



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 0181

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

**Re: Application for General Permit G70B
Swearingen/Hackett 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 Swearingen/Hackett 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,

A handwritten signature in blue ink, appearing to read 'Dustin Simpson', with a horizontal line extending to the right.

Dustin Simpson
Environmental Advisor

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

VENDOR NUMBER 8009190	VENDOR NAME WEST VIRGINIA DEPARTMENT OF	CHECK NUMBER 0007862534	CHECK TOTAL \$2,000.00
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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 INC.
310 HOUSTON ST. - FORT WORTH, TEXAS 76102-6298

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

0007862534

CHECK NO. 0007862534 VENDOR NO. 8009190 DATE 2/11/16

EXACTLY TWO THOUSAND DOLLARS AND ZERO CENTS

PAYS \$2,000.00

VOID AFTER 90 DAYS
VENDOR

000037 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

AUTHORIZED SIGNATURE

⑈0007862534⑈ ⑆031100209⑆

38878628⑈

COPYR. CAPTURE - ANTI-FRAUD PROTECTION

FORM NO. XTO-005-AP

WV DEP - Division of Air Quality

Swearingen/Hackett Pad

Marion County, West Virginia

WV G-70B General Permit Application



Prepared by:

Dustin Simpson

Environmental Advisor

XTO Energy, Inc.

2/17/2016

Swearingen/Hackett Pad

G 70B Permit Application

Table of Attachments

Section #1	Project Description
Section #2	G70B Application Form
Attachment A	Single Source Determination Form
Attachment B	Siting Criteria Waiver
Attachment C	Current Business Certificate
Attachment D	Process Flow Diagram
Attachment E	Process Description
Attachment F	Plot Plan
Attachment G	Area Map
Attachment H	G-70B Section Applicability Form
Attachment I	Emission Units/ERD Table
Attachment J	Fugitive Emissions Summary Sheet
Attachment K	Gas Well Affected Facility Data Sheet
Attachment L	Storage Vessel Data Sheet
Attachment M	Natural Gas Fired Fuel Burning Units Sheet
Attachment N	Internal Combustion Engine Data Sheet
Attachment O	Tanker Truck Loading Data Sheet
Attachment P	Glycol Dehydration Unit Data Sheet
Attachment Q	Pneumatic Controllers Data Sheet
Attachment R	Control Device/ERD Data Sheets
Attachment S	Emission Calculations
Attachment T	Facility Wide Emission Summary Sheet
Attachment U	Class I Legal Advertisement

Section #1
Project Description

Project Description

Swearingen/Hackett Pad Marion County, West Virginia XTO Energy, Inc.

XTO Energy, Inc. is submitting this G70B permit application for the Swearingen/Hackett Pad located in Marion County, West Virginia. The facility is a natural gas production facility. The facility consists of (2) well heads, (2) two phase separators, (2) 0.5 MMBtu/hr line heaters, (2) 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



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: Swearingen/Hackett 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: 39.46355

Longitude: -80.35424

SIC Code: 1311

DAQ Facility ID No. (For existing facilities)

NAICS Code: 21311

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

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 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.

Yes No

All facilities under XTO operation are the responsibility of XTO Energy, Inc.

