OF ACCURACY: 1:2500  
PROVEN SOURCE OF ELEVATION: RTK GPS

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 DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed:   
R.P.E.: \_\_\_\_\_ P.S.: 2165



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS  
WVDEP  
OFFICE OF OIL & GAS  
601 57TH STREET  
CHARLESTON, WV 25304



DATE: 5/3/2018  
OPERATOR'S WELL #: ICE SOUTH UNIT 10H  
API WELL #: 47 033  
STATE COUNTY PERMIT

Well Type:  Oil  Waste Disposal  Production  Deep  
 Gas  Liquid Injection  Storage  Shallow

WATERSHED: LOWER WEST FORK RIVER (0502000206) ELEVATION: 1,364' (PROPOSED PAD FINISH GRADE)  
COUNTY/DISTRICT: HARRISON / CLAY QUADRANGLE: SHINNSTON 7.5'  
SURFACE OWNER: XTO ENERGY INC ACREAGE: 7.23±  
OIL & GAS ROYALTY OWNER: JANICE M. BRENNAN, ET AL ACREAGE: 394.6±

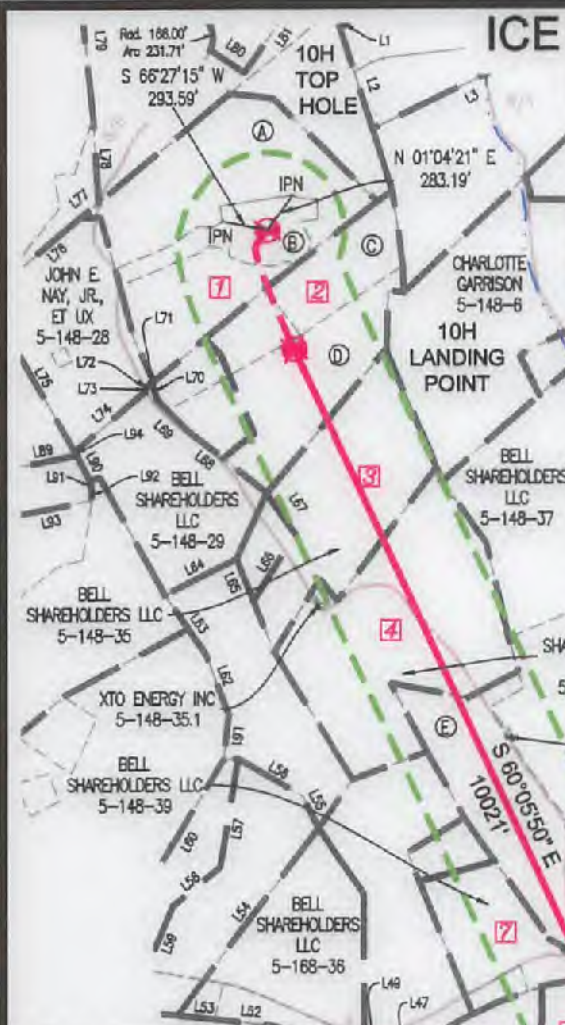
05/18/2018

DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG & ABANDON   
CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY): \_\_\_\_\_

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 7,498' (TVD), 17,914' (TMD)  
WELL OPERATOR: XTO ENERGY INC. DESIGNATED AGENT: GARY BEALL  
Address: 190 THORN HILL ROAD Address: P.O. BOX 100B  
City: WARRENDALE State: PA Zip Code: 15086 City: JANE LEW State: WV Zip Code: 26378



# ICE SOUTH UNIT 10H



ICE SOUTH UNIT 10H		
LEASE	LESSOR	MINERAL ACREAGE
1)	JANICE M. BRENNAN, ET AL	39.50
2)	ROBERT T. JOSEPH, ET AL	27.81
3)	ROBERT T. JOSEPH, ET AL	24.00
4)	DAVID J. HARMER, ET AL	42.00
5)	CNX GAS COMPANY LLC	95.16
6)	JEAN L. SHAVER, ET AL	4.00
7)	FARIS W. COFFINDAFFER, ET UX	13.025
8)	ROBERT EARL MCINTIRE, ET AL	76.93
9)	DOROTHY A. GOFF	19.32
10)	E. VIRGINIA ROCKWELL	29.133
11)	KENRIC S. WADSWORTH, ET UX	23.70

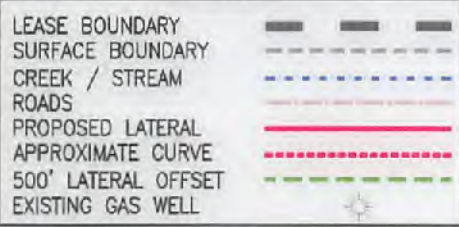
	SURFACE OWNER	TAX PARCEL
A	XTO ENERGY INC	5-148-27
B	XTO ENERGY INC	5-148-27.1
C	BELL SHAREHOLDERS LLC	5-148-32
D	BELL SHAREHOLDERS LLC	5-148-33
E	BELL SHAREHOLDERS LLC	5-148-37
F	BERNARD WILSON JR., ET UX	5-148-37.1
G	BELL SHAREHOLDERS LLC	5-148-55
H	BELL SHAREHOLDERS LLC	5-168-38
I	E. VIRGINIA ROCKWELL	5-168-40
J	RUSSELL E. HALL, ET UX	5-168-45
K	JAMES E. HYDE, ET UX	5-168-46
L	E. VIRGINIA ROCKWELL	5-168-81.1
M	MICHAELA A. KOVALICK, ET UX	5-168-80
N	ABANDONED RAILROAD	
O	E. VIRGINIA ROCKWELL	5-168-79
P	MICHAEL A. KOVALICK, ET UX	5-0908-38.1
Q	E. VIRGINIA ROCKWELL	5-0908-36
R	E. VIRGINIA ROCKWELL	5-0908-34
S	JANICE E. MCINTIRE	5-0908-30
T	JANICE E. MCINTIRE	5-0908-30.1
U	E. VIRGINIA ROCKWELL	5-0908-29
V	E. VIRGINIA ROCKWELL	5-0908-82
W	MCINTIRE CEMETERY	5-0908-26
X	RANDY MOORE, ET UX	5-168-121

LINE	BEARING	DISTANCE
L1	S 28°27'12" W	64.90'
L2	S 5°36'14" E	685.76'
L3	N 29°21'59" E	2049.51'
L4	S 41°35'28" W	593.57'
L5	N 87°47'26" W	729.45'
L6	S 71°14'56" W	702.01'
L7	S 07°52'37" E	1147.85'
L8	S 10°37'07" E	1656.66'
L9	S 08°45'00" E	64.33'
L10	N 88°11'32" E	575.69'
L11	S 64°24'01" E	68.04'
L12	S 67°58'42" E	189.59'
L13	S 09°17'27" E	536.63'
L14	N 84°51'44" E	198.78'
L15	S 05°32'13" E	1141.84'
L16	N 84°27'47" E	1150.00'
L17	S 05°32'13" E	115.00'
L18	N 84°27'47" E	1225.00'
L19	N 05°32'13" E	120.00'
L20	S 84°27'47" W	375.00'
L21	S 05°32'13" E	30.00'
L22	N 84°27'47" E	375.00'
L23	S 05°50'40" E	126.01'
L24	S 85°22'47" W	375.72'
L25	S 24°48'12" W	348.83'
L26	S 67°07'13" E	1740.08'
L27	S 18°15'00" W	106.91'
L28	S 22°21'05" W	150.54'
L29	S 22°21'05" W	74.00'
L30	S 22°33'05" W	192.64'
L31	S 54°30'28" E	231.50'
L32	N 88°29'56" W	435.56'
L33	N 88°42'30" W	570.94'
L34	S 01°18'38" E	108.07'
L35	S 86°57'50" W	627.31'
L36	N 13°34'02" E	1083.06'
L37	N 69°27'40" W	597.18'

LINE	BEARING	DISTANCE
L76	N 14°55'27" W	715.89'
L77	N 15°35'56" W	153.81'
L78	N 38°22'07" W	351.89'
L79	N 40°56'23" W	963.61'
L80	N 89°39'12" E	284.39'
L81	N 00°12'26" W	352.42'
L82	N 86°35'26" E	80.00'
L83	S 03°24'34" W	136.00'
L84	S 86°35'26" W	80.00'
L85	N 03°24'34" W	136.00'
L86	N 57°26'24" W	362.19'
L87	N 37°24'25" E	454.44'
L88	S 50°34'48" E	498.16'
L89	N 43°40'38" E	1489.73'
L90	S 62°03'45" E	186.73'
L91	S 44°19'22" E	86.00'
L92	S 36°05'07" E	57.73'
L93	S 43°38'27" W	1487.34'
L94	N 82°03'45" W	127.73'

LINE	BEARING	DISTANCE
L38	N 69°37'58" W	774.75'
L39	N 89°12'85" W	1120.57'
L40	S 30°14'53" W	1152.31'
L41	S 66°57'39" E	11897.50'
L42	S 43°02'26" W	1213.87'
L43	N 52°57'13" W	1645.82'
L44	N 55°23'44" W	1908.26'
L45	N 42°18'46" W	1726.82'
L46	N 41°28'44" W	407.14'
L47	S 35°57'45" W	73.21'
L48	S 58°16'56" W	97.77'
L49	S 74°40'59" W	89.90'
L50	S 68°29'43" W	266.40'
L51	S 70°20'52" W	334.80'
L52	S 61°20'52" W	391.34'
L53	S 61°05'06" W	240.15'
L54	N 02°11'37" E	1505.06'
L55	N 62°00'00" W	226.38'
L56	S 85°04'57" W	478.79'
L57	S 25°51'47" E	1701.25'
L58	S 15°58'13" W	396.00'
L59	S 12°17'24" E	742.73'
L60	N 03°44'21" W	1166.25'
L61	N 28°51'34" W	291.34'
L62	N 55°33'45" W	417.44'
L63	N 70°17'27" W	459.55'
L64	N 28°43'55" E	518.02'
L65	S 57°07'15" E	289.07'
L66	N 02°55'20" W	507.15'
L67	N 70°46'31" W	335.28'
L68	N 88°39'00" W	627.00'
L69	N 79°39'00" W	286.37'
L70	N 52°54'00" W	112.82'
L71	S 17°15'13" W	35.43'
L72	S 13°14'17" W	22.25'
L73	S 18°19'18" E	17.46'
L74	S 14°50'40" W	600.26'
L75	N 65°06'33" W	11036.02'

### LINE LEGEND



- NO DWELLINGS WITHIN 625' WERE FOUND.
- NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' WERE FOUND.
- TIES TO WELLS AND CORNERS ARE BASED ON STATE PLANE GRID NORTH WV NORTH ZONE NAD 83.
- WELL ELEVATION ESTABLISHED BY RTK GPS NAVD 88.
- SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF HARRISON COUNTY IN OCTOBER 2017 AND FILES PROVIDED BY XTO ENERGY, INC.
- WELLS SHOWN ARE TAKEN FROM RECORDS OF WVDEP AND SURVEYED LOCATIONS OF WELLS WITHIN 500' OF WELL BORE.

