Environmental Improvement Board

20-33A

Administrative Record Index

Permit	**Bates Numbers**
XTO Corral Canyon 23 GCP No. 8729	0001 – 0232
XTO Big Eddy GCP No. 8730	0233 – 00461
Spur Energy Dorami 2H, 4H, &9H Federal Tank Battery GCP No. 8733	00462 - 0676

Administrative Record

XTO Corral Canyon 23

GCP No. 8729

Bates Numbers: 0001 - 0232

Adminstrative Record Index

XTO Corral Canyon 23 - GCP No. 8729

DATE	FROM	TO	FORMAT	SUBJECT
3/11/2020 - 5/12/2020	NMED/XTO/WEG	NMED/XTO/WEG	Emails	Email correspondence relating to XTO Energy Inc. Corral Canyon 23 General Construcion Oil and Gas Permit Application
2/24/2020	XTO	NMED	Documents	XTO Application for GCP-Oil and Gas
3/13/2020	XTO	N/A	Photos	Location Verification
3/13/2020	XTO	N/A	Documents	Gas Stack Verification
3/11/2020	Jeremy Nichols (WEG)	NMED	Email	Comments on application for GCP-Oil and Gas
3/27/2020	NMED	XTO	Letter	Approval letter for GCP-Oil and Gas
3/27/2020	NMED	N/A	Documents	Statement of Basis / Data Base Summary GCP-Oil and Gas

From: Jeremy Nichols
To: Olivia.yiu@state.nm.us; Coriz, Asheley, NMENV; Mascarenas, Marvin, NMENV; Kimbrell, Joseph, NMENV; Mashburn, Joseph, NMENV; Espinoza, Arianna, NMENV; Primm, Kathleen, NMENV; Springer, Vanessa, NMENV
Cc: Schooley, Ted, NMENV; Romero, Rhonda, NMENV
Subject: [EXT] Comments on Applications for General Construction Permits for Oil and Gas Facilities
Date: Wednesday, March 11, 2020 9:39:54 PM
Attachments: 2020-3-11 WG Comments on GCP Applications.pdf

Dear New Mexico Environment Department, Air Quality Bureau Staff:

Attached, please find comments from WildEarth Guardians regarding several general construction permit applications for oil and gas facilities in Eddy and Lea Counties in southeast New Mexico. These comments are directed to New Mexico Environment Department, Air Quality Bureau staff listed as contacts for the specific permits. Our comments address common issues related to ozone pollution in southeast New Mexico and therefore are directed to all staff contacts. We look forward to our comments being considered as the Air Quality Bureau reviews the referenced permit applications. Thank you.

Sincerely,

Jeremy Nichols

Climate and Energy Program Director
(303) 437-7663
www.wildearthguardians.org/climate-energy

From: Espinoza, Arianna, NMENV
To: Tole, Raymond
Cc: Evan Tullos
Subject: GCP O&G Application for Corral Canyon 23
Date: Friday, March 27, 2020 9:35:05 AM
Attachments: image001.png
GCP OG Approval (8729).pdf
Copy of Registration Form (8729).pdf

External Email - Think Before You Click

Regarding:
XTO Energy Inc
Corral Canyon 23
Permit No. 8729
AI: 39444

Good morning Mr. Tole,

Please find the attached courtesy copy of GCP O&G Approval Letter and Registration Form, and to XTO Energy Inc, Corral Canyon 23.

Here is a link to the GCP Oil and Gas Permit: https://www.env.nm.gov/wp-content/uploads/sites/2/2018/06/GCP-Oil-Gas-Final-002.pdf

The letter and copy of registration form will be mailed to your attention.

Thank you,

Link to Industry/Consultant Feedback Questionnaire.

If guidance or a determination is included in this email, it is intended to serve as general guidance and is in no way a formal statement of Department policy. New information or changes to regulations may result in a different determination or guidance.

Arianna Espinoza
Permitting – Technical Services Permit Writer
New Mexico Environment Department
Air Quality Bureau
525 Camino de los Marquez, Suite 1, Santa Fe, NM 87505
Office: (505) 476-4367
arianna.espinoza@state.nm.us
https://www.env.nm.gov/

From:	Schooley, Ted, NMENV
To:	Jeremy Nichols; Romero, Rhonda, NMENV
Subject:	RE: [EXT] request for updates on oil and gas general permit registrations
Date:	Tuesday, May 12, 2020 8:20:00 AM

Mr. Nichols,

Thank you for your email regarding the status of the Oil and Gas General Construction Permits (O&G GCPs) for which WEG has submitted comments. At the bottom of this email is a table showing the status of the registrations WEG has inquired about. Information regarding GCP registration applications can be found on the Bureau's website on the following page: https://www.env.nm.gov/air-quality/aqb-p_current_permitting_activites/, which includes this link: **Current Permitting Actions for NSR and Title V – Updated 04/30/2020**.

Administrative review of the Department's determination to grant an application to register under a GCP is available pursuant to the Environmental Improvement Board's GCP regulations at subsection 20.2.72.220.C(5) NMAC (available here), which in turn references the Air Quality Control Act at NMSA 1978, Section 74-2-7. Subsection 74-2-7(H) of the statute provides that any person who participated in a permitting action before the Department and who is adversely affected by such permitting action may file a petition for hearing before the EIB within 30 days from the date notice is given of the Department's action.

For any of the O&G GCP registration applications listed below on which WEG submitted comments, you may regard the date of this email as the date notice was provided to WEG of the Department's action on those applications.

Best,

Ted Schooley
Permit Programs Section Chief
New Mexico Environment Department
Air Quality Bureau
525 Camino de los Marquez, Suite 1, Santa Fe, NM 87505
Office: (505) 476-4334
ted.schooley@state.nm.us
https://www.env.nm.gov/air-quality/

"Innovation, Science, Collaboration, Compliance"

Company	**Facility(ies)**	**NSR Permit No.**	**Date Application Received**	**Permitting Action Type**	**Status**
Cimarex Energy Co. of Colorado	Dos Equis 11-14 Federal Com 4H	8136M1	March 30, 2020	GCP-Oil and Gas	Issued
Matador Production Co.	Ray state Slot 3 Facility	8793	March 30, 2020	GCP-Oil and Gas	Issued
Matador Production Co.	Stebbins 19 Fed 3 Facility	7811M2	March 26, 2020	GCP-Oil and Gas	Issued
Matador Production Co.	Grevey Com Tank Battery	8780	March 26, 2020	GCP-Oil and Gas	Issued
New Mexico Gas Company	Lea County Compressor Station	8781	March 26, 2020	GCP-Oil and Gas	Issued

Summit Midstream Permian LLC	Lane Gas Plant	7426M1	March 26, 2020	GCP-Oil and Gas	Withdrawn
XTO Energy Inc.	Poker Lake Unit 28, Big Sinks Tank Battery	8395M1	March 26, 2020	GCP- GCP Oil and Gas	Issued
XTO Energy Inc.	Poker Lake Unit 21, Brushy Draw West Tank	8398M1	March 26, 2020	GCP- GCP Oil and Gas	Issued
XTO Energy Inc.	Poker Lake Unit 17, Twin Wells Ranch West	8782	March 26, 2020	GCP-Oil and Gas	Issued
Devon Energy Production Co.	Belloq 11 CTB 1	8201M2	March 26, 2020	GCP- Oil and Gas	Issued
Ameredev II LLC	Nandina CBT	8189M1	March 25, 2020	GCP- Oil and Gas	Issued
Marathon Oil Permian LLC	Mazer Rackham 20 Fed Com CTB	8652M1	March 23, 2020	GCP- Oil and Gas	Issued
Chevron USA Inc.	Dagger Lake Section 4 CTB	8776	March 20, 2020	GCP6/NOI	Issued
Chevron USA Inc.	Dagger Lake Section 4 CS	8777	March 20, 2020	GCP- Oil and Gas	Issued
Devon Energy Production Co.	Papa Fritas 27 CTB 2	8778	March 20, 2020	GCP- Oil and Gas	Issued
Devon Energy Production Co.	Papas Fritas 27 CTB 1	8779	March 19, 2020	GCP- Oil and Gas	Issued
Cotton Draw Midstream LLC	Moon Compressor Station	8110M2	March 18, 2020	GCP- Oil and Gas	Issued
Devon Energy Production Co.	Uraninite 32 CTB 2	8773	March 18, 2020	GCP- Oil and Gas	Issued
Matador Production Co.	Stebbins 20 Fed Facility	7585M1	March 18, 2020	GCP- Oil and Gas	Issued
Matador Production Co.	Jack Sleeper Facility	8772	March 18, 20209	GCP- Oil and Gas	Issued
Cimarex Energy Co. of Colorado	Parkway 15-14, North State Com 1H, 2H	8701M1	March 17, 2020	GCP- Oil and Gas	Issued
Matador Production Co.	Leslie Fed West Facility	8769	March 16, 2020	GCP- Oil and Gas	Issued
Tap Rock Operating LLC	Money Graham Facility	8634M1	March 16, 2020	GCP- Oil and Gas	Issued
ConocoPhillips Co.	Emerald Federal No. 3 Production	4610M1	March 12, 2020	GCP- Oil and Gas	Issued
Devon Energy Production Co.	Boundary Raider 7 CTB 2	8766	March 12, 2020	GCP- Oil and Gas	Issued
Matador Production Co.	Rodney Robinson North Facility	8765	March 12, 2020	GCP- Oil and Gas	Issued
XTO Energy Inc.	Legg Federal Tank Battery	5044M4	March 12, 2020	GCP- Oil and Gas	Issued
Cimarex Energy Co. of Colorado	Tar Heel 19-18 Fed 1-3H and 17-19H	8763	March 11, 2020	GCP- Oil and Gas	Issued
Matador Production	Stebbins 20/19 Fed	7792M2	March 11, 2020	GCP- Oil and	Issued

Co.	Facility			Gas	
DCP Operating Company LP	West Turkey Track Compressor Station	2098M5	March 4, 2020	GCP- Oil and Gas	Issued
DCP Operating Company LP	Jackson Booster Station	2041M6	March 4, 2020	GCP- Oil and Gas	Issued
XTO Energy Inc.	James Ranch Unit DI 7	8746	March 4, 2020	GCP-Oil and Gas	Issued
OXY USA Inc.	NC Sand Dunes Compressor Station	8744	March 3, 2020	GCP- Oil and Gas	Issued
EOG Resources Inc.	Viper Localized Gas Lift Station	8739	March 2, 2020	GCP-Oil and Gas	Issued
EOG Resources Inc.	Date 14 CTB	8738	March 2, 2020	GCP-Oil and Gas	Issued
Lucid Energy Delaware LLC	Greyhound Compressor Station	8084M2	March 2, 2020	GCP-Oil and Gas	Issued
Matador Production Co.	Dr. Scrivner Facility	7825M3	March 2, 2020	GCP-Oil and Gas	Issued
ConocoPhillips Co.	Zeppo 5 Fed Com 25H Battery	8015M1	March 2, 2020	GCP-Oil and Gas	Issued
Ameredev II LLC	Pine Straw CTB	8217M2	February 27, 2020	GCP- Oil and Gas	Issued
Devon Production Co.	Blue Krait 23 CTB 2	8734	February 27, 2020	GCP-Oil and Gas	Issued
Kaiser-Francis Oil Co.	South Bell Lake Pad 11	7132M3	February 27, 2020	GCP-Oil and Gas	Issued
Kaiser-Francis Oil Co.	North Bell Lake Pad 0	8149M3	February 10, 2020	GCP Oil and Gas	Issued
Spur Energy Partners LLC	Dorami 2H, 4H and 9H Federal Oil Tank Battery	8733	February 27, 2020	GCP-Oil and Gas	Issued
XTO Energy Inc.	Big Eddy Unit DI 38	8730	February 26, 2020	GCP-Oil and Gas	Issued
XTO Energy Inc.	Corral Canyon 23	8729	February 26, 2020	GCP-Oil and Gas	Issued

From: Jeremy Nichols <jnichols@wildearthguardians.org>
Sent: Monday, May 4, 2020 7:45 PM
To: Schooley, Ted, NMENV <ted.schooley@state.nm.us>; Romero, Rhonda, NMENV <Rhonda.Romero@state.nm.us>
Subject: [EXT] request for updates on oil and gas general permit registrations

Dear Mr. Schooley and Ms. Romero:

I am writing regarding the status of the oil and gas general permit registrations listed below that are under review by the New Mexico Environment Department. As you know, WildEarth Guardians has commented on general permit applications listed below over the past several weeks. We have not

received a response from the Environment Department or a notification that any registration has been approved. It is not currently possible to determine online whether registrations have been granted or denied. Pursuant to Section 74-7-H NMSA, a person participating in a permitting action has 30 days after notification of the permitting action to file a request for hearing with the Environmental Improvement Board. If general permit registrations that WildEarth Guardians has commented on have been granted, we reques the Environment Department provide us notification so that we may file a request for hearing with the Board.

To this end, if you could please provide the status of each of the following general permit registrations, it would be much appreciated. Thank you. - Jeremy Nichols

Company	**Facility(ies)**	**NSR Permit No.**	**Date Application Received**
Cimarex Energy Co. of Colorado	Dos Equis 11-14 Federal Com 4H	8136M1	March 30, 2020
Matador Production Co.	Ray state Slot 3 Facility	8793	March 30, 2020
Matador Production Co.	Stebbins 19 Fed 3 Facility	7811M2	March 26, 2020
Matador Production Co.	Grevey Com Tank Battery	8780	March 26, 2020
New Mexico Gas Company	Lea County Compressor Station	8781	March 26, 2020
Summit Midstream Permian LLC	Lane Gas Plant	7426M1	March 26, 2020
XTO Energy Inc.	Poker Lake Unit 28, Big Sinks Tank Battery	8395M1	March 26, 2020
XTO Energy Inc.	Poker Lake Unit 21, Brushy Draw West Tank	8398M1	March 26, 2020
Matador Production Co.	Stebbins 19 Fed 3 Facility	7811M2	March 26, 2020
XTO Energy Inc.	Poker Lake Unit 17, Twin Wells Ranch West	8782	March 26, 2020
Devon Energy Production Co.	Belloq 11 CTB 1	8201M2	March 26, 2020
Ameredev II LLC	Nandina CBT	8189M1	March 25, 2020
Marathon Oil Permian LLC	Mazer Rackham 20 Fed Com CTB	8652M1	March 23, 2020
Chevron USA Inc.	Dagger Lake Section 4 CTB	8776	March 20, 2020
Chevron USA Inc.	Dagger Lake Section 4 CS	8777	March 20, 2020
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Devon Energy Production Co.	Papas Fritas 27 CTB 1	8779	March 19, 2020
Cotton Draw Midstream LLC	Moon Compressor Station	8110M2	March 18, 2020
Devon Energy Production Co.	Uraninite 32 CTB 2	8773	March 18, 2020
Matador Production Co.	Stebbins 20 Fed Facility	7585M1	March 18, 2020
Matador Production Co.	Jack Sleeper Facility	8772	March 18, 20209
Cimarex Energy Co. of Colorado	Parkway 15-14, North State Com 1H, 2H	8701M1	March 17, 2020

Matador Production Co.	Leslie Fed West Facility	8769	March 16, 2020
Tap Rock Operating LLC	Money Graham Facility	8634M1	March 16, 2020
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EOG Resources Inc.	Viper Localized Gas Lift Station	8739	March 2, 2020
EOG Resources Inc.	Date 14 CTB	8738	March 2, 2020
Lucid Energy Delaware LLC	Greyhound Compressor Station	8084M2	March 2, 2020
Matador Production Co.	Dr. Scrivner Facility	7825M3	March 2, 2020
ConocoPhillips Co.	Zeppo 5 Fed Com 25H Battery	8737	March 2, 2020
Ameredev II LLC	Pine Straw CTB	8217M2	February 27, 2020
Devon Production Co.	Blue Krait 23 CTB 2	8734	February 27, 2020
Kaiser-Francis Oil Co.	South Bell Lake Pad 11	7132M3	February 27, 2020
Kaiser-Francis Oil Co.	North Bell Lake Pad 0	8149M1	February 27, 2020
Spur Energy Partners LLC	Dorami 2H, 4H and 9H Federal Oil Tank Battery	8733	February 27, 2020
XTO Energy Inc.	Big Eddy Unit DI 38	8730	February 26, 2020
XTO Energy Inc.	Corral Canyon 23	8729	February 26, 2020

Climate and Energy Program Director
(303) 437-7663
www.wildearthguardians.org/climate-energy

February 24, 2020

Rhonda Romero
New Mexico Environment Department
Air Quality Bureau
525 Camino de los Marquez, Suite 1
Santa Fe, New Mexico, 87505

RE: Application for GCP-Oil and Gas
Corral Canyon 23
XTO Energy Inc.

Dear Ms. Romero:

XTO Energy Inc. is submitting the attached application to request coverage under the GCP-Oil and Gas for the proposed Corral Canyon 23 facility. Also included are a CD containing the electronic files and a check for the filing fee. If you have any questions regarding this application please contact me at (865) 850-2007 or etullos@pei-tx.com. Please inform the permit writer assigned to this project that I am happy to walk through the process simulation during review of the application.

Sincerely,

Evan Tullos

Evan Tullos
Vice President

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

EDDY COUNTY, NEW MEXICO

GCP-OIL AND GAS PERMIT APPLICATION

PREPARED BY:

T.J. TOLE

ENVIRONMENTAL ENGINEER

XTO ENERGY INC.

