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

February 16, 2016

CERTIFIED MAIL 7009 0820 0002 1746 0174

Division of Air Quality
West Virginia Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

Re: Application for General Permit G70B
Hughes Pad
Marion County, West Virginia

To Whom It May Concern:

XTO Energy Inc. (XTO) hereby submits the following Application for General Permit G-70B Registration to the West Virginia Department of Environmental Protection (WVDEP) for authorization of the Hughes Pad. This application has been prepared in accordance with the WVDEP Class II general permit registration requirements.

Please note that the Class II General Permit Registration Fee and NSPS fee of $2000 has been included and two (2) electronic copies of the registration.

Thank you in advance for your review and concurrence with this permit application. If you have any questions regarding the information presented in this submittal, please do not hesitate to contact me at (817) 885-2845.

Sincerely,

Dustin Simpson
Environmental Advisor

XTO ENERGY INC. FORT WORTH, TEXAS 76102-6298 817-885-2195

INVOICE NUMBER / DESCRIPTION	INVOICE DATE	INVOICE AMOUNT
02082016B WV PERMIT FEES	2/08/2016	2,000.00

VENDOR NUMBER	VENDOR NAME	CHECK NUMBER	CHECK TOTAL
8009190	WEST VIRGINIA DEPARTMENT OF	0007862533	$2,000.00

REMITTANCE ADVICE PLEASE DETACH STUB BEFORE DEPOSITING CHECK

THE ORIGINAL DOCUMENT HAS A WHITE REFLECTIVE WATERMARK ON THE BACK. HOLD AT AN ANGLE TO VIEW. DO NOT CASH IF NOT PRESENT.

XTO ENERGY

XTO ENERGY INC.
810 HOUSTON ST. - FORT WORTH, TEXAS 76102-6298

Citibank, N.A.
One Penn's Way - New Castle DE 19720
62-20/311

0007862533

CHECK NO. 0007862533 VENDOR NO. 8009190 DATE 2/11/16

EXACTLY TWO THOUSAND DOLLARS AND ZERO CENTS

PAY$ $2,000.00

VOID AFTER 90 DAYS
VENDOR

000036 021116

PAY TO THE ORDER OF:
WEST VIRGINIA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS
601 57TH STREET, S.E.
CHARLESTON, WV 25304-2345

Evan M Van Kirk

AUTHORIZED SIGNATURE

COPYSAFE CAPTURE® ANTI-FRAUD PROTECTION

FORM NO. XTO-005-AP

⑈0007862533⑈ ⑆031100209⑆ 3887862 8⑈

WV DEP - Division of Air Quality

Hughes Pad

Marion County, West Virginia

WV G-70B General Permit Application

Prepared by:

Dustin Simpson

Environmental Advisor

XTO Energy, Inc.

2/17/2016

Hughes Pad

G 70B Permit Application

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Section #1
Project Description

Project Description

Hughes Pad
Marion County, West Virginia
XTO Energy, Inc.

XTO Energy, Inc. is submitting this G70B permit application for the Hughes Pad located in Marion County, West Virginia. The facility is a natural gas production facility. The facility consists of (3) well heads, (3) two phase separators, (3) 0.5 MMBtu/hr line heaters, (3) 400 bbl produced water tanks, (1) truck loading rack, fugitive components, and other equipment typical to a natural gas production facility.

The well heads are subject to NSPS OOOO. The produced water tanks are below 6 tpy each uncontrolled and the pneumatic devices at the site are intermittent or continuous low bleed. None of these sources are subject to NSPS OOOO.

Section #2
G70B Application Form

dep	**west virginia** department of environmental protection	Division of Air Quality 601 57th Street SE Charleston, WV 25304 Phone (304) 926-0475 Fax (304) 926-0479 www.dep.wv.gov

G70-B GENERAL PERMIT REGISTRATION APPLICATION

PREVENTION AND CONTROL OF AIR POLLUTION IN REGARD TO THE CONSTRUCTION, MODIFICATION, RELOCATION, ADMINISTRATIVE UPDATE AND OPERATION OF NATURAL GAS PRODUCTION FACILITIES LOCATED AT THE WELL SITE

☒CONSTRUCTION
☐MODIFICATION
☐RELOCATION

☐CLASS I ADMINISTRATIVE UPDATE
☐CLASS II ADMINISTRATIVE UPDATE

SECTION 1. GENERAL INFORMATION

Name of Applicant (as registered with the WV Secretary of State's Office): XTO Energy, Inc.

Federal Employer ID No. (FEIN): 75-2347769

Applicant's Mailing Address: 810 Houston Street

City: Fort Worth	State: TX	ZIP Code: 76102

Facility Name: Hughes Pad

Operating Site Physical Address: CR-3 (Robinson-Wyatt Run Rd.)
If none available, list road, city or town and zip of facility.

City: Mannington	Zip Code: 26582	County: Marion

Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits):
Latitude: 39.45378
Longitude: -80.37085

SIC Code: 1311 NAICS Code: 21311	DAQ Facility ID No. (For existing facilities)

CERTIFICATION OF INFORMATION

This G70-B General Permit Registration Application shall be signed below by a Responsible Official. A Responsible Official is a President, Vice President, Secretary, Treasurer, General Partner, General Manager, a member of the Board of Directors, or Owner, depending on business structure. A business may certify an Authorized Representative who shall have authority to bind the Corporation, Partnership, Limited Liability Company, Association, Joint Venture or Sole Proprietorship. Required records of daily throughput, hours of operation and maintenance, general correspondence, compliance certifications and all required notifications must be signed by a Responsible Official or an Authorized Representative. If a business wishes to certify an Authorized Representative, the official agreement below shall be checked off and the appropriate names and signatures entered. **Any administratively incomplete or improperly signed or unsigned G70-B Registration Application will be returned to the applicant. Furthermore, if the G70-B forms are not utilized, the application will be returned to the applicant. No substitution of forms is allowed.**

I hereby certify that is an Authorized Representative and in that capacity shall represent the interest of the business (e.g., Corporation, Partnership, Limited Liability Company, Association Joint Venture or Sole Proprietorship) and may obligate and legally bind the business. If the business changes its Authorized Representative, a Responsible Official shall notify the Director of the Division of Air Quality immediately.

I hereby certify that all information contained in this G70-B General Permit Registration Application and any supporting documents appended hereto is, to the best of my knowledge, true, accurate and complete, and that all reasonable efforts have been made to provide the most comprehensive information possible.

Responsible Official Signature: _____
Name and Title: Michael Johnson – VP Production Appalachia Phone: 724-772-8713 Fax:
Email: Michael_R_Johnson@xtoenergy.com Date: 2/16/16

If applicable:
Authorized Representative Signature: _____
Name and Title: Phone: Fax:
Email: Date:

If applicable:
Environmental Contact
Name and Title: Dustin Simpson – Environmental Advisor Phone: 817-885-2845 Fax: 817-885-1847
Email: dustin_simpson@xtoenergy.com Date: 2/16/16

OPERATING SITE INFORMATION	
Briefly describe the proposed new operation and/or any change(s) to the facility: This will be construction of a new well pad facility that will have three wells located at it producing natural gas and a max of 50 BWPD each.	
Directions to the facility: From the intersection of US19 and CR-48 head West on CR 48 for 4.3 miles. Turn left onto CR - 11 (Flaggy Meadow Rd) for 1.9 miles. Road changes to CR-10 (Shinnston-Mannington Rd) continue for 0.7 miles. Turn right onto CR-3 (Robinson-Wyatt Run Rd) and travel 1.2 miles to the access area for the Hughes Pad.	
ATTACHMENTS AND SUPPORTING DOCUMENTS	
I have enclosed the following required documents:	
Check payable to WVDEP – Division of Air Quality with the appropriate application fee (per 45CSR13 and 45CSR22). ☐ Check attached to front of application. ☐ I wish to pay by electronic transfer. Contact for payment (incl. name and email address): ☐ I wish to pay by credit card. Contact for payment (incl. name and email address): ☒$500 (Construction, Modification, and Relocation) ☐$300 (Class II Administrative Update) ☒$1,000 NSPS fee for 40 CFR60, Subpart IIII, JJJJ and/or OOOO [1] ☐$2,500 NESHAP fee for 40 CFR63, Subpart ZZZZ and/or HH [2] [1] Only one NSPS fee will apply. [2] Only one NESHAP fee will apply. The Subpart ZZZZ NESHAP fee will be waived for new engines that satisfy requirements by complying with NSPS, Subparts IIII and/or JJJJ. *NSPS and NESHAP fees apply to new construction or if the source is being modified.*	
☒ Responsible Official or Authorized Representative Signature (if applicable)	
☒ Single Source Determination Form **(must be completed in its entirety)** – Attachment A	
☐ Siting Criteria Waiver (if applicable) – Attachment B	☒ Current Business Certificate – Attachment C
☒ Process Flow Diagram – Attachment D	☒ Process Description – Attachment E
☒ Plot Plan – Attachment F	☒ Area Map – Attachment G
☒ G70-B Section Applicability Form – Attachment H	☒ Emission Units/ERD Table – Attachment I
☒ Fugitive Emissions Summary Sheet – Attachment J	
☒ Gas Well Affected Facility Data Sheet (if applicable) – Attachment K	
☒ Storage Vessel(s) Data Sheet (include gas sample data, USEPA Tanks, simulation software (e.g. ProMax, E&P Tanks, HYSYS, etc.), etc. where applicable) – Attachment L	
☒ Natural Gas Fired Fuel Burning Unit(s) Data Sheet (GPUs, Heater Treaters, In-Line Heaters if applicable) – Attachment M	
☐ Internal Combustion Engine Data Sheet(s) (include manufacturer performance data sheet(s) if applicable) – Attachment N	
☒ Tanker Truck Loading Data Sheet (if applicable) – Attachment O	
☐ Glycol Dehydration Unit Data Sheet(s) (include wet gas analysis, GRI- GLYCalc™ input and output reports and information on reboiler if applicable) – Attachment P	
☒ Pneumatic Controllers Data Sheet – Attachment Q	
☐ Air Pollution Control Device/Emission Reduction Device(s) Sheet(s) (include manufacturer performance data sheet(s) if applicable) – Attachment R	
☒ Emission Calculations (please be specific and include all calculation methodologies used) – Attachment S	
☒ Facility-wide Emission Summary Sheet(s) – Attachment T	
☒ Class I Legal Advertisement – Attachment U	
☒ One (1) paper copy and two (2) copies of CD or DVD with pdf copy of application and attachments	

All attachments must be identified by name, divided into sections, and submitted in order.

ATTACHMENT A - SINGLE SOURCE DETERMINATION FORM

Classifying multiple facilities as one "stationary source" under 45CSR13, 45CSR14, and 45CSR19 is based on the definition of Building, structure, facility, or installation as given in §45-14-2.13 and §45-19-2.12. The definition states:

"Building, Structure, Facility, or Installation" means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control). Pollutant-emitting activities are a part of the same industrial grouping if they belong to the same "Major Group" (i.e., which have the same two (2)-digit code) as described in the Standard Industrial Classification Manual, 1987 (United States Government Printing Office stock number GPO 1987 0-185-718:QL 3).

Is there a facility owned by or associated with the natural gas industry located within one (1) mile of the proposed facility? Yes X No ☐

If Yes, please complete the questionnaire on the following page (Attachment A).

Please provide a source aggregation analysis for the proposed facility below:

ATTACHMENT A - SINGLE SOURCE DETERMINATION FORM

Answer each question with a detailed explanation to determine contiguous or adjacent properties which are under a common control and any support facilities. This section must be completed in its entirety.

Provide a map of contiguous or adjacent facilities (production facilities, compressor stations, dehydration facilities, etc.) which are under common control and those facilities that are not under common control but are support facilities. Please indicate the SIC code, permit number (if applicable), and the distance between facilities in question on the map.

Are the facilities owned by the same parent company or a subsidiary of the parent company? Provide the owners identity and the percentage of ownership of each facility. All facilities are 100% owned and operated by XTO Energy, Inc.	Yes ☒	No ☐
Does an entity such as a corporation have decision making authority over the operation of a second entity through a contractual agreement or voting interest? Please explain. These facilities are all owned and operated by XTO Energy, Inc.	Yes ☐	No ☒
Is there a contract for service relationship between the two (2) companies or, a support/dependency relationship that exists between the two (2) companies? Please explain. Only one company	Yes ☐	No ☒
Do the facilities share common workforces, plant managers, security forces, corporate executive officers or board executives?	Yes ☒	No ☐
Will managers or other workers frequently shuttle back and forth to be involved actively at both facilities?	Yes ☒	No ☐
Do the facilities share common payroll activities, employee benefits, health plans, retirement funds, insurance coverage, or other administrative functions? Please explain. All facilities under XTO operations share common administrative functions.	Yes ☒	No ☐
Does one (1) facility operation support the operation of the other facility?	Yes ☐	No ☒
Is one (1) facility dependent on the other? If one (1) facility shuts down, what are the limitations on the other to pursue outside business? Please explain. All sites are production wells that operate independently of each other	Yes ☐	No ☒
Are there any financial arrangements between the two (2) entities?	Yes ☐	No ☒
Are there any legal or lease agreements between the two (2) facilities?	Yes ☐	No ☒
Do the facilities share products, byproducts, equipment, or other manufacturing or air pollution control device equipment? Please explain.	Yes ☐	No ☒
Do all the pollutant-emitting activities at the facilities belong to the same SIC Code? Please provide the SIC Codes. 1311	Yes ☒	No ☐
Was the location of the new facility chosen primarily because of its proximity to the existing facility to integrate the operation of the two (2) facilities? Please explain.	Yes ☐	No ☒
Will materials be routinely transferred between the two (2) facilities? Please explain the amount of transfer and how often the transfers take place and what percentages go to the various entities.	Yes ☐	No ☒
Does the facility influence production levels or compliance with environmental regulations at other facilities? Who accepts the responsibility for compliance with air quality requirements? Please explain. All facilities under XTO operation are the responsibility of XTO Energy, Inc.	Yes ☐	No ☒

Hughes Pad
Lat: 39.453725
Long: -80.370864
Legend
300 Foot Radius
Hughes Pad
Mile Radius
Section 1
Section 2
Hughes Pad
Williams Mine A M D Pond
Google earth
© 2016 Google
N
3000 ft

XTO Energy, Inc.