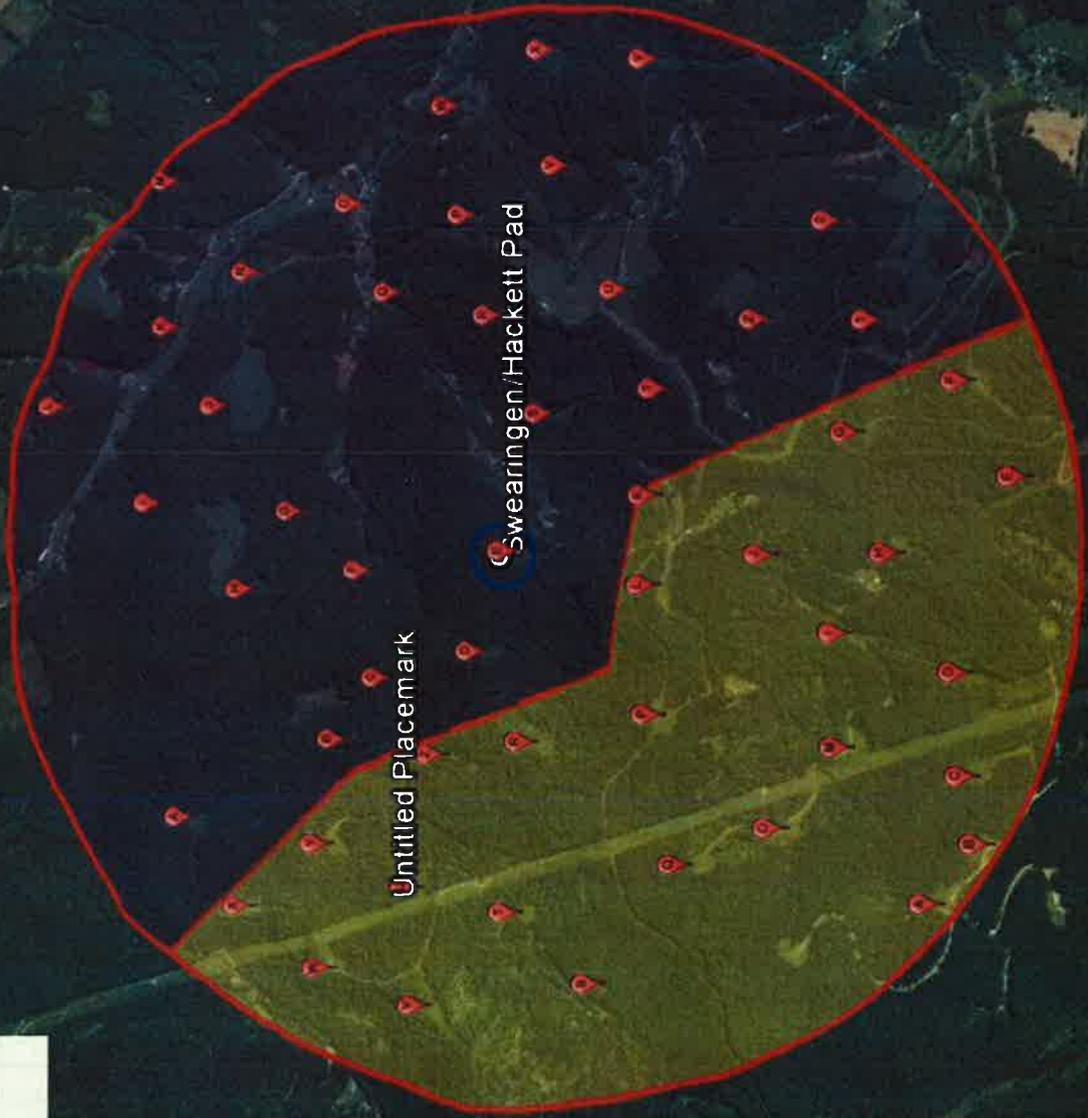
Swearingen/Hackett PAD

Lat: 39.46355
Long: -80.35424

Stringtown

Legend

- 1 Mile Radius
- 300 Foot Radius
- Section 1 - Swearingen
- Section 2 - Swearingen
- Swearingen/Hackett Pad



4000 ft

XTO Energy, Inc.
Swearingen/Hackett Pad
Vicinity Map Legend - Section 1

Marker #	Site Name	Owner/Operator	SIC Code	Distance from Station (Miles)
A	ROCKWELL 2035	XTO Energy, Inc.	1311	0.97
B	P. HUGHES #1	XTO Energy, Inc.	1311	0.98
C	ROCKWELL 2033	XTO Energy, Inc.	1311	0.91
D	ROCKWELL 1	XTO Energy, Inc.	1311	0.84
E	BERRY 2	XTO Energy, Inc.	1311	0.92
F	BROWN, JON-1	XTO Energy, Inc.	1311	0.87
G	ROBINSON, OWEN E-545	XTO Energy, Inc.	1311	0.68
H	MODI 1414	XTO Energy, Inc.	1311	0.70
I	DRAIN 1	XTO Energy, Inc.	1311	0.62
J	KELLAR 1434	XTO Energy, Inc.	1311	0.49
K	SANDY 1	XTO Energy, Inc.	1311	0.30
L	SHINE 1468	XTO Energy, Inc.	1311	0.28
M	DRAIN 2	XTO Energy, Inc.	1311	0.69
O	GARRETT 1	XTO Energy, Inc.	1311	0.69
P	HESS 1470	XTO Energy, Inc.	1311	0.40
Q	GARRETT 2	XTO Energy, Inc.	1311	0.64
R	BARKER 1492	XTO Energy, Inc.	1311	0.33
S	CAPPEL 01	XTO Energy, Inc.	1311	0.78
T	MURPHY 1450	XTO Energy, Inc.	1311	0.64
U	BORDEN 1497	XTO Energy, Inc.	1311	0.62
V	MURPHY 1451	XTO Energy, Inc.	1311	0.82
W	BORDEN 1496	XTO Energy, Inc.	1311	0.81
X	CARNES 1494	XTO Energy, Inc.	1311	0.80
Y	BORDEN 1498	XTO Energy, Inc.	1311	0.63
Z	BORDEN 1497	XTO Energy, Inc.	1311	0.37

XTO Energy, Inc.
Swearingen/Hackett Pad
Vicinity Map Legend - Section 2

Marker #	Site Name	Owner/Operator	SIC Code	Distance from Station (Miles)
A	CARNES 1495	XTO Energy, Inc.	1311	0.77
B	GLOVER 03	XTO Energy, Inc.	1311	0.46
C	GLOVER 01	XTO Energy, Inc.	1311	0.32
D	BARKER 1491	XTO Energy, Inc.	1311	0.17
E	HESS 1469	XTO Energy, Inc.	1311	0.03
F	GLOVER 02	XTO Energy, Inc.	1311	0.24
G	GLOVER 04	XTO Energy, Inc.	1311	0.40
H	HALL, GAYMON E. 01	XTO Energy, Inc.	1311	0.49
I	HAWKINS, PAUL 01	XTO Energy, Inc.	1311	0.68
J	EDGELL 06	XTO Energy, Inc.	1311	0.59
K	EDGELL 03R	XTO Energy, Inc.	1311	0.79
L	MARTIN, THOMAS E01	XTO Energy, Inc.	1311	0.92
M	EDGELL 05	XTO Energy, Inc.	1311	0.95
N	HINERMAN, JAMES 01	XTO Energy, Inc.	1311	0.72
O	POWELL, RONALD L01	XTO Energy, Inc.	1311	0.72
P	LUCAS, ROBERT W 02	XTO Energy, Inc.	1311	0.63
Q	LUCAS, ROBERT W 01	XTO Energy, Inc.	1311	0.53
R	BOLT 04	XTO Energy, Inc.	1311	0.44
S	BOLT 03	XTO Energy, Inc.	1311	0.28
T	BOLT 02	XTO Energy, Inc.	1311	0.42
U	BOLT 01	XTO Energy, Inc.	1311	0.53
V	BOLT 05	XTO Energy, Inc.	1311	0.85
W	BURKAURST, JL E 498	XTO Energy, Inc.	1311	0.72
X	LOWE 2	XTO Energy, Inc.	1311	0.93
Y	YONTZ 3	XTO Energy, Inc.	1311	0.94
Z	GARNER, DWIGHT F 01	XTO Energy, Inc.	1311	0.63
1	ASHCRAFT 2	XTO Energy, Inc.	1311	0.80
2	DEMARK 1	XTO Energy, Inc.	1311	0.85