2/22/2020

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

GCP-OIL AND GAS PERMIT APPLICATION

Table of Contents

Section 1
Company Information

Replace Mail Registration To: New Mexico Environment Department Air Quality Bureau 525 Camino de los Marquez, Suite 1 Santa Fe, New Mexico, 87505 Phone (505) 476-4300 Fax (505) 476-4375 www.env.nm.gov/aqb		For Department use only:

General Construction Permit (GCP-Oil and Gas) Registration Form Section 1

(Locating outside of Bernalillo County, Tribal Lands, and Nonattainment Areas)

This Registration is being submitted as (check all that apply)**:**

☒ An initial GCP-Oil and Gas Registration Form for a new facility (**Registration fee required**).
☐ An updated GCP-Oil and Gas Registration Form for a modification to an existing facility (**Registration fee required**).
☐ A GCP-Oil and Gas Registration Form for an existing facility currently operating under GCP-1 or GCP-4 **(No fee required)**

The Permitting Administrative Multi-Form may be used for administrative changes identified in the GCP O&G Permit Condition C101.A. No public notification is required, and no filing fees or permit fees apply.

Construction Status: ☑ Not Constructed ☐ Existing Permitted (or NOI) Facility ☐ Existing Non-Permitted (or NOI) Facility

Acknowledgements:

☒ I acknowledge that a pre-application meeting is available to me upon request.
☒ An original signed and notarized Certification for Submittal for this GCP-Oil and Gas Registration is included.
☒ Proof of public notice is included, if required.
☒ The Air Emission Calculation Tool (AECT) is included.
☒ The emissions specified in this Registration Form will establish the emission limits in the GCP-Oil and Gas.
☒ **For new registrations or modifications, a check for the registration fee is included for $4190 prior to 1/1/20 or $4260 beginning 1/1/20.** There is an annual fee in addition to the registration fee: www.env.nm.gov/air-quality/permit-fees-2/
Facilities qualifying as a “small business” under 20.2.75.7.F NMAC qualify for reduced fees, provided that NMED has a Small Business Certification Form from your company on file. This form can be found at: www.env.nm.gov/aqb/sbap/Small_Business_Forms.html
Provide your Check Number: **1290** and Amount: **$4260**

If a fee is required and is not submitted with the application, the registration will be denied.

1)	Company Information	AI # (if known):	If updating, provide Permit/NOI #:
1	Facility Name: Corral Canyon 23	Plant primary SIC Code (4 digits): 1311 Plant NAIC code (6 digits): 211120	
a	Facility Street Address (If no facility street address, check here ☒ and provide directions in Section 4):		
2	Plant Operator Company Name: XTO Energy Inc.	Phone/Fax: (832) 624-4426	
a	Plant Operator Address: 22777 Springwoods Village Parkway, W4.6B.344, Spring, TX 77389		
3	Plant Owner(s) name(s): XTO Energy Inc.	Phone/Fax: (832) 624-4426	

a	Plant Owner(s) Mailing Address(s): 22777 Springwoods Village Parkway, W4.6B.344, Spring, TX 77389	
4	Bill To (Company): XTO Energy Inc.	Phone/Fax: (832) 624-4426
a	Mailing Address: 22777 Springwoods Village Parkway, W4.6B.344, Spring, TX 77389	E-mail: raymond_tole@xtoenergy.com
5	☐ Preparer: ☑ Consultant: Evan Tullos	Phone/Fax: (865) 850-2007
a	Mailing Address: 5 Cardinal Court; Edwardsville, IL 620205	E-mail: etullos@pei-tx.com
6	Plant Operator Contact:	E-mail: raymond_tole@xtoenergy.com
a	Mailing Address: 22777 Springwoods Village Parkway, W4.6B.344, Spring, TX 77389	E-mail: raymond_tole@xtoenergy.com
7	Air Permit Contact[1]: Raymond (TJ) Tole	Title: Environmental Engineer
a	E-mail: raymond_tole@xtoenergy.com	Phone/Fax: (832) 624-4426
b	Mailing Address: 22777 Springwoods Village Parkway, W4.6B.344, Spring, TX 77389	
	[1]The Air Permit Contact will receive official correspondence from the Department.	
8	Will this facility operate in conjunction with other air regulated parties on the same property? ☒ No ☐ Yes If yes, what is the name and NOI or permit number (if known) of the other facility?	

2) Applicability

1	Is the facility located in Bernalillo County, on tribal lands, or in a nonattainment area?	☒**No** ☐**Yes**
	If you answered ***Yes*** to the question above, your facility **does not** qualify for this general construction permit.	
2	Is the facility's SIC code 1311, 1321, 4619, 4612 or 4922? (Other SIC codes may be approved provided that all the equipment at the facility is allowed in the GCP-Oil & Gas Permit.)	☐**No** ☒**Yes**
3	Does the regulated equipment under this GCP-Oil and Gas Registration include any combination of Allowable Equipment listed in Table 104 of the GCP Oil & Gas Permit, and no others?	☐**No** ☒**Yes**
4	Will the regulated equipment as specified in this GCP-Oil and Gas Registration emit less than the total emissions in Table 106 of the GCP-Oil and Gas permit?	☐**No** ☒**Yes**
5	Does all equipment comply with the stack parameter requirements as established in the GCP-Oil and Gas Permit?	☐**No** ☒**Yes**
6	Equipment shall be at least 100 meters (m) from any stack to terrain that is five (5) or more meters above the top of the stack. Will the equipment at the facility meet this terrain requirement?	☐**No** ☒**Yes**
7	Is the facility at least 150 m from any source that emits over 25 tons/year of NO_x? This is the distance between the two nearest stacks that emit NOx at each of the facilities. Not the facility boundaries or the center to center distances.	☐**No** ☒**Yes**
8	Is the facility at least 3 miles from any Class I area? This is the distance from the nearest facility boundary to the nearest boundary of the Class I area.	☐**No** ☒**Yes**
	If you answered ***NO*** to any of questions 2-8, your facility **does not** qualify for this general construction permit.	

3) Current Facility Status

1	Has this facility already been constructed? ☐Yes ☒No	If yes, is it currently operating in New Mexico? ☐ Yes ☒ No	
2	Does this facility currently have a construction permit or Notice of Intent (NOI) (20.2.72 NMAC or 20.2.73 NMAC)? ☐Yes ☒No	If yes, the permit No. or NOI No., and whether it will remain active or not:	
3	Is this Registration in response to a Notice of Violation (NOV)? ☐Yes ☒No If so, provide current permit #:	If yes, NOV date:	NOV Tracking No.
4	Check if facility is a: Minor Source: ☐ Synthetic Minor Source: ☒ (SM80 = Controlled Emissions > 80 TPY of any regulated air pollutant): ☒		

4) Facility Location Information

1	a) Latitude (decimal degrees): 32.111087	b) Longitude (decimal degrees): -103.958233	c) County: Eddy	d) Elevation (ft): 3094
2	a) UTM Zone: ☐12 or ☒13	b) UTME (to nearest 10 meters) 598280	c) UTMN (to nearest 10 meters): 3553220	

3	e) Specify which datum is used: ☐ NAD 27 ☐ NAD 83 ☒ WGS 84 See this link for more info. http://en.wikipedia.org/wiki/North_American_Datum
4	Name and zip code of nearest New Mexico town and tribal community: Malaga - 88263
5	Detailed Driving Instructions including direction and distance from nearest NM town and tribal community (attach a road map if necessary). If there is no street address, provide public road mileage marker: Drive S on US 285 for 12.5 mi. to L on Whitehorn Rd. Drive 2.4 mi. to L on Longhorn Rd. Drive 1.8 mi. to L on Pipeline Road 1. Drive 1.8 mi. to L on lease road. After 2.2 mi., go R at Y, then right at Y after 0.7 mi. Drive 0.3 mi. to R, then 0.5 mi. to new access road on R.
6	The facility is 10.2 (distance) miles SE (direction) of Malaga, NM (nearest town).
7	Land Status of facility (check one): ☐ Private ☐ Indian/Pueblo ☐ Government ☒ BLM ☐ Forest Service ☐ Military

5) Other Facility Information

1	Enter the maximum daily and annual throughput of oil, gas, and natural gas liquids (NGL).	**Oil (bbl/day): 25,000 (bbl/yr): 9,124,999** **Gas (MMscf/day): 60.84 (MMscf/yr): 22,207** **NGL (bbl/day): (bbl/yr):**
2	The facility, as described in this Registration, constitutes the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes.	☐**No** ☒**Yes**

6) Submittal Requirements

1	Include one hard copy **original signed and notarized Registration package printed double sided 'head-to-toe' 2-hole punched** as we bind the document on top, not on the side; except landscape tables, which should be head-to-head. If 'head-to-toe printing' is not possible, print single sided. Please use **numbered tab separators** in the hard copy submittal(s) as this facilitates the review process.
2	Include one **double sided hard copy, flip on long edge** for Department use. This copy does not need to be 2-hole punched.
3	The entire Registration package should be submitted electronically on one compact disk (CD). Include a single PDF document of the entire Registration as submitted and the individual documents comprising the Registration. The documents should also be submitted in Microsoft Office compatible file format (Word, Excel, etc.) allowing us to access the text in the documents (copy & paste). Any documents that cannot be submitted in a Microsoft Office compatible format shall be saved as a PDF file from within the electronic document that created the file. If you are unable to provide Microsoft office compatible electronic files or internally generated PDFs of files (items that were not created electronically: i.e. brochures, maps, graphics, etc.), submit these items in hard copy format. Spreadsheets must be unlocked since we must be able to review the formulas and inputs. **Ensure all of these are included in both the electronic and hard copies.** ☒Word Document part of the Registration Form (Sections 1 and 3-10) ☒Excel Document part of the Registration Form (Section 2) ☒Air Emissions Calculation Tool (AECT) If there is a justified reason for including other calculations, include the unlocked Excel Spreadsheet. Justification must be provided in Section 5 of the application. ☒PDF of entire application **To avoid errors, it is best to start with both a blank version of this form and the AECT for each application.**

Section 2
Tables

Section 2
Tables

Insert Excel spreadsheet with applicable tables filled out. If applicable to the facility all tables must be filled out completely. The unit numbering system must be consistent throughout this Registration

Table 2-A: Regulated Emission Sources

Unit and stack numbering must correspond throughout the application package. Equipment that qualifies for an exemption under 20.2.72.202.B

Unit Number[1]	Source Description	Manufacturer/Make /Model	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2]	Date of Construction/ Reconstruction[2]	Controlled by Unit #	Emissions vented to Stack #	Source Classi-fication Code (SCC)	RICE Ignition Type (CI, SI, 4SLB, 2SLB)[4]	For Each Piece of Equipment, Check Onc
BC1-BC2	ELECTRIC BOOSTER COMPRESSORS	TBD	TBD	N/A	N/A	TBD	TBD	N/A	N/A	31088811	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
FUG	FUGITIVE EMISSIONS	TBD	TBD	N/A	N/A	TBD	TBD	N/A	N/A	31088811	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
HT1	HEATER TREATER	TBD	TBD	4 MMBtu/hr	4 MMBtu/hr	TBD	TBD	N/A	HT1	31000404	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
HT2	HEATER TREATER	TBD	TBD	4 MMBtu/hr	4 MMBtu/hr	TBD	TBD	N/A	HT2	31000404	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
VRT	VAPOR RECOVERY TOWER	TBD	TBD	N/A	N/A	TBD	TBD	VRU1 & LPF	LPF	N/A	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
VRU1	VAPOR RECOVERY UNIT FOR VRT	TBD	TBD	N/A	N/A	TBD	TBD	LPF	LPF	N/A	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
VRU2	VAPOR RECOVERY UNIT FOR OIL TANKS	TBD	TBD	N/A	N/A	TBD	TBD	LPF	LPF	N/A	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
OT1	OIL STORAGE TANK	TBD	TBD	750 bbl	750 bbl	TBD	TBD	VRU2 & LPF	LPF	40400312	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
OT2	OIL STORAGE TANK	TBD	TBD	750 bbl	750 bbl	TBD	TBD	VRU2 & LPF	LPF	40400312	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
OT3	OIL STORAGE TANK	TBD	TBD	750 bbl	750 bbl	TBD	TBD	VRU2 & LPF	LPF	40400312	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
OT4	OIL STORAGE TANK	TBD	TBD	750 bbl	750 bbl	TBD	TBD	VRU2 & LPF	LPF	40400312	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
OT5	OIL STORAGE TANK	TBD	TBD	750 bbl	750 bbl	TBD	TBD	VRU2 & LPF	LPF	40400312	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
OT6	OIL STORAGE TANK	TBD	TBD	750 bbl	750 bbl	TBD	TBD	VRU2 & LPF	LPF	40400312	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
SKTK1	SKIM TANK	TBD	TBD	1000 bbl	1000 bbl	TBD	TBD	LPF	LPF	40400315	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

Table 2-A: Regulated Emission Sources

Unit and stack numbering must correspond throughout the application package. Equipment that qualifies for an exemption under 20.2.72.202.B

Unit Number[1]	Source Description	Manufacturer/Make /Model	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] Date of Construction/ Reconstruction[2]	Controlled by Unit # Emissions vented to Stack #	Source Classi-fication Code (SCC)	RICE Ignition Type (CI, SI, 4SLB, 2SLB)[4]	For Each Piece of Equipment, Check Onc
SKTK2	SKIM TANK	TBD	TBD	1000 bbl	1000 bbl	TBD TBD	LPF LPF	40400315	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
WT1	PRODUCED WATER TANK	TBD	TBD	750 bbl	750 bbl	TBD TBD	LPF LPF	40400315	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
WT2	PRODUCED WATER TANK	TBD	TBD	750 bbl	750 bbl	TBD TBD	LPF LPF	40400315	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
WT3	PRODUCED WATER TANK	TBD	TBD	750 bbl	750 bbl	TBD TBD	LPF LPF	40400315	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
WT4	PRODUCED WATER TANK	TBD	TBD	750 bbl	750 bbl	TBD TBD	LPF LPF	40400315	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
WT5	PRODUCED WATER TANK	TBD	TBD	750 bbl	750 bbl	TBD TBD	LPF LPF	40400315	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
WT6	PRODUCED WATER TANK	TBD	TBD	750 bbl	750 bbl	TBD TBD	LPF LPF	40400315	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
HPF	HIGH PRESSURE FLARE	Tornado	TBD	60 MMscf/d	60 MMscf/d	TBD TBD	N/A HPF	31000160	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
HPF-HT SSM	HIGH PRESSURE FLARE - HT SSM	Tornado	TBD	N/A	N/A	TBD TBD	N/A HPF	31000160	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
HPF-SALES SSM	HIGH PRESSURE FLARE - SALES GAS SSM	Tornado	TBD	N/A	N/A	TBD TBD	N/A HPF	31000160	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
LPF	LOW PRESSURE FLARE - PILOT	Tornado	TBD	2 MMscf/d	2 MMscf/d	TBD TBD	N/A LPF	31000160	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
LPF-VRT	LOW PRESSURE FLARE - VRT	Tornado	TBD	N/A	N/A	TBD TBD	N/A LPF	31000160	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
LPF-OT	LOW PRESSURE FLARE - OIL TANKS	Tornado	TBD	N/A	N/A	TBD TBD	N/A LPF	31000160	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
LPF-TL	LOW PRESSURE FLARE - TRUCK LOADING	Tornado	TBD	N/A	N/A	TBD TBD	N/A LPF	31000160	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

Table 2-A: Regulated Emission Sources

Unit and stack numbering must correspond throughout the application package. Equipment that qualifies for an exemption under 20.2.72.202.B

Unit Number[1]	Source Description	Manufacturer/Make /Model	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classi-fication Code (SCC)	RICE Ignition Type (CI, SI, 4SLB, 2SLB)[4]	For Each Piece of Equipment, Check Onc
LPF-WT	LOW PRESSURE FLARE - WATER TANKS	Tornado	TBD	N/A	N/A	TBD	N/A	31000160	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
						TBD	LPF			
LPF-VRT SSM	LOW PRESSURE FLARE - VRT SSM	Tornado	TBD	N/A	N/A	TBD	N/A	31000160	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
						TBD	LPF			
LPF-OT SSM	LOW PRESSURE FLARE - OIL TANK SSM	Tornado	TBD	N/A	N/A	TBD	N/A	31000160	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
						TBD	LPF			
TL-O	TRUCK LOADING - OIL (UNCOLLECTED VAPORS)	N/A	N/A	1,825,000 bbl/yr	1,825,000 bbl/yr	TBD	LPF	40600132	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
						TBD	LPF			
TL-W	TRUCK LOADING - H20 (UNCOLLECTED VAPORS)	N/A	N/A	1,825,000 bbl/yr	1,825,000 bbl/yr	TBD	N/A	40600250	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
						TBD	N/A			
ROAD	ROAD EMISSIONS	N/A	N/A	N/A	N/A	N/A	N/A	31088811	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
						N/A	N/A			

[1] Unit numbers must correspond to unit numbers in the previous permit unless a complete cross reference table of all units in both permits is provided.

[2] Specify dates required to determine regulatory applicability.

[3] To properly account for power conversion efficiencies, generator set rated capacity shall be reported as the rated capacity of the engine in horsepower, not the kilowatt capacity of the generator set.

[4] "4SLB" means four stroke lean burn engine, "4SRB" means four stroke rich burn engine, "2SLB" means two stroke lean burn engine, "CI" means compression ignition, and "SI" means spark ignition

Table 2-B: Exempted Equipment (20.2.72 NMAC)

All 20.2.72 NMAC applications must list Exempted Equipment in this table. If equipment listed on this table is exempt under 20.2.72.202.B.5, include emissions calculations and emissions totals for 202.B.5 "similar functions" units, operations, and activities in Section 5, Calculations. Unit & stack numbering must be consistent throughout the application package.