Hughes Pad

Vicinity Map Legend - Section 1

Marker #	Site Name	Owner/Operator	SIC Code	Distance from Station (Miles)
A	HESS, ISSAC-2	XTO Energy, Inc.	1311	0.96
B	HESS, ISSAC-1	XTO Energy, Inc.	1311	0.71
C	GORNEY 1	XTO Energy, Inc.	1311	0.70
D	HAWKER, IRA	XTO Energy, Inc.	1311	0.95
E	GORNEY 2	XTO Energy, Inc.	1311	0.54
F	HAWKER 1401	XTO Energy, Inc.	1311	0.99
G	VENETTY 1403	XTO Energy, Inc.	1311	0.39
H	ROSHON 1	XTO Energy, Inc.	1311	0.79
I	HART 1	XTO Energy, Inc.	1311	0.64
J	ROSHON 2	XTO Energy, Inc.	1311	0.91
K	ANDERSON 1384	XTO Energy, Inc.	1311	0.98
L	HART 02	XTO Energy, Inc.	1311	0.81
M	VENETTY 1402	XTO Energy, Inc.	1311	0.65
N	BERRY 3	XTO Energy, Inc.	1311	0.97
O	BERRY 01	XTO Energy, Inc.	1311	0.79
P	BROWN, JON-2	XTO Energy, Inc.	1311	0.91
Q	BERRY 2	XTO Energy, Inc.	1311	0.74
R	SHIELDS 1	XTO Energy, Inc.	1311	0.60
S	ROBINSON, OWEN E-545	XTO Energy, Inc.	1311	0.86
T	MODI 1414	XTO Energy, Inc.	1311	0.65
U	SHIELDS 2	XTO Energy, Inc.	1311	0.40
V	ROCKWELL 2034	XTO Energy, Inc.	1311	0.21
W	P HUGES 1	XTO Energy, Inc.	1311	0.13
X	ROCKWELL 2033	XTO Energy, Inc.	1311	0.23
Y	ROCKWELL 1	XTO Energy, Inc.	1311	0.41
Z	DRAIN 1	XTO Energy, Inc.	1311	0.57

XTO Energy, Inc.

Hughes Pad

Vicinity Map Legend - Section 2

Marker #	Site Name	Owner/Operator	SIC Code	Distance from Station (Miles)
A	ROCKWELL 2035	XTO Energy, Inc.	1311	0.18
B	ROCKWELL/GEOSTRATA M1611	XTO Energy, Inc.	1311	0.22
C	ROCKWELL 2129	XTO Energy, Inc.	1311	0.23
D	ROCKWELL 2208	XTO Energy, Inc.	1311	0.35
E	GARRETT/GEOSTRATA M1612	XTO Energy, Inc.	1311	0.51
F	HESS 1582	XTO Energy, Inc.	1311	0.97
G	ROCKWELL 2128	XTO Energy, Inc.	1311	0.65
H	ROCKWELL 20205	XTO Energy, Inc.	1311	0.87
I	GARRETT 1	XTO Energy, Inc.	1311	0.45
J	GARRETT 2	XTO Energy, Inc.	1311	0.60
K	CAPPEL 01	XTO Energy, Inc.	1311	0.77
L	MURPHY1450	XTO Energy, Inc.	1311	0.92
M	DRAIN 2	XTO Energy, Inc.	1311	0.42
N	HESS 1470	XTO Energy, Inc.	1311	0.73
O	SHINE 1468	XTO Energy, Inc.	1311	0.86
P	SANDY 1	XTO Energy, Inc.	1311	0.96
Q	KELLAR 1434	XTO Energy, Inc.	1311	0.75
R	BARKER 1492	XTO Energy, Inc.	1311	0.92

Attachment B
Siting Criteria Waiver

Siting Criteria Waiver

Hughes Pad
Marion County, West Virginia
XTO Energy, Inc.

A Siting Criteria Waiver is not required for this application. The facility is greater than 300 feet from the nearest receptor.

Attachment C
Current Business Certificate

State of West Virginia

Certificate

I, Natalie E. Tennant, Secretary of State of the State of West Virginia, hereby certify that

XTO ENERGY INC.

a corporation formed under the laws of Delaware filed an application to be registered as a foreign corporation authorizing it to transact business in West Virginia. The application was found to conform to law and a "Certificate of Authority" was issued by the West Virginia Secretary of State on May 30, 2008.

I further certify that the corporation has not been revoked by the State of West Virginia nor has a Certificate of Withdrawal been issued to the corporation by the West Virginia Secretary of State.

Accordingly, I hereby issue this

CERTIFICATE OF AUTHORIZATION

Validation ID:6WV5R_YEDXX

Given under my hand and the Great Seal of the State of West Virginia on this day of March 10, 2015

Natalie E Tennant

Secretary of State

Notice: A certificate issued electronically from the West Virginia Secretary of State's Web site is fully and immediately valid and effective. However, as an option, the issuance and validity of a certificate obtained electronically may be established by visiting the Certificate Validation Page of the Secretary of State's Web site, https://apps.wv.gov/sos/businessentitysearch/validate.aspx entering the validation ID displayed on the certificate, and following the instructions displayed. Confirming the issuance of a certificate is merely optional and is not necessary to the valid and effective issuance of a certificate.

State of West Virginia

Certificate

I, Betty Ireland, Secretary of State of the State of West Virginia, hereby certify that

XTO ENERGY INC.

Control Number: 999BI

a corporation formed under the laws of Delaware has filed its "Application for Certificate of Authority" to transact business in West Virginia as required by the provisions of the West Virginia Code. I hereby declare the organization to be registered as a foreign corporation from its effective date of May 30, 2008.

Therefore, I issue this

CERTIFICATE OF AUTHORITY

to the corporation authorizing it to transact business in West Virginia

Given under my hand and the Great Seal of the State of West Virginia on this day of May 30, 2008

Betty Ireland

Secretary of State

Betty Ireland
Secretary of State
State Capitol
1900 Kanawha Blvd. E.
Charleston, WV 25305
FILE ONE ORIGINAL
FEES PER SCHEDULE

CERTIFICATE OF AUTHORITY

Penney Barker, Manager
Corporations Division
Tel. (304) 558-8000
Fax (304) 558-8381
www.wvsos.com
Hours: 8:30am-5:00pm
PLEASE READ INSTRUCTIONS

CTRL # 999BI

1. HOME STATE INFORMATION:

a. The name of the corporation as it is registered in its home state is: XTO Energy Inc.

b. State of Delaware Date of Incorp. 10/9/90 Duration (# yrs. or perpetual) perpetual
Warning: Tax reporting requirements in West Va. will not end until a withdrawal is filed.

c. NAIC # _____ (If an insurance company)

FILED
MAY 30 2008
IN THE OFFICE OF
SECRETARY OF STATE
WEST VIRGINIA

2. PRINCIPAL OFFICE INFORMATION:

a. Address of the principal office of the corporation:
No. & Street: 810 Houston Street
City/State/Zip: Fort Worth, TX 76102

b. Mailing address, if different, from above address:
Street/PO Box: _____
City/State/Zip: _____

3. WEST VIRGINIA INFORMATION:

a. Corporate name to be used in W. Va.: (check one, follow instructions)
☒ Home state name as listed on line 1.a. above, if available.
☐ DBA name

b. Address of registered office in West Virginia, if any
No. & Street: _____
City/State/Zip: _____

c. Mailing address in WV, if different, from above
Street/PO Box: _____
City/State/Zip: _____

d. Proposed purpose(s) for transaction of business in WV
Oil and Gas

4. AGENT OF PROCESS:
Properly designated person to whom notice of process may be sent, if any:
Name: Corporation Service Company
Address: 209 West Washington Street, Charleston, WV 25302

5. **CORPORATE STATUS INFORMATION:**

a. Corporation is organized as (check one): ☒ For profit

☐ Non-profit

b. Directors and Officers: (Add extra page if necessary; please list all officers)

Officer	Name	Address
(see attached)	(see attached)	(see attached)

6. The number of acres of land it holds or expects to hold in West Virginia is: 0

7. **Contact and Signature Information**

a. Frank G. McDonald — Contact Name

(817) 870-2800 — Phone Number

b. Frank G. McDonald — Print or type name of signer

Sr. VP, GC and Asst. Secretary — Title or Capacity of Signer

c. Signature of Signer: [signature]

Date: May 8, 2008

XTO ENERGY INC.

Directors:

Class I	Phillip R. Kevil, Herbert D. Simons; Vaughn O. Vennerberg II (expires 5/09)
Class II	Lane G. Collins, Scott G. Sherman, Bob R. Simpson (expires 5/10)
Class III	William H. Adams III, Keith A. Hutton, Jack P. Randall (expires 5/08)

Business Address for XTO Energy Inc. Officers and Directors:

810 Houston Street, Fort Worth, TX 76102

Officers:

Chairman of the Board and Chief Executive Officer	Bob R. Simpson
President	Keith A. Hutton
Senior Executive Vice President and Chief of Staff	Vaughn O. Vennerberg II
Executive Vice President and Chief Financial Officer	Louis G. Baldwin
Executive Vice President - Acquisitions	Timothy L. Petrus
Senior Vice President and Treasurer	Brent W. Clum
Senior Vice President - Land	James L. Death
Senior Vice President - Natural Gas Operations	Nick J. Dungey
Senior Vice President - East Texas Operations	Ken K. Kirby
Senior Vice President and Controller	Bennie G. Kniffen
Senior Vice President, General Counsel and Assistant Secretary	Frank G. McDonald
Senior Vice President - Reservoir Engineering	F. Terry Perkins
Senior Vice President - Geology & Geophysics	Mark J. Pospisil
Senior Vice President - Land Administration	Edwin S. Ryan, Jr.
Senior Vice President - Marketing	Terry L. Schultz
Senior Vice President - Mid-Continent Operations	Douglas C. Schultze
Senior Vice President - Investor Relations and Finance	Gary D. Simpson
Senior Vice President - Engineering	Kenneth F. Staab
Senior Vice President - Taxation	Mark A. Stevens
Vice President - Financial Reporting	Scott T. Agosta
Vice President & Corporate Secretary	Virginia N. Anderson
Vice President, Associate General Counsel & Assistant Secretary	Kathy L. Cox
Vice President Operations - San Juan Division	Del L. Craddock
Vice President Operations - Permian Division & Alaska	Kyle M. Hammond
Vice President - Environmental, Health & Safety	Nina C. Hutton
Vice President Operations - Fort Worth Division	Timothy B. McIlwain
Vice President - Information Technology	L. Frank Thomas III
Vice President - Facilities	T. Joy Webster
Vice President - Human Resources	Karen S. Wilson
Assistant Treasurer	William B. Butler
Assistant Controller	Martha L. Montgomery

Rev. 5/8/08

Delaware

The First State

I, HARRIET SMITH WINDSOR, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY "XTO ENERGY INC." IS DULY INCORPORATED UNDER THE LAWS OF THE STATE OF DELAWARE AND IS IN GOOD STANDING AND HAS A LEGAL CORPORATE EXISTENCE SO FAR AS THE RECORDS OF THIS OFFICE SHOW, AS OF THE SIXTH DAY OF MAY, A.D. 2008.

AND I DO HEREBY FURTHER CERTIFY THAT THE SAID "XTO ENERGY INC." WAS INCORPORATED ON THE NINTH DAY OF OCTOBER, A.D. 1990.

AND I DO HEREBY FURTHER CERTIFY THAT THE ANNUAL REPORTS HAVE BEEN FILED TO DATE.

AND I DO HEREBY FURTHER CERTIFY THAT THE FRANCHISE TAXES HAVE BEEN PAID TO DATE.