Attachment B
Siting Criteria Waiver

Siting Criteria Waiver

**Swearingen/Hackett 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

20

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**

Pat Miller

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

2. PRINCIPAL OFFICE INFORMATION:

- a. Address of the principal office of the corporation: No. & Street 810 Houston Street MAY 30 2008
City/State/Zip Fort Worth, TX 76102
- b. Mailing address, if different, from above address: Street/PO Box _____
City/State/Zip _____

IN THE OFFICE OF
SECRETARY OF STATE
WEST VIRGINIA

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 (817) 870-2800
Contact Name Phone Number
- b. Frank G. McDonald Sr. VP, GC and Asst. Secretary
Print or type name of signer Title or Capacity of Signer
- c. Signature of Signer:  Date: May 8, 2008

XTO ENERGY INC.

Directors:

Class I Phillip R. Kevill, 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

Delaware

PAGE 1

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.

2243325 8300

080510772

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



Harriet Smith Windsor

Harriet Smith Windsor, Secretary of State

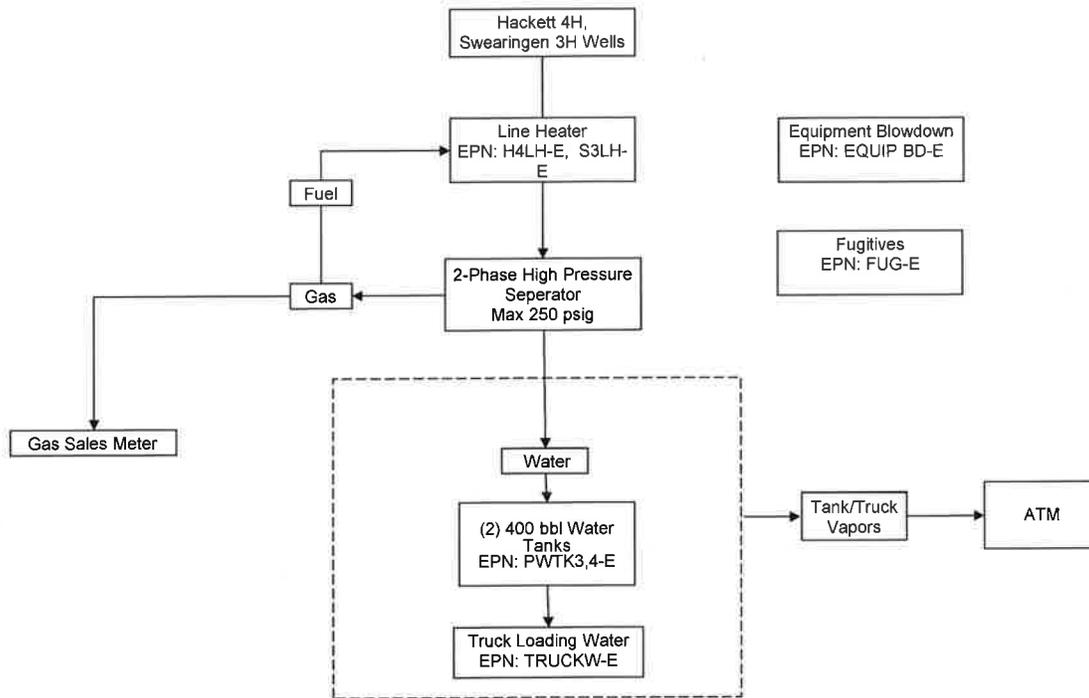
AUTHENTICATION: 6572039

DATE: 05-06-08

Attachment D
Process Flow Diagram

XTO Energy, Inc
Swearingen/Hackett Pad

Process Flow Diagram



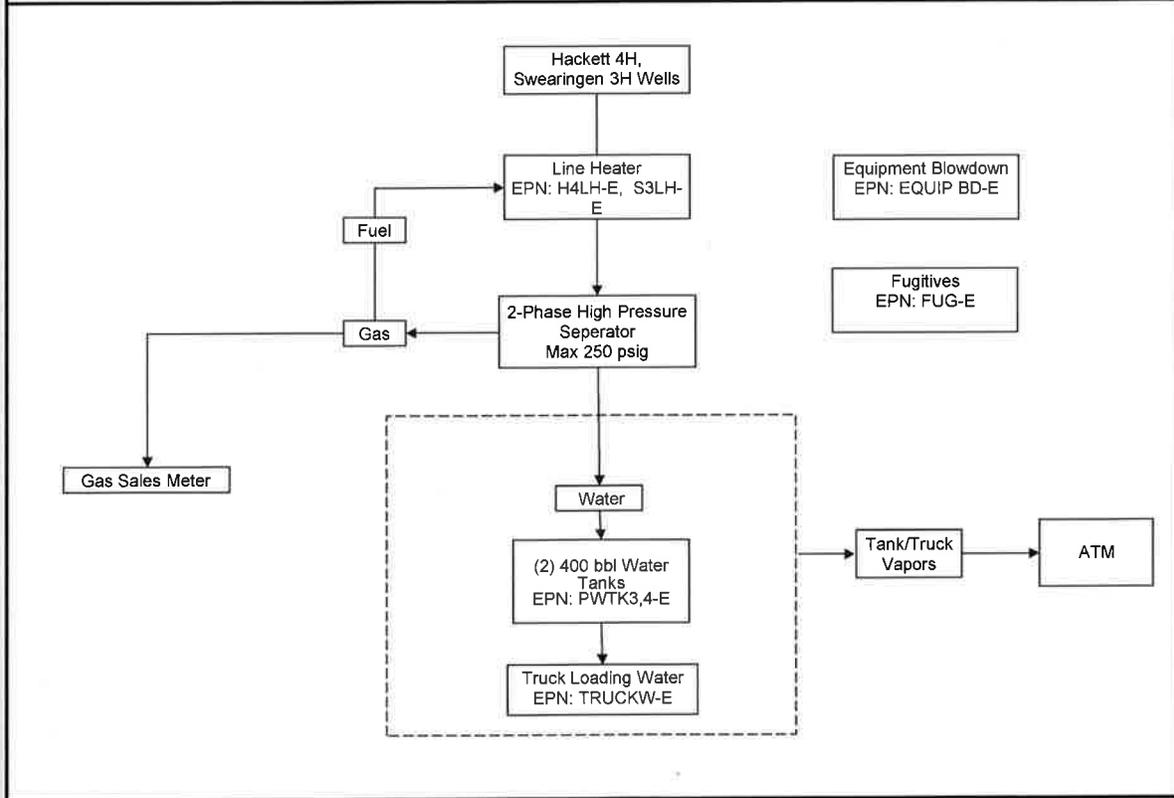
Process Description

Associated gas and liquids production from the Swearingen/Hackett 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 two (2) 400 bbl water storage tanks (PWTK3,4) 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
Swearingen/Hackett Pad