Unit Number	Source Description	Manufacturer	Model No. Serial No.	Max Capacity Capacity Units	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction[1] Date of Installation /Construction[1]	For Each Piece of Equipment, Check Onc
	None						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

1 Specify date(s) required to determine regulatory applicability.

Table 2-C: Emissions Control Equipment

Unit and stack numbering must correspond throughout the application package. In accordance with 20.2.72.203.A(3) and (8) NMAC, 20.2.70.300.D(5)(b) and (e) NMAC, and 20.2.73.200.B(7) NMAC, the permittee shall report all control devices and list each pollutant controlled by the control device regardless if the applicant takes credit for the reduction in emissions.

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
LPF	Low Pressure Flare	TBD	VOC, HAPs	OT1-6, SKTK1-2, WT1-6, VRT, TL-O	98%	Manufacturer Data
VRU1	Vapor Recovery Unit	TBD	VOC, HAPs	VRT	98%	Engineering Estimate
VRU2	Vapor Recovery Unit	TBD	VOC, HAPs	OT1-6	98%	Engineering Estimate
HPF	High Pressure Flare	TBD	VOC, HAPs	Sales Gas, Heater Treater	98%	Manufacturer Data

[1] List each control device on a separate line. For each control device, list all emission units controlled by the control device.

[2] Glycol Dehydration Units: Indicate each stream that is being controlled and which unit is controlling each stream (condensables, non-condensables, flash tank, reboiler etc.)

Table 2-D: Maximum Emissions (Consider federally enforceable controls under normal operating conditions)

This table must be filled out

Maximum Federally Enforceable Emissions are the emissions at maximum capacity with only federally enforceable methods of reducing emissions. Calculate the hourly emissions using the worst case hourly emissions for each pollutant. For each pollutant, calculate the annual emissions as if the facility were operating at maximum facility capacity without pollution controls for 8760 hours per year. Account for federally enforcable controls, such as an NSPS or MACT regulation. Consider federally enforceable controls due to permitting. List Hazardous Air Pollutants (HAP) in Table 2-I. Unit & stack numbering must be consistent throughout the application package. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or 1.41E-4).

Unit No.	NOx		CO		VOC		SOx		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
BC1 & BC2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FUG	-	-	-	-	2.44	10.69	-	-	-	-	-	-	-	-	-	-
HT1	0.56	2.45	0.47	2.06	0.03	0.13	0.00	0.01	0.04	0.19	0.04	0.19	-	-	-	-
HT2	0.56	2.45	0.47	2.06	0.03	0.13	0.00	0.01	0.04	0.19	0.04	0.19	-	-	-	-
VRT	-	-	-	-	11613.56	12716.85	-	-	-	-	-	-	0.23	0.25	-	-
OT1	-	-	-	-	268.78	539.12	-	-	-	-	-	-	0.00	0.01	-	-
OT2	-	-	-	-	268.78	539.12	-	-	-	-	-	-	0.00	0.01	-	-
OT3	-	-	-	-	268.78	539.12	-	-	-	-	-	-	0.00	0.01	-	-
OT4	-	-	-	-	268.78	539.12	-	-	-	-	-	-	0.00	0.01	-	-
OT5	-	-	-	-	268.78	539.12	-	-	-	-	-	-	0.00	0.01	-	-
OT6	-	-	-	-	268.78	539.12	-	-	-	-	-	-	0.00	0.01	-	-
SKTK1	-	-	-	-	73.78	80.83	-	-	-	-	-	-	0.03	0.03	-	-
SKTK2	-	-	-	-	73.78	80.83	-	-	-	-	-	-	0.03	0.03	-	-
WT1	-	-	-	-	0.51	0.57	-	-	-	-	-	-	0.00	0.00	-	-
WT2	-	-	-	-	0.51	0.57	-	-	-	-	-	-	0.00	0.00	-	-
WT3	-	-	-	-	0.51	0.57	-	-	-	-	-	-	0.00	0.00	-	-
WT4	-	-	-	-	0.51	0.57	-	-	-	-	-	-	0.00	0.00	-	-
WT5	-	-	-	-	0.51	0.57	-	-	-	-	-	-	0.00	0.00	-	-
WT6	-	-	-	-	0.51	0.57	-	-	-	-	-	-	0.00	0.00	-	-
HPF	0.08	0.34	0.15	0.67	0.16	0.68	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	-	-
LPF	0.04	0.17	0.08	0.33	0.08	0.34	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	-	-
TL-O	-	-	-	-	59.53	224.65	-	-	-	-	-	-	0.08	0.30	-	-
TL-W	-	-	-	-	0.00	0.01	-	-	-	-	-	-	0.00	0.00	-	-
ROAD	-	-	-	-	-	-	-	-	0.48	1.67	0.05	0.17	-	-	-	-
Totals	1.24	5.41	1.17	5.13	13439.11	16353.31	0.01	0.03	0.57	2.07	0.14	0.56	0.40	0.68	0	0

[1] **Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source.

Table 2-E: Requested Allowable Emissions

Enter an allowable emission limit for each piece of equipment with either an uncontrolled emission rate greater than 1 lb/hr or 1 ton per year (tpy) or a controlled emission rate of any amount. For H2S please represent all emissions even if they are less than 1 lb/hr and 1 tpy. If selecting combustion SSM emissions, enter lb/hr and tpy values. If selecting up to 10 tpy of Malfunction VOC emissions, enter tpy values. Combustion emissions from malfunction events are **not authorized** under this permit. Fill all cells in this table with the emissions in lb/hr and tpy, or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Total the emissions from all equipment in the Totals row. Add additional rows as necessary. Unit & stack numbering must be consistent throughout the application package. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or $1.41E^{-4}$).

Unit No.	NOx		CO		VOC		SOx		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
BC1-BC2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FUG	-	-	-	-	2.44	10.69	-	-	-	-	-	-	-	-	-	-
HT1	0.56	2.45	0.47	2.06	0.03	0.13	0.00	0.01	0.04	0.19	0.04	0.19	-	-	-	-
HT2	0.56	2.45	0.47	2.06	0.03	0.13	0.00	0.01	0.04	0.19	0.04	0.19	-	-	-	-
TL-O	-	-	-	-	0.77	2.92	-	-	-	-	-	-	0.00	0.00	-	-
TL-W	-	-	-	-	0.00	0.01	-	-	-	-	-	-	0.00	0.00	-	-
ROAD	-	-	-	-	-	-	-	-	0.48	1.67	0.05	0.17	-	-	-	-
VRT	Emissions Represented at LPF.															
OT1	Emissions Represented at LPF.															
OT2	Emissions Represented at LPF.															
OT3	Emissions Represented at LPF.															
SKTK1	Emissions Represented at LPF.															
SKTK2	Emissions Represented at LPF.															
WT1	Emissions Represented at LPF.															
WT2	Emissions Represented at LPF.															
WT3	Emissions Represented at LPF.															
WT4	Emissions Represented at LPF.															
WT5	Emissions Represented at LPF.															
WT6	Emissions Represented at LPF.															
HPF-NO	0.08	0.34	0.15	0.67	0.16	0.68	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	-	-
HPF-HT SSM	23.78	2.60	47.47	5.20	91.10	9.98	0.26	0.03	0.07	0.01	0.07	0.01	0.00	0.00	-	-
HPF-SALES SSM	484.82	11.75	967.88	23.46	988.72	23.96	3.87	0.09	19.27	0.47	19.27	0.47	0.04	0.00	-	-
LPF-NO	0.04	0.17	0.08	0.33	0.08	0.34	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	-	-
LPF-VRT	0.85	0.83	1.69	1.67	4.65	4.58	0.01	0.01	0.02	0.02	0.02	0.02	0.00	0.00	-	-
LPF-OT	0.12	0.17	0.23	0.35	0.65	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-
LPF-TL	0.15	0.65	0.30	1.31	0.84	3.69	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00		
LPF-WT	2.04	2.85	4.07	5.68	3.01	3.30	0.11	0.15	0.09	0.12	0.09	0.12	0.00	0.00	-	-
LPF-VRT SSM	42.35	4.64	84.54	9.26	232.27	25.43	0.43	0.05	0.90	0.10	0.90	0.10	0.00	0.00		
LPF-OT SSM	5.84	2.88	11.65	5.76	32.25	16.17	0.06	0.03	0.12	0.06	0.12	0.06	0.00	0.00	-	-
Totals	560.21	31.79	1117.09	57.79	1351.72	103.00	4.73	0.39	21.01	2.85	20.58	1.35	0.05	0.01	0	0

Table 2-H: Stack Exit Conditions

Unit and stack numbering must correspond throughout the application package. Include the stack exit conditions for each unit that emits from a stack, including blowdown venting parameters and tank emissions.

Stack Type (Engine,	Serving Unit Number(s) from Table 2-A	Orientation (H-Horizontal	Height Above Ground (ft)	Temp. (F)	Flow Rate (acfs)	Velocity (ft/sec)	Inside Diameter (ft)
Heater	HT1	Vertical	20	1000	25	31.5	1.00
Heater	HT2	Vertical	20	1000	25	31.5	1.00
Flare	HPF	Vertical	145	1800	366	671.9	0.83
Flare	LPF	Vertical	40	1800	404	128.8	2.00

Table 2-I: Emission Rates for HAPs

HAP In the table below, report the potential emission rate for each HAP from each regulated emission unit listed in Table 1, only if the entire facility emits the HAP. For each such emission unit, HAP shall be reported to the nearest 0.1 tpy. Each facility-wide Individual HAP total and the facility-wide Total HAP shall be the sum of all HAP sources calculated to the nearest 0.1 ton per year. Use the HAP nomenclature as it appears in Section 112 (b) of the 1990 CAAA. Include tank-flashing emissions estimates of HAP in this table. For each HAP listed, fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected, or the pollutant is emitted in a quantity less than the threshold amounts described above. Add additional rows as necessary.

Stack No.	Unit No.(s)	Total HAPs		n-Hexane ☑ HAP ☐ TAP		Benzene ☑ HAP ☐ TAP		Provide Pollutant Name Here ☐ HAP		Provide Pollutant Name Here ☐ HAP		Provide Pollutant Name Here ☐ HAP		Provide Pollutant Name Here ☐ HAP		Provide Pollutant Name Here ☐ HAP	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
FUG	FUG	0.13	0.59	0.05	0.22	0.03	0.11	-	-	-	-	-	-	-	-	-	-
HT1	HT1	0.01	0.03	0.01	0.03	0.00	0.00	-	-	-	-	-	-	-	-	-	-
HT2	HT2	0.01	0.03	0.01	0.03	0.00	0.00	-	-	-	-	-	-	-	-	-	-
TL-O	TL-O	0.03	0.11	0.02	0.06	0.01	0.02	-	-	-	-	-	-	-	-	-	-
TL-W	TL-W	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-	-
ROAD	ROAD	---	---	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	VRT	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	OT1	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	OT2	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	OT3	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	OT4	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	OT5	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	OT6	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	SKTK1	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	SKTK2	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	WT1	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	WT2	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	WT3	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	WT4	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	WT5	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	WT6	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HPF	HPF-NO	0.00	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HPF	HPF-HT SSM	3.59	0.39	1.84	0.20	0.83	0.09	-	-	-	-	-	-	-	-	-	-
HPF	HPF-SALES SSM	29.15	0.71	15.30	0.37	6.95	0.17	-	-	-	-	-	-	-	-	-	-
LPF	LPF-NO	0.00	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	LPF-VRT	0.20	0.19	5.09	0.56	2.31	0.25	-	-	-	-	-	-	-	-	-	-
LPF	LPF-OT	0.03	0.04	0.01	0.02	0.01	0.01	-	-	-	-	-	-	-	-	-	-
LPF	LPF-TL	0.03	0.13	0.02	0.08	0.01	0.03	-	-	-	-	-	-	-	-	-	-
LPF	LPF-WT	0.30	0.32	0.01	0.01	0.16	0.18	-	-	-	-	-	-	-	-	-	-
LPF	LPF-VRT SSM	9.77	1.07	5.09	0.56	2.31	0.25	-	-	-	-	-	-	-	-	-	-
LPF	LPF-OT SSM	1.31	0.63	0.70	0.35	0.30	0.13	-	-	-	-	-	-	-	-	-	-
Totals:		44.33	4.28	28.15	2.50	12.90	1.25	-	-	-	-	-	-	-	-	-	-

Table 2-J: Allowable Fuels and Fuel Sulfur for Combustion Emission Units:

Specify fuel characteristics and usage. Unit and stack numbering must correspond throughout the application package.

Unit No.	Fuel Type (Natural Gas, Field Gas, Propane, Diesel, …)	Fuel Source (purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas, or other	Specify Units				
			Engines and Turbines: SO2 percentage (%) of the NOx emission rate (except flares)	Diesel Fuel Only: ppm of Sulfur	Lower Heating Value (BTU/SCF)	Annual Fuel Usage (MMSCF/y)	Does the Allowable Fuel and Fuel Sulfur Content meet GCP O&G Condition A110.A?
HT1	Field Gas	Field Natural Gas	N/A	N/A	1385.8	25.3	☑ Yes ☐ No
HT2	Field Gas	Field Natural Gas	N/A	N/A	1385.8	25.3	☑ Yes ☐ No
HPF	Field Gas	Field Natural Gas	N/A	N/A	1385.8	3.5	☑ Yes ☐ No
LPF	Field Gas	Field Natural Gas	N/A	N/A	1385.8	1.8	☑ Yes ☐ No

Table 2-L: Tank Data

Include appropriate tank-flashing modeling input data. Unit and stack numbering must correspond throughout the application package.

Tank No.	Date Installed	Materials Stored	Roof Type	Seal Type	Capacity (bbl)	Diameter (M)	Vapor Space (M)	Color		Separator Pressure (psia)	Annual Throughput (gal/yr)	Turn-overs (per year)
								Roof	Shell			
OT1	TBD	OIL	Vertical - Fixed Roof (FX)	N/A	750	4.7	7.3	OT	OT	17.7	63,874,996	2,028
OT2	TBD	OIL	Vertical - Fixed Roof (FX)	N/A	750	4.7	7.3	OT	OT	17.7	63,874,996	2,028
OT3	TBD	OIL	Vertical - Fixed Roof (FX)	N/A	750	4.7	7.3	OT	OT	17.7	63,874,996	2,028
OT4	TBD	OIL	Vertical - Fixed Roof (FX)	N/A	750	4.7	7.3	OT	OT	17.7	63,874,996	2,028
OT5	TBD	OIL	Vertical - Fixed Roof (FX)	N/A	750	4.7	7.3	OT	OT	17.7	63,874,996	2,028
OT6	TBD	OIL	Vertical - Fixed Roof (FX)	N/A	750	4.7	7.3	OT	OT	17.7	63,874,996	2,028
SKTK1	TBD	PRODUCED WATER	Vertical - Fixed Roof (FX)	N/A	1,000	4.7	9.1	OT	OT	101.7	459,904,447	10,950
SKTK2	TBD	PRODUCED WATER	Vertical - Fixed Roof (FX)	N/A	1,000	4.7	9.1	OT	OT	101.7	459,904,447	10,950
WT1	TBD	PRODUCED WATER	Vertical - Fixed Roof (FX)	N/A	750	4.7	7.3	OT	OT	15.1	153,300,000	4,867
WT2	TBD	PRODUCED WATER	Vertical - Fixed Roof (FX)	N/A	750	4.7	7.3	OT	OT	15.1	153,300,000	4,867
WT3	TBD	PRODUCED WATER	Vertical - Fixed Roof (FX)	N/A	750	4.7	7.3	OT	OT	15.1	153,300,000	4,867
WT4	TBD	PRODUCED WATER	Vertical - Fixed Roof (FX)	N/A	750	4.7	7.3	OT	OT	15.1	153,300,000	4,867
WT5	TBD	PRODUCED WATER	Vertical - Fixed Roof (FX)	N/A	750	4.7	7.3	OT	OT	15.1	153,300,000	4,867
WT6	TBD	PRODUCED WATER	Vertical - Fixed Roof (FX)	N/A	750	4.7	7.3	OT	OT	15.1	153,300,000	4,867

Section 3
Registration Summary

Section 3
Registration Summary

The Registration Summary: Provide information about the registration submittal. The Registration Summary shall include a brief description of the facility and its process. In case of a modification to a facility, please describe the proposed changes.

Specify Facility Type: Check the appropriate box below:

☐ Production Site
☒ Tank Battery
☐ Compressor Station
☐ Natural Gas Plant
☐ Other, please specify:______________

Registration Summary: This application requests a GCP-O&G permit for a proposed facility under 20.2.72 NMAC. The Corral Canyon 23 is an oil and gas production battery, with an average well production of 20,000 BOPD, 60,000 BWPD, and 60.84 MMscfd. An additional 5,000 BOPD of dead oil may be transferred directly into the storage tanks from surrounding batteries. The site will consist of the following permitted equipment:

- WT1-WT6: Six (6) produced water tanks
- OT1-OT6: Six (6) oil tanks
- SKTK1-SKTK2: Two (2) water skim tanks
- BC1-BC2: Two (2) electric booster compressors
- FUG: Fugitive equipment leaks
- HT1-HT2: Two (2) heater treaters
- TL-O: Truck loading of oil
- TL-W: Truck loading of water
- ROAD: Haul road emissions
- VRT: Vapor recovery tower
- VRU1: Vapor recovery unit for VRT
- VRU2: Vapor recovery unit for OT1-OT6
- HPF: High pressure flare
- LPF: Low pressure flare

Written description of the routine operations of the facility: Mixed hydrocarbons (20000 BOPD/60000 BWPD/60.84 MMSCFD) enter the facility through inlet separators where the gas is sent to the sales line and the oil is sent to auxiliary heaters (HT1-HT2). The remainder of the gas is picked up by electric booster compressors (BC1-BC2) for sales. During normal operation, 100% of the gas is routed to sales. During BC1-BC2 downtime (876 hours), all gas is flared at the high pressure flare (HPF). Water from the inlet is routed to two water skim tanks (SKTK1-SKTK2), then to six water storage tanks (WT1-WT6). Skim tank and water tank vapors are routed to the low pressure flare (LPF).