Harriet Smith Windsor

Harriet Smith Windsor, Secretary of State

2243325 8300

080510772

AUTHENTICATION: 6572039

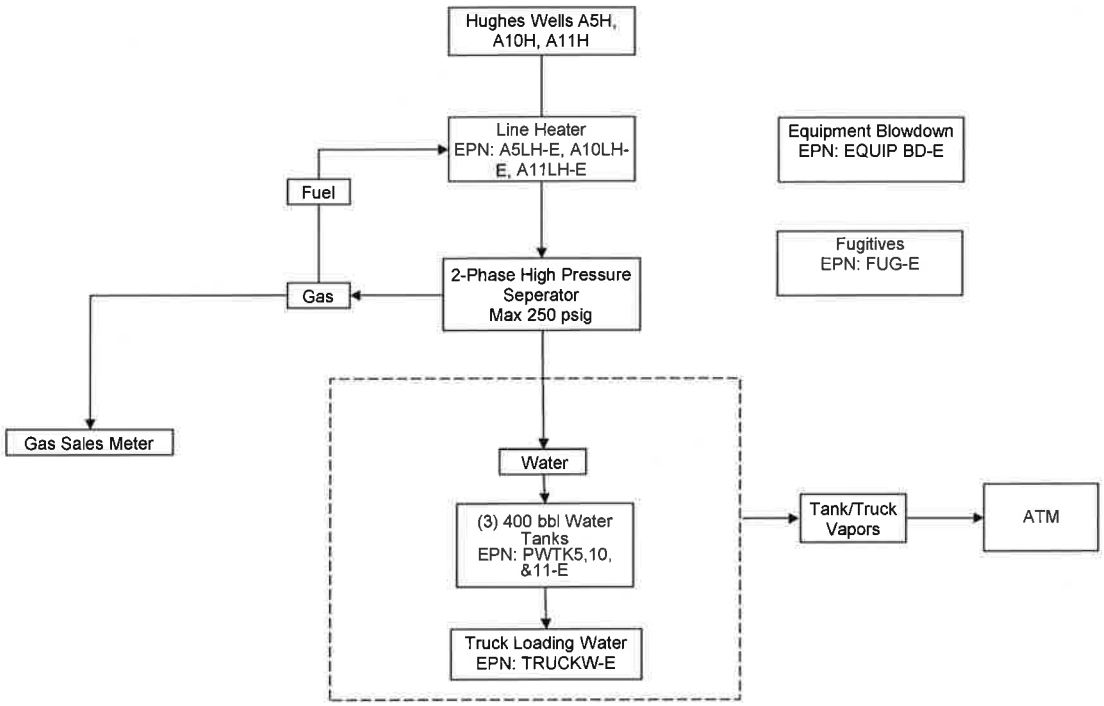
DATE: 05-06-08

You may verify this certificate online at corp.delaware.gov/authver.shtml

Attachment D
Process Flow Diagram

XTO Energy, Inc
Hughes Pad

Process Flow Diagram



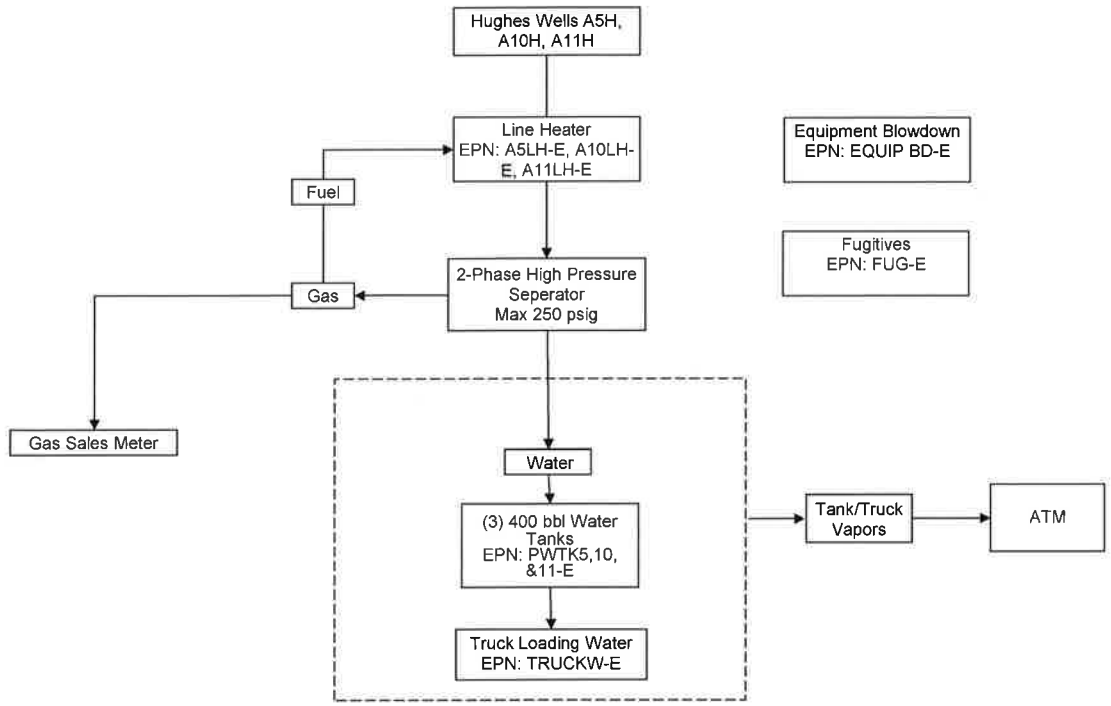
Process Description

Associated gas and liquids production from the Hughes Wells flow through a line heater and then to the the 2-phase high pressure separator. The gas is sent to sales. The produced liquids go into three (3) 400 bbl water storage tanks (PWTK5,10,11) on the site. Some gas is used as fuel for the line heaters to aid in keeping hydrates from freezing in the lines. Water is trucked off site from the storage tanks. Sometimes gas is vented from the equipment to allow for MSS activities. Truck loading emissions include PM emissions for the miles traveled by the loading truck on lease property.

Attachment E
Process Description

XTO Energy, Inc
Hughes Pad

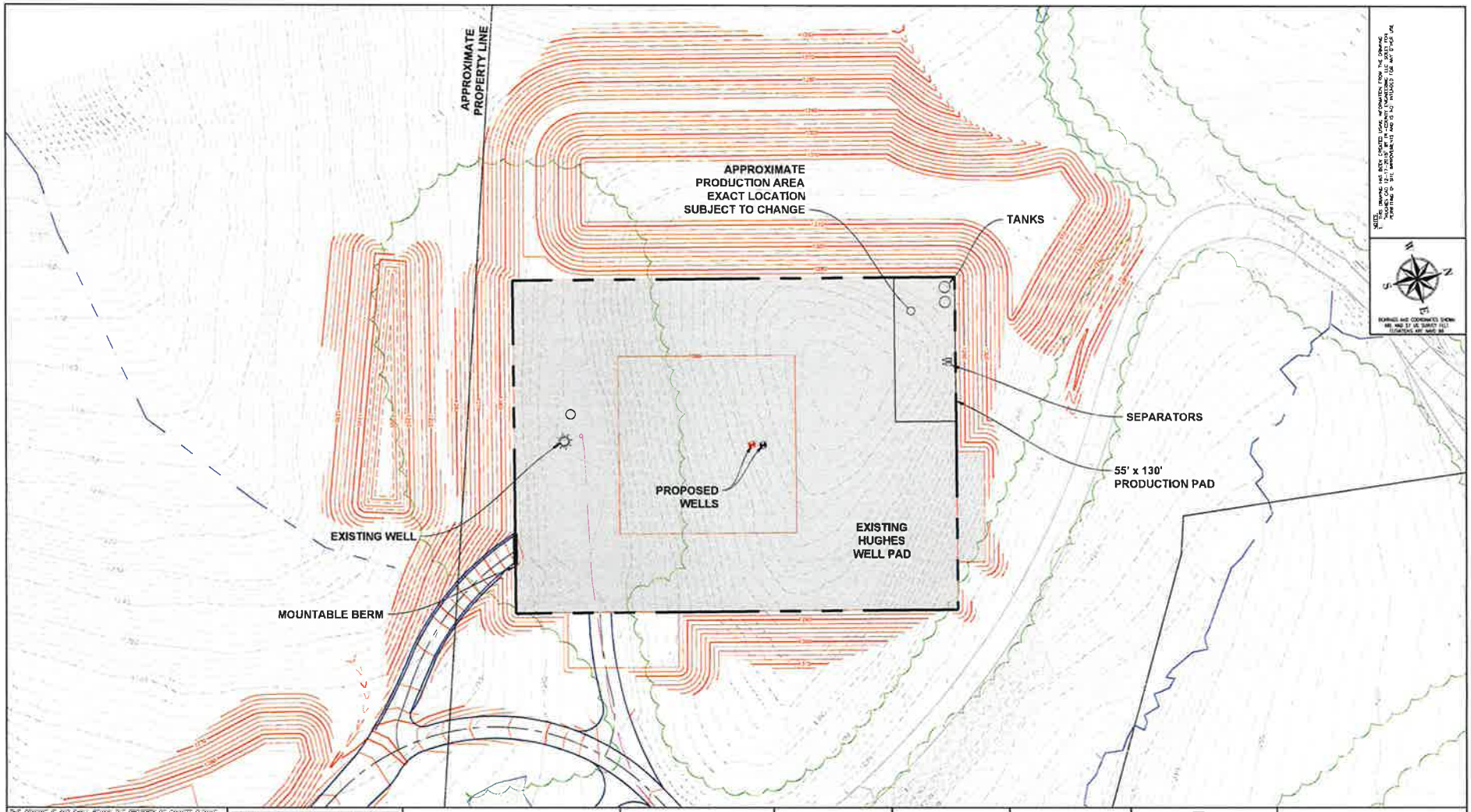
Process Flow Diagram



Process Description

Associated gas and liquids production from the Hughes Wells flow through a line heater and then to the the 2-phase high pressure separator. The gas is sent to sales. The produced liquids go into three (3) 400 bbl water storage tanks (PWTK5,10,11) on the site. Some gas is used as fuel for the line heaters to aid in keeping hydrates from freezing in the lines. Water is trucked off site from the storage tanks. Sometimes gas is vented from the equipment to allow for MSS activities. Truck loading emissions include PM emissions for the miles traveled by the loading truck on lease property.

Attachment F
Plot Plan



NOTES:
1. THE PLANS WE ARE CREATED USING AUTOCAD FROM THE DRAWING PROVIDED ON 12-17-2018 BY THE COMPANY ENGINEERING, LLC. (2013) FOR PURPOSE OF SITE IMPROVEMENTS AND IS NOT INTENDED FOR ANY OTHER USE.

BEARINGS AND COORDINATES SHOWN ARE NAD 27 WV SURVEY FEET. ELEVATIONS ARE NAVD 88

THIS DRAWING IS AND SHALL REMAIN THE PROPERTY OF GANNETT FLEMING, INC. ANY MISUSE, REUSE, ALTERATIONS, ADDITIONS AND/OR DELETIONS OF THESE DRAWINGS ON PROJECT EXTENDING ON OTHER PROJECTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO GANNETT FLEMING, INC. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL GOVERN

REV. No.	DESCRIPTION	DATE	BY
-	-	-	-

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CAMP HILL, PA 17011
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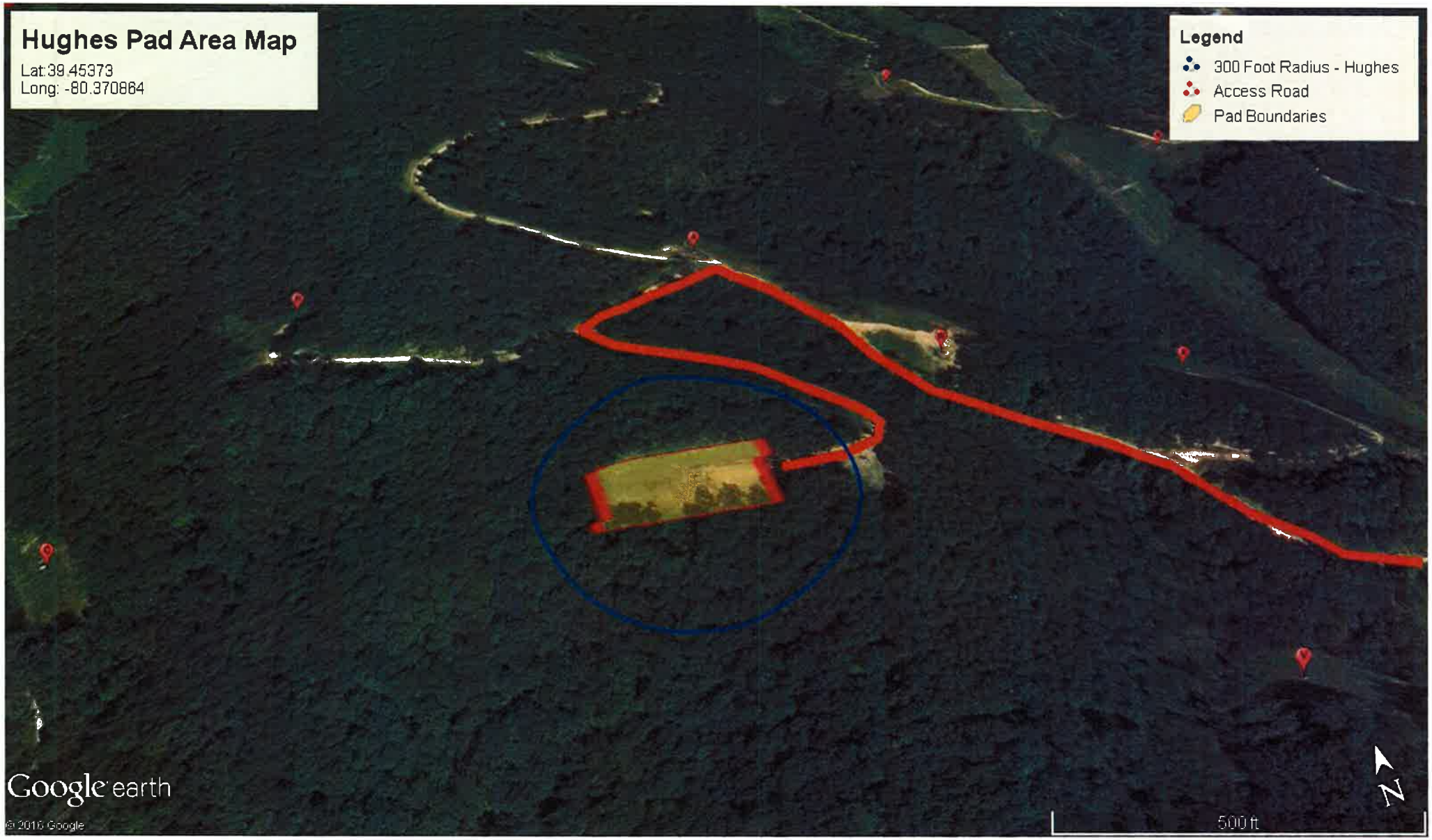
XTO ENERGY
190 THORN HILL ROAD
WARRENDALE, PA 15086
0' 40' 80' 120'
GRAPHIC SCALE 1" = 40'

XTO ENERGY, INC.

HUGHES WELL PAD

SCALE 1" = 40'		PLOT PLAN
REV # -	-	WASHINGTON DISTRICT MARION COUNTY, WEST VIRGINIA
CADD JWS	CF CAD -	SURVEY BY TM-COUNTY ENGINEERING PLOT PLAN BY GANNETT FLEMING, INC.
CHECKED -	APPROVED -	DATE 2/11/19 CF JOB No. - PLOT No 1

Attachment G
Area Map


Hughes Pad Area Map
Lat:39.45373
Long: -80.370864
Legend
300 Foot Radius - Hughes
Access Road
Pad Boundaries
Google earth
© 2016 Google
500 ft
N

Attachment H
G-70B Section Applicability Form

General Permit G70-B Registration
Section Applicability Form

General Permit G70-B was developed to allow qualified applicants to seek registration for a variety of sources. These sources include gas well affected facilities, storage vessels, gas production units, in-line heaters, heater treaters, glycol dehydration units and associated reboilers, pneumatic controllers, centrifugal compressors, reciprocating compressors, reciprocating internal combustion engines (RICEs), tank truck loading, fugitive emissions, completion combustion devices, flares, enclosed combustion devices, and vapor recovery systems. All registered facilities will be subject to Sections 1.0, 2.0, 3.0, and 4.0.

General Permit G70-B allows the registrant to choose which sections of the permit they are seeking registration under. Therefore, please mark which additional sections that you are applying for registration under. If the applicant is seeking registration under multiple sections, please select all that apply. Please keep in mind, that if this registration is approved, the issued registration will state which sections will apply to your affected facility.