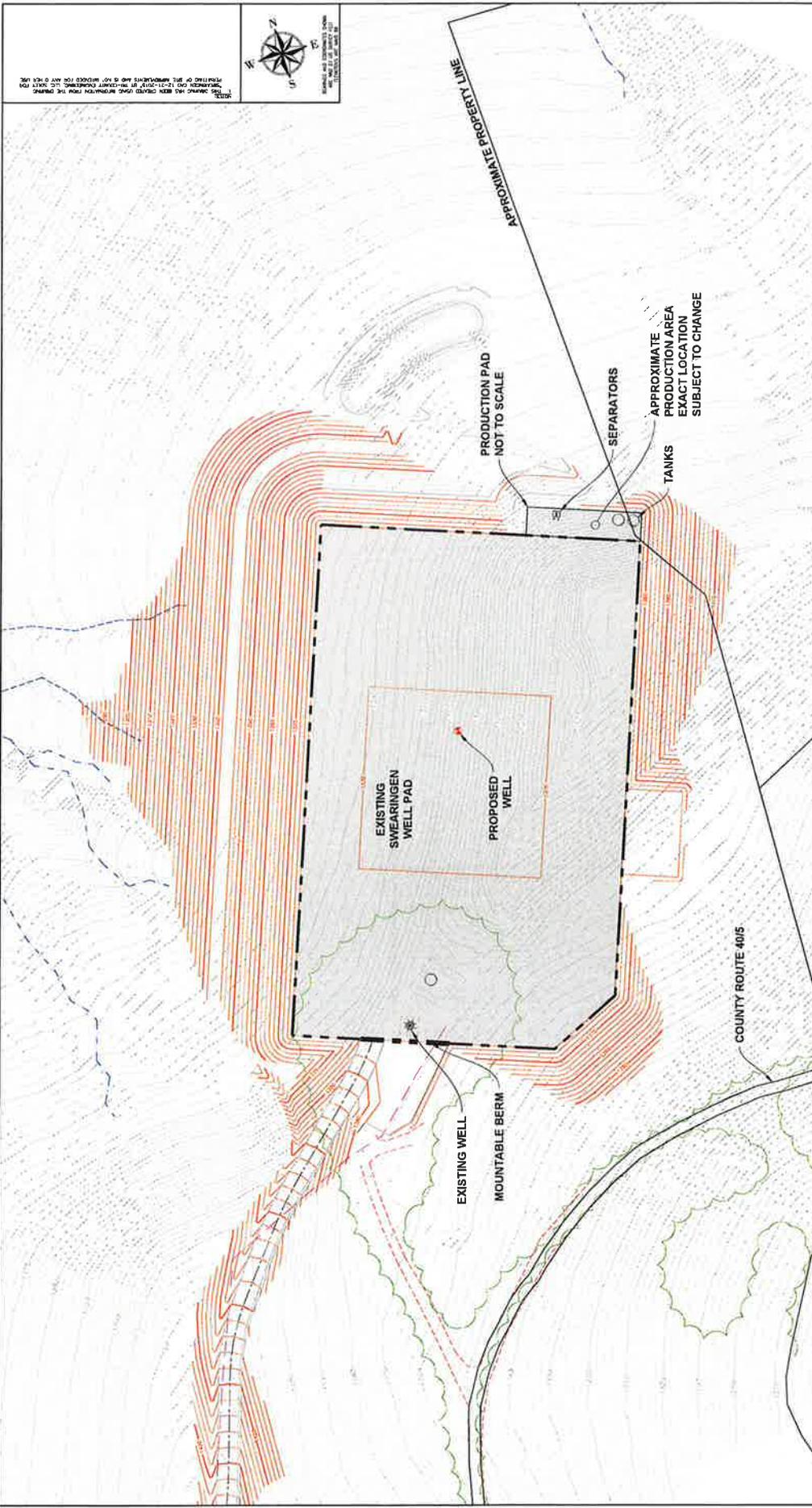
Process Flow Diagram



Process Description

Associated gas and liquids production from the Swearingen/Hackett 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 two (2) 400 bbl water storage tanks (PWTK3,4) 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



THIS DRAWING HAS BEEN CREATED USING INFORMATION FROM THE ORIGINAL SURVEY AND IS NOT INTENDED TO BE USED FOR CONSTRUCTION. ANY CHANGES TO THE ORIGINAL SURVEY SHALL BE THE RESPONSIBILITY OF THE CLIENT. THE CLIENT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CLIENT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.



XTO ENERGY, INC.
SWEARINGEN WELL PAD

SCALE: T = 40'	DATE: 03/20/2018
DATE: 03/20/2018	PROJECT: SWEARINGEN WELL PAD
PROJECT: SWEARINGEN WELL PAD	CLIENT: XTO ENERGY, INC.
CLIENT: XTO ENERGY, INC.	LOCATION: SWEARINGEN WELL PAD
LOCATION: SWEARINGEN WELL PAD	SCALE: T = 40'

XTO ENERGY
 190 HIRON HILL ROAD
 MARGARETTA, PA 15068
 (724) 261-1000
 www.xtoenergy.com

Gannett Fleming
 237 SEMATE AVENUE
 CAMP HILL, PA 17011
 www.gannettfleming.com

NO.	DESCRIPTION	DATE	BY

THIS DRAWING IS THE PROPERTY OF GANNETT FLEMING, INC. AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF GANNETT FLEMING, INC. THE CLIENT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CLIENT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

Attachment G
Area Map

Swearingin/Hackett Pad Area Map

Lat: 39.46355
Long: -80.35424

Legend

- 300 foot radius
- Access Road
- Swearingin/Hackett Pad Boundaries



Attachment H
G-70B Section Applicability Form

ATTACHMENT H – G70-B 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	
<input checked="" type="checkbox"/> Section 5.0	Gas Well Affected Facility (NSPS, Subpart OOOO)
<input checked="" type="checkbox"/> Section 6.0	Storage Vessels Containing Condensate and/or Produced Water ¹
<input checked="" type="checkbox"/> Section 7.0	Storage Vessel Affected Facility (NSPS, Subpart OOOO)
<input type="checkbox"/> Section 8.0	Control Devices and Emission Reduction Devices not subject to NSPS Subpart OOOO and/or NESHAP Subpart HH
<input checked="" type="checkbox"/> Section 9.0	Small Heaters and Reboilers not subject to 40CFR60 Subpart Dc
<input checked="" type="checkbox"/> Section 10.0	Pneumatic Controllers Affected Facility (NSPS, Subpart OOOO)
<input type="checkbox"/> Section 11.0	Centrifugal Compressor Affected Facility (NSPS, Subpart OOOO) ²
<input type="checkbox"/> Section 12.0	Reciprocating Compressor Affected Facility (NSPS, Subpart OOOO) ²
<input type="checkbox"/> Section 13.0	Reciprocating Internal Combustion Engines, Generator Engines, Microturbines
<input checked="" type="checkbox"/> Section 14.0	Tanker Truck Loading ³