Oil flows from the heaters to a vapor recovery tower (VRT), then to six sales tanks (OT1-OT6). Gas from the VRT is routed to a vapor recovery unit (VRU)/flare closed vent system. Gas is picked up for sales by the VRU (VRU1), with gas routed to LPF during VRU downtime. XTO assumes a VRU collection efficiency of 98%, with 876 hours of downtime. Up to 5,000 BOPD of dead oil may also be piped into OT1-OT6. Gas from the oil tanks is also routed to a VRU/LPF vent system, with the tanks using VRU2. XTO assumes a VRU collection efficiency of 98%, with 2,190 hours of downtime. Oil is primarily shipped offsite via pipeline LACT; however 1,825,000 barrels per year of oil truck loading and 1,825,000 barrels per year of water truck loading were included. 98.7% of the loading vapors are routed to LPF, with the remaining volume accounted for at the truck loading station.

HPF would also be used in the event of third party sales line maintenance or downtime which required gas flaring. These emissions are illustrated in the application.

A process flow diagram is included in Section 4 of the application.

Routine or predictable emissions during Startup, Shutdown and Maintenance (SSM): SSM emissions related to VRU downtime are illustrated at the low pressure flare. Booster compressor downtime and any internal or sales line maintenance is illustrated at the high pressure flare.

Malfunction Emissions (M): Malfunctions would be reported in accordance with 20.2.7 NMAC.

The permit does not authorize emissions from SSM and Malfunction to be combined as 10 TPY VOC. However, they may be permitted separately. In the allowable emissions table in Section 2, these two events are separate line items and must be kept separate.

Allowable Operations: Check the appropriate box below:

☒ Facility operates continuously (8760 hours per year)

☐ The following regulated equipment will operate less than 8760 hours per year. Add additional rows as necessary. These units are subject to Condition A108.C of the Permit.

Table A – Equipment Operating Less Than 8760 hours per year

Unit #	Requested Annual Operating Hours

Verification of Compliance with Stack Parameter Requirements:

Please use the Stack Calculator and Stack Requirements Explained Guidance on our website: All of the verification information below is required to be filled out.

www.env.nm.gov/air-quality/air-quality-oil-and-gas-gcp-application-forms/

Check the box for each type of equipment at this facility:

☐ Engine(s)
☐ Turbine(s)
☒ Flares(s)
☐ Enclosed Combustion Device (s)
☒ Heater(s)
☐ Reboiler(s)

For each type of equipment checked above, complete the applicable section below.

Engines

1. Calculate the pound per hour (lb/hr) NO_x emission rate according to GCP O&G Condition A202.I Step 1 on page 15 of the GCP O&G. Enter this value in the top row of the table below.
2. Based on the calculated facility total NO_x emission rate, determine the minimum stack parameter requirements for engines and heaters from Table 1: Engines (page 17) of the GCP O&G and enter the minimum parameters from Table 1 (page 17) of the GCP O&G in the bottom row of the table below.
3. Enter the stack parameters from each engine and heater in the blank rows of the table below. Add rows as necessary.

Table B: Engine/Generator/Heater/Reboiler Stack Parameter Verification:

Calculated Facility Total NOx Emission Rate: 1.12 lb/hr				
Engine/Generator/Heater/Reboiler Unit Number	**Height (ft)**	**Temperature (^oF)**	**Velocity (ft/s)**	**Diameter (ft)**
HT1	20	1000	31.5	1
HT2	20	1000	31.5	1
Table 1 Minimum Parameters: For verification, list the minimum parameters based on the NOx lb/hr emission rate from the GCP O&G Table 1.	5.9	571	49.2	0.3

4. Do all engines and heaters comply with the minimum stack parameters from Table 1 (page 17) of the GCP O&G?

☐ Yes. Skip step 5 below.
☒ No. Go to step 5 below.

5. For engines and heaters that do not comply with the minimum stack parameters in Table 1 of the GCP O&G, explain and demonstrate in detail how the engines and heaters will be authorized according to the steps on page 16 of the GCP O&G or Condition A203.C of the GCP O&G. Show all calculations.
   - **<u>The heaters emit less than 1.23 lb/hr.</u>**

<u>Turbines</u>

1. Calculate the pound per hour (lb/hr) NO_x emission rate according to GCP O&G Condition A202.I Step 1 on page 17 of the GCP O&G. Enter this value in the top row of the table below.
2. Based on the calculated facility total NO_x emission rate, determine the minimum stack parameter requirements for turbines and heaters from Table 2: Turbines (page 18) of the GCP O&G. Enter the minimum parameters from Table 2 (page 18) of the GCP O&G in the bottom row of the table below.
3. Enter the stack parameters from each turbine and heater in the blank rows of the table below. Add rows as necessary.

Table C: Turbine/Heater/Reboiler Stack Parameter Verification:

Calculated Facility Total NOx Emission Rate: _____lb/hr				
Turbine/Heater/Reboiler Unit Number	**Height (ft)**	**Temperature (^oF)**	**Velocity (ft/s)**	**Diameter (ft)**
Table 2 Minimum Parameters: For verification, list the minimum parameters based on the NOx lb/hr emission rate from the GCP O&G Table 2.				

4. Do all turbines and heaters comply with the minimum stack parameters from Table 2 (page 18) of the GCP O&G?

☐ Yes. Skip step 5 below.
☐ No. Go to step 5 below.

5. For turbines and heaters that do not comply with the minimum stack parameters in Table 2 of the GCP O&G, explain and demonstrate in detail how the turbines and heaters will be authorized according to the steps on page 18 of the GCP O&G or Condition A203.C of the GCP O&G. Show all calculations.

Flares

1. Enter SO_2 emission rates (lb/hr) for each flare in the second column of the table below.
2. Based on the SO_2 emission rates, determine the minimum stack height requirements for flares from Table 3 (page 26) of the GCP O&G and enter the minimum stack height requirements for flares from Table 3 (page 26) of the GCP O&G in the last column of the table below.
3. Enter the stack height of each flare in the third column of the table below. Add rows as necessary.

Table D: Flare Stack Height Parameter Verification:

Flare Unit Number	SO_2 Emission Rate (lb/hr)	Height (ft)	**Table 3 Minimum Stack Height:** For verification, list the minimum height parameters based on the SO2 emission rate from the GCP O&G Table 3.
HPF	4.12	145	9.8
LPF	0.60	40	6.6

4. Do all flares comply with minimum stack height requirements?
   ☒ Yes
   ☐ No

5. Does the flare gas contain 6% H_2S or less by volume (pre-combustion)?
   ☒ Yes. Skip step 6 below.
   ☐ No. Go to step 6 below.

6. Explain in detail how assist gas will be added to reduce the gas composition to 6% H_2S or less by volume.

Enclosed Combustion Device(s) (ECD):

According to GCP O&G Condition A208.A, the facility must meet one of the following options if an ECD is installed at the facility:

Option 1:

1. Will the ECD(s) meet the SO_2 emission limit of 0.7 lb/hr and operate with a velocity of at least one (1) foot per second?
   - ☐ Yes. Skip Option 2 below.
   - ☐ No. Go to Option 2 below.

Option 2:

2. Will the ECD(s) meet the SO_2 emission limit of 0.9 lb/hr and operate with a velocity of at least two (2) feet per second?
   - ☐ Yes
   - ☐ No

Section 4
Process Flow and Description of Routine Operations

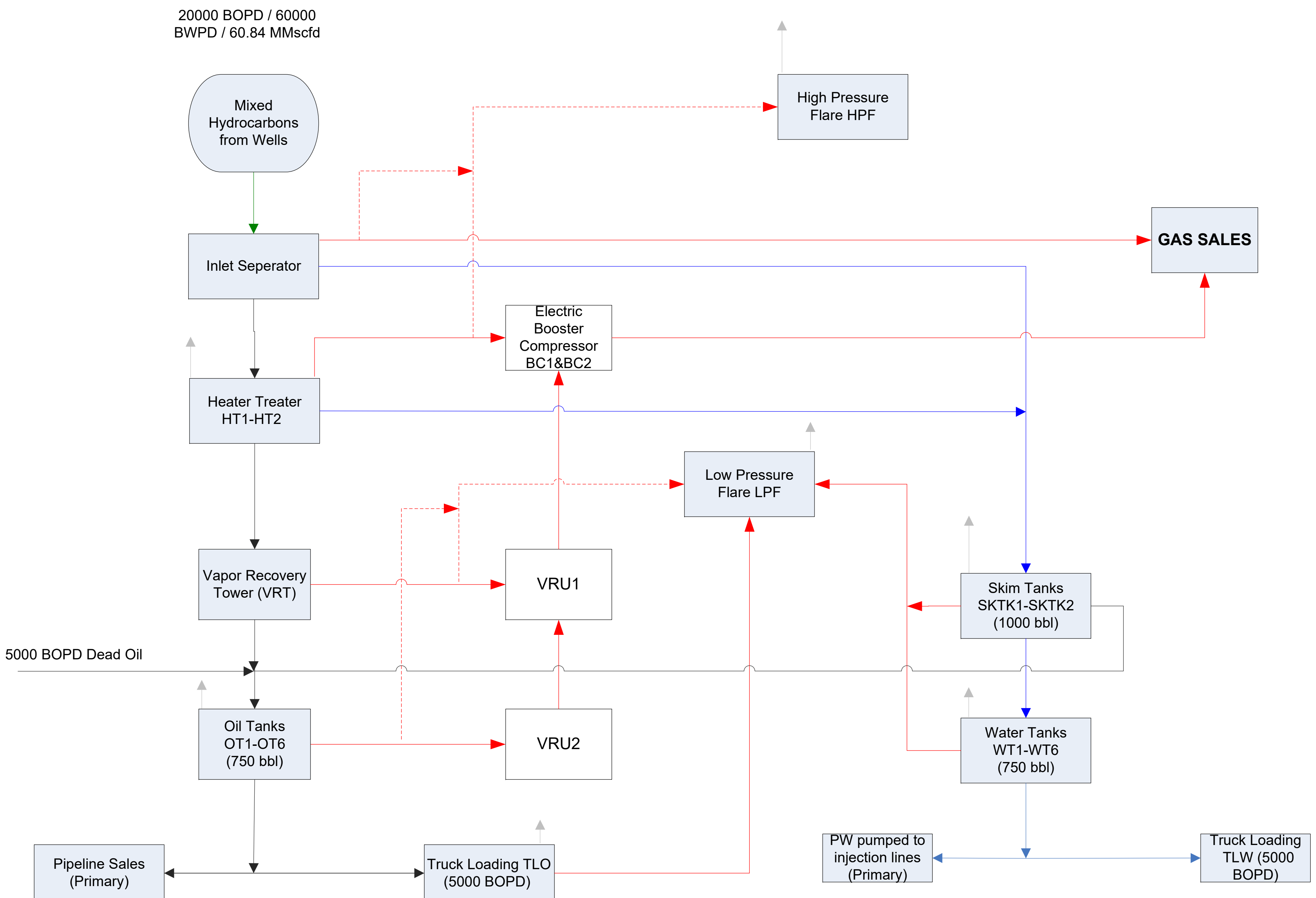
Section 4

Process Flow Sheet

Attach a **process flow sheet** indicating all individual equipment, all emission points, and types of control applied to those points. All units must be labeled, and the unit numbering system must be consistent throughout this Registration. Identify all sources of emissions with a vertical arrow. Label each of the different material streams (e.g. crude oil, gas, water). The process flow sheet must be a legible size.

A process flow diagram is included.

XTO Energy Inc.
Corral Canyon 23
Process Flow Diagram



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Section 5
Emissions Calculations Forms

Section 5

Emissions Calculation Forms

The Department has developed the Air Emissions Calculation Tool (AECT), which is required to be used in the GCP-Oil and Gas Registration. If the AECT, for a piece of equipment is under development, provide alternate calculations. **Do not include alternative calculations unless there is an issue being resolved with the AECT. This will delay review of the application.** The AECT and this Registration Form may be updated as needed.

Tank Emissions Calculations: Provide the method used to estimate tank-flashing emissions, the input and output summary from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis. If Pro-Max or Hysis is used, all relevant input parameters shall be reported, including separator pressure, gas throughput, and all other relevant parameters necessary for flashing calculation. **The inputs must match the gas analyses information submitted. Inputs that don't match may be grounds for denial of the application submittal.**

SSM Calculations: In this Section, provide emissions calculations for Startup, Shutdown, and Routine Maintenance (SSM) emissions listed in the Table 2, and the rational for why the others are reported as zero (or left blank).

Control Devices: Report all control devices and list each pollutant controlled by the control device. Indicate in this section if you chose to not take credit for the reduction in emission rates. Only uncontrolled emission rates can be considered to determine applicability unless the state or federal acts require the control. This information is necessary to determine if federally enforceable conditions are necessary for the control device, and if the control device produces its own regulated pollutants or increases emission rates of other pollutants.

Calculation Details: The AECT is required for all emission calculations. If the AECT is not functioning, alternative calculations may be submitted only for the portions of the AECT with issues being resolved. Utilize this section to explain in detail, on an equipment-by-equipment basis, why alternative calculations are necessary.

Explain here: The AECT does not work for the LPF since there are more streams than the AECT can manage. The AECT does not work for the storage tanks since we consider the VRU to be 98% efficient instead of 100%. The AECT also cannot handle differing downtimes. The AECT will work only for the heaters, roads, and VRT emissions. Since XTO assumes the burners are only 70% efficient, the AECT does not match the Excel calculations. Since XTO breaks down the liquid and gas compositions for each section of the plant, the fugitive calculations are more accurate than the AECT, which uses the same analysis across the site.

Equipment Forms Submitted in this Section (add additional rows as necessary):

Equipment Type	Quantity	Check Box to Indicate Units that are Controlled	Enter Control Device Type and Pollutant Controlled
Engine		☐	
Turbine		☐	
Tanks	**15**	☒	Oil – VRU/Flare; Skim & Water – Flare (VOC/HAP)
Generator		☐	
VRU	**2**	☒	Flare (VOC/HAP)
VRT	**1**	☒	VRU/Flare (VOC/HAP)
ULPS		☐	
Glycol Dehydrator		☐	
Flare	**2**	☒	Sales gas, Tank Vapors, VRT Vapors, Truck loading (VOC/HAP)

Amine Unit		☐	
Cryogenic Unit		☐	
Fugitive Emissions	**1**	☒	
Heater	**2**	☒	
Truck Loading	**2**	☒	Flare (VOC/HAP)
Enclosed Combustion Device (ECD)		☐	*List all streams controlled by the ECD*
Thermal Oxidizer (TO)		☐	*List all streams controlled by the TO*
Other		☐	
Other		☐	

For each scenario below, if there are more than one emissions unit, control device, or gas combustion scenario. Please copy and paste each applicable section and label the unit number(s) if the scenarios vary.

<u>Vapor Recovery Tower, Ultra Low-Pressure Separator, or Flash Tower Located Upstream of Storage Vessels:</u> If the facility contains one of the following units located upstream of the storage vessels and is used to flash and capture flashing emissions, check the appropriate box.
Unit number: **VRT and VRU1**
☒ Vapor Recovery Tower and VRU Compressor
☐ ULPS and VRU Compressor
☐ Flash Tower and VRU Compressor

<u>Vapor Recovery Unit (VRU) located upstream of Storage Vessels:</u> Check the box below if the facility is using a VRU to capture flashing emissions prior to any storage vessels to limit the PTE of the storage vessels to below applicability thresholds of NSPS OOOO or NSPS OOOOa. A process vs control determination should be prepared for this type of VRU application.
Unit number:
☐ VRU capturing emissions prior to any storage vessel and routing directly to the sales pipeline

<u>Vapor Recovery Unit (VRU) attached to Storage Vessels:</u> Check the box below if this facility is using a VRU to reduce storage vessel emissions to limit the PTE to below NSPS OOOO or NSPS OOOOa applicability thresholds:
Unit number: **VRU2**
☐ VRU controlling Storage Vessel emissions and the facility is subject to the requirements under NSPS OOOO, 40 CFR 60.5411
☒ VRU controlling Storage Vessel emissions and the facility is subject to the requirements under NSPS OOOOa, 40 CFR 60.5411a

<u>Gas Combustion Scenarios:</u> Read through the scenarios below and check the boxes next to any appropriate facility operating scenarios. Flares shall assume a destruction efficiency of 95%, unless the facility is subject to requirements for flares under 40 CFR 60.18, or a higher destruction efficiency (up to 98%) is supported by a manufacturer specification sheet (MSS) for that unit. If so, include the MSS.