GENERAL PERMIT G70-B APPLICABLE SECTIONS	
X Section 5.0	Gas Well Affected Facility (NSPS, Subpart OOOO)
X Section 6.0	Storage Vessels Containing Condensate and/or Produced Water[1]
X Section 7.0	Storage Vessel Affected Facility (NSPS, Subpart OOOO)
☐ Section 8.0	Control Devices and Emission Reduction Devices not subject to NSPS Subpart OOOO and/or NESHAP Subpart HH
X Section 9.0	Small Heaters and Reboilers not subject to 40CFR60 Subpart Dc
X Section 10.0	Pneumatic Controllers Affected Facility (NSPS, Subpart OOOO)
☐ Section 11.0	Centrifugal Compressor Affected Facility (NSPS, Subpart OOOO)[2]
☐ Section 12.0	Reciprocating Compressor Affected Facility (NSPS, Subpart OOOO)[2]
☐ Section 13.0	Reciprocating Internal Combustion Engines, Generator Engines, Microturbines
X Section 14.0	Tanker Truck Loading[3]
☐ Section 15.0	Glycol Dehydration Units[4]

1 *Applicants that are subject to Section 6 may also be subject to Section 7 if the applicant is subject to the NSPS, Subpart OOOO control requirements or the applicable control device requirements of Section 8.*

2 *Applicants that are subject to Section 11 and 12 may also be subject to the applicable RICE requirements of Section 13.*

3 *Applicants that are subject to Section 14 may also be subject to control device and emission reduction device requirements of Section 8.*

4 *Applicants that are subject to Section 15 may also be subject to the requirements of Section 9 (reboilers). Applicants that are subject to Section 15 may also be subject to control device and emission reduction device requirements of Section 8.*

Attachment I
Emission Units/ERD Table

ATTACHMENT I – EMISSION UNITS / EMISSION REDUCTION DEVICES (ERD) TABLE

Include ALL emission units and air pollution control devices/ERDs that will be part of this permit application review. Do not include fugitive emission sources in this table. Deminimis storage tanks shall be listed in the Attachment L table. This information is required for all sources regardless of whether it is a construction, modification, or administrative update.

Emission Unit ID[1]	Emission Point ID[2]	Emission Unit Description	Year Installed	Manufac. Date[3]	Design Capacity	Type[4] and Date of Change	Control Device(s)[5]	ERD(s)[6]
A5LH-S	A5LH-E	LINE HEATER WELL A5	2016	2016	0.500 MMBTU/HR			
A10LH-S	A10LH-E	LINE HEATER WELL A5	2016	2016	0.500 MMBTU/HR			
A11LH-S	A11LH-E	LINE HEATER WELL A5	2016	2016	0.500 MMBTU/HR			
PWTK5-S	PWTK5-E	PRODUCED WATER TANK WELL A5	2016	2016	400 BBL			
PWTK10-S	PWTK10-E	PRODUCED WATER TANK WELL A5	2016	2016	400 BBL			
PWTK10-S	PWTK10-E	PRODUCED WATER TANK WELL A5	2016	2016	400 BBL			

[1] For Emission Units (or Sources) use the following numbering system:1S, 2S, 3S,... or other appropriate designation.
[2] For Emission Points use the following numbering system:1E, 2E, 3E, ... or other appropriate designation.
[3] When required by rule
[4] New, modification, removal, existing
[5] For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.
[6] For ERDs use the following numbering system: 1D, 2D, 3D,... or other appropriate designation.

Attachment J
Fugitive Emissions Summary Sheet

ATTACHMENT J – FUGITIVE EMISSIONS SUMMARY SHEET

Sources of fugitive emissions may include loading operations, equipment leaks, blowdown emissions, etc.
Use extra pages for each associated source or equipment if necessary.

Source/Equipment:

Leak Detection Method Used	☐ Audible, visual, and olfactory (AVO) inspections	☐ Infrared (FLIR) cameras	☐ Other (please describe)	☐ None required

Component Type	Closed Vent System	Count	Source of Leak Factors (EPA, other (specify))	Stream type (gas, liquid, etc.)	Estimated Emissions (tpy)		
					VOC	HAP	GHG (CO_2e)
Pumps	☐ Yes ☒ No	3	EPA	☐ Gas ☒ Liquid ☐ Both	0.0001	0.0001	0.0380
Valves	☐ Yes ☒ No	220	EPA	☐ Gas ☐ Liquid ☒ Both	0.0371	0.0018	106.9115
Safety Relief Valves	☐ Yes ☒ No	0		☐ Gas ☐ Liquid ☐ Both			
Open Ended Lines	☐ Yes ☒ No	8		☐ Gas ☐ Liquid ☒ Both	0.0014	0.0002	2.0340
Sampling Connections	☐ Yes ☒ No	0		☐ Gas ☐ Liquid ☐ Both			
Connections (Not sampling)	☐ Yes ☒ No	400		☐ Gas ☐ Liquid ☒ Both	0.0233	0.0039	19.1469
Compressors	☐ Yes ☒ No	0		☐ Gas ☐ Liquid ☐ Both			
Flanges	☐ Yes ☒ No	400		☐ Gas ☐ Liquid ☒ Both	0.0045	0.0001	14.9976
Other[1]	☐ Yes ☒ No	20		☐ Gas ☐ Liquid ☒ Both	0.1580	0.0256	143.7261

[1] Other equipment types may include compressor seals, relief valves, diaphragms, drains, meters, etc.

Please provide an explanation of the sources of fugitive emissions (e.g. pigging operations, equipment blowdowns, pneumatic controllers, etc.):
Emissions from truck loading and equipment blowdowns were included in other emissions. Safety relief valves are covered under open ended lines and sampling connections are covered under flanges.

Please indicate if there are any closed vent bypasses (include component): There are no closed vent systems
Specify all equipment used in the closed vent system (e.g. VRU, ERD, thief hatches, tanker truck loading, etc.) There are no closed vent systems

Attachment K
Gas Well Affected Facility Data Sheet

ATTACHMENT K – GAS WELL AFFECTED FACILITY DATA SHEET

Complete this data sheet if you are the owner or operator of a gas well affected facility for which construction, modification or reconstruction commenced after August 23, 2011. This form must be completed for natural gas well affected facilities regardless of when flowback operations occur (or have occurred).

API Number	Date of Flowback	Date of Well Completion	Green Completion and/or Combustion Device
049-02361	Planned	Planned	Green Completion
049-02405	Planned	Planned	Green Completion
049-02406	Planned	Planned	Green Completion

Note: If future wells are planned and no API number is available please list as PLANNED.
If there are existing wells that commenced construction prior to August 23, 2011, please acknowledge as existing.

This is the same API (American Petroleum Institute) well number(s) provided in the well completion notification and as provided to the WVDEP, Office of Oil and Gas for the well permit. The API number may be provided on the application without the state code (047).

Every oil and gas well permitted in West Virginia since 1929 has been issued an API number. This API is used by agencies to identify and track oil and gas wells.

The API number has the following format: 047-001-00001

Where,

047 =	*State code. The state code for WV is 047.*
001 =	*County Code. County codes are odd numbers, beginning with 001 (Barbour) and continuing to 109 (Wyoming).*
00001=	*Well number. Each well will have a unique well number.*

Attachment L
Storage Vessel Data Sheet

ATTACHMENT L – STORAGE VESSEL DATA SHEET

Complete this data sheet if you are the owner or operator of a storage vessel that contains condensate and/or produced water. This form must be completed for ***each*** new or modified bulk liquid storage vessel(s) that contains condensate and/or produced water . (If you have more than one (1) identical tank (i.e. 4-400 bbl condensate tanks), then you can list all on one (1) data sheet). **Include gas sample analysis, flashing emissions, working and breathing losses, USEPA Tanks, simulation software (ProMax, E&P Tanks, HYSYS, etc.), and any other supporting documents where applicable.**

The following information is REQUIRED:

☒ Composition of the representative sample used for the simulation
☒ For each stream that contributes to flashing emissions:
- ☒ Temperature and pressure (inlet and outlet from separator(s))
- ☒ Simulation-predicted composition
- ☒ Molecular weight
- ☒ Flow rate

☒ Resulting flash emission factor or flashing emissions from simulation
☒ Working/breathing loss emissions from tanks and/or loading emissions if simulation is used to quantify those emissions

Additional information may be requested if necessary.

GENERAL INFORMATION (REQUIRED)

1. Bulk Storage Area Name: Tanks	2. Tank Name: Produced Water Tanks
3. Emission Unit ID number: PWTK5-S, PWTK10-S, PWTK11-S	4. Emission Point ID number: PWTK5-E, PWTK10-E, PWTK11-E
5. Date Installed , Modified or Relocated *(for existing tanks)* Was the tank manufactured after August 23, 2011? ☒ Yes ☐ No	6. Type of change: ☒ New construction ☐ New stored material ☐ Other ☐ Relocation
7A. Description of Tank Modification *(if applicable)*	
7B. Will more than one material be stored in this tank? *If so, a separate form must be completed for each material.* ☐ Yes ☒ No	
7C. Was USEPA Tanks simulation software utilized? ☐ Yes ☒ No ***If Yes, please provide the appropriate documentation and items 8-42 below are not required.***	

TANK INFORMATION

8. Design Capacity *(specify barrels or gallons)*. Use the internal cross-sectional area multiplied by internal height. 400 bbl	
9A. Tank Internal Diameter (ft.) 12	9B. Tank Internal Height (ft.) 22
10A. Maximum Liquid Height (ft.) 20	10B. Average Liquid Height (ft.) 8
11A. Maximum Vapor Space Height (ft.) 20	11B. Average Vapor Space Height (ft.) 14
12. Nominal Capacity *(specify barrels or gallons)*. This is also known as "working volume". 402.87 bbl	
13A. Maximum annual throughput (gal/yr) 766,500	13B. Maximum daily throughput (gal/day) 2100
14. Number of tank turnovers per year 45.3	15. Maximum tank fill rate (gal/min) 147
16. Tank fill method ☐ Submerged ☐ Splash ☒ Bottom Loading	
17. Is the tank system a variable vapor space system? ☐ Yes ☒ No If yes, (A) What is the volume expansion capacity of the system (gal)? (B) What are the number of transfers into the system per year?	
18. Type of tank (check all that apply): ☒ Fixed Roof ☒ vertical ☐ horizontal ☐ flat roof ☒ cone roof ☐ dome roof ☐ other (describe) ☐ External Floating Roof ☐ pontoon roof ☐ double deck roof ☐ Domed External (or Covered) Floating Roof ☐ Internal Floating Roof ☐ vertical column support ☐ self-supporting ☐ Variable Vapor Space ☐ lifter roof ☐ diaphragm ☐ Pressurized ☐ spherical ☐ cylindrical ☐ Other (describe)	

PRESSURE/VACUUM CONTROL DATA

19. Check as many as apply:

☒ Does Not Apply ☐ Rupture Disc (psig)

☐ Inert Gas Blanket of _____ ☐ Carbon Adsorption[1]

☐ Vent to Vapor Combustion Device[1] (vapor combustors, flares, thermal oxidizers, enclosed combustors)

☐ Conservation Vent (psig) ☐ Condenser[1]

Vacuum Setting Pressure Setting

☐ Emergency Relief Valve (psig)

Vacuum Setting Pressure Setting

☐ Thief Hatch Weighted ☐ Yes ☐ No

[1] Complete appropriate Air Pollution Control Device Sheet

20. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

Material Name	Flashing Loss		Breathing Loss		Working Loss		Total Emissions Loss		Estimation Method[1]
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	
Produced Water – all 3 tanks combined	0.048	0.210	0.019	0.087	0.044	0.190	0.111	0.487	MB/EPA

[1] EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

Remember to attach emissions calculations, including TANKS Summary Sheets and other modeling summary sheets if applicable.

TANK CONSTRUCTION AND OPERATION INFORMATION		
21. Tank Shell Construction: ☐ Riveted ☐ Gunite lined ☐ Epoxy-coated rivets ☐ Other (describe)		
21A. Shell Color: Green	21B. Roof Color: Green	21C. Year Last Painted: 2016
22. Shell Condition (if metal and unlined): ☒ No Rust ☐ Light Rust ☐ Dense Rust ☐ Not applicable		
22A. Is the tank heated? ☐ Yes ☒ No	22B. If yes, operating temperature:	22C. If yes, how is heat provided to tank?
23. Operating Pressure Range (psig): NA **Must be listed for tanks using VRUs with closed vent system.**		
24. Is the tank a **Vertical Fixed Roof Tank**? ☒ Yes ☐ No	24A. If yes, for dome roof provide radius (ft):	24B. If yes, for cone roof, provide slop (ft/ft): 0.17
25. Complete item 25 for **Floating Roof Tanks** ☐ Does not apply ☒		
25A. Year Internal Floaters Installed:		
25B. Primary Seal Type *(check one)*: ☐ Metallic (mechanical) shoe seal ☐ Liquid mounted resilient seal ☐ Vapor mounted resilient seal ☐ Other (describe):		
25C. Is the Floating Roof equipped with a secondary seal? ☐ Yes ☐ No		
25D. If yes, how is the secondary seal mounted? *(check one)* ☐ Shoe ☐ Rim ☐ Other (describe):		
25E. Is the floating roof equipped with a weather shield? ☐ Yes ☐ No		
25F. Describe deck fittings:		
26. Complete the following section for **Internal Floating Roof Tanks** ☒ Does not apply		
26A. Deck Type: ☐ Bolted ☐ Welded	26B. For bolted decks, provide deck construction:	
26C. Deck seam. Continuous sheet construction: ☐ 5 ft. wide ☐ 6 ft. wide ☐ 7 ft. wide ☐ 5 x 7.5 ft. wide ☐ 5 x 12 ft. wide ☐ other (describe)		
26D. Deck seam length (ft.):	26E. Area of deck (ft^2):	26F. For column supported tanks, # of columns: / 26G. For column supported tanks, diameter of column:
27. Closed Vent System with VRU? ☐ Yes ☒ No		
28. Closed Vent System with Enclosed Combustor? ☐ Yes ☒ No		
SITE INFORMATION		
29. Provide the city and state on which the data in this section are based: Pittsburgh PA		
30. Daily Avg. Ambient Temperature (°F): 50.308	31. Annual Avg. Maximum Temperature (°F): 59.883	
32. Annual Avg. Minimum Temperature (°F): 40.733	33. Avg. Wind Speed (mph): 9.075	
34. Annual Avg. Solar Insulation Factor (BTU/ft^2-day): 1202.956	35. Atmospheric Pressure (psia): 14.109	
LIQUID INFORMATION		
36. Avg. daily temperature range of bulk liquid (°F): 58.5	36A. Minimum (°F): 49.32	36B. Maximum (°F): 67.67
37. Avg. operating pressure range of tank (psig): 0.3032	37A. Minimum (psig):0.2244	37B. Maximum (psig): 0.4065
38A. Minimum liquid surface temperature (°F): 49.32	38B. Corresponding vapor pressure (psia): 0.2244	
39A. Avg. liquid surface temperature (°F): 58.5	39B. Corresponding vapor pressure (psia): 0.3032	
40A. Maximum liquid surface temperature (°F): 67.67	40B. Corresponding vapor pressure (psia): 0.4065	
41. Provide the following for each liquid or gas to be stored in the tank. Add additional pages if necessary.		