## JONES CONSULTANTS, LLC

SURVEYING • MAPPING • LAND • GAS WELL • PIPELINE  
 2402 PENNSYLVANIA 66 DELMONT, PA 15626  
 (724) 757-2417 www.jonesconsultants.com

05/18/2018



SUPPLEMENTAL SURFACE AND LESSOR EXHIBIT	
ICE SOUTH UNIT 10H	
Drawn By: JRV	Date: 5/3/18
Scale: 1" = 1200'	Sheet: SHEET 2 OF 2
File No.: JC2017-28	



WW-6A1  
(5/13)

Operator's Well No. Ice South Unit 10H

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE  
Chapter 22, Article 6A, Section 5(a)(5)  
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
See attached				

**Acknowledgement of Possible Permitting/Approval  
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:


- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: XTO Energy Inc.

By: \_\_\_\_\_

Its: \_\_\_\_\_

  
Production Superintendent

Page 1 of \_\_\_\_\_

05/18/2018

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4703305913

Lease Ref	Lessor	Lessee	Royalty	Book/Page
1	Janice M. Brennan Trust A by Edward Patrick Brennan, a/k/a Edward P. Brennan and John Frank Brennan, a/k/a John F. Brennan Trustees.	XTO Energy, Inc.	Min. 1/8	1515-123
1	Janice M. Brennan and John E. Brennan, husband	Jackson L. Smith Enterprises, dba WV Energies. Jackson L. Smith Enterprises, dba WV Energies to Sheldon & Assoc. - All Depths DB 1219-564. Sheldon & Assoc to Diversified Resources - Name Change DB 54-987. Diversified Resources to Bluestone Energy Partners - 350' Above top of Onondaga Limestone to Basement DB 1429-148. Bluestone to Antero - Merger DB 35-1236. Antero to XTO Energy - 100' above top of Rhinestreet to 100' below base Marcellus DB 1497-765.	Min. 1/8	1219-475
1	Anita Lynn Beasley and Bryan Keith Beasley, husband	XTO Energy, Inc.	Min. 1/8	1517-89
1	Richard Allen Harris	XTO Energy, Inc.	Min. 1/8	1517-736
1	Dustin Scott Harris	XTO Energy, Inc.	Min. 1/8	1517-730
1	Jason Paul Lee	XTO Energy, Inc.	Min. 1/8	1533-1113
1	Joyce L. Harris	Jackson L. Smith Enterprises, dba WV Energies to Sheldon & Assoc. - All Depths DB 1220-528. Sheldon & Assoc to Diversified Resources - Name Change DB 54-987. Diversified Resources to M&R Investments - All Depths DB 1391-1166. M&R Investments to Bluestone Energy Partners - 350' Above top of Onondaga Limestone to Basement DB 1429-148. Bluestone to Antero - Merger DB 35-1236. Antero to XTO Energy - 100' above top of Rhinestreet to 100' below base Marcellus DB 1497-765.	Min. 1/8	1219-979
1	Deborah C. Ryan f/k/a Deborah C. Rainey	XTO Energy, Inc.	Min. 1/8	1514-761
1	Deborah C. Rainey, single	Jackson L. Smith Enterprises, dba WV Energies to Sheldon & Assoc. - All Depths DB 1220-528. Sheldon & Assoc to Diversified Resources - Name Change DB 54-987. Diversified Resources to M&R Investments - All Depths DB 1391-1166. M&R Investments to Bluestone Energy Partners - 350' Above top of Onondaga Limestone to Basement DB 1429-148. Bluestone to Antero - Merger DB 35-1236. Antero to XTO Energy - 100' above top of Rhinestreet to 100' below base Marcellus DB 1497-765.	Min. 1/8	1220-392
1	Pamela A. and Richard L. Brooks	XTO Energy, Inc.	Min. 1/8	1514-753

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Office of Oil and Gas  
NOV - 1 2017WV Department of  
Environmental Protection

4703305913

Lease Ref	Lessor	Lessee	Royalty	Book/Page
1	David J. and Melanie S. Decker	XTO Energy, Inc.	Min. 1/8	1514-757
1	Mark E. and Julie A. Decker	XTO Energy, Inc.	Min. 1/8	1514-745
1	Kristie L. and Eric S. Stinespring	XTO Energy, Inc.	Min. 1/8	1514-749
1	Carolyn Decker, single	Jackson L. Smith Enterprises, dba WV Energies to Sheldon & Assoc. - All Depths DB 1220-528. Sheldon & Assoc to Diversified Resources - Name Change DB 54-987. Diversified Resources to M&R Investments - All Depths DB 1391-1166. M&R Investments to Bluestone Energy Partners - 350' Above top of Onondaga Limestone to Basement DB 1429-148. Bluestone to Antero - Merger DB 35-1236. Antero to XTO Energy - 100' above top of Rhinestreet to 100' below base Marcellus DB 1497-765.	Min. 1/8	1219-1240
1	Dickie Harris, single	Jackson L. Smith Enterprises, dba WV Energies to Sheldon & Assoc. - All Depths DB 1220-528. Sheldon & Assoc to Diversified Resources - Name Change DB 54-987. Diversified Resources to M&R Investments - All Depths DB 1391-1166. M&R Investments to Bluestone Energy Partners - 350' Above top of Onondaga Limestone to Basement DB 1429-148. Bluestone to Antero - Merger DB 35-1236. Antero to XTO Energy - 100' above top of Rhinestreet to 100' below base Marcellus DB 1497-765.	Min. 1/8	1220-430
2	Robert Thomas Joseph, a/k/a Robert Joseph, a married man dealing with his sole and separate property	XTO Energy, Inc.	Min. 1/8	1477-358
2	Alice Elizabeth Joseph Estate, by Robert Thomas Joseph, acting as Administrator de bonis non cum testament annexo	XTO Energy, Inc.	Min. 1/8	1479-1299
2	Brenda K. Joseph, by her Attorney-in-Fact, Robert Thomas Joseph, a/k/a Robert Joseph	XTO Energy, Inc.	Min. 1/8	1479-1127
2	Dorothy T. Stauffer-Joseph, f/k/a Dorothy T. Joseph, single	XTO Energy, Inc.	Min. 1/8	1479-1134
3	Robert Thomas Joseph, a/k/a Robert Joseph, a married man dealing with his sole and separate property	XTO Energy, Inc.	Min. 1/8	1526-640
3	Brenda Kay Joseph, a single woman, by her Attorney-in-Fact, Robert Thomas Joseph	XTO Energy, Inc.	Min. 1/8	1526-436
3	Patrick Joseph Doyle, a married man dealing in his sole and separate property	XTO Energy, Inc.	Min. 1/8	1528-166

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4703305913

Lease Ref	Lessor	Lessee	Royalty	Book/Page
3	Thomas Hastings Mayor, widower	XTO Energy, Inc.	Min. 1/8	1520-63
3	The Mackenzie Doyle, Ciara Doyle, and Patrick David Doyle Trust, by Patrick Joseph Doyle, Trustee	XTO Energy, Inc.	Min. 1/8	1527-249
3	Paul C. Espel, Jr.	XTO Energy, Inc.	Min. 1/8	1526-636
3	Carolyn K. Capage, a married woman dealing in her sole and separate property	XTO Energy, Inc.	Min. 1/8	1526-644
3	David S. Joseph, a/k/a David Joseph, a single man	XTO Energy, Inc.	Min. 1/8	1526-648
3	Deborah J. Locke, a/k/a Deborah Joseph Locke, a married woman dealing in her sole and separate property	XTO Energy, Inc.	Min. 1/8	1525-732
4	David J. Harmer; Elizabeth H. Rector;	Waco Oil & Gas Co. Waco Oil & Gas Co., Inc. to XTO Energy Inc. 1477-28.	Min. 1/8	1370-956
5	CNX Gas Company LLC	XTO Energy, Inc.	Min. 1/8	1513-291
6	Jean L. Shaver, widow	XTO Energy, Inc.	Min. 1/8	1513-190
6	Donald M. and Joyce Fortney	XTO Energy, Inc.	Min. 1/8	1513-1261
6	James M. and Diana Fortney	XTO Energy, Inc.	Min. 1/8	1513-1263
7	Faris W. Coffindaffer and Margaret J. Coffindaffer, wife	XTO Energy, Inc.	Min. 1/8	1522-505
8	Robert Earl McIntire, single man	XTO Energy, Inc.	Min. 1/8	1515-1314
8	Lois Ann Ruckman	XTO Energy, Inc.	Min. 1/8	1515-1271
8	Nancy L. McIntire, widower	XTO Energy, Inc.	Min. 1/8	1515-1325
8	Virginia Minor, a/k/a Virginia L. Minor, widower	XTO Energy, Inc.	Min. 1/8	1516-382
8	Anna Lee Matheny, widower	XTO Energy, Inc.	Min. 1/8	1516-392
8	William C. Matheny, widower	XTO Energy, Inc.	Min. 1/8	1516-472