A flare, vapor combustion unit (VCU), enclosed combustion device (ECD), thermal oxidizer (TO):
Unit number: HPF/LPF
☐ Controls storage vessels in accordance with 40 CFR 60, Subpart OOOO or OOOOa.
☒ Provides a federally enforceable control for the storage vessels to limit the PTE to below applicability thresholds of 40 CFR 60, Subpart OOOO or OOOOa. **LPF**
☐ Controls the glycol dehydrator
☐ Controls the amine unit
☒ Controls truck loading **LPF**
☒ Operates only during maintenance events, such as VRU downtime, check one below:
☐ The emissions during VRU downtime are represented as uncontrolled VOC emissions from the compressor
☒ The combustion emissions during VRU downtime are represented as controlled emissions from the combustion device **LPF (Tank VRU) and HPF (VRT VRU)**

☒ Controls the facility during plant turnaround **HPF**

<u>Amine Unit:</u> Provide the following information for each amine unit.

Design Capacity in MMscf/day	
Rich Amine Flowrate in gal/min	

Lean Amine Flowrate in gal/min	
Mole Loading H_2S	
Sour Gas Input in MMscf/day	

Glycol Dehydration Unit(s): Provide the following information for each glycol dehydration unit:
Please include an extended gas analysis in Section 6 of this application.

Unit #	**Glycol Pump Circulation Rate**

Voluntary Monitoring in Accordance with §40 CFR 60.5416(a): Check the box(s) to implement a program that meets the requirements of 40 CFR 60.5416(a). This monitoring program will be conducted in lieu of the monitoring requirements established in the GCP-Oil and Gas for individual equipment. Ceasing to implement this alternative monitoring must be reported in an updated Registration Form to the Department.

☐ Condition A205.B Control Device Options, Requirements, and Inspections for Tanks
☐ Condition A206.B Truck Loading Control Device Inspection
☐ Condition A206.C Vapor Balancing During Truck Loading
☐ Condition A209.A Vapor Recovery Unit or Department-approved Equivalent
☐ Condition A210.B Amine Unit Control Device Inspection

Fugitive H_2S Screening Threshold and Monitoring in accordance with Condition A212: Check the box that applies.

☒ Condition A212.A does not apply because the facility is below the fugitive H_2S screening threshold in Condition A212, or

☐ Condition A212.A applies. Because the facility is above the fugitive H_2S screening threshold in Condition A212, or the facility is voluntarily complying with Condition A212.A, and Condition A212.A applies

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
FACILITY EMISSIONS SUMMARY

EMISSIONS SUMMARY TABLE

EMISSION SOURCE DESCRIPTION	FACILITY IDENTIFICATION NUMBER (FIN)	STACK NUMBER	NOx		CO		VOC (INCLUDES HAPs)		SO_2		PM_{10}		HAPs		CO2e
			lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	TPY
FUGITIVE EMISSIONS	FUG	FUG	---	---	---	---	2.44	10.69	---	---	---	---	0.13	0.59	322.48
HEATER TREATER	HT1	HT1	0.56	2.45	0.47	2.06	0.03	0.13	0.00	0.01	0.04	0.19	0.01	0.03	2051.91
HEATER TREATER	HT2	HT2	0.56	2.45	0.47	2.06	0.03	0.13	0.00	0.01	0.04	0.19	0.01	0.03	2051.91
TRUCK LOADING - OIL (UNCOLLECTED VAPORS)	TL-O	TL-O	---	---	---	---	0.77	2.92	---	---	---	---	0.03	0.11	0.33
TRUCK LOADING - H20 (UNCOLLECTED VAPORS)	TL-W	TL-W	---	---	---	---	0.00	0.01	---	---	---	---	0.00	0.00	1.79
ROAD EMISSIONS	ROAD	ROAD	---	---	---	---	---	---	---	---	0.48	1.67	---	---	---
VAPOR RECOVERY TOWER	VRT	LPF	Emissions Represented at LPF.												---
OIL STORAGE TANK	OT1	LPF	Emissions Represented at LPF.												---
OIL STORAGE TANK	OT2	LPF	Emissions Represented at LPF.												---
OIL STORAGE TANK	OT3	LPF	Emissions Represented at LPF.												---
OIL STORAGE TANK	OT4	LPF	Emissions Represented at LPF.												---
OIL STORAGE TANK	OT5	LPF	Emissions Represented at LPF.												---
OIL STORAGE TANK	OT6	LPF	Emissions Represented at LPF.												---
SKIM TANK	SKTK1	LPF	Emissions Represented at LPF.												---
SKIM TANK	SKTK2	LPF	Emissions Represented at LPF.												---
PRODUCED WATER TANK	WT1	LPF	Emissions Represented at LPF.												---
PRODUCED WATER TANK	WT2	LPF	Emissions Represented at LPF.												---
PRODUCED WATER TANK	WT3	LPF	Emissions Represented at LPF.												---
PRODUCED WATER TANK	WT4	LPF	Emissions Represented at LPF.												---
PRODUCED WATER TANK	WT5	LPF	Emissions Represented at LPF.												---
PRODUCED WATER TANK	WT6	LPF	Emissions Represented at LPF.												---
HIGH PRESSURE FLARE - NORMAL OPERATION	HPF-NO	HPF	0.08	0.34	0.15	0.67	0.16	0.68	0.00	0.00	0.00	0.01	0.00	0.02	
HIGH PRESSURE FLARE - HT SSM	HPF-HT SSM	HPF	23.78	2.60	47.47	5.20	91.10	9.98	0.26	0.03	0.07	0.01	3.59	0.39	11570.08
HIGH PRESSURE FLARE - SALES GAS SSM	HPF-SALES SSM	HPF	484.82	11.75	967.88	23.46	988.72	23.96	3.87	0.09	19.27	0.47	29.15	0.71	
LOW PRESSURE FLARE - PILOT	LPF-NO	LPF	0.04	0.17	0.08	0.33	0.08	0.34	0.00	0.00	0.00	0.01	0.00	0.01	
LOW PRESSURE FLARE - VRT	LPF-VRT	LPF	0.85	0.83	1.69	1.67	4.65	4.58	0.01	0.01	0.02	0.02	0.20	0.19	
LOW PRESSURE FLARE - OIL TANKS	LPF-OT	LPF	0.12	0.17	0.23	0.35	0.65	0.97	0.00	0.00	0.00	0.00	0.03	0.04	
LOW PRESSURE FLARE - TRUCK LOADING	LPF-TL	LPF	0.15	0.65	0.30	1.31	0.84	3.69	0.00	0.00	0.00	0.01	0.03	0.13	11340.46
LOW PRESSURE FLARE - WATER TANKS	LPF-WT	LPF	2.04	2.85	4.07	5.68	3.01	3.30	0.11	0.15	0.09	0.12	0.30	0.32	

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
FACILITY EMISSIONS SUMMARY

EMISSIONS SUMMARY TABLE

EMISSION SOURCE DESCRIPTION	FACILITY IDENTIFICATION NUMBER (FIN)	STACK NUMBER	NOx		CO		VOC (INCLUDES HAPs)		SO_2		PM_{10}		HAPs		CO2e
			lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	TPY
LOW PRESSURE FLARE - VRT SSM	LPF-VRT SSM	LPF	42.35	4.64	84.54	9.26	232.27	25.43	0.43	0.05	0.90	0.10	9.77	1.07	
LOW PRESSURE FLARE - OIL TANK SSM	LPF-OT SSM	LPF	5.84	2.88	11.65	5.76	32.25	16.17	0.06	0.03	0.12	0.06	1.31	0.63	
UTILITY FLARES: HIGH PRESSURE SUMMARY	HPF	HPF	508.67	14.69	1015.51	29.33	1079.98	34.62	4.12	0.12	19.34	0.49	32.75	1.12	11570.08
UTILITY FLARES: LOW PRESSURE SUMMARY	LPF	LPF	50.41	12.20	100.64	24.35	268.46	54.49	0.60	0.24	1.11	0.32	11.40	2.40	11340.46

TOTAL FACILITY WIDE EMISSIONS	NOx		CO		VOC (INCLUDES HAPs)		SO_2		PM_{10}		HAPs		CO2e
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	TPY
	560.21	**31.79**	**1117.09**	**57.79**	**1351.72**	**103.00**	**4.73**	**0.39**	**21.01**	**2.85**	**44.33**	**4.28**	**27338.96**

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

FACILITY EMISSIONS SUMMARY - UNCONTROLLED EMISSIONS DURING NORMAL OPERATION

EMISSIONS SUMMARY TABLE

EMISSION SOURCE DESCRIPTION	FACILITY IDENTIFICATION NUMBER (FIN)	STACK NUMBER	NOx		CO		VOC (INCLUDES HAPs)		SO_2		PM_{10}		HAPs	
			lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
FUGITIVE EMISSIONS	FUG	FUG	---	---	---	---	2.44	10.69	---	---	---	---	0.13	0.59
HEATER TREATER	HT1	HT1	0.56	2.45	0.47	2.06	0.03	0.13	0.00	0.01	0.04	0.19	0.01	0.03
HEATER TREATER	HT2	HT2	0.56	2.45	0.47	2.06	0.03	0.13	0.00	0.01	0.04	0.19	0.01	0.03
VAPOR RECOVERY TOWER	VRT	LPF	---	---	---	---	11613.56	12716.85	---	---	---	---	488.29	534.67
OIL STORAGE TANK	OT1	LPF	---	---	---	---	268.78	539.12	---	---	---	---	10.89	21.03
OIL STORAGE TANK	OT2	LPF	---	---	---	---	268.78	539.12	---	---	---	---	10.89	21.03
OIL STORAGE TANK	OT3	LPF	---	---	---	---	268.78	539.12	---	---	---	---	10.89	21.03
SKIM TANK	OT4	LPF	---	---	---	---	268.78	539.12	---	---	---	---	10.89	8.89
SKIM TANK	OT5	LPF	---	---	---	---	268.78	539.12	---	---	---	---	10.89	8.89
PRODUCED WATER TANK	OT6	LPF	---	---	---	---	268.78	539.12	---	---	---	---	10.89	8.89
SKIM TANK	SKTK1	LPF	---	---	---	---	73.78	80.83	---	---	---	---	7.26	7.95
SKIM TANK	SKTK2	LPF	---	---	---	---	73.78	80.83	---	---	---	---	7.26	7.95
PRODUCED WATER TANK	WT1	LPF	---	---	---	---	0.51	0.57	---	---	---	---	0.05	0.07
PRODUCED WATER TANK	WT2	LPF	---	---	---	---	0.51	0.57	---	---	---	---	0.05	0.07
PRODUCED WATER TANK	WT3	LPF	---	---	---	---	0.51	0.57	---	---	---	---	0.05	0.07
PRODUCED WATER TANK	WT4	LPF	---	---	---	---	0.51	0.57	---	---	---	---	0.05	0.07
PRODUCED WATER TANK	WT5	LPF	---	---	---	---	0.51	0.57	---	---	---	---	0.05	0.07
PRODUCED WATER TANK	WT6	LPF	---	---	---	---	0.51	0.57	---	---	---	---	0.05	0.07
UTILITY FLARES: HIGH PRESSURE SUMMARY	HPF	HPF	0.08	0.34	0.15	0.67	0.16	0.68	0.00	0.00	0.00	0.01	0.00	0.02
UTILITY FLARES: LOW PRESSURE SUMMARY	LPF	LPF	0.04	0.17	0.08	0.33	0.08	0.34	0.00	0.00	0.00	0.01	0.00	0.01
TRUCK LOADING - OIL (UNCOLLECTED VAPORS)	TL-O	TL-O	---	---	---	---	59.53	224.65	---	---	---	---	2.21	8.36
TRUCK LOADING - H20 (UNCOLLECTED VAPORS)	TL-W	TL-W	---	---	---	---	0.00	0.01	---	---	---	---	0.00	0.00
ROAD EMISSIONS	ROAD	ROAD	---	---	---	---	---	---	---	---	0.48	1.67	---	---

	NOx		CO		VOC (INCLUDES HAPs)		SO_2		PM_{10}		HAPs	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
TOTAL FACILITY WIDE EMISSIONS	**1.24**	**5.41**	**1.17**	**5.13**	**13439.11**	**16353.31**	**0.01**	**0.03**	**0.57**	**2.07**	**570.84**	**649.83**

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

Methodology for Burner Calculations

Burner Emission Calculations

AP 42 Emission Factors: Tables 1.4-1, 1.4-2, & 1.4-3

Emission $Rate_X$ (lb/hr) = Burner Rating (MMBTU/hr) * EF_X (lb/MMSCF) / Heating Value of Fuel Gas (BTU/SCF)

Annual Emission $Rate_X$ (TPY) = Emission Rate (lb/hr) * 8760 (hour/year) / 2000 (lb/ton)

Mass Balance - SO_2 & H_2S Calculations

H_2S Mass Flow Rate (lb/hr) = P * V / 10.73 / T * MW_{GAS} * $H_2S_{WEIGHT\ \%}$ * (1 - DRE)

P = Pressure (psia), V = Fuel Consumed in a hour (ft^3/hr), 10.73 = Ideal Gas Constant, T = Temperature (°R)

Uncontrolled H_2S Mass Flow Rate (lb/hr) = P * V / 10.73 / T * MW_{GAS} * $H_2S_{WEIGHT\ \%}$

SO_2 Emission Rate (lb/hr) = Uncontrolled H_2S Mass Rate (lb/hr) * SO_2 Conversion Efficiency * (MW of SO_2 (lb/lb-mol) / MW of H_2S (lb/lb-mol))

Annual Emission Rate (TPY) = Emission Rate (lb/hr) * 8760 (hour/year) / 2000 (lb/ton)

MW_{GAS} = Molecular Weight of the Gas, $H_2S_{WEIGHT\%}$ = Weight Percent of the H_2S in the Fuel Gas, DRE = Burner Combustion Efficiency of H_2S

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

BURNER CALCULATIONS

CRITERIA & REGULATED POLLUTANTS

Source ID	Fuel Gas (BTU/SCF)	Operating Hours	Burner Rating (MMBTU/Hr)[2]	AP-42 Factors[1] 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	$PM_{10 \& 2.5}$
HT1	1385.8	8760	4.00	136	114	7.5	0.82	10.3	0.56	0.47	0.03	0.00	0.04	2.45	2.06	0.13	0.01	0.19
HT2	1385.8	8760	4.00	136	114	7.5	0.82	10.3	0.56	0.47	0.03	0.00	0.04	2.45	2.06	0.13	0.01	0.19

[1]Factors are adjusted for Site Fuel Heating Value: Example Calculation - Nox Factor = 100 * 1273.6 / 1020 = 125 lb/MMSCF. AP-42 Table 1.4-1, 1.4-2, & 1.4-3.
70% burner efficiency.

	NOx	CO	VOC	SO_2	$PM_{10 \& 2.5}$
Total (tpy)	**4.91**	**4.12**	**0.27**	**0.03**	**0.37**

HAZARDOUS AIR POLLUTANTS (HAPs)

Source ID	Fuel Gas (BTU/SCF)	Operating Hours	Burner Rating (MMBTU/Hr)	AP-42 Factors lb/MMSCF					lb/hr					tpy				
				Benzene	Toluene	N-Hexane	HCHO	Diclorobenz	Benzene	Toluene	N-Hexane	HCHO	Diclorobenz	Benzene	Toluene	N-Hexane	HCHO	Diclorobenz.
HT1	1385.8	8760	4.00	0.002853	0.004619	2.446	0.101901	0.001630	0.000008	0.000013	0.007059	0.000294	0.000005	0.000036	0.000058	0.030918	0.001288	0.000021
HT2	1385.8	8760	4.00	0.002853	0.004619	2.446	0.101901	0.001630	0.000008	0.000013	0.007059	0.000294	0.000005	0.000036	0.000058	0.030918	0.001288	0.000021

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

[1]Factors are adjusted for Site Fuel Heating Value: Example Calculation - Nox Factor = 100 * 1348.4 / 1020 = 132 lb/MMSCF

	Benzene	Toluene	Hexane	HCHO	Diclorobenz.
Total Individual HAPS (tpy)	**0.000072**	**0.000117**	**0.061835**	**0.002576**	**0.000041**

Total Combined HAPS (tpy)	**0.06464**

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

BURNER CALCULATIONS - GHG EMISSIONS

CRITERIA & REGULATED POLLUTANTS

				40 CFR 98 Factors[1] lb/MMSCF			lb/hr			Tons / Year		
Source ID	Fuel Gas (BTU/SCF)	Operating Hours	Burner Rating (MMBTU/Hr)	CO_2	CH_4	N_2O	CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
HT1	1385.8	8760	4.00	117	0.002	0.0002	467.989	0.009	0.001	2049.793	0.039	0.004
HT2	1385.8	8760	4.00	117	0.002	0.0002	467.989	0.009	0.001	2049.793	0.039	0.004
							Total Emissions (Tons/Year)			**4099.585**	**0.077**	**0.008**

***Source: 40 CFR 98**

Conversion to CO2e						
Source	CO_2	**CH4**	**CH4 → CO2e**	**N2O**	**N2O → CO2e**	**Total CO2e**
HT1	2049.793	**0.039**	**0.966**	**0.004**	**1.151**	**2051.910**
HT2	2049.793	**0.039**	**0.966**	**0.004**	**1.151**	**2051.910**
Total	4099.585	**0.039**	**0.966**	**0.004**	**1.151**	**4101.702**

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

AUXH - EXHAUST STACK FLOW & FUEL CONSUMPTION RATES

Exhaust Stack and Fuel Consumption Data

Source Name	AUXH1 and AUXH2
Burner Rating (btu/hr)	4000000
Heating Value (btu/scf)	1386
3" eclipse air mixer: (Air/Gas Ratio)[1]	5/1
Stack Temperature (°F)	1000
Stack Diameter (ft)	1
Stack Height (ft)	20
Fuel Consumption (scf/hr)	2886
Fuel Consumption (scf/day)	69272
Fuel Consumption (mmscf/year)	25.284
Air Injection Rate (scf/hr)	28863.2
Total exhaust flow rate @ STP (scf/hr)	31749.5
Total exhaust flow rate @ STP (scf/sec)	8.8
Total exhaust flow rate @ 1000 °F (acf/hr)	89142.8
Total exhaust flow rate @ 1000 °F (acf/sec)	24.8
Exhaust Stack Exit Velocity @ STP (ft/sec)	11.229
Exhaust Stack Exit Velocity @ 1000 °F (ft/sec)	31.528