<input type="checkbox"/> 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 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:		<input type="checkbox"/> Audible, visual, and ofactory (AVO) inspections		<input type="checkbox"/> Infrared (FLIR) cameras		<input type="checkbox"/> Other (please describe)		<input type="checkbox"/> None required	
Component Type	Leak Detection Method Used	Closed Vent System	Count	Source of Leak Factors (EPA, other (specify))	Stream type (gas, liquid, etc.)		VOC	HAP	GHG (CO ₂ e)
					<input type="checkbox"/> Gas <input checked="" type="checkbox"/> Liquid <input type="checkbox"/> Both	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Both			
Pumps		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	3	EPA	<input type="checkbox"/> Gas <input checked="" type="checkbox"/> Liquid <input type="checkbox"/> Both	<input type="checkbox"/> Gas <input checked="" type="checkbox"/> Liquid <input type="checkbox"/> Both	0.0001	0.0001	0.0380
Valves		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	220	EPA	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Both	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Both	0.0371	0.0018	106.9115
Safety Relief Valves		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	0		<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input type="checkbox"/> Both	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input type="checkbox"/> Both			
Open Ended Lines		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	8		<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Both	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Both	0.0014	0.0002	2.0340
Sampling Connections		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	0		<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input type="checkbox"/> Both	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input type="checkbox"/> Both			
Connections (Not sampling)		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	400		<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Both	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Both	0.0233	0.0039	19,1469
Compressors		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	0		<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input type="checkbox"/> Both	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input type="checkbox"/> Both			
Flanges		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	400		<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Both	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Both	0.0045	0.0001	14.9976
Other ¹		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	20		<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Both	<input type="checkbox"/> Gas <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Both	0.1565	0.0176	142.9267