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Lease Ref	Lessor	Lessee	Royalty	Book/Page
8	Alice Carolyn DeMars, a/k/a Alice Carolyn Demars, widow	XTO Energy, Inc.	Min. 1/8	1517-758
8	Gary Riley Hall, a married man dealing in his sole and separate property	XTO Energy, Inc.	Min. 1/8	1517-771
8	Judith Marie Hall Fiber, single woman	XTO Energy, Inc.	Min. 1/8	1517-804
8	Russell Earl Hall , single man	XTO Energy, Inc.	Min. 1/8	1517-782
8	Betty L. Matheny, widower	XTO Energy, Inc.	Min. 1/8	1517-917
8	Rozena Mae Yoder, a married woman dealing in her sole and separate property	XTO Energy, Inc.	Min. 1/8	1518-345
8	Anna Dell Van Fossen, a married woman dealing in her sole and separate property	XTO Energy, Inc.	Min. 1/8	1518-349
8	Brenda Kay Sciulli, a married woman dealing in her sole and separate property	XTO Energy, Inc.	Min. 1/8	1516-427
9	Dorothy Ann Goff	Waco Oil & Gas Co. Waco Oil & Gas Co., Inc. to XTO Energy Inc. 1526-403.	Min. 1/8	1375-768
10	Emily Virginia Rockwell, a/k/a E. Virginia Rockwell a/k/a Virginia Rockwell, a widow having never since remarried	XTO Energy, Inc.	Min. 1/8	1601-396
11	Kenric S. Wadsworth and wife, Linda D. Wadsworth	XTO Energy, Inc.	Min. 1/8	1505-461

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 WV Department of  
 Environmental Protection

4703305913



XTO Energy Inc.  
810 Houston Street  
Fort Worth, TX 76102-6298  
(817) 870-2800  
(817) 870-1671 Fax

October 9, 2017

Office of Oil & Gas  
WVDEP  
601 57<sup>th</sup> Street  
Charleston, WV 25304

Re: Rights to Drill under Roads – Ice South Unit 10H

To Whom It May Concern:

Based on extensive research by XTO Energy's Land Department, our contractor's and 3<sup>rd</sup> party title attorneys, we have all necessary mineral rights under Harrison County Routes 8/6, (a/k/a Nutter Run); Harrison County Route 8, (a/k/a Williams Mine Road), in the location of our planned well-bores for the Ice South Unit.

Sincerely,

A handwritten signature in black ink that reads 'Kaitlyn Lee'.

Kaitlyn Lee  
Landman  
XTO Energy Inc.  
810 Houston Street  
Fort Worth, TX 76102

An **ExxonMobil** Subsidiary

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WW-6AC  
(1/12)

**STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE CERTIFICATION**

Date of Notice Certification: 10/30/17

API No. 47- \_\_\_\_\_ - \_\_\_\_\_  
Operator's Well No. Ice South Unit 10H  
Well Pad Name: Ice Pad

**Notice has been given:**

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83 Easting: <u>559159.484</u>
County: <u>Harrison</u>	Northing: <u>4364839.448</u>
District: <u>Clay</u>	Public Road Access: <u>CR 8/6 (Nutter Run)</u>
Quadrangle: <u>Shinnston</u>	Generally used farm name: <u>XTO Energy Inc.</u>
Watershed: <u>Lower West Fork River</u>	

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 100px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p><b>OOG OFFICE USE ONLY</b></p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED</p>
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**Required Attachments:**

The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

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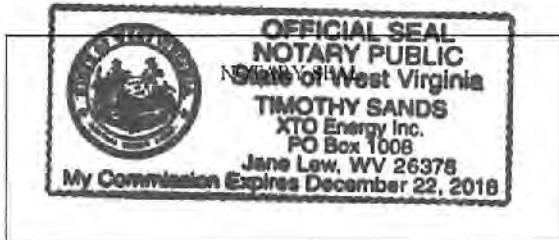


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**Certification of Notice is hereby given:**

THEREFORE, I Gary Beall, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all 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. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator:	<u>XTO Energy Inc.</u>	Address:	<u>PO Box 1008</u>
By:	<u><i>[Signature]</i></u>		<u>Jane Lew, WV 26378</u>
Its:	<u>Production Superintendent</u>	Facsimile:	<u>304-884-6809</u>
Telephone:	<u>304-884-6000</u>	Email:	<u></u>



Subscribed and sworn before me this 30<sup>th</sup> day of October 2017.

*[Signature]* Notary Public

My Commission Expires December 22, 2018

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use of your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

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WW-6A  
(9-13)

API NO. 47- \_\_\_\_\_  
OPERATOR WELL NO. Ice South Unit 10H  
Well Pad Name: Ice Pad

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE OF APPLICATION

Notice Time Requirement: notice shall be provided no later than the filing date of permit application.

Date of Notice: 10/30/17 Date Permit Application Filed: 10/30/17

Notice of:

- PERMIT FOR ANY WELL WORK
- CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

- PERSONAL SERVICE
- REGISTERED MAIL
- METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice  WSSP Notice  E&S Plan Notice  Well Plat Notice is hereby provided to:

SURFACE OWNER(s) 1  
Name: XTO Energy Inc.  
Address: PO Box 1008  
Jane Lew, WV 26378  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

SURFACE OWNER(s) (Road and/or Other Disturbance)  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

SURFACE OWNER(s) (Impoundments or Pits)  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

COAL OWNER OR LESSEE  
Name: See attached  
Address: \_\_\_\_\_

COAL OPERATOR  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s) 1  
Name: Charlotte Garrison  
Address: PO Box 23  
Idamay, WV 26576

OPERATOR OF ANY NATURAL GAS STORAGE FIELD  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

\*Please attach additional forms if necessary

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(8-13)

API NO. 47- \_\_\_\_\_ - \_\_\_\_\_  
OPERATOR WELL NO. Ice South Unit 10H  
Well Pad Name: Ice Pad

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

**This Notice Shall Include:**

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Well Location Restrictions**

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

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WW-6A  
(8-13)

API NO. 47- \_\_\_\_\_ - \_\_\_\_\_  
OPERATOR WELL NO. Ice South Unit 10H  
Well Pad Name: Ice Pad

examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

**Water Well Testing:**

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

**Water Testing Laboratories:**

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

**Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:**

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

**Written Comment:**

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0450

Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

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(8-13)

API NO. 47- \_\_\_\_\_ - \_\_\_\_\_  
OPERATOR WELL NO. Ice South Unit 10H  
Well Pad Name: Ice Pad

**Time Limits and Methods for Filing Comments.**

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

**Comment Requirements**

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

**Permit Denial or Condition**

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

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API NO. 47- \_\_\_\_\_ - \_\_\_\_\_  
OPERATOR WELL NO. Ice South Unit 10H  
Well Pad Name: Ice Pad

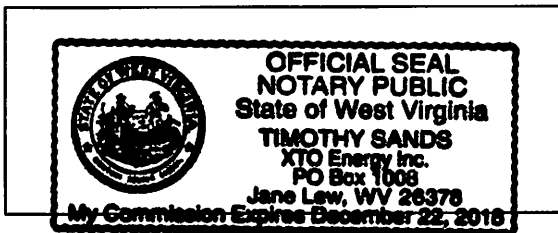
**Notice is hereby given by:**

Well Operator: XTO Energy, Inc.  
Telephone: 304-884-6000  
Email: \_\_\_\_\_

Address: PO Box 1008  
Jane Lew, WV 26378  
Facsimile: 304-884-6809

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).



Subscribed and sworn before me this 30<sup>th</sup> day of Oct., 2017.