[1]**Air/Gas Ratio is based on the Manufacturer's Data of XTO's typical burner installations**

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
FUEL GAS ANALYSIS - PROMAX RESULTS

Conversion of Mole Percent to Weight Percent

Component	Mole %	Weight %
Carbon Dioxide	0.1764	0.3297
Nitrogen	0.9102	1.0827
Methane	69.3253	47.2273
Ethane	14.8343	18.9416
Propane	8.2101	15.3736
Isobutane	1.1013	2.7181
n-Butane	2.6972	6.6571
Isopentane	0.6000	1.8384
n-Pentane	0.6421	1.9672
n-Hexane	0.1350	0.4940
Cyclohexane	0.0236	0.0844
i-C6	0.2144	0.7847
i-C7	0.2681	1.1406
Methylcyclohexane	0.0076	0.0317
Octane	0.0666	0.3230
Nonane	0.0102	0.0558
Benzene	0.0676	0.2242
Toluene	0.0361	0.1412
Ethylbenzene	0.0017	0.0077
o-Xylene	0.0077	0.0347
H2S	0.0009	0.0013
Water	0.6555	0.5015
2,2,4 Trimethylpentane	0.0081	0.0393
Decanes Plus	0.0000	0.0001
Total	100.00	100.0000

MOLECULAR WEIGHT	23.55
SATURATED BTU	1385.8
NMHC	50.86
VOCs (NMNEHC)	31.92
HAPs	0.94
H2S Mole Percentage	0.00

[1]Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

Methodology for Flare Calculations

Flare Calculations

VOC Flare Calculations - Uses the Ideal Gas Law for Mixtures

VOC Mass Flow Rate (lb/day) = P * V / 10.73 / T * MW_{GAS} * $VOC_{WEIGHT\ \%}$ * (1 - DRE)

P = Pressure (psia), V = Volume of Gas in a Day (ft^3/day), 10.73 = Ideal Gas Constant, T = Temperature (°R)

MW_{GAS} = Molecular Weight of the Gas, $VOC_{WEIGHT\%}$ = Weight Percent of the Total VOC, DRE = Flare Destruction Efficiency

NOx & CO Calculations - TCEQ Emission Factors Used

NOx (lb/day) = Heating Value (BTU/ft^3) * EF (lb/MMBTU) * V (ft^3/Day) / 10^6 (BTU/MMBTU)

CO (lb/day) = Heating Value (BTU/ft^3) * EF (lb/MMBTU) * V (ft^3/Day) / 10^6 (BTU/MMBTU)

COEF = 0.5496 or 0.2755, NOxEF = 0.138, EF = Emission Factor, V = Volume of Gas in a Day

*NOx and CO Emission Factors are the highest of Low BTU and High BTU options for TCEQ Flare Emission Factors - Calculating emissions using these factors overestimates either NOx or CO depending on the Heating Value of the Gas

SO_2 & H_2S Calculations - Mass Balance

H_2S Mass Flow Rate (lb/hr) = P * V / 10.73 / T * MW_{GAS} * $H_2S_{WEIGHT\ \%}$ * (1 - DRE)

P = Pressure (psia), V = Fuel Consumed in a hour (ft^3/hr), 10.73 = Ideal Gas Constant, T = Temperature (°R)

Uncontrolled H_2S Mass Flow Rate (lb/hr) = P * V / 10.73 / T * MW_{GAS} * $H_2S_{WEIGHT\ \%}$

SO_2 Emission Rate (lb/hr) = Uncontrolled H_2S Mass Rate (lb/hr) * SO_2 Conversion Efficiency * (MW of SO_2 (lb/lb-mol) / MW of H_2S (lb/lb-mol))

Annual Emission Rate (TPY) = Emission Rate (lb/hr) * 8760 (hour/year) / 2000 (lb/ton)

MW_{GAS} = Molecular Weight of the Gas, $H_2S_{WEIGHT\%}$ = Weight Percent of the H_2S in Gas Stream, DRE = Flare Destruction Efficiency of H_2S

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

COMBINED HP & LP FLARING - TOTAL EMISSIONS SUMMARY

Flare Emissions Summary Table

Stream Source	NOx		CO		Total VOC (Includes Total HAPs)		SO_2		$PM_{10\ \&\ 2.5}$		Total HAPs		CO2e
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	TPY
High Pressure Flaring	508.67	14.69	1015.51	29.33	1079.98	34.62	4.12	0.12	19.34	0.49	32.75	1.12	11570.08
Low Pressure Flaring	50.41	12.20	100.64	24.35	268.46	54.49	0.60	0.24	1.11	0.32	11.40	2.40	11340.46
Total Emissions	**559.09**	**26.89**	**1116.15**	**53.67**	**1348.44**	**89.11**	**4.72**	**0.37**	**20.45**	**0.81**	**44.15**	**3.52**	**22910.54**

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

HP FLARING - TOTAL EMISSIONS SUMMARY

Flare Emissions Summary Table

Stream Source	NOx		CO		Total VOC (Includes Total HAPs)		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
Pilot Fuel & Purge Gas	0.08	0.34	0.15	0.67	0.16	0.68	0.00	0.00	0.00	0.01	0.00	0.02
Booster Compressor SSM	23.78	2.60	47.47	5.20	91.10	9.98	0.26	0.03	0.07	0.01	3.59	0.39
Sales Gas Flaring	484.82	11.75	967.88	23.46	988.72	23.96	3.87	0.09	19.27	0.47	29.15	0.71
Total Emissions	**508.67**	**14.69**	**1015.51**	**29.33**	**1079.98**	**34.62**	**4.12**	**0.12**	**19.34**	**0.49**	**32.75**	**1.12**

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
HP FLARE - PILOT & PURGE GAS

Flare Pilot & Purge Gas Emissions

Pilot Fuel + Purge Gas	9600	SCF/Day
Duration	8760	Hours/Year
Flared	Yes	(Yes/No)
Vented	No	(Yes/No)
BTU	1385.85	Btu/scf

Component	Estimated Quantity Emitted from the Flare (lb/day)	Total Estimated Quantity Emitted (lb/day)	Hourly Emission Rate (lb/hr)	Annualized Emission Rate (TPY)
CO[1]	3.665	3.665	0.15	0.67
NOx[1]	1.836	1.836	0.08	0.34
VOCs[2]	3.744	3.744	0.16	0.68
SO_2[3]	0.015	0.015	0.00	0.00
H_2S[3]	0.000	0.000	0.00	0.00
$PM_{10\ \&\ 2.5}$[4]	0.073	0.073	0.00	0.01

[1] The CO and NOx emission factors (0.2755lb and 0.138/MMBtu) are based on TCEQ document RG-109, Basis for Emission Calculation from Flare Systems.

[2] Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * VOC weight % * Gas MW

[3] Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * H2S PPM * H2S MW. SO2 is calculated assuming MW ratio of 64.07:34.08.

[4] PM 10 & 2.5 emissions are based on AP-42, Section 1.4 (External Combustion). The value was reduced by 90% since AP-42 does not have PM factors for flares.

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
TREATER GAS ANALYSIS - PROMAX RESULTS

Gas Composition

Component	Mole %	Weight %
Carbon Dioxide	0.1934	0.2592
Nitrogen	0.2235	0.1907
Methane	41.2006	20.1266
Ethane	23.1369	21.1846
Propane	17.9810	24.1438
Isobutane	2.7664	4.8961
n-Butane	7.0706	12.5139
Isopentane	1.7152	3.7682
n-Pentane	1.8965	4.1666
n-Hexane	0.4451	1.1679
Cyclohexane	0.0781	0.2002
i-C6	0.6778	1.7786
i-C7	0.9228	2.8157
Methylcyclohexane	0.0269	0.0804
Octane	0.2611	0.9080
Nonane	0.0441	0.1724
Benzene	0.2205	0.5245
Toluene	0.1298	0.3642
Ethylbenzene	0.0067	0.0217
o-Xylene	0.0305	0.0987
H2S	0.0017	0.0018
Water	0.9424	0.5170
2,2,4 Trimethylpentane	0.0284	0.0986
Decanes Plus	0.0001	0.0007
Total	100.00	100.0000

MOLECULAR WEIGHT	32.84
SATURATED BTU	1889.48
NMHC	78.90
VOCs (NMNEHC)	57.72
HAPs	2.28
H2S Mole Percentage	0.00

[1]Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

HEATER TREATER GAS - FLARING VOC EMISSIONS

Heater Treater VOC Emissions[1]

Emissions Component	Uncontrolled Heater Treater Stream			Controlled Heater Treater Stream (Booster Downtime - 100% Flared)[2]	
	Max lb/hr	lb/hr	TPY	lb/hr	TPY
Carbon Dioxide	20.455	5.114	22.398	0.409	0.045
Nitrogen	15.046	3.762	16.476	0.301	0.033
Methane	1588.340	397.085	1739.232	31.767	3.478
Ethane	1671.835	417.959	1830.660	33.437	3.661
Propane	1905.367	476.342	2086.377	38.107	4.173
Isobutane	386.386	96.596	423.092	7.728	0.846
n-Butane	987.563	246.891	1081.381	19.751	2.163
Isopentane	297.374	74.343	325.624	5.947	0.651
n-Pentane	328.817	82.204	360.054	6.576	0.720
n-Hexane	92.167	23.042	100.923	1.843	0.202
Cyclohexane	15.801	3.950	17.302	0.316	0.035
i-C6	140.364	35.091	153.699	2.807	0.307
i-C7	222.209	55.552	243.319	4.444	0.487
Methylcyclohexane	6.344	1.586	6.946	0.127	0.014
Octane	71.659	17.915	78.467	1.433	0.157
Nonane	13.605	3.401	14.898	0.272	0.030
Benzene	41.389	10.347	45.321	0.828	0.091
Toluene	28.743	7.186	31.473	0.575	0.063
Ethylbenzene	1.715	0.429	1.878	0.034	0.004
o-Xylene	7.789	1.947	8.529	0.156	0.017
H2S	0.139	0.035	0.152	0.003	0.000
Water	40.801	10.200	44.677	0.816	0.089
2,2,4 Trimethylpentane	7.783	1.946	8.523	0.156	0.017
Decanes Plus	0.059	0.015	0.065	0.001	0.000

Emissions Component	Uncontrolled Heater Treater Stream			Controlled Heater Treater Stream (Booster Downtime - 100% Flared)[2]	
	Max lb/hr	lb/hr	TPY	lb/hr	TPY
STREAM TOTAL	7891.75	1972.94	8641.46	157.83	17.28
VOC TOTAL	4555.13	1138.78	4987.87	91.10	9.98
HAP TOTAL	179.59	44.90	196.65	3.59	0.39

[1]Uncontrolled emissions and gas volume are based on Promax Results. Treater vapors are collected for sales by booster compressor. 100% of vapors are flared during booster downtime.

[2]Controlled Emissions were calculated by the following: Uncontrolled Emissions * (1 - VRU Efficiency) * (1 - Flare Destruction Efficiency)

Flare Reduction = **98%** Booster Collection Efficiency = **100%**

[3]Annual controlled rate (tpy) calculated by multiplying hourly emission rate by booster downtime.

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
HP FLARE COMBUSTION EMISSIONS - HEATER TREATER GAS

Heater Treater Gas Routed to HP Flare During Booster Downtime - Combustion Emissions

Daily Treater Gas Flared	2,188,638	SCF/Day (Based on Maximum Hourly)
Hourly Treater Gas Flared	91,193	SCF/Hr (Based on Maximum Hourly)
Daily Treater Gas Flared	547,159	SCF/Day (Based on Annual Average)
Annual Treater Gas Flared	19,971,321	SCF/Year (Based on Annual Average)
Duration	876	Hours/Year
Flared	Yes	(Yes/No)
Vented	No	(Yes/No)
Heating Volume	1889.48	Btu/scf

Component	Hourly Emission Rate (lb/hr)	Annualized Emission Rate (TPY)
CO[1]	47.47	5.20
NOx[1]	23.78	2.60
SO_2[2]	0.26	0.03
H_2S[2]	0.00	0.00
$PM_{10\ \&\ 2.5}$[3]	0.07	0.01

[1] The CO and NOx emission factors (0.2755 and 0.138 lb/MMBtu) are based on TCEQ document RG-109, Basis for Emission Calculation from Flare Systems.

[2] Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * H2S PPM * H2S MW. SO2 is calculated assuming MW ratio of 64.07:34.08.

[3] PM 10 & 2.5 emissions are based on AP-42, Section 1.4 (External Combustion). The value was reduced by 90% since AP-42 does not have PM factors for flares.

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
INLET GAS ANALYSIS - PROMAX RESULTS

Gas Composition

Component	Mole %	Weight %
Carbon Dioxide	0.1764	0.3297
Nitrogen	0.9102	1.0827
Methane	69.3253	47.2273
Ethane	14.8343	18.9416
Propane	8.2101	15.3736
Isobutane	1.1013	2.7181
n-Butane	2.6972	6.6571
Isopentane	0.6000	1.8384
n-Pentane	0.6421	1.9672
n-Hexane	0.1350	0.4940
Cyclohexane	0.0236	0.0844
i-C6	0.2144	0.7847
i-C7	0.2681	1.1406
Methylcyclohexane	0.0076	0.0317
Octane	0.0666	0.3230
Nonane	0.0102	0.0558
Benzene	0.0676	0.2242
Toluene	0.0361	0.1412
Ethylbenzene	0.0017	0.0077
o-Xylene	0.0077	0.0347
H2S	0.0009	0.0013
Water	0.6555	0.5015
2,2,4 Trimethylpentane	0.0081	0.0393
Decanes Plus	0.0000	0.0001
Total	100.00	100.0000

MOLECULAR WEIGHT	23.55
SATURATED BTU	1385.85
NMHC	50.86
VOCs (NMNEHC)	31.92
HAPs	0.94
H2S Mole Percentage	0.00

[1]Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
HP FLARE COMBUSTION EMISSIONS

HP Gas Routed to HP Flare - Sales Gas Downtime - Combustion Emissions

Total Gas Flared	60,841,018	SCF/Day
Total Gas Flared	122,881,458	SCF/Year
Duration	48	Hours/Year[2]
Flared	Yes	(Yes/No)
Vented	No	(Yes/No)
Heat Content	1385.85	Btu/scf

Component	Estimated Quantity Emitted from the Flare (lb/day)	Total Estimated Quantity Emitted (lb/day)	Hourly Emission Rate (lb/hr)[1]	Annualized Emission Rate (TPY)
CO[1]	23229.18	23229.18	967.88	23.46
NOx[1]	11635.67	11635.67	484.82	11.75
VOCs[2]	23729.31	23729.31	988.72	23.96
SO_2[3]	92.77	92.77	3.87	0.09
H_2S[3]	0.99	0.99	0.04	0.00
$PM_{10\ \&\ 2.5}$[4]	462.39	462.39	19.27	0.47
HAPs[2]	699.71	699.71	29.15	0.71
n-Hexane[2]	367.26	367.26	15.30	0.37
Benzene[2]	166.71	166.71	6.95	0.17

1 The CO and NOx emission factors (0.2755lb and 0.138/MMBtu) are based on TCEQ document RG-109, Basis for Emission Calculation from Flare Systems.

2 Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * Weight % * Gas MW

3 Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * H2S PPM * H2S MW. SO2 is calculated assuming MW ratio of 64.07:34.08.

4 PM 10 & 2.5 emissions are based on AP-42, Section 1.4 (External Combustion). The value was reduced by 90% since AP-42 does not have PM factors for flares.