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 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: PWTk4-S, PWTk3-S	4. Emission Point ID number: PWTk3-E, PWTk4-E
5. Date Installed , Modified or Relocated <i>(for existing tanks)</i> Was the tank manufactured after August 23, 2011? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Type of change: <input checked="" type="checkbox"/> New construction <input type="checkbox"/> New stored material <input type="checkbox"/> Other <input type="checkbox"/> Relocation
7A. Description of Tank Modification <i>(if applicable)</i>	
7B. Will more than one material be stored in this tank? <i>If so, a separate form must be completed for each material.</i> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
7C. Was USEPA Tanks simulation software utilized? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<i>If Yes, please provide the appropriate documentation and items 8-42 below are not required.</i>	

21. Tank Shell Construction: <input type="checkbox"/> Riveted <input type="checkbox"/> Gunitite lined <input type="checkbox"/> Epoxy-coated rivets <input type="checkbox"/> Other (describe)			
21A. Shell Color: Green	21B. Roof Color: Green	21C. Year Last Painted: 2016	
22. Shell Condition (if metal and unlined): <input checked="" type="checkbox"/> No Rust <input type="checkbox"/> Light Rust <input type="checkbox"/> Dense Rust <input type="checkbox"/> Not applicable			
22A. Is the tank heated? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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 <input type="checkbox"/> Does not apply <input checked="" type="checkbox"/>			
25A. Year Internal Floaters Installed:			
25B. Primary Seal Type (check one): <input type="checkbox"/> Metallic (mechanical) shoe seal <input type="checkbox"/> Liquid mounted resilient seal <input type="checkbox"/> Vapor mounted resilient seal <input type="checkbox"/> Other (describe):			
25C. Is the Floating Roof equipped with a secondary seal? <input type="checkbox"/> Yes <input type="checkbox"/> No			
25D. If yes, how is the secondary seal mounted? (check one) <input type="checkbox"/> Shoe <input type="checkbox"/> Rim <input type="checkbox"/> Other (describe):			
25E. Is the floating roof equipped with a weather shield? <input type="checkbox"/> Yes <input type="checkbox"/> No			
25F. Describe deck fittings:			
26. Complete the following section for Internal Floating Roof Tanks <input checked="" type="checkbox"/> Does not apply			
26A. Deck Type: <input type="checkbox"/> Bolted <input type="checkbox"/> Welded	26B. For bolted decks, provide deck construction:		
26C. Deck seam. Continuous sheet construction: <input type="checkbox"/> 5 ft. wide <input type="checkbox"/> 6 ft. wide <input type="checkbox"/> 7 ft. wide <input type="checkbox"/> 5 x 7.5 ft. wide <input type="checkbox"/> 5 x 12 ft. wide <input type="checkbox"/> 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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
28. Closed Vent System with Enclosed Combustor? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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		

Attachment M
Natural Gas Fired Fuel Burning Units Sheet

Attachment N
Internal Combustion Engine Data Sheet

Internal Combustion Engine Data

**Swearingen/Hackett 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)	4.2		
Max. Annual Throughput (1000 gal/yr)	1533		
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)	0.0030		
Max. HAP Emission Rate	Loading (lb/hr)	0.0010		
	Annual (ton/yr)	0.0002		
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

**Swearingen/Hackett 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. 2

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

**Swearingen/Hackett 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.
Swearingen/Hackett Pad
Facility Emission Summary

Emissions Summary Table

Emission Source	Source Point	BPN	NOx		CO		Total VOC (Includes Total HAPs)		CO2e		SO2		PM10 & 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	0.0029	16.1999	1.5981	*	*	*	*	0.00079	0.00008
Fugitive Emissions: Equipment Leaks & Truck Loading Dust Emissions	FUG-S	FUG-E	*	*	*	*	0.0471	0.2062	53.3389	233.6244	*	*	3.6771	0.7255	0.0050	0.0218
Equipment Blowdowns: MSS	EQUIP BD-S	EQUIP BD-E	*	*	*	*	0.1600	0.0138	1694.4208	50.8326	*	*	*	*	0.0000	0.0000
Line Heater Well Hackett 4	H4LH-S	H4LH-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 Swearingen 3	S3LH-S	S3LH-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 Hackett 4: 400 bbl	PWTK4-S	PWTK4-E	*	*	*	*	0.0370	0.1622	20.2240	88.5812	*	*	*	*	0.0048	0.0210
Produced Water Tank Well Swearingen 3: 400 bbl	PWTK3-S	PWTK3-E	*	*	*	*	0.0370	0.1622	20.2240	88.5812	*	*	*	*	0.0048	0.0210
TOTAL EMISSIONS			NOx		CO		Total VOC (Includes Total HAPs)		CO2e		SO2		PM10 & 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
			0.0987	0.4322	0.0829	0.3630	0.6163	0.5711	1924.4559	989.0291	0.0006	0.0026	3.6846	0.7583	0.0172	0.0720