Timothy Sands Notary Public

My Commission Expires December 22, 2018

05/18/2018

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Environmental Protection

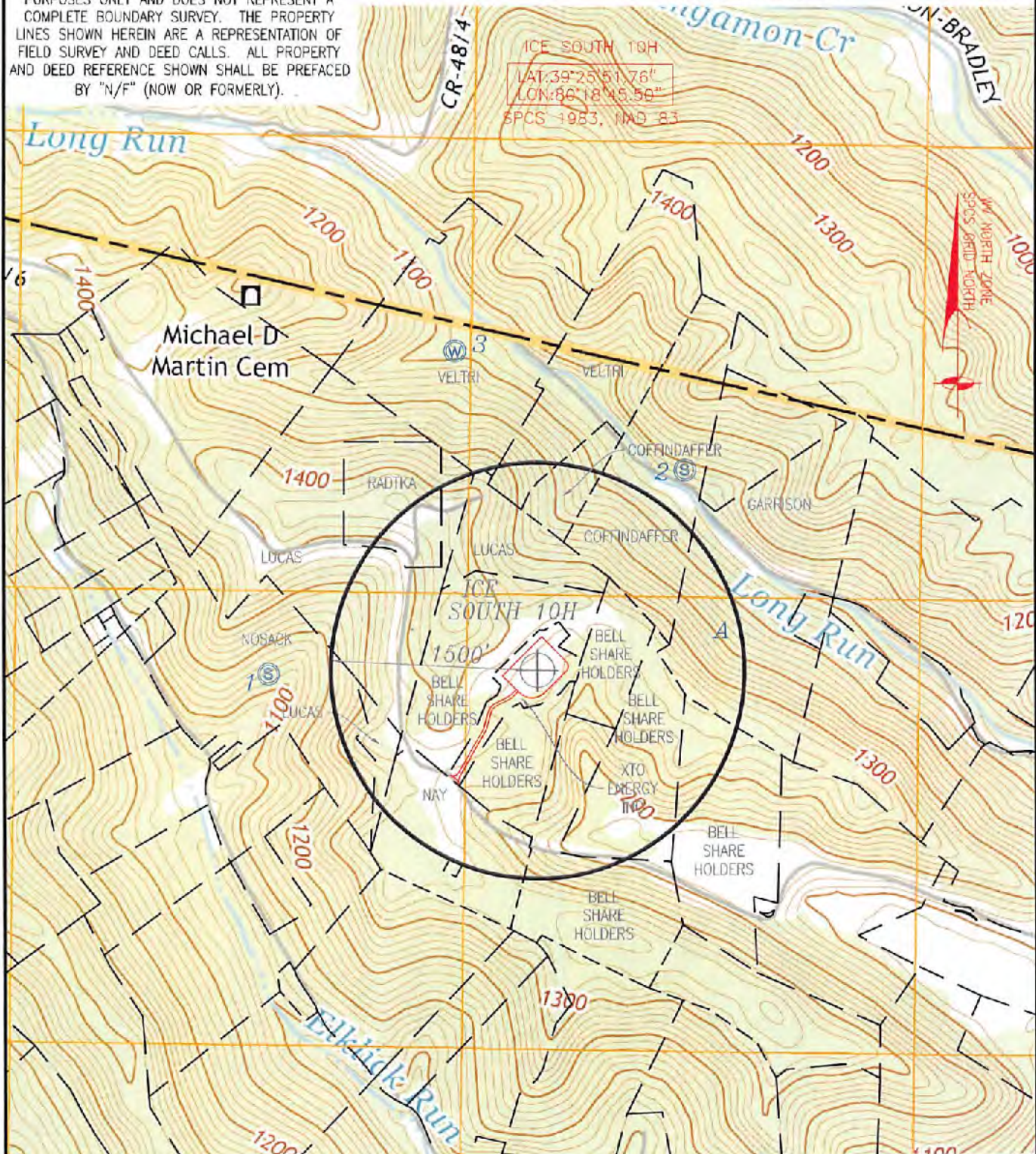


FORM W-9

NOTE: THIS PLAT IS FOR WELL LOCATION PURPOSES ONLY AND DOES NOT REPRESENT A COMPLETE BOUNDARY SURVEY. THE PROPERTY LINES SHOWN HEREIN ARE A REPRESENTATION OF FIELD SURVEY AND DEED CALLS. ALL PROPERTY AND DEED REFERENCE SHOWN SHALL BE PREFACED BY "N/F" (NOW OR FORMERLY).

**LEGEND**

- WATER WELL
- SPRING/POND/STREAM
- SURFACE BOUNDARY



**VERIFIED SOURCES**

POINT	NAME	ADDRESS	CITY	STATE	ZIP CODE	DISTANCE	BEARING	PARCEL I.D.
1	Michael & Cynthia Nosack	712 Bices Run Road	Shinnston	WV	26431	1950'	S 89°23'04" W	Tax Map 5-147, Parcel 87
2	Faris W. & Margaret J. Coffindafer	24 Glenview Drive	Bridgeport	WV	26330	1801'	N 36°26'58" E	Tax Map 5-148, Parcel 4
3	Tina M. Veltri	48 White Oak Drive	Bridgeport	WV	26330	2382'	N 14°31'16" W	Tax Map 11-58, Parcel 37

**PROPERTIES THAT POTENTIALLY HAVE WATER SOURCES WITHIN 1500 FEET**

POINT	NAME	ADDRESS	CITY	STATE	ZIP CODE	PARCEL I.D.
A	Charlotte Garrison	P.O. Box 23	Ida May	WV	26576	Tax Map 5-148, Parcel 6

**ICE SOUTH UNIT 10H UNKNOWN SOURCES**

CLAY DISTRICT, HARRISON COUNTY, WEST VIRGINIA | 8/9/2017 | JC2017-28 | SHEET 1 OF 1



2402 PENNSYLVANIA 66  
DELMONT, PA 15626  
(724) 757 - 2417  
www.jonesconsultant.com

Shinnston Quad (2014)  
Marion County, WV  
Scale: 1" = 1000'



190 THORN HILL ROAD  
WARRENDALE, PA 15086

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4703305913

WW-6A3  
(1/12)

Operator Well No. Ice South Unit 10H

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE OF ENTRY FOR PLAT SURVEY

Notice Time Requirement: Notice shall be provided at least SEVEN (7) days but no more than FORTY-FIVE (45) days prior to entry

Date of Notice: 2/27/2017 Date of Planned Entry: 3/15/2017

Delivery method pursuant to West Virginia Code § 22-6A-10a

- PERSONAL SERVICE     REGISTERED MAIL     METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to West Virginia Code § 22-6A-10(a), Prior to filing a permit application, the operator shall provide notice of planned entry on to the surface tract to conduct any plat surveys required pursuant to this article. Such notice shall be provided at least seven days but no more than forty-five days prior to such entry to: (1) The surface owner of such tract; (2) to any owner or lessee of coal seams beneath such tract that has filed a declaration pursuant to section thirty-six, article six, chapter twenty-two of this code; and (3) any owner of minerals underlying such tract in the county tax records. The notice shall include a statement that copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, which statement shall include contact information, including the address for a web page on the Secretary's web site, to enable the surface owner to obtain copies from the secretary.

Notice is hereby provided to:

SURFACE OWNER(s)  
Name: XTO Energy Inc.  
Address: PO Box 1008  
Jane Lew, WV 26378  
Name: Bell Shareholders LLC  
Address: 200 Chapel Brook Dr.  
Bridgeport, WV 26330  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

COAL OWNER OR LESSEE  
Name: See attached  
Address: \_\_\_\_\_

MINERAL OWNER(s)  
Name: See attached  
Address: \_\_\_\_\_

\*please attach additional forms if necessary

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-10(a), notice is hereby given that the undersigned well operator is planning entry to conduct a plat survey on the tract of land as follows:

State: West Virginia    Approx. Latitude & Longitude: 39.431258, -80.312379  
County: Harrison    Public Road Access: CR 3/6 (Nutter Run)  
District: Clay    Watershed: Lower West Fork River  
Quadrangle: Shinnston    Generally used farm name: XTO Energy Inc.

Copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450). Copies of such documents or additional information related to horizontal drilling may be obtained from the Secretary by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

Notice is hereby given by:

Well Operator: XTO Energy Inc.    Address: PO Box 1008  
Telephone: 304-884-6000    Jane Lew, WV 26378  
Email: \_\_\_\_\_    Facsimile: 304-884-6809

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

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**Surface Owner**

XTO Energy Inc.  
PO Box 1008  
Jane Lew, WV 26378

Bell Shareholders LLC  
200 Chapel Brook Dr.  
Bridgeport, WV 26330

**Coal Owner or Lessee**

Bell Shareholders LLC  
200 Chapel Brook Dr.  
Bridgeport, WV 26330

Consol Mining Company, LLC  
1000 Consol Energy Drive  
Canonsburg, PA 15317

**Mineral Owners**

Janice M. Brennan Trust A  
PO Box 98  
Shinnston, WV 26431

Helen M. Burton  
8086 Powell Avenue  
Stonewood, WV 26301

Deborah C. Ryan  
5 Debbie Lane  
Conway, AR 72032

Dickie Harris  
3 Debbie Lane  
Conway, AR 72032

David J. & Melanie S. Decker  
181 Randolph Lane  
Steubenville, OH 43952

Anita L. Beasley  
22 Bradley Drive  
Cabot, AR 72023

Mark E. & Julie A. Decker  
856 Township Road 375  
Toronto, OH 43964

Richard A. Harris  
83 Highway 319  
Vilonia, AR 72173

Richard L. & Pamela A. Brooks  
2876 State Route 213  
Steubenville, OH 43952

Dustin S. Harris  
704 5th St.  
Conway, AR 72032

Eric S. & Kristie L. Stinespring  
2888 State Rout 213  
Steubenville, OH 43952

Jason P. Lee  
17 Thorn Cemetary Road  
Greenbrier, AR 72058

05/18/2018

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Environmental Protection

4703305913

WW-6A5  
(1/12)

Operator Well No. Ice South Unit 10H

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE OF PLANNED OPERATION

Notice Time Requirement: notice shall be provided no later than the filing date of permit application.  
Date of Notice: 10/30/17 Date Permit Application Filed: 10/30/17

Delivery method pursuant to West Virginia Code § 22-6A-16(c)

CERTIFIED MAIL                       HAND  
RETURN RECEIPT REQUESTED                      DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

Notice is hereby provided to the SURFACE OWNER(s)  
(at the address listed in the records of the sheriff at the time of notice):

Name: XTO Energy Inc.  
Address: PO Box 1008  
Jane Lew, WV 26378

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State: West Virginia UTM NAD 83 Easting: 559159.484  
County: Harrison Northing: 4364839.448  
District: Clay Public Road Access: CR 8/6 (Nutter Run)  
Quadrangle: Shinnston Generally used farm name: XTO Energy Inc.  
Watershed: Lower West Fork River (0502000206)

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by W. Va. Code § 22-6A-10(b) to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

Well Operator: XTO Energy Inc.  
Telephone: 304-884-6000  
Email: \_\_\_\_\_

Address: PO Box 1008  
Jane Lew, WV 26378  
Facsimile: 304-884-6809

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

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WV Department of  
Environmental Protection



## WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

**Division of Highways**

1900 Kanawha Boulevard East • Building Five • Room 110  
 Charleston, West Virginia 25305-0430 • (304) 558-3505

Jim Justice  
 Governor

Thomas J. Smith, P. E.  
 Secretary of Transportation/  
 Commissioner of Highways

August 1, 2017

James A. Martin, Chief  
 Office of Oil and Gas  
 Department of Environmental Protection  
 601 57<sup>th</sup> Street, SE  
 Charleston, WV 25304

Subject: DOH Permit for the Ice Well Pad, Harrison County  
 Ice South Unit 10H

Dear Mr. Martin,

This well site will be accessed from Permit #04-2017-0076 issued to XTO Energy, Inc. for access to the State Road for a well site located off of Harrison County Route 8/6 SLS.