41A. Material name and composition:	Produced Water		
41B. CAS number:			
41C. Liquid density (lb/gal):			
41D. Liquid molecular weight (lb/lb-mole):	18.77		
41E. Vapor molecular weight (lb/lb-mole):	27.5755		
41F. Maximum true vapor pressure (psia):	1.0		
41G. Maximum Reid vapor pressure (psia):	0.4065		
41H. Months Storage per year. From: JAN To: DEC	12		
42. Final maximum gauge pressure and temperature prior to transfer into tank used as inputs into flashing emission calculations.	Used analysis with 200% Safety Factor based on 526 psig & 37F		

STORAGE TANK DATA TABLE

List all deminimis storage tanks (i.e. lube oil, glycol, diesel etc.)

Source ID #[1]	Status[2]	Content[3]	Volume[4]
NA	NA	NA	NA

1. Enter the appropriate Source Identification Numbers (Source ID #) for each storage tank located at the compressor station. Tanks should be designated T01, T02, T03, etc.
2. Enter storage tank Status using the following:
   - EXIST Existing Equipment
   - NEW Installation of New Equipment
   - REM Equipment Removed
3. Enter storage tank content such as condensate, pipeline liquids, glycol (DEG or TEG), lube oil, diesel, mercaptan etc.
4. Enter the maximum design storage tank volume in gallons.

Attachment M
Natural Gas Fired Fuel Burning Units Sheet

ATTACHMENT M – SMALL HEATERS AND REBOILERS NOT SUBJECT TO 40CFR60 SUBPART DC
DATA SHEET

Complete this data sheet for each small heater and reboiler not subject to 40CFR60 Subpart Dc at the facility. ***The Maximum Design Heat Input (MDHI) must be less than 10 MMBTU/hr.***

Emission Unit ID#[1]	Emission Point ID#[2]	Emission Unit Description (manufacturer, model #)	Year Installed/ Modified	Type[3] and Date of Change	Maximum Design Heat Input (MMBTU/hr)[4]	Fuel Heating Value (BTU/scf)[5]
A5LH-S	A5LH-E	Energy Weld Fab	2016	2016	0.500	1013.5
A10LH-S	A10LH-E	Energy Weld Fab	2016	2016	0.500	1013.5
A11LH-S	A11LH-E	Energy Weld Fab	2016	2016	0.500	1013.5

1 Enter the appropriate Emission Unit (or Source) identification number for each fuel burning unit located at the production pad. Gas Producing Unit Burners should be designated GPU-1, GPU-2, etc. Heater Treaters should be designated HT-1, HT-2, etc. Heaters or Line Heaters should be designated LH-1, LH-2, etc. For sources, use 1S, 2S, 3S…or other appropriate designation. Enter glycol dehydration unit Reboiler Vent data on the Glycol Dehydration Unit Data Sheet.

2 Enter the appropriate Emission Point identification numbers for each fuel burning unit located at the production pad. Gas Producing Unit Burners should be designated GPU-1, GPU-2, etc. Heater Treaters should be designated HT-1, HT-2, etc. Heaters or Line Heaters should be designated LH-1, LH-2, etc. For emission points, use 1E, 2E, 3E…or other appropriate designation.

3 New, modification, removal

4 Enter design heat input capacity in MMBtu/hr.

5 Enter the fuel heating value in BTU/standard cubic foot.

Attachment N
Internal Combustion Engine Data Sheet

Internal Combustion Engine Data

Hughes Pad
Marion County, West Virginia
XTO Energy, Inc.

The facility does not operate or utilize any internal combustion engines.

Attachment O
Tanker Truck Loading Data Sheet

ATTACHMENT O – TANKER TRUCK LOADING DATA SHEET

Complete this data sheet for each new or modified bulk liquid transfer area or loading rack at the facility. This is to be used for bulk liquid transfer operations to tanker trucks. Use extra pages if necessary.

Truck Loadout Collection Efficiencies

The following applicable capture efficiencies of a truck loadout are allowed:

- For tanker trucks passing the MACT level annual leak test – 99.2%
- For tanker trucks passing the NSPS level annual leak test – 98.7%
- For tanker trucks not passing one of the annual leak tests listed above – 70%

Compliance with this requirement shall be demonstrated by keeping records of the applicable MACT or NSPS Annual Leak Test certification for ***every*** truck and railcar loaded/unloaded. This requirement can be satisfied if the trucking company provided certification that its entire fleet was compliant. This certification must be submitted in writing to the Director of the DAQ. These additional requirements must be noted in the Registration Application.

Emission Unit ID#: TRUCKW-S	Emission Point ID#: TRUCKW-E	Year Installed/Modified: 2016
Emission Unit Description: Produced Water loadout for tanks		
Loading Area Data		
Number of Pumps: 1	Number of Liquids Loaded: 1	Max number of trucks loading at one (1) time: 1
Are tanker trucks pressure tested for leaks at this or any other location? ☐ Yes ☒ No ☐ Not Required If Yes, Please describe:		
Provide description of closed vent system and any bypasses. None		
Are any of the following truck loadout systems utilized? ☐ Closed System to tanker truck passing a MACT level annual leak test? ☐ Closed System to tanker truck passing a NSPS level annual leak test? ☐ Closed System to tanker truck not passing an annual leak test and has vapor return?		

Projected Maximum Operating Schedule (for rack or transfer point as a whole)

Time	Jan – Mar	Apr - Jun	Jul – Sept	Oct - Dec
Hours/day	2	2	2	2
Days/week	7	7	7	7

Bulk Liquid Data (use extra pages as necessary)

Liquid Name	Produced Water		
Max. Daily Throughput (1000 gal/day)	6.3		
Max. Annual Throughput (1000 gal/yr)	2299.5		
Loading Method[1]	Bottom Fill		
Max. Fill Rate (gal/min)	259		
Average Fill Time (min/loading)	30		
Max. Bulk Liquid Temperature (°F)	67.67		
True Vapor Pressure[2]	<1.0		
Cargo Vessel Condition[3]	U		
Control Equipment or Method[4]	NA		
Max. Collection Efficiency (%)	NA		

Max. Control Efficiency (%)		NA		
Max.VOC Emission Rate	Loading (lb/hr)	0.0297		
	Annual (ton/yr)	0.0044		
Max.HAP Emission Rate	Loading (lb/hr)	0.0039		
	Annual (ton/yr)	0.0006		
Estimation Method[5]		EPA		

1 BF Bottom Fill SP Splash Fill SUB Submerged Fill
2 At maximum bulk liquid temperature
3 B Ballasted Vessel C Cleaned U Uncleaned (dedicated service)
O Other (describe)
4 List as many as apply (complete and submit appropriate Air Pollution Control Device Sheets)
CA Carbon Adsorption VB Dedicated Vapor Balance (closed system)
ECD Enclosed Combustion Device F Flare
TO Thermal Oxidization or Incineration
5 EPA EPA Emission Factor in AP-42 MB Material Balance
TM Test Measurement based upon test data submittal O Other (describe)

Attachment P
Glycol Dehydration Unit Data Sheet

Glycol Dehydration Unit Data

Hughes Pad
Marion County, West Virginia
XTO Energy, Inc.

The facility does not operate or utilize any glycol dehydration units.

Attachment Q
Pneumatic Controllers Data Sheet

ATTACHMENT Q – PNEUMATIC CONTROLLERS DATA SHEET

Are there any continuous bleed natural gas driven pneumatic controllers at this facility that commenced construction, modification or reconstruction after August 23, 2011?

☒ Yes ☐ No

Please list approximate number. 3

Are there any continuous bleed natural gas driven pneumatic controllers at this facility with a bleed rate greater than 6 standard cubic feet per hour that are required based on functional needs, including but not limited to response time, safety and positive actuation that commenced construction, modification or reconstruction after August 23, 2011?

☐ Yes ☒ No

Please list approximate number.

Attachment R
Control Device/ERD Data Sheets

Control Device/ERD Unit Data

Hughes Pad
Marion County, West Virginia
XTO Energy, Inc.

The facility does not operate or utilize any control devices or emission reduction devices.

Attachment S
Emission Calculations

XTO Energy, Inc.

Hughes Pad

Facility Emission Summary

Emissions Summary Table

Emission Source	Source Point	EPN	NOx		CO		Total VOC (Includes Total HAPs)		CO2e		SO_2		$PM_{10 \& 2.5}$		Total HAPs	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Truck Loading: Produced Water	TRUCKW-S	TRUCKW-E	-	-	-	-	0.0297	0.0044	16.1999	2.3971	-	-	-	-	0.00079	0.00012
Fugitive Emissions: Equipment Leaks & Truck Loading Dust Emissions	FUG-S	FUG-E	-	-	-	-	0.0471	0.2062	53.3389	233.6244	-	-	3.6771	1.0882	0.0050	0.0218
Equipment Blowdowns: MSS	EQUIP BD-S	EQUIP BD-E	-	-	-	-	0.1600	0.0138	1694.4208	50.8526	-	-	-	-	0.0000	0.0000
Line Heater Well A5	A5LH-S	A5LH-E	0.0493	0.2161	0.0414	0.1815	0.0027	0.0119	60.0242	262.9058	0.0003	0.0013	0.0037	0.0164	0.0009	0.0041
Line Heater Well A10	A10LH-S	A10LH-E	0.0493	0.2161	0.0414	0.1815	0.0027	0.0119	60.0242	262.9058	0.0003	0.0013	0.0037	0.0164	0.0009	0.0041
Line Heater Well A11	A11LH-S	A11LH-E	0.0493	0.2161	0.0414	0.1815	0.0027	0.0119	60.0242	262.9058	0.0003	0.0013	0.0037	0.0164	0.0009	0.0041
Produced Water Tank Well A5: 400 bbl	PWTK5-S	PWTK5-E	-	-	-	-	0.0370	0.1622	20.2240	88.5812	-	-	-	-	0.0048	0.0210
Produced Water Tank Well A10: 400 bbl	PWTK10-S	PWTK10-E	-	-	-	-	0.0370	0.1622	20.2240	88.5812	-	-	-	-	0.0048	0.0210
Produced Water Tank Well A11: 400 bbl	PWTK11-S	PWTK11-E	-	-	-	-	0.0370	0.1622	20.2240	88.5812	-	-	-	-	0.0048	0.0210

TOTAL EMISSIONS	NOx		CO		Total VOC (Includes Total HAPs)		CO2e		SO_2		$PM_{10 \& 2.5}$		Total HAPs	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
	0.1480	**0.6482**	**0.1243**	**0.5445**	**0.6560**	**0.7467**	**2004.7040**	**1341.3151**	**0.0009**	**0.0039**	**3.6883**	**1.1375**	**0.0229**	**0.0971**

XTO Energy, Inc.

Hughes Pad

Facility Emission Summary - HAPS

Emissions Summary Table

Emission Source	Source Point	BPN	HCHO		Benzene		Toluene		Ethylbenzene		Xylenes		Hexane		Total HAPs	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Truck Loading: Produced Water	TRUCKW-S	TRUCKW-E	-	-	0.0000066	0.0000010	0.0000193	0.0000029	0.0000022	0.0000003	0.0000090	0.0000013	0.0000006	0.00000009	0.00004	0.00001
Fugitive Emissions: Equipment Leaks & Truck Loading Dust Emissions	FUG-S	FUG-E	-	-	0.0009	0.0038	0.0025	0.0112	0.0003	0.0013	0.0012	0.0052	0.0001	0.0004	0.0050	0.0218
Equipment Blowdowns: MSS	EQUIP BD-S	EQUIP BD-E	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Line Heater Well A5	A5LH-S	A5LH-E	0.00004	0.0002	0.000001	0.000005	0.000002	0.00001	-	-	-	-	0.0009	0.0039	0.0009	0.0041
Line Heater Well A10	A10LH-S	A10LH-E	0.00004	0.0002	0.000001	0.000005	0.000002	0.00001	-	-	-	-	0.0009	0.0039	0.0009	0.0041
Line Heater Well A11	A11LH-S	A11LH-E	0.00004	0.0002	0.000001	0.000005	0.000002	0.00001	-	-	-	-	0.0009	0.0039	0.0009	0.0041
Produced Water Tank Well A5: 400 bbl	PWTK5-S	PWTK5-E	-	-	0.0008	0.0037	0.0025	0.0108	0.0003	0.0012	0.0011	0.0050	0.0001	0.0004	0.0048	0.0210
Produced Water Tank Well A10: 400 bbl	PWTK10-S	PWTK10-E	-	-	0.0008	0.0037	0.0025	0.0108	0.0003	0.0012	0.0011	0.0050	0.0001	0.0004	0.0048	0.0210
Produced Water Tank Well A11: 400 bbl	PWTK11-S	PWTK11-E	-	-	0.0008	0.0037	0.0025	0.0108	0.0003	0.0012	0.0011	0.0050	0.0001	0.0004	0.0048	0.0210

TOTAL EMISSIONS	HCHO		Benzene		Toluene		Ethylbenzene		Xylenes		Hexane		Total HAPs	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
	0.0001	**0.0005**	**0.0034**	**0.0149**	**0.0099**	**0.0435**	**0.0011**	**0.0049**	**0.0046**	**0.0202**	**0.0030**	**0.0131**	**0.0222**	**0.0970**

XTO Energy, Inc.
Hughes Pad
Federal Regulations: Applicability Determinations

Applicability Determinations	
NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP): MACT STANDARDS	
40 CFR 63 Subpart HH	N/A - This regulation is not applicable to this facility.
40 CFR 63 Subpart ZZZZ	NA - This facility does not have any ZZZZ engines.
40 CFR 63 Subpart DDDDD	N/A - This regulation is not applicable to this facility.
NEW SOURCE PREFORMANCE STANDARDS (NSPS)	
40 CFR 60 Subpart Ka/Kb	N/A - The storage tanks at this facility are below the 40,000 gallon applicablity threshold limit.
40 CFR 60 Subpart KKK	N/A - Since this facility does not recover a "Y-Grade Product," it is not subject to LDAR.
40 CFR 60 Subpart LLL	N/A - This facility is not defined as an Onshore Natural Gas Processing Plant, thus this regulations is not applicable.
40 CFR 60 Subpart JJJJ	N/A - This facility does not have any JJJJ engines.
40 CFR 60 Subpart IIII	N/A - Since this facility does not have any Diesel engines, this regulation is not applicable.
40 CFR 60 Subpart GG or KKKK	N/A - Since this facility does not have any Turbines, these regulations are not applicable.
40 CFR 60 Subpart OOOO	The natural gas well affected facility completion requirements were submitted. There are no high bleed pneumatics or any tanks with emissions greater than 6 tpy.
EPA RISK MANAGEMENT PLAN	
40 CFR 68 Subpart G	N/A - This facility does not store more than 10,000 pounds of a regulated material, thus it is not subject to the provisions of the EPA RMP Requirements.