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
HIGH PRESSURE FLARING EMISSIONS - GHG

Pilot Consumption Rate (scf/year)	Inlet Gas Flare Rate (scf/year)	Treater Gas Flare Rate (scf/year)
3,504,000	122,881,458	19,971,321

Pilot & Purge Gas		Inlet Gas Combusted		Treater Gas Combusted	
Ea,CH4 = Va * XCH4 * [(1- η)* ZL + ZU					
Va =	3504000	Va =	122881458	Va =	19971321
XCH_4 =	0.6933	XCH_4 =	0.6933	XCH_4 =	0.4120
N =	0.98	N =	0.98	N =	0.98
Z_L =	1	Z_L =	1	Z_L =	1
Z_U =	0	Z_U =	0	Z_U =	0
Ea,CH_4 =	48583	Ea,CH_4 =	1703758	Ea,CH_4 =	164566
Ea,CO2 (uncombusted) = Va * XCO2					
Va =	3504000	Va =	122881458	Va =	19971321
X_{CO2} =	0.0018	X_{CO2} =	0.0018	X_{CO2} =	0.0018
Ea,CO2 (uncombusted)	6182	Ea,CO2 (uncombusted)	216809	Ea,CO2 (uncombusted)	35237
Ea,CO2 (combusted) = Σ (η * Va * Yj * Rj * ZL)					
Ea,CO2 (combusted) =	5125546	Ea,CO2 (combusted) =	179747317	Ea,CO2 (combusted) =	41723932
Es,n = Ea,n * (459.67 + Ts) * Pa / (459.67 + Ta) * Ps					
$E_{a,n}$(CH4) =	43735	$E_{a,n}$(CH4) =	1533735	$E_{a,n}$(CH4) =	148143
$E_{a,n}$(CO2) =	4619618	$E_{a,n}$(CO2) =	162004957	$E_{a,n}$(CO2) =	37591895
Masss,i = Es,i * ρi * 103					
$Mass_{CH4}$	0.840	$Mass_{CH4}$	29.448	$Mass_{CH4}$	2.844
$Mass_{C02}$	242.992	$Mass_{C02}$	8521.461	$Mass_{C02}$	1977.334
CO2e = CO2 + (CH4 X GWP)					
CO_2	243	CO_2	8521	CO_2	1977
CH_4	1	CH_4	29	CH_4	3
CO_2e	264	CO_2e	9258	CO_2e	2048

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

LP FLARING - TOTAL EMISSIONS SUMMARY

Flare Emissions Summary Table - Total Emissions

Normal Operations												
Stream Source	NOx		CO		Total VOC (Includes Total HAPs)		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
Pilot Fuel & Purge Gas	0.04	0.17	0.08	0.33	0.08	0.34	0.00	0.00	0.00	0.01	0.00	0.01
Vapor Recovery Tower (VRT)	0.85	0.83	1.69	1.67	4.65	4.58	0.01	0.01	0.02	0.02	0.20	0.19
Oil Storage Tanks	0.12	0.17	0.23	0.35	0.65	0.97	0.00	0.00	0.00	0.00	0.03	0.04
Truck Loading of Oil	0.15	0.65	0.30	1.31	0.84	3.69	0.00	0.00	0.00	0.01	0.03	0.13
Skim & Water Tanks	2.04	2.85	4.07	5.68	3.01	3.30	0.11	0.15	0.09	0.12	0.30	0.32

VRU Downtime Emissions - SSM												
Stream Source	NOx		CO		Total VOC (Includes Total HAPs)		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
Vapor Recovery Tower (VRT)	42.35	4.64	84.54	9.26	232.27	25.43	0.43	0.05	0.90	0.10	9.77	1.07
Oil Storage Tanks	5.84	2.88	11.65	5.76	32.25	16.17	0.06	0.03	0.12	0.06	1.31	0.63

Low Pressure Flaring Summary												
Stream Source	NOx		CO		Total VOC (Includes Total HAPs)		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
Normal Operations[1]	2.23	4.68	4.45	9.33	3.93	12.88	0.11	0.17	0.09	0.16	0.33	0.70
VRU Downtime - SSM	48.18	7.52	96.19	15.01	264.52	41.61	0.49	0.07	1.02	0.16	11.07	1.70
Combined Flaring Total[2]	**50.41**	**12.20**	**100.64**	**24.35**	**268.46**	**54.49**	**0.60**	**0.24**	**1.11**	**0.32**	**11.40**	**2.40**

[1]Hourly emissions during normal operations do not include emissions from the VRT & Oil Tanks during normal operation as they cannot occur at the same time as VRU downtime.

[2]Combined Flaring Hourly Rates denotes the peak hourly rate possible.

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
LP FLARE - PILOT & PURGE GAS

Flare Pilot & Purge Gas Emissions

Pilot Fuel + Purge Gas	4800	SCF/Day
Duration	8760	Hours/Year
Flared	Yes	(Yes/No)
Vented	No	(Yes/No)
BTU	1385.85	Btu/scf

Component	Estimated Quantity Emitted from the Flare (lb/day)	Total Estimated Quantity Emitted (lb/day)	Hourly Emission Rate (lb/hr)	Annualized Emission Rate (TPY)
CO[1]	1.833	1.833	0.08	0.33
NOx[1]	0.918	0.918	0.04	0.17
VOCs[2]	1.872	1.872	0.08	0.34
SO_2[3]	0.007	0.007	0.00	0.00
H_2S[3]	0.000	0.000	0.00	0.00
$PM_{10 \& 2.5}$[4]	0.036	0.036	0.00	0.01

[1] The CO and NOx emission factors (0.2755lb and 0.138/MMBtu) are based on TCEQ document RG-109, Basis for Emission Calculation from Flare Systems.

[2] Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * VOC weight % * Gas MW

[3] Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * H2S PPM * H2S MW. SO2 is calculated assuming MW ratio of 64.07:34.08.

[4] PM 10 & 2.5 emissions are based on AP-42, Section 1.4 (External Combustion). The value was reduced by 90% since AP-42 does not have PM factors for flares.

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

LOW PRESSURE FLARING EMISSIONS - GHG

LP FLARE - GHG EMISSIONS

Pilot Consumption Rate (scf/year)	Total LP Flare Gas Rate (scf/year)
1,752,000	**82,259,647**

Pilot & Purge Gas		Total Gas Combusted	
$Ea,CH_4 = Va * XCH_4 * [(1- \eta)* ZL + ZU$			
Va =	1752000	**Va =**	82259647
XCH_4 =	0.6933	**XCH_4 =**	0.1473
N =	0.98	**N =**	0.98
Z_L =	1	**Z_L =**	1
Z_U =	0	**Z_U =**	0
Ea,CH_4 =	24292	**Ea,CH_4 =**	242304
$E_{a,CO2}$ (uncombusted) = $V_a * X_{CO2}$			
Va =	1752000	**Va =**	82259647
X_{CO2} =	0.0018	**X_{CO2} =**	0.0017
Ea,CO2 (uncombusted)	3091	**Ea,CO2 (uncombusted)**	139616
Ea,CO2 (combusted) = Σ (η * Va * Yj * Rj * ZL)			
Ea,CO2 (combusted) =	2562773	**Ea,CO2 (combusted) =**	234360042
Es,n = Ea,n * (459.67 + Ts) * Pa / (459.67 + Ta) * Ps			
$E_{a,n}$(CH4) =	21867	**$E_{a,n}$(CH4) =**	218124
$E_{a,n}$(CO2) =	2309809	**$E_{a,n}$(CO2) =**	211098223
$Mass_{s,i} = E_{s,i} * \rho i * 10^3$			
$Mass_{CH4}$	0.420	**$Mass_{CH4}$**	4.188
$Mass_{C02}$	121.496	**$Mass_{C02}$**	11103.767
$CO_2e = CO_2 + (CH_4 \text{ X GWP})$			
CO_2	121	**CO_2**	11104
CH_4	0.4	**CH_4**	4.2
CO_2e	132	**CO_2e**	11208

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
VRT VAPOR ANALYSIS - PROMAX RESULTS

Gas Composition

Component	Mole %	Weight %
Carbon Dioxide	0.1076	0.1033
Nitrogen	0.0227	0.0139
Methane	10.9458	3.8298
Ethane	22.3190	14.6370
Propane	30.7298	29.5538
Isobutane	5.7507	7.2899
n-Butane	15.3038	19.3999
Isopentane	3.8349	6.0345
n-Pentane	4.2203	6.6409
n-Hexane	0.9459	1.7778
Cyclohexane	0.1663	0.3052
i-C6	1.4769	2.7758
i-C7	1.9000	4.1523
Methylcyclohexane	0.0547	0.1171
Octane	0.4849	1.2080
Nonane	0.0761	0.2128
Benzene	0.4737	0.8070
Toluene	0.2601	0.5226
Ethylbenzene	0.0125	0.0290
o-Xylene	0.0563	0.1303
H2S	0.0022	0.0016
Water	0.7984	0.3137
2,2,4 Trimethylpentane	0.0575	0.1432
Decanes Plus	0.0001	0.0005
Total	100.00	100.0000

MOLECULAR WEIGHT	45.85
SATURATED BTU	2589.13
NMHC	95.74
VOCs (NMNEHC)	81.10
HAPs	3.41
H2S Mole Percentage	0.00

[1]**Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2**

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

VAPOR RECOVERY TOWER EMISSIONS

VRT VOC Emissions Routed to VRU/Flare Vent System[1]

Emissions Component	Uncontrolled VRT Stream			Controlled VRT Stream (Normal Operations)		Controlled VRT Stream (VRU Downtime - 100% Flared)	
	Max lb/hr	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Carbon Dioxide	14.785	3.696	16.190	0.006	0.006	0.296	0.032
Nitrogen	1.987	0.497	2.176	0.001	0.001	0.040	0.004
Methane	548.424	137.106	600.525	0.219	0.216	10.968	1.201
Ethane	2096.013	524.003	2295.134	0.838	0.826	41.920	4.590
Propane	4232.082	1058.020	4634.129	1.693	1.668	84.642	9.268
Isobutane	1043.915	260.979	1143.087	0.418	0.412	20.878	2.286
n-Butane	2778.057	694.514	3041.972	1.111	1.095	55.561	6.084
Isopentane	864.141	216.035	946.234	0.346	0.341	17.283	1.892
n-Pentane	950.971	237.743	1041.313	0.380	0.375	19.019	2.083
n-Hexane	254.573	63.643	278.757	0.102	0.100	5.091	0.558
Cyclohexane	43.699	10.925	47.851	0.017	0.017	0.874	0.096
i-C6	397.496	99.374	435.259	0.159	0.157	7.950	0.871
i-C7	594.610	148.653	651.098	0.238	0.234	11.892	1.302
Methylcyclohexane	16.773	4.193	18.367	0.007	0.007	0.335	0.037
Octane	172.979	43.245	189.412	0.069	0.068	3.460	0.379
Nonane	30.477	7.619	33.372	0.012	0.012	0.610	0.067
Benzene	115.563	28.891	126.541	0.046	0.046	2.311	0.253
Toluene	74.834	18.709	81.944	0.030	0.029	1.497	0.164
Ethylbenzene	4.148	1.037	4.542	0.002	0.002	0.083	0.009
o-Xylene	18.666	4.666	20.439	0.007	0.007	0.373	0.041
H2S	0.232	0.058	0.254	0.000	0.000	0.005	0.001
Water	44.922	11.231	49.190	0.018	0.018	0.898	0.098
2,2,4 Trimethylpentane	20.502	5.126	22.450	0.008	0.008	0.410	0.045
Decanes Plus	0.074	0.019	0.081	0.000	0.000	0.001	0.000

Emissions Component	Uncontrolled VRT Stream			Controlled VRT Stream (Normal Operations)		Controlled VRT Stream (VRU Downtime - 100% Flared)	
	Max lb/hr	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
STREAM TOTAL	14319.93	3579.98	15680.32	5.73	5.64	286.40	31.36
VOC TOTAL	11613.56	2903.39	12716.85	4.65	4.58	232.27	25.43
HAP TOTAL	488.29	122.07	534.67	0.20	0.19	9.77	1.07

[1]Uncontrolled emissions and gas volume are based on Promax Results. VRT vapors are collected for sales by a VRU. 100% of vapors are flared during VRU downtime.

[2]Controlled Emissions Were Calculated by the Following: Uncontrolled Emissions * (1 - VRU Efficiency) * (1 - Flare Destruction Efficiency)

[3]Annual controlled rate (tpy) calculated by multiplying hourly emission rate by VRU downtime.

Normal Operations	VRU Collection Efficiency	**98%**
VRU Downtime	VRU Collection Efficiency	0%
VRU Downtime	Hours	876
Flare Destruction Efficiency		**98%**

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
LP FLARE - VAPOR RECOVERY TOWER - NORMAL OPERATIONS

VRT Emissions Routed to VRU/Flare Vent System

Daily VRT Gas Volume	2844486	SCF/Day (Based on Maximum Hourly)
Hourly VRT Gas Volume	118520	SCF/Hour (Based on Maximum Hourly)
Daily VRT Gas Volume	711122	SCF/Day (Based on Annual Average)
VRU Collection Efficiency	98	Percentage
Hourly VRT Gas Volume (Post-VRU)	2370	SCF/Hour (Based on Maximum Hourly)
Duration	7884	Hours/Year
Annual VRT Gas Volume (Post-VRU)	4672069	SCF/Year (Based on Annual Average)
Flared	Yes	(Yes/No)
Vented	No	(Yes/No)
Heat Content	2589.13	Btu/SCF

Component	Hourly Emission Rate (lb/hr)	Annualized Emission Rate (TPY)
CO[1]	1.69	1.67
NOx[1]	0.85	0.83
SO_2[2]	0.01	0.01
H_2S[2]	0.00	0.00
$PM_{10 \& 2.5}$[3]	0.02	0.02

1 The CO and NOx emission factors (0.2755lb and 0.138/MMBtu) are based on TCEQ document RG-109, Basis for Emission Calculation from Flare Systems.

2 Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * H2S PPM * H2S MW. SO2 is calculated assuming MW ratio of 64.07:34.08.

3 PM 10 & 2.5 emissions are based on AP-42, Section 1.4 (External Combustion). The value was reduced by 90% since AP-42 does not have PM factors for flares.

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
LP FLARE - VAPOR RECOVERY TOWER - VRU DOWNTIME

VRT Emissions Flared During VRU Downtime

Daily VRT Gas Volume	2844486	SCF/Day (Based on Maximum Hourly)
Hourly VRT Gas Volume	118520	SCF/Hour (Based on Maximum Hourly)
Daily VRT Gas Volume	711122	SCF/Day (Based on Annual Average)
VRU Collection Efficiency	0	Percentage
Hourly VRT Gas Volume	118520	SCF/Hour (Based on Maximum Hourly)
Duration	876	Hours/Year
Annual VRT Gas Volume	25955936	SCF/Year (Based on Annual Average)
Flared	Yes	(Yes/No)
Vented	No	(Yes/No)
Heating Volume	2589.13	Btu/SCF

Component	Hourly Emission Rate (lb/hr)	Annualized Emission Rate (TPY)
CO[1]	84.54	9.26
NOx[1]	42.35	4.64
SO_2[2]	0.43	0.05
H_2S[2]	0.00	0.00
$PM_{10 \& 2.5}$[3]	0.90	0.10

1 The CO and NOx emission factors (0.2755lb and 0.138/MMBtu) are based on TCEQ document RG-109, Basis for Emission Calculation from Flare Systems.

2 Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * H2S PPM * H2S MW. SO2 is calculated assuming MW ratio of 64.07:34.08.

3 PM 10 & 2.5 emissions are based on AP-42, Section 1.4 (External Combustion). The value was reduced by 90% since AP-42 does not have PM factors for flares.

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
VRU - COST BENEFIT ANALYSIS

VAPOR RECOVERY TOWER VRU

Unit Variable	Vapor Recovery Tower	
Vapor Emission Rate (mscfd)	696.899	
Heating Value (btu/scf)	2589.13	
Value of gas sold ($/MMBtu)	$	2.10
VRU Rental Rate ($/Month)	$	5,400.00
VRU Count	1	
Total Monthly Rental Rate ($/Month)	$	5,400.00
Annual Rental Rate Cost ($/Year)	$	64,800.00
Expectancy of VRU (years)	5	
Annual Revenue Total ($/Year)	$	1,244,739.18
Five Year Profit ($)	**$**	**5,899,695.91**

Is the primary purpose of the equipment to control air pollution?

No, the primary purpose is to recover product for sale.

Where the equipment is recovering product, how do the cost savings from the product recovery compare to the cost of the equipment?

The VRU generates income for the site.

Would the equipment be installed if no air quality regulations are in place?

The equipment would be installed regardless of air quality regulations.

(1) Vapor emissions are obtained from Promax Modeling.
(2) Value of gas sold based on 3-month average from http://www.eia.gov/dnav/ng/ng_pri_fut_s1_d.htm
(3) Heating vales of vapors are based on Promax results.
(4) Rental estimate includes installation, operation, and maintenance of VRU.

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

Calculation Methodology for Heater Treater, VRT, & Tank Emissions

Calculation Methodology

Storage Tank Emissions - VOC Emissions

The heater treater gas, VRT, and storage tank emissions were estimated using a representative pressurized liquid analysis that produces from the same formation as the wells that flow into the facility and Promax Simulation Software. The heater treater gases are routed to a booster compressor and routed to sales during normal operations. During booster compressor downtime the off gases are routed to the high pressure flare. The VRT and storage tanks emissions are controlled a VRU and a 98% collection efficiency is represented, which the remaining 2% of the gas constantly being routed to flare. During VRU downtime all the assoicated gas will be routed to the flare for combustion. All skim tank and water tank emissions are routed directly to the low pressure flare.

Working & Breathing Emissions: AP-42 Chapter 7.1.3.1

$L_T = L_S + L_W$ (Total losses, lb/yr: Equation 1-1)

$L_S = 365\ V_V W_V K_E K_S$ (Standing Storage Losses, lb/hr: Equation 1-2)

$L_W = 0.0010\ M_V P_{VA} Q K_N K_P$ (Working Storage Losses, lb/hr: Equation 1-29)

Promax Model GOR Check

Oil Throughput Minus Dead Oil **20000** **bbl/Day**

Sources	SCF/Day	SCF/bbl
Heater Treater	547159	27.36
Vapor Recovery Tower	711122	35.56
Oil Tank	66996	3.35

Total GOR	66.26
Flash Liberation of Sample GOR	53.20

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

OIL STORAGE TANK EMISSIONS SUMMARY

TOTAL EMISSIONS SUMMARY

FIN	Unit Description	Tank Controlled (Yes/No)	Control Type	Material Throughput (bbls/day)	Material Type (Oil/Produced Water)	Total VOC Emissions	
						lb/hour	TPY
OT1	**Oil Storage Tank**	Yes	Flare	4166.7	OIL	5.48	2.86
OT2	**Oil Storage Tank**	Yes	Flare	4166.7	OIL	5.48	2.86
OT3	**Oil Storage Tank**	Yes	Flare	4166.7	OIL	5.48	2.86
OT4	**Oil Storage Tank**	Yes	Flare	4166.7	OIL	5.48	2.86
OT5	**Oil Storage Tank**	Yes	Flare	4166.7	OIL	5.48	2.86
OT6	**Oil Storage Tank**	Yes	Flare	4166.7	OIL	5.48	2.86
Oil Tank Emissions						32.90	17.14

* Emissions are represented at LPF. The VOC rate includes emissions during operation of the VRU and during VRU downtime.