The operator has signed a STATEWIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

Gary K. Clayton, P.E.  
 Regional Maintenance Engineer  
 Central Office O&G Coordinator

Cc: Tim Sands  
 XTO Energy, Inc.  
 CH, OM, D-4  
 File

E.E.O./AFFIRMATIVE ACTION EMPLOYER

05/18/2018

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 Environmental Protection



# Hydraulic Fracturing Fluid Product Component Information Disclosure

4703305913

Hydraulic Fracturing Fluid Composition:

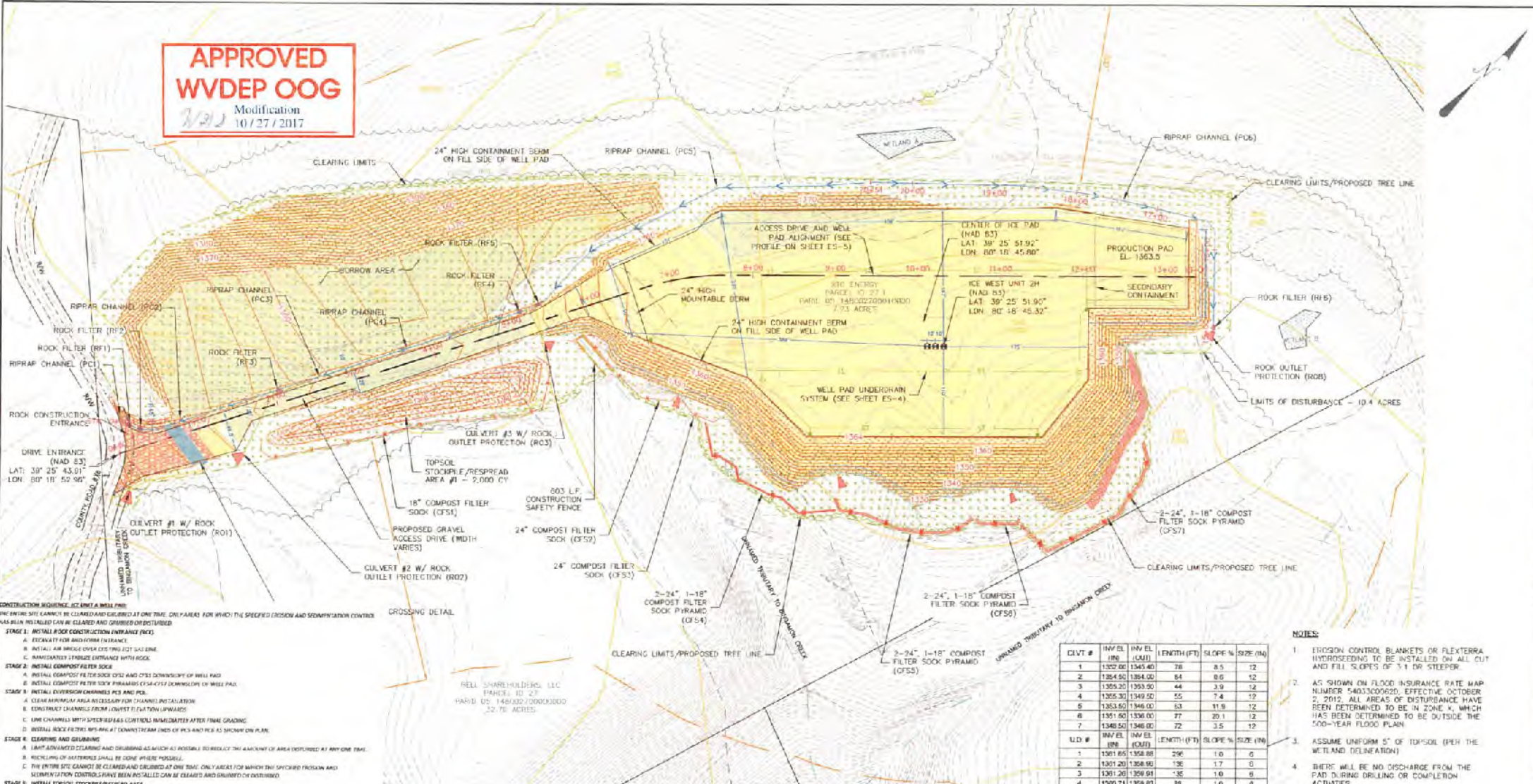
Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	XTO	Carrier/Base Fluid	Water	7732-18-5	100.00%	88.35%	
Sand (Proppant)	Universal	Proppant	Silica Substrate		100.00%	11.20%	
Hydrochloric Acid (10%)	PPG Industries	Acidizing	Hydrochloric Acid	7647-01-0	10.00%	0.00%	
			Other - (non-hazardous)		85.00%	0.00%	
Hydrochloric Acid (7.5%)	PPG Industries	Acidizing	Hydrochloric Acid	7647-01-0	7.50%	0.03%	
			Other - (non-hazardous)		92.50%	0.34%	
Acid Inhibitor, Unihib G	GeoSafe	Acid Inhibitor	Proprietary Blend Surfactants		35.00%	0.00%	
			Short Chained Glycol Ether	112-34-5	50.00%	0.00%	
			Ethoxylated alcohol		35.00%	0.00%	
Biocide, EC6116A	Nalco	Biocide	Dibromoacetone	3252-43-5	5.00%	0.00%	
			2,2-Dibromo-3-nitropropionamide	10222-01-2	30.00%	0.00%	
			Polyethylene Glycol	25322-68-3	60.00%	0.01%	
			Other - (non-hazardous)		5.00%	0.00%	
Clay Stabilizer, Cla-Chek G	Shrieve	Clay Stabilizer	Water	7732-18-5	15.00%	0.00%	
			Other - (non-hazardous)		85.00%	0.00%	
Friction Reducer, Unislick ST-50	CESI Chemical	Friction Reducer	Petroleum distillates, hydrotreated light	64742-47-8	30.00%	0.02%	
			Other - (non-hazardous)		70.00%	0.04%	
Scale Inhibitor, ScaleHib A	Nalco	Scale Inhibitor	Ethylene Glycol	107-21-1	30.00%	0.00%	
			Other - (non-hazardous)		70.00%	0.01%	
Gel Breaker, LEB-10X	Universal	Gel Breaker	Ethylene Glycol	107-21-1	40.00%	0.00%	
			Other - (non-hazardous)		60.00%	0.00%	
Unigel 5F	Universal	Gel	Guar Gum	9000-30-0	99.00%	0.00%	
			Other - (non-hazardous)		1.00%	0.00%	
Slurry Gel, WGA-7 SLR	Universal	Gel	Guar Gum	9000-30-0	50.00%	0.00%	
			Petroleum Distillate	64742-47-8	55.00%	0.00%	
			Clay		5.00%	0.00%	
			Surfactant		5.00%	0.00%	
			Buffer		5.00%	0.00%	

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 MN Department of  
 Environmental Protection





**APPROVED WVDEP OOG**  
Modification  
10/27/2017



- CONSTRUCTION SEQUENCE, EROSION & SEDIMENT CONTROL**  
THE ENTIRE SITE CANNOT BE CLEARED AND GRUBBED AT ONE TIME. ONLY AREAS FOR WHICH THE SPECIFIED EROSION AND SEDIMENTATION CONTROL HAS BEEN INSTALLED CAN BE CLEARED AND GRUBBED OR DISTURBED.
- STAGE 1: INSTALL #1 SOFT CONSTRUCTION ENTRANCE (PCE)**
- STAKEOUT FOR AND FORM (FORMANCE)
  - INSTALL AIR WING OVER THE TRENCH (SEE SHEET ES-1)
  - IMMEDIATELY STABILIZE ENTRANCE WITH ROCK
- STAGE 2: INSTALL COMPOST FILTER SOCK**
- INSTALL COMPOST FILTER SOCK OVER AND OVER DOWNSTREAM OF WELL PAD
  - INSTALL COMPOST FILTER SOCK PYRAMID OVER AND OVER DOWNSTREAM OF WELL PAD
- STAGE 3: INSTALL DIVERSION CHANNELS PCS AND POC**
- CLEAR MINIMUM AREA NECESSARY FOR CHANNEL INSTALLATION
  - CONSTRUCT CHANNELS FROM LOWEST ELEVATION UPWARDS
  - LINE CHANNELS WITH SPECIFIED EROSION CONTROL IMMEDIATELY AFTER FINAL GRADING
  - INSTALL ROCK FILTER SOCKS AT DOWNSTREAM ENDS OF PCS AND POC AS SHOWN ON PLAN
- STAGE 4: CLEARING AND GRUBBING**
- LIMIT ADVANCED CLEARING AND GRUBBING AS MUCH AS POSSIBLE TO REDUCE THE AMOUNT OF AREA DISTURBED AT ANYONE TIME
  - RECYCLING OF MATERIALS SHALL BE DONE WHERE POSSIBLE
  - THE ENTIRE SITE CANNOT BE CLEARED AND GRUBBED AT ONE TIME. ONLY AREAS FOR WHICH THE SPECIFIED EROSION AND SEDIMENTATION CONTROL HAS BEEN INSTALLED CAN BE CLEARED AND GRUBBED OR DISTURBED
- STAGE 5: INSTALL TOPSOIL STOCKPILE/RESPREAD AREA**
- INSTALL COMPOST FILTER SOCK OVER AND OVER DOWNSTREAM OF TOPSOIL STOCKPILE
- STAGE 6: UNDERLAYMENT**
- 1" TOPSOIL AND STOCKPILE ON WINDOW AT BOTTOM AND TOP OF CUT AND FILL SLOPES AND BORROW AREA
  - 2" TOPSOIL OVER TOPSOIL STOCKPILE
  - 3" FILL BENCH & KEYWAY DRIVING
  - RESPREAD 3" MINIMUM OF TOPSOIL ON CUT/FILL SLOPES INCLUDING BORROW AREA
  - APPLY PERMANENT STABILIZATION TO EMBANKMENTS AND FURNISH GRASS SEED
  - APPLY PERMANENT STABILIZATION TO FURNISH GRASS SEED PER SPECIFICATIONS ON ES-2
- STAGE 7: INSTALL CULVERT #1**
- INSTALL ROCK OUTLET PROTECTION (RO1) AT 75' DOWNSTREAM ENDS OF CULVERTS #1-#3
- STAGE 8: INSTALL PERMANENT CHANNELS PCS AND POC**
- CLEAR MINIMUM AREA NECESSARY FOR CHANNEL INSTALLATION
  - CONSTRUCT CHANNELS FROM LOWEST ELEVATION UPWARDS
  - LINE CHANNELS WITH SPECIFIED EROSION CONTROL IMMEDIATELY AFTER FINAL GRADING
  - INSTALL ROCK FILTER SOCKS AT 75' DOWNSTREAM ENDS OF PERMANENT CHANNELS AS SHOWN ON PLAN
  - INSTALL WELLS AND CONDUITS AS SHOWN ON PLAN
  - INSTALL ROCK OUTLET PROTECTION (RO1) AT 75' DOWNSTREAM ENDS OF CULVERTS #1-#3
  - INSTALL ROCK OUTLET PROTECTION (RO2) AT DOWNSTREAM ENDS OF CULVERTS #1-#3
  - INSTALL ROCK TO BOTTOM OF SLOPE
  - STABILIZE ACCESS DRIVE, WELL PAD AND PRODUCTION PAD WITH DRYED SOIL BASE
- STAGE 9: SEED AND MAINT.**
- SEED ALL DISTURBED AREAS WITH SPECIFIED SEEDING MIXTURE. ALL FILL CONTROL FACILITIES SHALL BE MAINTAINED AND LEFT FUNCTIONAL UNTIL SOY TOMATOES ARE HARVESTED
- STAGE 10: SITE STABILIZATION**
- WHEN 20% OF STABILIZED WITH UNIFORM JOIN PERMANENT VEGETATIVE COVER OVER PROPERTY AREA, REMOVE EROSION AND SEDIMENTATION CONTROLS