XTO Energy, Inc.

Hughes Pad

Gas Analysis - Representative

Conversion of Mole Percent to Weight Percent

Component	Mole %	MW	Mole % *MW	Weight %
Carbon Dioxide	0.177	44.01	0.0779	0.469%
Nitrogen	0.250	28.01	0.0700	0.421%
Hydrogen Sulfide	0.000	34.08	0.0000	0.000%
Methane	96.240	16.04	15.4389	92.901%
Ethane	3.139	30.07	0.9438	5.679%
Propane	0.176	44.10	0.0775	0.467%
Iso-Butane	0.006	58.12	0.0035	0.021%
N-Butane	0.012	58.12	0.0070	0.042%
Iso-Pentane	0.000	72.15	0.0000	0.000%
N-Pentane	0.000	72.15	0.0000	0.000%
n-Hexane	0.000	86.18	0.0000	0.000%
Hexanes	0.000	86.16	0.0000	0.000%
2,4-Dimethylpentane	0.000	114.24	0.0000	0.000%
Methycyclohexane	0.000	96.00	0.0000	0.000%
Benzene	0.000	78.11	0.0000	0.000%
Cyclohexane	0.000	84.51	0.0000	0.000%
Heptanes	0.000	100.20	0.0000	0.000%
Toluene	0.000	92.13	0.0000	0.000%
Ethylbenzene	0.000	106.17	0.0000	0.000%
Xylenes	0.000	106.17	0.0000	0.000%
Octanes	0.000	114.23	0.0000	0.000%
Nonanes	0.000	128.28	0.0000	0.000%
Decanes+	0.000	155.00	0.0000	0.000%
Total	100.000	-	16.62	100.000%

Molecular Weight	16.62	
Relative Density	0.58	
Lower Heating Value	1013.5	
NMHC	1.0318	6.209%
VOCs (NMNEHC)	0.0880	0.530%
HAPs	0.0000	0.000%
Total HC	16.4707	99.110%
THC:VOC Ratio	0.5346	0.535%

XTO Energy, Inc.
Hughes Pad
Fugitive Emissions - VOC

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total VOC Weight %	Emissions	
						lb/year	tons/year
Valves	Gas/Vapor	120	8760	0.00992000	0.53%	55.2483	0.0276
	Light Oil		8760	0.00550000	10.00%	0.0000	0.0000
	Heavy Oil		8760	0.00001900	10.00%	0.0000	0.0000
	Water/Light Oil	100	8760	0.00021600	10.00%	18.9216	0.0095
Pumps	Gas/Vapor		8760	0.00529000	0.53%	0.0000	0.0000
	Light Oil		8760	0.02866000	10.00%	0.0000	0.0000
	Heavy Oil		8760	0.00113000	10.00%	0.0000	0.0000
	Water/Light Oil	3	8760	0.00005300	10.00%	0.1393	0.0001
Flanges	Gas/Vapor	200	8760	0.00086000	0.53%	7.9828	0.0040
	Light Oil		8760	0.00024300	10.00%	0.0000	0.0000
	Heavy Oil		8760	0.00000086	10.00%	0.0000	0.0000
	Water/Light Oil	200	8760	0.00000620	10.00%	1.0862	0.0005
Open-ended Lines	Gas/Vapor	4	8760	0.00441000	0.53%	0.8187	0.0004
	Light Oil		8760	0.00309000	10.00%	0.0000	0.0000
	Heavy Oil		8760	0.00030900	10.00%	0.0000	0.0000
	Water/Light Oil	4	8760	0.00055000	10.00%	1.9272	0.0010
Connectors	Gas/Vapor	200	8760	0.00044000	0.53%	4.0842	0.0020
	Light Oil		8760	0.00046300	10.00%	0.0000	0.0000
	Heavy Oil		8760	0.00001700	10.00%	0.0000	0.0000
	Water/Light Oil	200	8760	0.00024300	10.00%	42.5736	0.0213
Other:	Gas/Vapor	10	8760	0.01940000	0.53%	9.0038	0.0045
	Light Oil		8760	0.01650000	10.00%	0.0000	0.0000
	Heavy Oil		8760	0.00006800	10.00%	0.0000	0.0000
	Water/Light Oil	10	8760	0.03090000	10.00%	270.6840	0.1353

	lb/hr	lb/year	TPY
Total VOC Emissions	0.047	412.470	0.206
HAPs	0.005	43.610	0.022

XTO Energy, Inc.

Hughes Pad

Line Heater Burner Calculations

CRITERIA & REGULATED POLLUTANTS

				AP-42 Factors lb/MMSCF					lb/hr					tpy				
EPN	Fuel Gas (BTU/SCF)	Operating Hours	Burner Rating (MMBTU/Hr)	NOx	CO	VOC	SO_2	$PM_{10\&25}$	NOx	CO	VOC	SO_2	$PM_{10\&25}$	NOx	CO	VOC	SO_2	$PM_{10\&25}$
A5LH -E	1013.5	8760	0.50	100	84	5.5	0.6	7.6	0.049	0.041	0.003	0.000	0.004	0.216	0.182	0.012	0.001	0.016
A10LH - E	1013.5	8760	0.50	100	84	5.5	0.6	7.6	0.049	0.041	0.003	0.000	0.004	0.216	0.182	0.012	0.001	0.016
A11LH - E	1013.5	8760	0.50	100	84	5.5	0.6	7.6	0.049	0.041	0.003	0.000	0.004	0.216	0.182	0.012	0.001	0.016

***Source: AP-42 Table 1.4-1, 1.4-2, & 1.4-3**

	NOx	CO	VOC	SO_2	$PM_{10\&25}$
Total (tpy)	**0.648**	**0.545**	**0.036**	**0.004**	**0.049**

XTO Energy, Inc.

Hughes Pad

Line Heater Burner Calculations

HAZARDOUS AIR POLLUTANTS (HAPs)

				AP-42 Factors lb/MMSCF					lb/hr					tpy				
EPN	Fuel Gas (BTU/SCF)	Operating Hours	Burner Rating (MMBTU/Hr)	Benzene	Toluene	N-Hexane	HCHO	Diclorobenz.	Benzene	Toluene	N-Hexane	HCHO	Diclorobenz.	Benzene	Toluene	N-Hexane	HCHO	Diclorobenz.
A5LH -E	1013.5	8760	0.500	0.0021	0.0034	1.8	0.0750	0.0012	0.000001	0.000002	0.000888	0.000037	0.000001	0.000005	0.000007	0.003889	0.000162	0.000003
A10LH - E	1013.5	8760	0.500	0.0021	0.0034	1.8	0.0750	0.0012	0.000001	0.000002	0.000888	0.000037	0.000001	0.000005	0.000007	0.003889	0.000162	0.000003
A11LH - E	1013.5	8760	0.500	0.0021	0.0034	1.8	0.0750	0.0012	0.000001	0.000002	0.000888	0.000037	0.000001	0.000005	0.000007	0.003889	0.000162	0.000003

***Source: AP-42 Table 1.4-1, 1.4-2, & 1.4-3**

	Benzene	Toluene	Hexane	HCHO	Diclorobenz.
Total Individual HAPS (tpy)	**0.000014**	**0.000022**	**0.011668**	**0.000486**	**0.000008**

Total Combined HAPS (tpy)	**0.01220**

XTO Energy, Inc.

Hughes Pad

Produced Water Storage Tanks

Emissions Calculations - Working and Breathing Losses

Average BWPD	Number of Produced Water Tanks	Emissions Controlled (Yes/No)	Control Type (Flare, VRU, etc.)
150	3	No	N/A

Total Uncontrolled Emissions - Emission Rate for All Tanks Combined			
Uncontrolled VOC Emissions		Uncontrolled HAP Emissions	
0.063	lb/hr	0.008	lb/hr
0.276	tpy	0.036	tpy

Total Uncontrolled Emissions - Emission Rates Per Tank			
Uncontrolled VOC Emissions		Uncontrolled HAP Emissions	
0.021	lb/hr	0.003	lb/hr
0.092	tpy	0.012	tpy

Tank Emissions are based from Tanks 4.09d calculations

XTO Energy, Inc.

Hughes Pad

EOS Flash Analysis

Conversion of Mole Percent to Weight Percent

Component	Mole %	MW	Mole % *MW	Weight %
Carbon Dioxide	1.553	44.0100	0.6834	0.0379
Nitrogen	1.218	28.0100	0.3412	0.0189
Hydrogen Sulfide	0.000	34.0800	0.0000	0.0000
Helium	0.000	4.0000	0.0000	0.0000
Methane	88.821	16.0400	14.2470	0.7907
Ethane	7.309	30.0700	2.1979	0.1220
Propane	0.939	44.1000	0.4142	0.0230
Iso-Butane	0.030	58.1200	0.0174	0.0010
N-Butane	0.013	58.1200	0.0076	0.0004
Iso-Pentane	0.002	72.1500	0.0015	0.0001
N-Pentane	0.001	72.1500	0.0007	0.0000
Methylcyclopentane	0.000	86.0000	0.0000	0.0000
n-Hexane	0.001	86.1800	0.0012	0.0001
Hexane +	0.004	86.1600	0.0035	0.0002
2,2,4-Trimethylpentane	0.000	114.2400	0.0000	0.0000
Methycyclohexane	0.000	96.0000	0.0000	0.0000
Benzene	0.016	78.1100	0.0125	0.0007
Cyclohexane	0.010	84.0000	0.0086	0.0005
Heptanes	0.008	100.2000	0.0080	0.0004
Toluene	0.040	92.1300	0.0366	0.0020
Ethylbenzene	0.004	106.1700	0.0041	0.0002
Xylenes	0.016	106.1700	0.0170	0.0009
Octanes+	0.012	114.2300	0.0133	0.0007
Nonanes+	0.001	128.2800	0.0018	0.0001
Decanes+	0.001	155.7100	0.0011	0.0001
Total	100.000	-	18.0186	100.000%

Molecular Weight	18.02	
Specific Gravity	0.6234	
Gross WET BTU	1037.7	
NMHC	2.7470	15.245%
VOCs (NMNEHC)	0.5491	3.047%
HAPs	0.0714	0.40%
H2S Mole Fraction	0.0000	0.000%
Total HC	16.9939	94.314%
THC:VOC Ratio	3.2310	3.231%

XTO Energy, Inc.

Hughes Pad

Produced Water Flash Emissions

Oil/Condensate Production	0	BOPD
Produced Water Production	150	BWPD
Representative Gas-to-Oil Ratio*	5.34	SCF / Barrel (GOR)
Quanitiy Released	801	(BOPD * GOR) + (BWPD * GOR * 0.2)
Duration	24	Hours/Day
Flared	No	(Yes/No)
Vented	Yes	(Yes/No)
BTU	1037.7	

Component	Estimated Quantity Vented (lb/day)	Estimated Quantity Emitted from the Flare (lb/day)	Total Estimated Quantity Emitted (lb/day)	Hourly Emission Rate (lb/hr)	Annualized Emission Rate (TPY)
Carbon Monoxide	0.000	0.000	0.000	0.000	0.000
NOx	0.000	0.000	0.000	0.000	0.000
Total VOCs	1.153	0.000	1.153	0.048	0.210
Total HAPs	0.148	0.000	0.148	0.006	0.027
Sulfur Dioxide	0.000	0.000	0.000	0.000	0.000
Carbon Dioxide	1.420	0.000	1.420	0.059	0.259
Nitrogen	0.709	0.000	0.709	0.030	0.129
Hydrogen Sulfide	0.000	0.000	0.000	0.000	0.0000
Helium	0.000	0.000	0.000	0.000	0.000
Methane	29.610	0.000	29.610	1.234	5.404
Ethane	4.568	0.000	4.568	0.190	0.834
Propane	0.861	0.000	0.861	0.036	0.157
Iso-Butane	0.036	0.000	0.036	0.002	0.007
N-Butane	0.016	0.000	0.016	0.001	0.003
Iso-Pentane	0.003	0.000	0.003	0.000	0.001
N-Pentane	0.001	0.000	0.001	0.000	0.000
Methylcyclopentane	0.000	0.000	0.000	0.000	0.000
n-Hexane	0.003	0.000	0.003	0.000	0.000
Hexanes	0.007	0.000	0.007	0.000	0.001
2,4-Dimethylpentane	0.000	0.000	0.000	0.000	0.000
Methycyclohexane	0.000	0.000	0.000	0.000	0.000
Benzene	0.026	0.000	0.026	0.001	0.005
Cyclohexane	0.018	0.000	0.018	0.001	0.003
Heptanes	0.017	0.000	0.017	0.001	0.003
Toluene	0.076	0.000	0.076	0.003	0.014
Ethylbenzene	0.009	0.000	0.009	0.000	0.002
Xylenes	0.035	0.000	0.035	0.001	0.006
Octanes	0.028	0.000	0.028	0.001	0.005
Nonanes	0.004	0.000	0.004	0.000	0.001
Decanes+	0.002	0.000	0.002	0.000	0.000
$PM_{10 \& 25}$	0.000	0.000	0.000	0.000	0.000

*** A 200% safety factor is being used due to the sample being a representative analysis.**

XTO Energy, Inc.