XTO Energy, Inc.
Swearingen/Hackett 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	-	-	0.000066	0.000010	0.0000193	0.0000029	0.0000022	0.0000003	0.0000090	0.0000013	0.0000006	0.0000009	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: MESS	EQUIP BD-S	EQUIP BD-E	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Line Heater Well Hackett 4	H4LH-S	H4LH-E	0.00004	0.0002	0.000001	0.000005	0.000002	0.000001	-	-	-	-	0.0009	0.0039	0.0009	0.0041
Line Heater Well Swearingen 3	S3LH-S	S3LH-E	0.00004	0.0002	0.000001	0.000005	0.000002	0.000001	-	-	-	-	0.0009	0.0039	0.0009	0.0041
Produced Water Tank Well Hackett 4: 400 bbl	PWTK4-S	PWTK4-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 Swearingen 3: 400 bbl	PWTK3-S	PWTK3-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	0.0003	0.0026	0.0112	0.0075	0.0327	0.0008	0.0037	0.0035	0.0152	0.0020	0.0089	0.0165	0.0719

XTO Energy, Inc.
Swearingen/Hackett 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 PERFORMANCE STANDARDS (NSPS)

40 CFR 60 Subpart Ka/Kb	N/A - The storage tanks at this facility are below the 40,000 gallon applicability 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.
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XTO Energy, Inc.
Swearingen/Hackett 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%
Methylcyclohexane	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.
Swearingen/Hackett 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

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

XTO Energy, Inc.

Swearingen/Hackett Pad

Line Heater Burner Calculations

CRITERIA & REGULATED POLLUTANTS

EPN	Fuel Gas (BTU/SCF)	Operating Hours	Burner Rating (MMBTU/Hr)	AP-42 Factors lb/MMSCF							lb/hr					tpy				
				NOx	CO	VOC	SO ₂	PM _{10,2.5}	NOx	CO	VOC	SO ₂	PM _{10,2.5}	NOx	CO	VOC	SO ₂	PM _{10,2.5}		
H4LHE	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		
S3LHE	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		
				Total (tpy)					0.432	0.363	0.024	0.003	0.033							

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

XTO Energy, Inc.

Swearingen/Hackett Pad

Line Heater Burner Calculations

HAZARDOUS AIR POLLUTANTS (HAPS)

EPN	Fuel Gas (BTU/SCF)	Operating Hours	Burner Rating (MMBTU/Hr)	AP-42 Factors lb/MMSCF								lb/hr				tpy			
				Benzene	Toluene	N-Hexane	HCHO	Dichlorobenz.	Benzene	Toluene	N-Hexane	HCHO	Dichlorobenz.	Benzene	Toluene	N-Hexane	HCHO	Dichlorobenz.	
H4LH-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	
S3LH-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

Total Individual HAPS (tpy)		Benzene	Toluene	Hexane	HCHO	Dichlorobenz
		0.000009	0.000015	0.007779	0.000324	0.000005

Total Combined HAPS (tpy)	0.00813
---------------------------	---------

XTO Energy, Inc.
Swearingen/Hackett 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.)
100	2	No	N/A

Total Uncontrolled Emissions - Emission Rate for All Tanks Combined			
Uncontrolled VOC Emissions		Uncontrolled HAP Emissions	
0.042	lb/hr	0.005	lb/hr
0.184	tpy	0.024	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.
Swearingen/Hackett 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
Methylcyclohexane	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.
Swearingen/Hackett Pad
Produced Water Flash Emissions

Oil/Condensate Production	0	BOPD
Produced Water Production	100	BWPD
Representative Gas-to-Oil Ratio*	5.34	SCF / Barrel (GOR)
Quantity Released	534	(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	0.769	0.000	0.769	0.032	0.140
Total HAPs	0.099	0.000	0.099	0.004	0.018
Sulfur Dioxide	0.000	0.000	0.000	0.000	0.000
Carbon Dioxide	0.947	0.000	0.947	0.039	0.173
Nitrogen	0.473	0.000	0.473	0.020	0.086
Hydrogen Sulfide	0.000	0.000	0.000	0.000	0.0000
Helium	0.000	0.000	0.000	0.000	0.000
Methane	19.740	0.000	19.740	0.822	3.603
Ethane	3.045	0.000	3.045	0.127	0.556
Propane	0.574	0.000	0.574	0.024	0.105
Iso-Butane	0.024	0.000	0.024	0.001	0.004
N-Butane	0.010	0.000	0.010	0.000	0.002
Iso-Pentane	0.002	0.000	0.002	0.000	0.000
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	0.002	0.000	0.002	0.000	0.000
Hexanes	0.005	0.000	0.005	0.000	0.001
2,4-Dimethylpentane	0.000	0.000	0.000	0.000	0.000
Methylcyclohexane	0.000	0.000	0.000	0.000	0.000
Benzene	0.017	0.000	0.017	0.001	0.003
Cyclohexane	0.012	0.000	0.012	0.000	0.002
Heptanes	0.011	0.000	0.011	0.000	0.002
Toluene	0.051	0.000	0.051	0.002	0.009
Ethylbenzene	0.006	0.000	0.006	0.000	0.001
Xylenes	0.024	0.000	0.024	0.001	0.004
Octanes	0.018	0.000	0.018	0.001	0.003
Nonanes	0.002	0.000	0.002	0.000	0.000
Decanes+	0.002	0.000	0.002	0.000	0.000
PM _{10 & 2.5}	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.
Swearingen/Hackett Pad
PRODUCED WATER TRUCK LOADING EMISSIONS