**LEGEND:**

[Symbol]	EXISTING CONTOUR LINES	[Symbol]	EXISTING TREE LINE	[Symbol]	ROCK CONSTRUCTION ENTRANCE
[Symbol]	PROPOSED CONTOUR LINES	[Symbol]	PROPOSED TREE LINE	[Symbol]	EARTHEN BERM
[Symbol]	NPCS SOIL UNIT BOUNDARY	[Symbol]	COMPOST FILTER SOCK	[Symbol]	TOPSOIL STOCKPILE / RESPREAD AREA
[Symbol]	EASEMENT LINE	[Symbol]	PERMANENT CHANNEL	[Symbol]	BENCH & KEYWAY
[Symbol]	PROPERTY LINE	[Symbol]	ROCK FILTER	[Symbol]	EROSION CONTROL BLANKET
[Symbol]	WETLAND DELINEATION STUDY AREA / AREA OF INTEREST	[Symbol]	ROCK CHANNEL OUTLET PROTECTION	[Symbol]	AREA IN CUT
[Symbol]	EXISTING STREAM	[Symbol]	EXISTING WETLAND	[Symbol]	AREA IN FILL
[Symbol]	SETBACK LINE	[Symbol]		[Symbol]	

CULV #	INVEL (IN)	OUTVEL (FT)	LENGTH (FT)	SLOPE %	SIZE (IN)
1	1322.00	1345.40	78	8.5	12
2	1354.00	1354.00	84	0.0	12
3	1355.20	1393.00	44	3.9	12
4	1355.30	1349.00	55	7.4	12
5	1353.50	1346.00	63	11.9	12
6	1351.00	1336.00	77	20.1	12
7	1348.50	1346.00	72	3.5	12

ULD #	INVEL (IN)	OUTVEL (FT)	LENGTH (FT)	SLOPE %	SIZE (IN)
1	1301.00	1308.00	296	1.0	6
2	1301.20	1306.00	136	1.7	6
3	1301.20	1309.00	136	1.0	6
4	1300.71	1309.00	98	1.0	6
5	1302.00	1309.00	240	1.0	6
6	1302.00	1308.30	364	1.0	6
7	1309.00	1308.41	128	1.0	6
8	1301.04	1309.11	273	1.0	6

- NOTES:**
- EROSION CONTROL BLANKETS OR FLEXTERRA HYDROSEEDING TO BE INSTALLED ON ALL CUT AND FILL SLOPES OF 3:1 OR STEEPER.
  - AS SHOWN ON FLOOD INSURANCE RATE MAP NUMBER 5403300620, EFFECTIVE OCTOBER 2, 2012, ALL AREAS OF DISTURBANCE HAVE BEEN DETERMINED TO BE IN ZONE K, WHICH HAS BEEN DETERMINED TO BE OUTSIDE THE 500-YEAR FLOOD PLAIN.
  - ASSUME UNIFORM 5" OF TOPSOIL (PER THE WETLAND DELINEATION)
  - THERE WILL BE NO DISCHARGE FROM THE PAD DURING DRILLING OR COMPLETION ACTIVITIES.
  - ALL FILLS SHALL BE COMPACTED TO 95% OF THE STANDARD PROCTOR DENSITY (ASTM D698) BASED ON SOIL TESTS OF ACTUAL SOILS TO BE USED FOR THE FILLS.

THE ENGINEER ASSUMES NO RESPONSIBILITY FOR ANY CHANGES IN DESIGN PLANS UNLESS WRITTEN CONSENT IS GIVEN BY THE ENGINEER. THE CONTRACTOR AND/OR THE OWNER WILL BE HELD RESPONSIBLE FOR ANY FIELD MODIFICATIONS MADE WITHOUT THE WRITTEN CONSENT OF THE ENGINEER AND NECESSARY APPROVALS BY PERMITTING AGENCIES.

THE LOCATION OF EXISTING UTILITIES WERE TAKEN FROM RECORDS AND MARKING PROVIDED BY OTHERS AND OBSERVED EVIDENCE. THE LOCATIONS SHOWN MAY BE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS, SIZES AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL EXERCISE CARE TO AVOID DAMAGE TO ALL EXISTING UTILITIES.

MORRIS KNOWLES & ASSOCIATES, INC. EXPRESSLY RESERVES ITS COMMON LAW COPYRIGHT AND OTHER RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR MANIPULATED IN ANY FORM OR MANNER WHATSOEVER, NOW OR IN THE FUTURE, WITHOUT THE WRITTEN PERMISSION AND CONSENT OF MORRIS KNOWLES & ASSOCIATES, INC.



**ICE PAD**  
prepared for  
**XTO ENERGY, INC.**  
attested

**MORRIS KNOWLES & ASSOCIATES, INC.**  
Engineering, Architecture and Land Surveying  
444 Market Street  
Martinsburg, WV 26150  
Tel: (304) 488-8242  
Fax: (304) 488-8242

DESIGNED BY: SPB  
REVIEWED BY: MUY  
DRAWN BY: SPB  
DATE: 9/26/2017  
PROJ. NO.: 1637  
DRAWING NO.: 94000E

REVISION BY: DATE: DESCRIPTION: REVISION BY: DATE: DESCRIPTION: REVISION BY: DATE: DESCRIPTION: REVISION BY: DATE: DESCRIPTION: REVISION BY: DATE: DESCRIPTION:

SCALE: AS NOTED

DRAWING NO. **9XTOICE**  
SHEET NO. **ES-3**

CLAY DISTRICT, HARRISON COUNTY, WEST VIRGINIA  
**EROSION & SEDIMENT CONTROL PLAN - SITE LAYOUT**





# EROSION CONTROL PLAN

**APPROVED**  
**WVDEP OOG**  
Modification  
10/27/2017



**SITE INFO**

**SITE DESCRIPTION:**  
LOCATED SOUTHWEST OF COUNTY ROUTE 44/BRAYS RUN ROAD

TOTAL AREA OF SITE - 10.4± ACRES  
AREA OF ACCESS ROAD - 0.2± ACRES  
AREA OF PAD - 3.4± ACRES  
AREA OF SITE TO UNDER GO EXCAVATION - 6.8± ACRES

AREA OF DISTURBANCE PER PARCEL:  
XTO ENERGY - 10.4± ACRES

PRE-CONSTRUCTION RUNOFF VOLUME - 38,103 CF  
POST-CONSTRUCTION RUNOFF VOLUME - 35,989 CF

**SCHEDULE OF MAJOR CONSTRUCTION COMPLETION**

- SUMMER 2017  
- SUMMER 2019

RECEIVING STREAM & SURFACE WATER  
ON-SITE DRAINAGE TOWNS TO DRAIN TO BRIDGEMAN CREEK

SHEET NO.	TITLE
ES-1	EROSION AND SEDIMENT CONTROL - TITLE SHEET
ES-2	EROSION AND SEDIMENT PLAN - EXISTING CONDITIONS
ES-3	EROSION AND SEDIMENT PLAN - PROPOSED SITE LAYOUT
ES-4	EROSION AND SEDIMENT CONTROL - WELL PAD
ES-5	EROSION AND SEDIMENT CONTROL - DETAILS
ES-6	EROSION AND SEDIMENT CONTROL - DETAILS
ES-7	EROSION AND SEDIMENT CONTROL - DETAILS
ES-8	EROSION AND SEDIMENT CONTROL - DETAILS

PREPARED FOR:  
**XTO ENERGY, INC.**  
480 INDUSTRIAL PARK ROAD  
JANE LEW, WV 26378  
TELEPHONE: (304) 884-6042

PREPARED BY:  
**Morris Knowles & Associates, Inc.**  
443 ATHENA DRIVE DELMONT, PA 15626  
TELEPHONE: (724) 468-4622 FAX: (724) 468-8940

CHARLES F. HAMMONTREE, REGISTERED PROFESSIONAL ENGINEER DATE 9/26/17

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  - THE LOCATION OF EXISTING UTILITIES WERE TAKEN FROM RECORDS AND MARKING PROVIDED BY OTHERS. ALL OPERATIONS IN THE LOCATIONS SHOWN MAY BE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING EXISTING UTILITIES, SIZES AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL EXERCISE CARE TO AVOID DAMAGE TO ALL EXISTING UTILITIES.