Hughes Pad

PRODUCED WATER TRUCK LOADING EMISSIONS

Truck Loading Losses Calculations

Produced Water Production:	**150**	**bbls / Day**
Operating Schedule	**365**	**Day / Year**
Total Production:	**54750**	**bbls / Year**

LL= 12.46 * SPM/T * (1-EFF/100)

Saturation Factor (S) =	0.6
True Vapor Pressure of liquid loaded (P)[1]=	1.00
Temperature of bulk liquid loaded in Rankin (T) =	540.0
Molecular Weight (M)[1] =	27.58
Control Efficiency * Collection Efficiency (EFF)=	0
LL (lb Total HC / bbl Throughput) =	0.0160
Estimated Throughput (bbls/Year) =	54750
Truck Loading Rate (bbls/hour) =	185
Estimated # of Loads (Approximately 1 hr/Load) =	296

Total VOC Emissions (Calculated as 100%, then reduced by 99%)	lb/hr	TPY
	0.03	0.00

[1]Molecular Weight is from Tanks 4.09 d report

XTO Energy, Inc.

Hughes Pad

MSS Gas Analysis

Conversion of Mole Percent to Weight Percent

Component	Mole %	MW	Mole % *MW	Weight %
Carbon Dioxide	0.1769	44.0150	0.0779	0.469%
Nitrogen	0.2500	28.0137	0.0700	0.421%
Hydrogen Sulfide	0.0000	34.0800	0.0000	0.000%
Methane	96.2404	16.0420	15.4389	92.901%
Ethane	3.1388	30.0685	0.9438	5.679%
Propane	0.1758	44.1000	0.0775	0.467%
Iso-Butane	0.0061	58.1200	0.0035	0.021%
N-Butane	0.0120	58.1200	0.0070	0.042%
Iso-Pentane	0.0000	72.1500	0.0000	0.000%
N-Pentane	0.0000	72.1517	0.0000	0.000%
n-Hexane	0.0000	86.1800	0.0000	0.000%
Hexane +	0.0000	86.1600	0.0000	0.000%
2,4-Dimethylpentane	0.0000	114.2400	0.0000	0.000%
Methycyclohexane	0.0000	96.0000	0.0000	0.000%
Benzene	0.0000	78.1100	0.0000	0.000%
Cyclohexane	0.0000	84.5062	0.0000	0.000%
Heptanes	0.0000	100.2000	0.0000	0.000%
Toluene	0.0000	92.1300	0.0000	0.000%
Ethylbenzene	0.0000	106.1700	0.0000	0.000%
Xylenes	0.0000	106.1700	0.0000	0.000%
Octanes+	0.0000	114.2300	0.0000	0.000%
Nonanes+	0.0000	128.2800	0.0000	0.000%
Decanes+	0.0000	155.0000	0.0000	0.000%
Total	100.00	-	-	100.000%

Molecular Weight	16.62	
Specific Gravity	0.58	
Gross WET BTU	1013.5	
NMHC	1.0318	6.209%
VOCs (NMNEHC)	0.0880	0.530%
HAPs	0.0000	0.00%
H2S Mole Fraction	0.0000	0.000%
Total HC	16.4707	99.110%
THC:VOC Ratio	0.5346	0.535%

XTO Energy, Inc.

Hughes Pad

Equipment Blowdowns & Purging Emissions

Equipment Blowdowns & Purging - Emission Calculations

Vessel Information - (Basis for Volume: Compressor Discharge Filter Separator)		
Volume of the Vessels	50.27	ft^3
Estimated Volume of Gas in Vessel Under Pressure[1]	734.15	Standard ft^3
Vessel Pressure	200	psig
Vessel Pressure	214.7	psia
Vessel / Atmospheric Temperature	80	°F
Vessel / Atmospheric Temperature	540	°R

Gas Composition Information		
Atmospheric Pressure	14.7	Psia
Universal Gas Constant (R)	10.73	ft^3 psi/°R lb-mol
Molecular Weight	16.62	lb/lb-mole
Compressibility Factor	0.9962	Z
VOC Weight Percent	0.53%	Percentage
HAP Weight Percent	0.00%	Percentage
H_2S Weight Percent	0.00%	Percentage
Ending Gas Density (ρ_2)[2]	0.0423	lb/ft³
Starting Gas Density (ρ_1)[3]	0.6181	lb/ft³
Density (ρ_{TOTAL})[4]	0.5758	lb/ft³

Emission Calculations		
Density (ρ_{TOTAL})	0.5758	lb/ft³
Estimated Max Amount of Gas Vented[5]	28.94	lbs/Event
Estimated Number of Equipment Blowdowns	60	Events/Year
Estimated Equipment Purge Count	3	Times/Event
Estimated Total Amount of Gas Released (Includes Methane & Ethane)	5209.88	lbs/Year
Estimated Total Amount of Gas Released (Includes Methane & Ethane)	2.60	Tons/Year

Estimated Total Emissions		
Total VOC Emissions (Includes Total HAPs)	27.60	lbs/Year
	0.46	lbs/Event
	0.01	Tons/Year
Total HAPs Emissions	0.00	lbs/Year
	0.00	lbs/Event
	0.000	Tons/Year

Calculation Methodology

[1]Ideal Gas Law - Constant Temp: $(V_1 * P_1) / P_2$

[2]$\rho_1=(P_1*MW)/R*T_1*Z$

[3]$\rho_2=(P_2*MW)/R*T_2*Z$

[4]$\rho TOTAL = \rho 1 - \rho 2$

[5]Estimated Max Gas Vented (lb/Event) = $\rho TOTAL * V_1$

XTO Energy, Inc.

Hughes Pad

Truck Loading Dust Emissions

Truck Loading Losses Calculations

# of Truck Loads	296	Year
Total miles traveled per load	2	Mile

$E = k(s/12)^a(W/3)^b$

empirical constant for PM_{10} (k) =	1.5
surface material silt content (s)=	8.90
empirical constant for PM_{10} (a) =	0.9
mean vehicle weight (tons) (w) =	40.00
empirical constant for PM_{10} (b) =	0.45
lbs per vehicle mile traveled (E)=	3.6771
lbs for total vehicle miles traveled per year =	2176.43

Total PM Emissions	lb/hr	TPY
	3.68	1.09

***AP-42 Chapter 13.2.2-2 equation (1a) for unpaved surfaces at industrial sites**

Venus Laboratory
2440 Chambers Street, Suite A
Venus, TX 76084

Certificate of Analysis

Aug. 18, 2015

Workorder: 15080180

Kaycie Wallace
XTO Energy
810 Houston St
Ft Worth, TX 76102

Project: XTO

Collection State: WV

Enclosed are the analytical results for the sample(s) received on Monday, August 17, 2015.

The analyses were performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.

If you have questions concerning this report, please contact us referencing workorder 15080180.

SPL is pleased to be of service to you and we look forward to fulfilling your current and future analytical needs.

Sincerely,

Hydrocarbon Laboratory Manager

Certificate of Analysis

Number: 3040-15080180-001A

Venus Laboratory
2440 Chambers Street, Suite A
Venus, TX 76084

Station Name: Four States 1H
Method: GPA 2286
Analyzed: 08/17/2015 15:20:00 by BD

Sampled By: Randy Thornton
Sample Of: Natural Gas Spot
Sample Date: 08/10/2015 09:30
Sample Conditions: 137 psig

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.65 psia
Hydrogen Sulfide	0.0000	0.0000	
Nitrogen	0.2500	0.4214	
Carbon Dioxide	0.1769	0.4685	
Methane	96.2404	92.9013	
Ethane	3.1388	5.6790	0.836
Propane	0.1758	0.4665	0.048
Iso-Butane	0.0061	0.0213	0.002
n-Butane	0.0120	0.0420	0.004
Iso-Pentane	0.0000	0.0000	0.000
n-Pentane	0.0000	0.0000	0.000
i-Hexanes	0.0000	0.0000	0.000
n-Hexane	0.0000	0.0000	0.000
Benzene	0.0000	0.0000	0.000
Cyclohexane	0.0000	0.0000	0.000
i-Heptanes	0.0000	0.0000	0.000
n-Heptane	0.0000	0.0000	0.000
Toluene	0.0000	0.0000	0.000
i-Octanes	0.0000	0.0000	0.000
n-Octane	0.0000	0.0000	0.000
Ethylbenzene	0.0000	0.0000	0.000
Xylenes	0.0000	0.0000	0.000
i-Nonanes	0.0000	0.0000	0.000
n-Nonane	0.0000	0.0000	0.000
i-Decanes	0.0000	0.0000	0.000
n-Decane	0.0000	0.0000	0.000
Decanes Plus	0.0000	0.0000	0.000
	100.0000	100.0000	0.890

GPM TOTAL C2+ 0.890

Physical Properties	**Total**
Calculated Molecular Weight	16.62
GPA 2172-09 Calculation:	
Calculated Gross BTU per ft³ @ 14.65 psia & 60°F	
Real Gas Dry BTU	1031.5
Water Sat. Gas Base BTU	1013.5
Relative Density Real Gas	0.5748
Compressibility Factor	0.9979

Certificate of Analysis

Number: 3040-15080180-001A

Venus Laboratory
2440 Chambers Street, Suite A
Venus, TX 76084

Station Name: Four States 1H
Method: GPA 2286
Analyzed: 08/17/2015 15:20:00 by BD

Sampled By: Randy Thornton
Sample Of: Natural Gas Spot
Sample Date: 08/10/2015 09:30
Sample Conditions: 137 psig

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.65 psia
Nitrogen	0.2500	0.4214	
Carbon Dioxide	0.1769	0.4685	
Methane	96.2404	92.9013	
Ethane	3.1388	5.6790	0.836
Propane	0.1758	0.4665	0.048
Iso-butane	0.0061	0.0213	0.002
n-Butane	0.0120	0.0420	0.004
Iso-pentane	0.0000	0.0000	0.000
n-Pentane	0.0000	0.0000	0.000
Hexanes Plus	0.0000	0.0000	0.000
	100.0000	100.0000	0.890

GPM TOTAL C2+	0.890
GPM TOTAL C3+	0.054
GPM TOTAL iC5+	0.000

Physical Properties	**Total**
Relative Density Real Gas	0.5748
Calculated Molecular Weight	16.62
Compressibility Factor	0.9979

GPA 2172-09 Calculation:

Calculated Gross BTU per ft³ @ 14.65 psia & 60°F

Real Gas Dry BTU	1031.5000
Water Sat. Gas Base BTU	1013.5000

Comments: H2O Mol% : 1.750 ; Wt% : 1.894

Certificate of Analysis

Number: 3040-15080180-001A

Venus Laboratory
2440 Chambers Street, Suite A
Venus, TX 76084

Station Name: Four States 1H
Method: GPA 2286
Analyzed: 08/17/2015 15:20:00 by BD

Sampled By: Randy Thornton
Sample Of: Natural Gas Spot
Sample Date: 08/10/2015 09:30
Sample Conditions: 137 psig

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.65 psia
Nitrogen	0.2500	0.4214	
Carbon Dioxide	0.1769	0.4685	
Methane	96.2404	92.9013	
Ethane	3.1388	5.6790	0.836
Propane	0.1758	0.4665	0.048
Iso-Butane	0.0061	0.0213	0.002
n-Butane	0.0120	0.0420	0.004
Iso-Pentane	0.0000	0.0000	0.000
n-Pentane	0.0000	0.0000	0.000
Hexane	0.0000	0.0000	0.000
Heptanes Plus	0.0000	0.0000	0.000
	100.0000	100.0000	0.890

GPM TOTAL C2+	0.890
GPM TOTAL C3+	0.054
GPM TOTAL iC5+	0.000

Physical Properties	**Total**
Relative Density Real Gas	0.5748
Calculated Molecular Weight	16.62
Compressibility Factor	0.9979

GPA 2172-09 Calculation:

Calculated Gross BTU per ft³ @ 14.65 psia & 60°F

Real Gas Dry BTU	1031.5000
Water Sat. Gas Base BTU	1013.5000

Comments: H2O Mol% : 1.750 ; Wt% : 1.894

Venus Laboratory
2440 Chambers Street, Suite A
Venus, TX 76084

Certificate of Analysis

Apr. 01, 2015

Workorder: 15040001

Kaycie Wallace
XTO
810 Houston St
Ft Worth, TX 76102

Project: XTO

Collection State: WV

Enclosed are the analytical results for the sample(s) received on Wednesday, April 01, 2015.

The analyses were performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.

If you have questions concerning this report, please contact us referencing workorder 15040001.

SPL is pleased to be of service to you and we look forward to fulfilling your current and future analytical needs.