Truck Loading Losses Calculations

Produced Water Production:	100	bbls / Day
Operating Schedule	365	Day / Year
Total Production:	36500	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) =	36500
Truck Loading Rate (bbls/hour) =	185
Estimated # of Loads (Approximately 1 hr/Load) =	197

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

¹Molecular Weight is from Tanks 4.09 d report

XTO Energy, Inc.
Swearingen/Hackett 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.
Swearingen/Hackett 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 ₂ S Weight Percent	0.00%	Percentage
Ending Gas Density (ρ ₂) ²	0.0423	lb/ft ³
Starting Gas Density (ρ ₁) ³	0.6181	lb/ft ³
Density (ρ _{TOTAL}) ⁴	0.5758	lb/ft ³

Emission Calculations		
Density (ρ _{TOTAL})	0.5758	lb/ft ³
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 ρ ₁ =(P ₁ *MW)/R*T ₁ *Z	³ ρ ₂ =(P ₂ *MW)/R*T ₂ *Z
⁴ ρ _{TOTAL} = ρ ₁ - ρ ₂	⁵ Estimated Max Gas Vented (lb/Event) = ρ _{TOTAL} * V ₁	

XTO Energy, Inc.
Swearingen/Hackett Pad
Truck Loading Dust Emissions

Truck Loading Losses Calculations

# of Truck Loads	197	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 =	1450.95

Total PM Emissions	lb/hr	TPY
	3.68	0.73

*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		GPM TOTAL C2+ 0.890
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	

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	
	<u>100.0000</u>	<u>100.0000</u>	<u>0.890</u>	
				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		GPM TOTAL C2+	0.890
Carbon Dioxide	0.1769	0.4685		GPM TOTAL C3+	0.054
Methane	96.2404	92.9013		GPM TOTAL iC5+	0.000
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		

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,

A handwritten signature in black ink, appearing to read 'Douglas D. O'Connell'.

Hydrocarbon Laboratory Manager



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	
Hydrogen Sulfide	0.0000	0.0000		GPM TOTAL C2+ 2.263
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	
	<u>100.0000</u>	<u>100.0000</u>	<u>2.263</u>	

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		GPM TOTAL C2+	2.263
Carbon Dioxide	1.5529	3.7929		GPM TOTAL C3+	0.314
Methane	88.8214	79.0810		GPM TOTAL iC5+	0.042
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		

Physical Properties

Relative Density Real Gas	Total	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 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		GPM TOTAL C2+	2.263
Carbon Dioxide	1.5529	3.7929		GPM TOTAL C3+	0.314
Methane	88.8214	79.0810		GPM TOTAL iC5+	0.042
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		

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 Identification and Physical Characteristics

Identification

User Identification:	Sweamingen/Hackett 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

Meteorological 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

Swearingen/Hackett Well Pad - Vertical Fixed Roof Tank
Pittsburgh, West Virginia

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

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

Swearingin/Hackett Well Pad - Vertical Fixed Roof Tank
Pittsburgh, West Virginia

Annual Emission Calculations	
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 cu ft / (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/sq ft 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):	505.9923
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):	
Working Losses (lb):	126.4892
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:	0.6289
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

Swearingen/Hackett Well Pad - Vertical Fixed Roof Tank
Pittsburgh, West Virginia

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

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 ₂ e)	
	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	0.0029			3.6771	0.7255	3.6771	0.7255	3.6771	0.7255	16.199	1.5981
FUG-E			0.0471	0.2062									53.3389	233.6244
EQUIP BD-E			0.4600	0.0138									1694.4208	50.8326
H4LH-E	0.0493	0.2161	0.0027	0.0119	0.0003	0.0013	0.0037	0.0164	0.0037	0.0164	0.0037	0.0164	60.0242	262.9058
S3LH-E	0.0493	0.2161	0.0027	0.0119	0.0003	0.0013	0.0037	0.0164	0.0037	0.0164	0.0037	0.0164	60.0242	262.9058
PWTK4-E			0.0370	0.1622									20.2240	88.5812
PWTK3-E			0.0370	0.1622									20.2240	88.5812
TOTAL	0.0987	0.4322	0.0829	0.3630	0.6163	0.5711	0.0006	0.0026	3.6846	0.7583	3.6846	0.7583	1924.4559	989.0291

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: 39.46355, -80.35424.

The applicant estimates the potential to discharge the following Regulated Air Pollutants will be: Nitrogen Oxides – 0.43 tpy, Carbon Monoxide – 0.36 tpy, Particulate Matter-2.5 – 0.76 tpy, Particulate Matter-10 – 0.76 tpy, Volatile Organic Compounds – 0.57 tpy, Sulfur Dioxide – 0.01 tpy, Formaldehyde – 0.01 tpy, Benzene – 0.02 tpy, Toluene – 0.04 tpy, Ethylbenzene – 0.01 tpy, Xylenes – 0.02 tpy, Hexane – 0.01 tpy, and Total Hazardous Air Pollutants – 0.08 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