ESTIMATE	BID QTY.	UNIT PRICE	TOTAL COST
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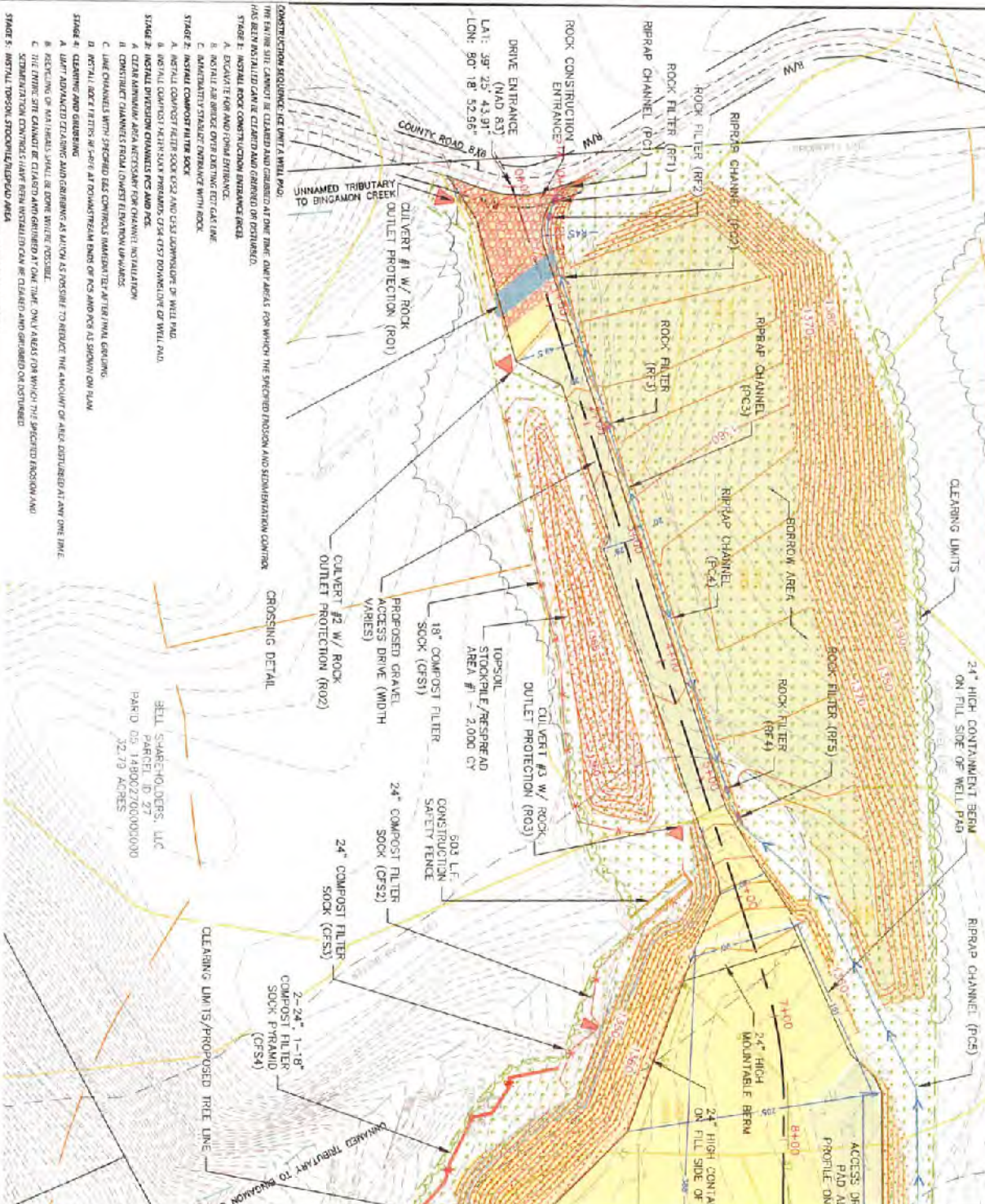


DRAWING NO. <b>9XTOICE</b>	SHEET NO. <b>ES-1</b>	<p><b>ICE PAD</b> prepared for <b>XTO ENERGY, INC.</b> situated CLAY DISTRICT, HARRISON COUNTY, WEST VIRGINIA <b>EROSION AND SEDIMENT CONTROL - TITLE SHEET</b></p>	<p><b>MKA</b> <b>Morris Knowles &amp; Associates, Inc.</b> Consulting Engineers and Land Surveyors 443 Athena Drive Delmont, PA 15626 Telephone: (724) 468-4622 Fax: (724) 468-8940</p>	DESIGNED BY: SRP	REVISION BY: SRP	DATE: 8/12/12	DESCRIPTION: UPDATED QFS QUANTITIES
				REVIEWED BY: MMV	REVISION BY: SRP	DATE: 9/13/17	DESCRIPTION: ADDED BEDROCK QUANTITY
				DRAWN BY: SRP	REVISION BY: SRP	DATE: 9/26/17	DESCRIPTION: UPDATE QUANTITIES
				DATE: 9/26/2017	REVISION BY:	DATE:	DESCRIPTION:
				PROJ. NO.: 1637	REVISION BY:	DATE:	DESCRIPTION:
				DRAWING NO.: 9XTOICE	REVISION BY:	DATE:	DESCRIPTION:

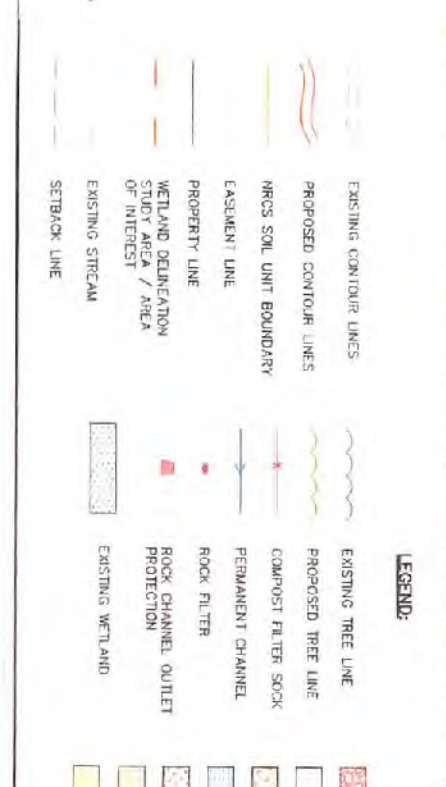
*SDW*  
*10/30/2017*



**APPROVED**  
**WVDEP OOG**  
 Modification  
 10/27/2017



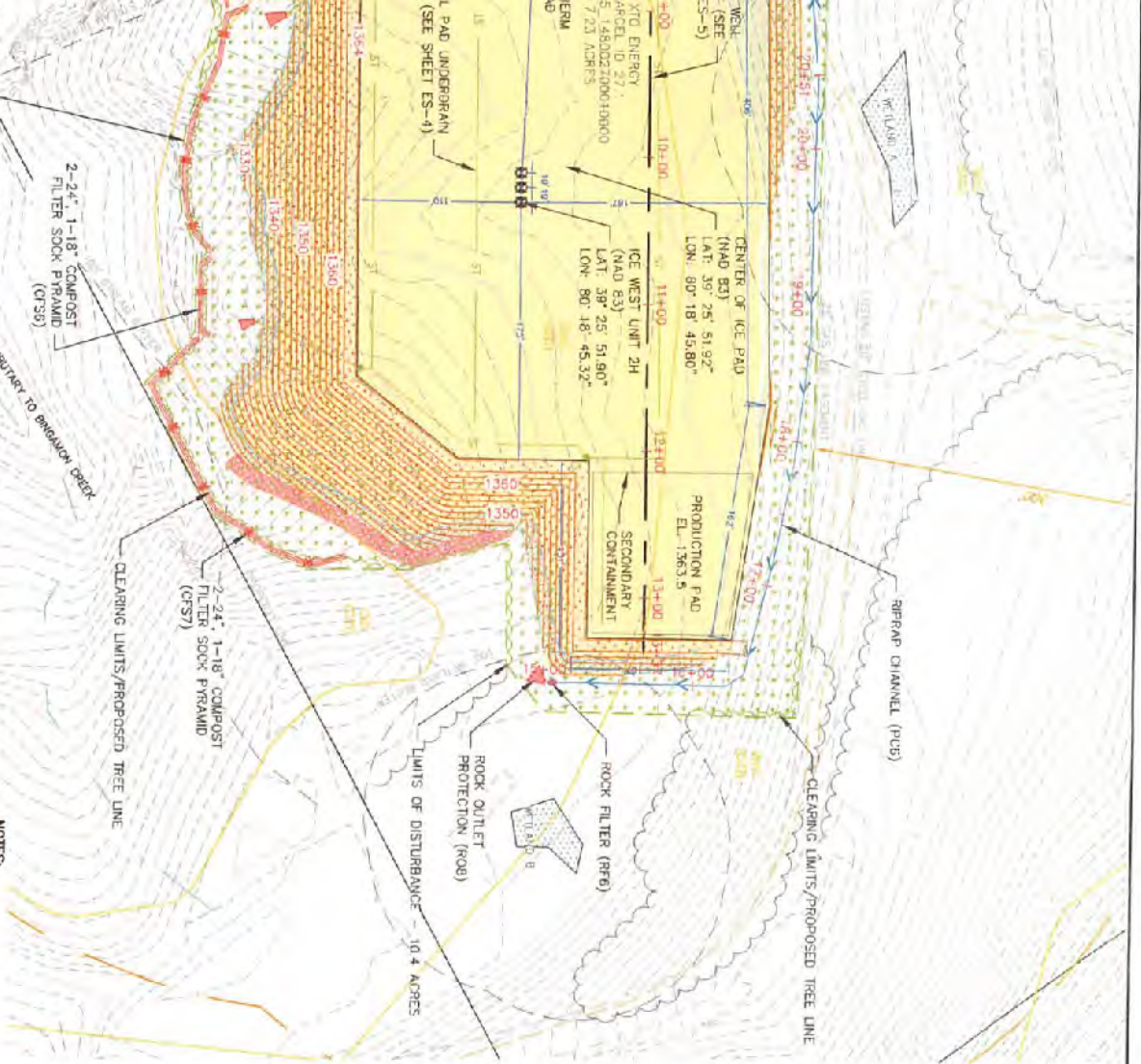
- STAGE 1: CONSTRUCTION REQUIREMENTS FOR WELL PAD:**  
 THE ENTIRE SITE CANNOT BE CLEARED AND GRABBED AT ONE TIME. ONLY AREAS FOR WHICH THE SPECIFIED EROSION AND SEDIMENTATION CONTROL HAS BEEN INSTALLED CAN BE CLEARED AND GRABBED OR DISTURBED.
- STAGE 2: INSTALL ROCK CONSTRUCTION ENTRANCE RINGS**  
 A. EXCAVATE FOR AND FORM ENTRANCE.  
 B. INSTALL FAB BRIDGE OVER DISTINGUISHING GAS LINE.  
 C. ALTERNATIVELY STABILIZE ENTRANCE WITH ROCK.
- STAGE 3: INSTALL COMPOST FILTER SOCK**  
 A. INSTALL COMPOST FILTER SOCK CFS2 AND CASE DRAINAGE OF WELL PAD.  
 B. USE 1/4" COMPACT HEAVY SOAK PERMEABLE, 25# CFS2 DOWNLENGTH OF WELL PAD.  
 C. CLEAR MINIMUM AREA NECESSARY FOR CHANNEL INSTALLATION.
- STAGE 4: CLEAR MINIMUM AREA NECESSARY FOR CHANNEL INSTALLATION**  
 A. CONSTRUCT CHANNELS FROM LOWEST ELEVATION UPWARDS.  
 B. LINE CHANNELS WITH SPECIFIED EROSION MANAGEMENT AFTER FINAL GRADING.  
 C. INSTALL ROCK FILTERS AT EACH AT DOWNSTREAM END OF PCS AND PCS AS SHOWN ON PLAN.
- STAGE 5: CLEARING AND GRABBING**  
 A. LIMIT ADVANCED GRABBING AND GRABBING AS MUCH AS POSSIBLE TO REDUCE THE AMOUNT OF AERED SOILS AT ANY ONE TIME.  
 B. RECLADDING OF SOIL SHOULD BE DONE WHERE POSSIBLE.  
 C. THE ENTIRE SITE CANNOT BE CLEARED AND GRABBED AT ONE TIME. ONLY AREAS FOR WHICH THE SPECIFIED EROSION AND SEDIMENTATION CONTROL HAS BEEN INSTALLED CAN BE CLEARED AND GRABBED OR DISTURBED.
- STAGE 6: INSTALL TOPSOIL STOCKPILE/IMPLOD AREA**  
 A. INSTALL COMPOST FILTER SOCK CFS1 DOWNLENGTH OF TOPSOIL STOCKPILE.
- STAGE 7: EROSION CONTROL**  
 A. STAKE TOE OF PINU STRIP OR HEMPLOCK AT BOTTOM AND TOP OF CUT AND FILL SLOPES, AND BERMING AREAS.  
 B. EXCAVATE SITS TO DESIGN GRADE.  
 C. INSTALL BERRY & LEAVING SOAKS.  
 D. RESHAPE OR REWORK OF TOPSOIL ON CUT/FILL SLOPES INCLUDING BERMING AREA.  
 E. APPLY TOPSOIL STABILIZER TO BARRIERS AND THROUGH GREAT AREAS.  
 F. APPLY PERMANENT STABILIZATION TO FINISH GRADE AREAS FOR SPECIFICATIONS ON CFS2.
- STAGE 8: INSTALL PERMANENT CHANNEL PCS**  
 A. INSTALL ROCK OUTLET PROTECTION FOR ROA AT THE DOWNSTREAM END OF CULVERTS #1-#2.  
 B. INSTALL PERMANENT CHANNEL PCS AND PCS.  
 C. CLEAR MINIMUM AREA NECESSARY FOR CHANNEL INSTALLATION.  
 D. CONSTRUCT CHANNELS FROM LOWEST ELEVATION UPWARDS.  
 E. LINE CHANNELS WITH SPECIFIED EROSION MANAGEMENT TO EXISTING CHANNELS.  
 F. APPLY PERMANENT STABILIZATION TO FINISH GRADE AREAS FOR SPECIFICATIONS ON CFS2.
- STAGE 9: INSTALL COVERTS #1-#3**  
 A. INSTALL ROCK OUTLET PROTECTION FOR ROA AT THE DOWNSTREAM END OF CULVERTS #1-#2.  
 B. INSTALL PERMANENT CHANNEL PCS AND PCS.  
 C. CLEAR MINIMUM AREA NECESSARY FOR CHANNEL INSTALLATION.  
 D. CONSTRUCT CHANNELS FROM LOWEST ELEVATION UPWARDS.  
 E. LINE CHANNELS WITH SPECIFIED EROSION MANAGEMENT TO EXISTING CHANNELS.  
 F. APPLY PERMANENT STABILIZATION TO FINISH GRADE AREAS FOR SPECIFICATIONS ON CFS2.
- STAGE 10: SITE STABILIZATION**  
 A. STAKE TOE OF PINU STRIP OR HEMPLOCK AT BOTTOM AND TOP OF CUT AND FILL SLOPES, AND BERMING AREAS.  
 B. EXCAVATE SITS TO DESIGN GRADE.  
 C. INSTALL BERRY & LEAVING SOAKS.  
 D. RESHAPE OR REWORK OF TOPSOIL ON CUT/FILL SLOPES INCLUDING BERMING AREA.  
 E. APPLY TOPSOIL STABILIZER TO BARRIERS AND THROUGH GREAT AREAS.  
 F. APPLY PERMANENT STABILIZATION TO FINISH GRADE AREAS FOR SPECIFICATIONS ON CFS2.
- STAGE 11: FINAL GRADING AND PROTECTION**  
 A. INSTALL ROCK OUTLET PROTECTION FOR ROA AT THE DOWNSTREAM END OF CULVERTS #1-#2.  
 B. INSTALL PERMANENT CHANNEL PCS AND PCS.  
 C. CLEAR MINIMUM AREA NECESSARY FOR CHANNEL INSTALLATION.  
 D. CONSTRUCT CHANNELS FROM LOWEST ELEVATION UPWARDS.  
 E. LINE CHANNELS WITH SPECIFIED EROSION MANAGEMENT TO EXISTING CHANNELS.  
 F. APPLY PERMANENT STABILIZATION TO FINISH GRADE AREAS FOR SPECIFICATIONS ON CFS2.
- STAGE 12: FINAL GRADING AND PROTECTION**  
 A. INSTALL ROCK OUTLET PROTECTION FOR ROA AT THE DOWNSTREAM END OF CULVERTS #1-#2.  
 B. INSTALL PERMANENT CHANNEL PCS AND PCS.  
 C. CLEAR MINIMUM AREA NECESSARY FOR CHANNEL INSTALLATION.  
 D. CONSTRUCT CHANNELS FROM LOWEST ELEVATION UPWARDS.  
 E. LINE CHANNELS WITH SPECIFIED EROSION MANAGEMENT TO EXISTING CHANNELS.  
 F. APPLY PERMANENT STABILIZATION TO FINISH GRADE AREAS FOR SPECIFICATIONS ON CFS2.



NOV - 1 2017

WV Department of Environmental Protection





CUT #	N/E L. (LN)	N/W L. (CUT)	LENGTH (FT)	SLOPE %	SIZE (IN)
1	1382.00	1346.40	78	0.5	12
2	1354.50	1354.00	64	0.6	12
3	1385.20	1353.50	44	3.9	12
4	1385.30	1348.50	55	7.4	12
5	1383.90	1326.00	63	11.9	12
6	1381.50	1326.00	77	20.1	12
7	1340.50	1346.00	72	3.5	12
U/D #	N/E L. (LN)	N/W L. (CUT)	LENGTH (FT)	SLOPE %	SIZE (IN)
1	1361.65	1388.30	290	1.0	6
2	1381.25	1388.58	135	1.7	6
3	1391.25	1389.01	135	1.0	6
4	1390.71	1359.63	88	1.0	6
5	1382.00	1359.69	240	1.0	6
6	1382.00	1358.35	354	1.0	6
7	1359.69	1358.41	128	1.0	6
8	1391.64	1358.11	273	1.0	6

- NOTES**
- EROSION CONTROL BLANKETS OR FLEXITERA HYDROSEEDING TO BE INSTALLED ON ALL CUT AND FILL SLOPES OF 3:1 OR STEEPER.
  - AS SHOWN ON FLOOD INSURANCE RATE MAP NUMBER 5403300662D EFFECTIVE OCTOBER 2, 2012, ALL AREAS OF DISTURBANCE HAVE BEEN DETERMINED TO BE IN ZONE X, WHICH HAS BEEN DETERMINED TO BE OUTSIDE THE 500-YEAR FLOOD PLAIN.
  - ASSUME UNIFORM 5" OF TOPSOIL (PER THE WETLAND DELINEATION).
  - THERE WILL BE NO DISCHARGE FROM THE PAD DURING DRILLING OR COMPLETION ACTIVITIES.
  - ALL FILLS SHALL BE COMPACTED TO 95% OF THE STANDARD PROCTOR DENSITY (ASTM D698) BASED ON SOIL TESTS OF ACTUAL SOILS TO BE USED FOR THE FILLS.

- ROCK CONSTRUCTION ENTRANCE
- EARTHEN BERM
- TOPSOIL STOCKPILE / RESPREAD AREA
- BENCH & KEYWAY
- EROSION CONTROL BLANKET
- AREA IN CUT
- AREA IN FILL



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**ICE PAD**  
prepared for  
**XTO ENERGY, INC.**  
situated

CLAY DISTRICT, HARRISON COUNTY, WEST VIRGINIA  
**EROSION & SEDIMENT CONTROL PLAN - SITE LAYOUT**

**MKA** **Morris Knowles & Associates, Inc.**  
Consulting Engineers and Land Surveyors

443 Athens Drive  
Delmont, PA 15026  
Telephone: (724) 468-4822  
Fax: (724) 468-8940

AS NOTED

SCALE: \_\_\_\_\_

DESIGNED BY: SRP  
REVIEWED BY: MMV  
DRAWN BY: SRP  
DATE: 9/26/2017  
PROJ. NO.: 1637  
DRAWING NO.: 9XTOICE

REVISION BY:	DATE:	DESCRIPTION:
BY: SRP	8/8/17	WETLAND WAIVER CALLOUTS.
BY: SRP	8/8/17	REVISE CFS3 & CFS4.
BY: SRP	9/22/17	DESCRIPTION: WELL PAD RAISED/BORROW
BY: _____	DATE: _____	DESCRIPTION: _____
BY: _____	DATE: _____	DESCRIPTION: _____
BY: _____	DATE: _____	DESCRIPTION: _____
BY: _____	DATE: _____	DESCRIPTION: _____

DRAWING NO.  
**9XTOICE**

SHEET NO.  
**ES-3**