Sincerely,

Hydrocarbon Laboratory Manager

Certificate of Analysis

Number: 3040-15040001-001A

Venus Laboratory
2440 Chambers Street, Suite A
Venus, TX 76084

Station Name:	Quinn A	Sampled By:	Josh R
Station Number:	37-019-21867	Sample Of:	Produced Water Spot
Station Location:	Bridgeport WV	Sample Date:	03/25/2015 09:35
Cylinder No:	17476	Sample Conditions:	526 psig, @ 37 °F
Analyzed:	04/01/2015 09:15:25 by RJ	Method:	GPA 2286

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.65 psia
Hydrogen Sulfide	0.0000	0.0000	
Nitrogen	1.2181	1.8938	
Carbon Dioxide	1.5529	3.7929	
Methane	88.8214	79.0810	
Ethane	7.3093	12.1977	1.949
Propane	0.9392	2.2985	0.258
Iso-Butane	0.0300	0.0968	0.010
n-Butane	0.0130	0.0419	0.004
Iso-Pentane	0.0021	0.0084	0.001
n-Pentane	0.0010	0.0040	0.000
i-Hexanes	0.0041	0.0185	0.002
n-Hexane	0.0014	0.0067	0.001
Benzene	0.0160	0.0693	0.004
Cyclohexane	0.0102	0.0476	0.003
i-Heptanes	0.0068	0.0344	0.003
n-Heptane	0.0012	0.0068	0.001
Toluene	0.0397	0.2026	0.013
i-Octanes	0.0105	0.0602	0.005
n-Octane	0.0011	0.0071	0.001
Ethylbenzene	0.0039	0.0228	0.001
Xylenes	0.0160	0.0945	0.006
i-Nonanes	0.0011	0.0072	0.001
n-Nonane	0.0003	0.0020	0.000
i-Decanes	0.0007	0.0051	0.000
n-Decane	0.0000	0.0002	0.000
Decanes Plus	0.0000	0.0000	0.000
	100.0000	100.0000	2.263

GPM TOTAL C2+ 2.263

Physical Properties	Total
Calculated Molecular Weight	18.02
GPA 2172-09 Calculation:	
Calculated Gross BTU per ft³ @ 14.65 psia & 60°F	
Real Gas Dry BTU	1056.2
Water Sat. Gas Base BTU	1037.7
Relative Density Real Gas	0.6234
Compressibility Factor	0.9976

Certificate of Analysis

Number: 3040-15040001-001A

Venus Laboratory
2440 Chambers Street, Suite A
Venus, TX 76084

Station Name: Quinn A
Station Number: 37-019-21867
Station Location: Bridgeport WV
Cylinder No: 17476
Analyzed: 04/01/2015 09:15:25 by RJ

Sampled By: Josh R
Sample Of: Produced Water Spot
Sample Date: 03/25/2015 09:35
Sample Conditions: 526 psig, @ 37 °F
Method: GPA 2286

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.65 psia
Nitrogen	1.2181	1.8938	
Carbon Dioxide	1.5529	3.7929	
Methane	88.8214	79.0810	
Ethane	7.3093	12.1977	1.949
Propane	0.9392	2.2985	0.258
Iso-butane	0.0300	0.0968	0.010
n-Butane	0.0130	0.0419	0.004
Iso-pentane	0.0021	0.0084	0.001
n-Pentane	0.0010	0.0040	0.000
Hexanes Plus	0.1130	0.5850	0.041
	100.0000	100.0000	2.263

GPM TOTAL C2+	2.263
GPM TOTAL C3+	0.314
GPM TOTAL iC5+	0.042

Physical Properties	**Total**
Relative Density Real Gas	0.6234
Calculated Molecular Weight	18.02
Compressibility Factor	0.9976

GPA 2172-09 Calculation:

Calculated Gross BTU per ft³ @ 14.65 psia & 60°F

Real Gas Dry BTU	1056.2000
Water Sat. Gas Base BTU	1037.7000

Comments: H2O Mol% : 1.750 ; Wt% : 1.750

Certificate of Analysis

Number: 3040-15040001-001A

Venus Laboratory
2440 Chambers Street, Suite A
Venus, TX 76084

Station Name:	Quinn A	Sampled By:	Josh R
Station Number:	37-019-21867	Sample Of:	Produced Water Spot
Station Location:	Bridgeport WV	Sample Date:	03/25/2015 09:35
Cylinder No:	17476	Sample Conditions:	526 psig, @ 37 °F
Analyzed:	04/01/2015 09:15:25 by RJ	Method:	GPA 2286

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.65 psia
Nitrogen	1.2181	1.8938	
Carbon Dioxide	1.5529	3.7929	
Methane	88.8214	79.0810	
Ethane	7.3093	12.1977	1.949
Propane	0.9392	2.2985	0.258
Iso-Butane	0.0300	0.0968	0.010
n-Butane	0.0130	0.0419	0.004
Iso-Pentane	0.0021	0.0084	0.001
n-Pentane	0.0010	0.0040	0.000
Hexane	0.0055	0.0252	0.003
Heptanes Plus	0.1075	0.5598	0.038
	100.0000	100.0000	2.263

GPM TOTAL C2+	2.263
GPM TOTAL C3+	0.314
GPM TOTAL iC5+	0.042

Physical Properties	**Total**
Relative Density Real Gas	0.6234
Calculated Molecular Weight	18.02
Compressibility Factor	0.9976

GPA 2172-09 Calculation:

Calculated Gross BTU per ft³ @ 14.65 psia & 60°F

Real Gas Dry BTU	1056.2000
Water Sat. Gas Base BTU	1037.7000

Comments: H2O Mol% : 1.750 ; Wt% : 1.750

Certificate of Analysis

Number: 3040-15040001-001A

Venus Laboratory
2440 Chambers Street, Suite A
Venus, TX 76084

Station Name: Quinn A
Station Number: 37-019-21867
Station Location: Bridgeport WV
Cylinder No: 17476
Analyzed: 04/01/2015 by BCM

Sampled By: Josh R
Sample Of: Produced Water Spot
Sample Date: 03/25/2015 09:35
Sample Conditions: 526 psig, @ 37 °F
Method:

Analytical Data

Analyte	Result	Units	Detection Limit
Flash Factor	1.78	cubic ft/bbl	

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	Hughes Well Pad
City:	Pittsburgh
State:	West Virginia
Company:	XTO Energy, Inc.
Type of Tank:	Vertical Fixed Roof Tank
Description:	Each tank is ran at 50 BWPD, This run will represent 1 tank at the facility. A mixture of 95% Produced Water and 5 % RVP 12 Gas is used for a very conservative estimate.

Tank Dimensions

Shell Height (ft):		22.00
Diameter (ft):		12.00
Liquid Height (ft) :		20.00
Avg. Liquid Height (ft):		8.00
Volume (gallons):		16,920.59
Turnovers:		45.30
Net Throughput(gal/yr):		766,500.00
Is Tank Heated (y/n):	N	

Paint Characteristics

Shell Color/Shade:	Gray/Medium
Shell Condition	Good
Roof Color/Shade:	Gray/Medium
Roof Condition:	Good

Roof Characteristics

Type:	Cone	
Height (ft)		1.00
Slope (ft/ft) (Cone Roof)		0.17

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Pittsburgh, Pennsylvania (Avg Atmospheric Pressure = 14.11 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Hughes Well Pad - Vertical Fixed Roof Tank
Pittsburgh, West Virginia

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Produced Water	All	58.50	49.32	67.67	53.39	0.3032	0.2244	0.4065	27.5755			18.77	Option 2: A=8.10765, B=1750.286, C=235
Gasoline (RVP 12)						6.1756	5.1714	7.3295	64.0000	0.0500	0.4823	92.00	Option 4: RVP=12, ASTM Slope=3
Produced Water						0.2427	0.1734	0.3351	18.0200	0.9500	0.5177	18.02	Option 2: A=8.10765, B=1750.286, C=235

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

Hughes Well Pad - Vertical Fixed Roof Tank
Pittsburgh, West Virginia

Annual Emission Calcaulations	
Standing Losses (lb):	57.6048
Vapor Space Volume (cu ft):	1,621.0618
Vapor Density (lb/cu ft):	0.0015
Vapor Space Expansion Factor:	0.0797
Vented Vapor Saturation Factor:	0.8128
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,621.0618
Tank Diameter (ft):	12.0000
Vapor Space Outage (ft):	14.3333
Tank Shell Height (ft):	22.0000
Average Liquid Height (ft):	8.0000
Roof Outage (ft):	0.3333
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.3333
Roof Height (ft):	1.0000
Roof Slope (ft/ft):	0.1700
Shell Radius (ft):	6.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0015
Vapor Molecular Weight (lb/lb-mole):	27.5755
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3032
Daily Avg. Liquid Surface Temp. (deg. R):	518.1654
Daily Average Ambient Temp. (deg. F):	50.3083
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	513.0583
Tank Paint Solar Absorptance (Shell):	0.6800
Tank Paint Solar Absorptance (Roof):	0.6800
Daily Total Solar Insulation Factor (Btu/sqft day):	1,202.9556
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0797
Daily Vapor Temperature Range (deg. R):	36.6923
Daily Vapor Pressure Range (psia):	0.1821
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3032
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.2244
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.4065
Daily Avg. Liquid Surface Temp. (deg R):	518.1654
Daily Min. Liquid Surface Temp. (deg R):	508.9923
Daily Max. Liquid Surface Temp. (deg R):	527.3385
Daily Ambient Temp. Range (deg. R):	19.1500
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.8128
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	0.3032
Vapor Space Outage (ft):	14.3333
Working Losses (lb):	126.4692
Vapor Molecular Weight (lb/lb-mole):	27.5755
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3032
Annual Net Throughput (gal/yr.):	766,500.0000
Annual Turnovers:	45.2998
Turnover Factor:	0.8289
Maximum Liquid Volume (gal):	16,920.5925
Maximum Liquid Height (ft):	20.0000
Tank Diameter (ft):	12.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	184.0940

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Hughes Well Pad - Vertical Fixed Roof Tank
Pittsburgh, West Virginia

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Produced Water	126.49	57.60	184.09
Gasoline (RVP 12)	61.01	27.78	88.79
Produced Water	65.48	29.82	95.30

Attachment T
Facility Wide Emission Summary Sheet

ATTACHMENT T – FACILITY-WIDE CONTROLLED EMISSIONS SUMMARY SHEET

List all sources of emissions in this table. Use extra pages if necessary.

Emission Point ID#	NO_x		CO		VOC		SO_2		PM_{10}		$PM_{2.5}$		GHG (CO_2e)	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
TRUCKW-E					0.0297	0.0044			3.6771	1.0882	3.6771	1.0882	16.199	2.3971
FUG-E					0.0471	0.2062							53.3389	233.6244
EQUIP BD-E					0.4600	0.0138							1694.4208	50.8326
A5LH-E	0.0493	0.2161	0.0414	0.1815	0.0027	0.0119	0.0003	0.0013	0.0037	0.0164	0.0037	0.0164	60.0242	262.9058
A10LH-E	0.0493	0.2161	0.0414	0.1815	0.0027	0.0119	0.0003	0.0013	0.0037	0.0164	0.0037	0.0164	60.0242	262.9058
A11LH-E	0.0493	0.2161	0.0414	0.1815	0.0027	0.0119	0.0003	0.0013	0.0037	0.0164	0.0037	0.0164	60.0242	262.9058
PWTK5-E					0.0370	0.1622							20.2240	88.5812
PWTK10-E					0.0370	0.1622							20.2240	88.5812
PWTK11-E					0.0370	0.1622							20.2240	88.5812
TOTAL	0.1480	0.6482	0.1243	0.5445	0.6560	0.7467	0.0009	0.0039	3.6883	1.1375	3.6883	1.1375	2004.7040	1341.3151

Annual emissions shall be based on 8,760 hours per year of operation for all emission units except emergency generators.
According to 45CSR14 Section 2.43.e, fugitive emissions are not included in the major source determination because it is not listed as one of the source categories in Table 1. Therefore, fugitive emissions shall not be included in the PTE above.

ATTACHMENT T – FACILITY-WIDE HAP CONTROLLED EMISSIONS SUMMARY SHEET

List all sources of emissions in this table. Use extra pages if necessary.

Emission Point ID#	Formaldehyde		Benzene		Toluene		Ethylbenzene		Xylenes		Hexane		Total HAPs	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
TRUCKW-E			<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
FUG-E			0.0009	0.0038	0.0026	0.0112	0.0003	0.0013	0.0012	0.0052	0.0001	0.0004	0.0050	0.0218
EQUIP BD-E														
A5LH-E	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001					0.0009	0.0039	0.0009	0.0041
A10LH-E	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001					0.0009	0.0039	0.0009	0.0041
A11LH-E	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001					0.0009	0.0039	0.0009	0.0041
PWTK5-E			0.0008	0.0037	0.0025	0.0108	0.0003	0.0012	0.0011	0.0050	0.0001	0.0004	0.0048	0.0210
PWTK10-E			0.0008	0.0037	0.0025	0.0108	0.0003	0.0012	0.0011	0.0050	0.0001	0.0004	0.0048	0.0210
PWTK11-E			0.0008	0.0037	0.0025	0.0108	0.0003	0.0012	0.0011	0.0050	0.0001	0.0004	0.0048	0.0210
TOTAL	0.0001	0.0005	0.0034	0.0149	0.0099	0.0435	0.0011	0.0049	0.0046	0.0202	0.0030	0.0130	0.0222	0.0970

Annual emissions shall be based on 8,760 hours per year of operation for all emission units except emergency generators.
According to 45CSR14 Section 2.43.e, fugitive emissions are not included in the major source determination because it is not listed as one of the source categories in Table 1. Therefore, fugitive emissions shall not be included in the PTE above.

Attachment U
Class I Legal Advertisement

The following Notice was published in The Times West Virginian newspaper on February 18, 2016. A signed affidavit and newspaper cut will be submitted at a later date once received from the paper.

AIR QUALITY PERMIT NOTICE
Notice of Application

Notice is given that XTO Energy has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a G70-B General Permit Registration for a natural gas production facility located on : CR-3 (Robinson-Wyatt Run Rd.), near Mannington in Marion County, West Virginia. The latitude and longitude coordinates are: 39.45378, -80.37085.

The applicant estimates the potential to discharge the following Regulated Air Pollutants will be: Nitrogen Oxides – 0.65 tpy, Carbon Monoxide – 0.54 tpy, Particulate Matter-2.5 – 1.14 tpy, Particulate Matter-10 – 1.14 tpy, Volatile Organic Compounds – 0.75 tpy, Sulfur Dioxide – 0.01 tpy, Formaldehyde – 0.01 tpy, Benzene – 0.02 tpy, Toluene – 0.05 tpy, Ethylbenzene – 0.01 tpy, Xylenes – 0.02 tpy, Hexane – 0.01 tpy, and Total Hazardous Air Pollutants – 0.10 tpy

Startup of operation is planned to begin on or about the 1 day of July, 2016. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1250, during normal business hours.
Dated this the 18th day of February, 2016.

By: XTO Energy, Inc.
Michael R. Johnson
VP – Production Appalachia
810 Houston Street
Fort Worth, TX 76102