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
OIL TANK VAPOR ANALYSIS - PROMAX RESULTS

Gas Composition

Component	Mole %	Weight %
Carbon Dioxide	0.0717	0.0643
Nitrogen	0.0007	0.0004
Methane	1.1693	0.3823
Ethane	24.5065	15.0161
Propane	35.9617	32.3141
Isobutane	6.3918	7.5704
n-Butane	16.9223	20.0428
Isopentane	4.3000	6.3220
n-Pentane	4.6824	6.8842
n-Hexane	1.0579	1.8577
Cyclohexane	0.1380	0.2367
i-C6	1.6116	2.8300
i-C7	1.9031	3.8860
Methylcyclohexane	0.0450	0.0901
Octane	0.4569	1.0634
Nonane	0.0575	0.1502
Benzene	0.3837	0.6107
Toluene	0.2214	0.4157
Ethylbenzene	0.0109	0.0236
o-Xylene	0.0429	0.0928
H2S	0.0019	0.0013
Water	0.0006	0.0002
2,2,4 Trimethylpentane	0.0621	0.1445
Decanes Plus	0.0001	0.0003
Total	100.00	100.0000

MOLECULAR WEIGHT	49.07
SATURATED BTU	2772.59
NMHC	99.55
VOCs (NMNEHC)	84.54
HAPs	3.15
H2S Mole Percentage	0.00

[1]**Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2**

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

OIL STORAGE TANK - EMISSIONS SUMMARY

Oil Storage Tank VOC Emissions Routed to Flare & VRU2

Emission Component	Uncontrolled Oil Tank W&B Stream		Uncontrolled Oil Tank Flash Stream			Oil Tank Stream Controlled By Flare - VRU Downtime		Oil Tank Stream Controlled By VRU & Flare - Normal Operations	
	lb/hr	TPY	Max lb/hr	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Carbon Dioxide	0.340	1.490	1.215	0.304	1.330	0.031	0.014	0.001	0.001
Nitrogen	0.002	0.010	0.168	0.042	0.184	0.003	0.001	0.000	0.000
Methane	2.022	8.856	34.229	8.557	37.480	0.725	0.232	0.015	0.014
Ethane	79.425	347.883	194.093	48.523	212.532	5.470	2.802	0.109	0.168
Propane	170.920	748.632	422.585	105.646	462.731	11.870	6.057	0.237	0.363
Isobutane	40.043	175.387	105.185	26.296	115.177	2.905	1.453	0.058	0.087
n-Butane	106.013	464.337	281.208	70.302	307.923	7.744	3.861	0.155	0.232
Isopentane	33.439	146.465	87.337	21.834	95.634	2.416	1.210	0.048	0.073
n-Pentane	36.413	159.489	96.285	24.071	105.432	2.654	1.325	0.053	0.079
n-Hexane	9.826	43.039	25.294	6.324	27.697	0.702	0.354	0.014	0.021
Cyclohexane	1.252	5.484	3.542	0.885	3.878	0.096	0.047	0.002	0.003
i-C6	14.969	65.564	39.454	9.863	43.202	1.088	0.544	0.022	0.033
i-C7	20.554	90.028	59.920	14.980	65.613	1.609	0.778	0.032	0.047
Methylcyclohexane	0.477	2.088	1.344	0.336	1.472	0.036	0.018	0.001	0.001
Octane	5.625	24.637	17.024	4.256	18.641	0.453	0.216	0.009	0.013
Nonane	0.794	3.479	2.942	0.736	3.222	0.075	0.034	0.001	0.002
Benzene	3.230	14.148	11.631	2.908	12.736	0.297	0.134	0.006	0.008
Toluene	2.199	9.630	7.462	1.865	8.171	0.193	0.089	0.004	0.005
Ethylbenzene	0.125	0.547	0.408	0.102	0.447	0.011	0.005	0.000	0.000
o-Xylene	0.491	2.151	1.831	0.458	2.005	0.046	0.021	0.001	0.001
H2S	0.007	0.031	0.018	0.005	0.020	0.001	0.000	0.000	0.000
Water	0.001	0.005	3.216	0.804	3.522	0.064	0.018	0.001	0.001
2,2,4 Trimethylpentane	0.764	3.348	2.092	0.523	2.290	0.057	0.028	0.001	0.002
Decanes Plus	0.001	0.006	0.006	0.002	0.007	0.000	0.000	0.000	0.000

Emission Component	Uncontrolled Oil Tank W&B Stream		Uncontrolled Oil Tank Flash Stream			Oil Tank Stream Controlled By Flare - VRU Downtime		Oil Tank Stream Controlled By VRU & Flare - Normal Operations	
	lb/hr	TPY	Max lb/hr	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
STREAM TOTAL	528.93	2316.73	1398.49	349.62	1531.35	38.55	19.24	0.77	1.15
VOC TOTAL	447.14	1958.46	1165.55	291.39	1276.28	32.25	16.17	0.65	0.97
HAP TOTAL	16.64	72.86	48.72	12.18	53.35	1.31	0.63	0.03	0.04

[1]Uncontrolled emissions and gas volume are based on Promax Results. Tank vapors are controlled using LPF and VRU2.

[2]Controlled Emissions Were Calculated by the Following: Uncontrolled Emissions * (1 - VRU Efficiency) * (1 - Flare Destruction Efficiency)

Flare Destruction Efficiency **98%**

[3]Annual controlled rate (tpy) calculated by multiplying hourly emission rate by 8760 hours minus VRU downtime hours for normal operation.

Normal Operations	VRU Efficiency	98%
VRU Downtime	VRU Efficiency	0%
VRU Downtime	Hours	2190

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
LP FLARE - OIL STORAGE TANKS

Flared Oil Storage Tank Emissions - VRU Normal Operations

Daily Oil Tank Gas Volume	366149	SCF/Day (Based on Maximum Hourly)
Hourly Oil Tank Gas Volume	15256	SCF/Hour (Based on Maximum Hourly)
Daily Oil Tank Gas Volume	165162	SCF/Day (Based on Annual Average)
VRU Collection Efficiency	98	Percentage
Hourly Oil Tank Gas Volume (Post-VRU)	305	SCF/Hour (Based on Maximum Hourly)
Duration	6570	Hours/Year
Annual Oil Tank Gas Volume (Post-VRU)	904262	SCF/Year (Based on Annual Average)
Flared	Yes	(Yes/No)
Heating Volume	2772.59	Btu/scf

Component	Hourly Emission Rate (lb/hr)	Annualized Emission Rate (TPY)
CO[1]	0.23	0.35
NOx[1]	0.12	0.17
SO_2[2]	0.00	0.00
H_2S[2]	0.00	0.00
$PM_{10\ \&\ 2.5}$[3]	0.00	0.00

[1] The CO and NOx emission factors (0.2755lb and 0.138/MMBtu) are based on TCEQ document RG-109, Basis for Emission Calculation from Flare Systems.

[2] Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * H2S PPM * H2S MW. SO2 is calculated assuming MW ratio of 64.07:34.08.

[3] PM 10 & 2.5 emissions are based on AP-42, Section 1.4 (External Combustion). The value was reduced by 90% since AP-42 does not have PM factors for flares.

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
LP FLARE - OIL STORAGE TANKS

Flared Oil Storage Tank Emissions - VRU Downtime

Daily Oil Tank Gas Volume	366149	SCF/Day (Based on Maximum Hourly)
Hourly Oil Tank Gas Volume	15256	SCF/Hour (Based on Maximum Hourly)
Daily Oil Tank Gas Volume	165162	SCF/Day (Based on Annual Average)
VRU Collection Efficiency	0	Percentage
Hourly Oil Tank Gas Volume	15256	SCF/Hour (Based on Maximum Hourly)
Duration	2190	Hours/Year
Annual Oil Tank Gas Volume	15071032	SCF/Year (Based on Annual Average)
Flared	Yes	(Yes/No)
Heating Volume	2772.59	Btu/scf

Component	Hourly Emission Rate (lb/hr)	Annualized Emission Rate (TPY)
CO[1]	11.65	5.76
NOx[1]	5.84	2.88
SO_2[2]	0.06	0.03
H_2S[2]	0.00	0.00
$PM_{10 \& 2.5}$[3]	0.12	0.06

[1] The CO and NOx emission factors (0.2755lb and 0.138/MMBtu) are based on TCEQ document RG-109, Basis for Emission Calculation from Flare Systems.

[2] Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * H2S PPM * H2S MW. SO2 is calculated assuming MW ratio of 64.07:34.08.

[3] PM 10 & 2.5 emissions are based on AP-42, Section 1.4 (External Combustion). The value was reduced by 90% since AP-42 does not have PM factors for flares.

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
VRU - COST BENEFIT ANALYSIS

STORAGE TANK VRUs

Unit Variable	Oil Tanks
Vapor Emission Rate (mscfd)	161.859
Heating Value (btu/scf)	2773
Value of gas sold ($/MMBtu)	$ 2.10
VRU Rental Rate ($/Month)	$ 5,400.00
VRU Count	1
Total Monthly Rental Rate ($/Month)	$ 5,400.00
Annual Rental Rate Cost ($/Year)	$ 64,800.00
Expectancy of VRU (years)	5
Annual Revenue Total ($/Year)	$ 257,985.25
Five Year Profit ($)	**$ 965,926.23**

Is the primary purpose of the equipment to control air pollution?

No, the primary purpose is to recover product for sale.

Where the equipment is recovering product, how do the cost savings from the product recovery compare to the cost of the equipment?

The VRU generates income for the site.

Would the equipment be installed if no air quality regulations are in place?

The equipment would be installed regardless of air quality regulations.

(1) Vapor emissions are obtained from Promax Modeling.
(2) Value of gas sold based on 3-month average from http://www.eia.gov/dnav/ng/ng_pri_fut_s1_d.htm
(3) Heating vales of vapors are based on Promax results.
(4) Rental estimate includes installation, operation, and maintenance of VRU.

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

SKIM TANK EMISSIONS SUMMARY

TOTAL EMISSIONS SUMMARY

FIN	Unit Description	Tank Controlled (Yes/No)	Control Type	Material Throughput (bbls/day)	Material Type (Oil/Produced Water)	Total VOC Emissions	
						lb/hour	TPY
SKTK1	**Skim Tank**	Yes	Flare	30000	PRODUCED WATER	1.48	1.62
SKTK2	**Skim Tank**	Yes	Flare	30000	PRODUCED WATER	1.48	1.62
SKIM Tank Emissions						2.95	3.23

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
SKIM TANK VAPOR ANALYSIS - PROMAX RESULTS

Gas Composition

Component	Mole %	Weight %
Carbon Dioxide	0.9533	1.8475
Nitrogen	0.4584	0.5654
Methane	65.4527	46.2360
Ethane	17.7429	23.4924
Propane	6.7741	13.1531
Isobutane	0.5899	1.5097
n-Butane	1.9425	4.9715
Isopentane	0.2898	0.9205
n-Pentane	0.1421	0.4513
n-Hexane	0.0193	0.0732
Cyclohexane	0.0426	0.1577
i-C6	0.0596	0.2263
i-C7	0.0451	0.1991
Methylcyclohexane	0.0069	0.0300
Octane	0.0028	0.0142
Nonane	0.0004	0.0021
Benzene	0.3750	1.2898
Toluene	0.1894	0.7683
Ethylbenzene	0.0085	0.0399
o-Xylene	0.0392	0.1835
H2S	0.0058	0.0087
Water	4.8587	3.8542
2,2,4 Trimethylpentane	0.0011	0.0054
Decanes Plus	0.0000	0.0002
Total	100.00	100.0000

MOLECULAR WEIGHT	22.71
SATURATED BTU	1281.58
NMHC	47.49
VOCs (NMNEHC)	24.00
HAPs	2.36
H2S Mole Percentage	0.01

[1]**Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2**

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

SKIM TANKS - EMISSIONS SUMMARY

Skim Tank VOC Emissions Routed to Flare Vent System

Emission Component	Uncontrolled Skim Tank W&B Stream		Uncontrolled Skim Tank Flash Stream			Skim Tank Stream Controlled by Flare	
	lb/hr	TPY	Max lb/hr	lb/hr	TPY	lb/hr	TPY
Carbon Dioxide	0.384	1.682	11.358	2.840	12.437	0.235	0.282
Nitrogen	0.001	0.006	3.476	0.869	3.806	0.070	0.076
Methane	0.321	1.404	284.263	71.066	311.268	5.692	6.253
Ethane	0.205	0.897	144.433	36.108	158.155	2.893	3.181
Propane	0.020	0.088	80.866	20.217	88.549	1.618	1.773
Isobutane	0.001	0.002	9.282	2.321	10.164	0.186	0.203
n-Butane	0.002	0.008	30.565	7.641	33.469	0.611	0.670
Isopentane	0.000	0.000	5.660	1.415	6.197	0.113	0.124
n-Pentane	0.000	0.000	2.775	0.694	3.039	0.055	0.061
n-Hexane	0.000	0.000	0.450	0.112	0.493	0.009	0.010
Cyclohexane	0.000	0.000	0.970	0.242	1.062	0.019	0.021
i-C6	0.000	0.000	1.391	0.348	1.523	0.028	0.030
i-C7	0.000	0.000	1.224	0.306	1.341	0.024	0.027
Methylcyclohexane	0.000	0.000	0.184	0.046	0.202	0.004	0.004
Octane	0.000	0.000	0.087	0.022	0.096	0.002	0.002
Nonane	0.000	0.000	0.013	0.003	0.014	0.000	0.000
Benzene	0.004	0.015	7.930	1.982	8.683	0.159	0.174
Toluene	0.000	0.002	4.724	1.181	5.173	0.094	0.103
Ethylbenzene	0.000	0.000	0.245	0.061	0.268	0.005	0.005
o-Xylene	0.000	0.000	1.128	0.282	1.235	0.023	0.025
H2S	0.002	0.008	0.053	0.013	0.058	0.001	0.001
Water	24.536	107.468	23.696	5.924	25.947	0.965	2.668
2,2,4 Trimethylpentane	0.000	0.000	0.033	0.008	0.036	0.001	0.001
Decanes Plus	0.000	0.000	0.002	0.000	0.002	0.000	0.000

Emission Component	Uncontrolled Skim Tank W&B Stream		Uncontrolled Skim Tank Flash Stream			Skim Tank Stream Controlled by Flare	
	lb/hr	TPY	Max lb/hr	lb/hr	TPY	lb/hr	TPY
STREAM TOTAL	25.48	111.58	614.81	153.70	673.22	12.81	15.70
VOC TOTAL	0.03	0.12	147.53	36.88	161.54	2.95	3.23
HAP TOTAL	0.00	0.02	14.51	3.63	15.89	0.29	0.32

[1]Uncontrolled emissions and gas volume are based on Promax Results. Tank vapors are controlled using a flare.

[2]Controlled Emissions Were Calculated by the Following: Uncontrolled Emissions * (1 - Flare Destruction Efficiency)

Flare Destruction Efficiency **98%**

[3]Annual controlled rate (tpy) calculated by multiplying hourly emission rate by 8760 hours for normal operation.

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
LP FLARE - SKIM AND WATER TANKS

Flared Skim and Water Tank Emissions

Daily Water Tank Gas Volume	276892	SCF/Hour (Based on Maximum Hourly)
Hourly Water Tank Gas Volume	11537	SCF/Hour (Based on Maximum Hourly)
Daily Water Tank Gas Volume	88196	SCF/Day (Based on Annual Average)
VRU Collection Efficiency	0	Percentage
Hourly Water Tank Gas Volume	11537	SCF/Hour (Based on Maximum Hourly)
Duration	8760	Hours/Year
Annual Water Tank Gas Volume	32191401	SCF/Year (Based on Annual Average)
Flared	Yes	(Yes/No)
Vented	No	(Yes/No)
Heating Volume	1281.58	Btu/scf

Component	Hourly Emission Rate (lb/hr)	Annualized Emission Rate (TPY)
CO[1]	4.07	5.68
NOx[1]	2.04	2.85
SO_2[2]	0.11	0.15
H_2S[2]	0.00	0.00
$PM_{10 \& 2.5}$[3]	0.09	0.12

1 The CO and NOx emission factors (0.2755lb and 0.138/MMBtu) are based on TCEQ document RG-109, Basis for Emission Calculation from Flare Systems.

2 Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * H2S PPM * H2S MW. SO2 is calculated assuming MW ratio of 64.07:34.08.

3 PM 10 & 2.5 emissions are based on AP-42, Section 1.4 (External Combustion). The value was reduced by 90% since AP-42 does not have PM factors for flares.

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

PRODUCED WATER STORAGE TANK EMISSIONS SUMMARY

TOTAL EMISSIONS SUMMARY

FIN	Unit Description	Tank Controlled (Yes/No)	Control Type	Material Throughput (bbls/day)	Material Type (Oil/Produced Water)	Total VOC Emissions	
						lb/hour	TPY
WT1	**Produced Water Tank**	Yes	Flare	10000	PRODUCED WATER	0.01	0.01
WT2	**Produced Water Tank**	Yes	Flare	10000	PRODUCED WATER	0.01	0.01
WT3	**Produced Water Tank**	Yes	Flare	10000	PRODUCED WATER	0.01	0.01
WT4	**Produced Water Tank**	Yes	Flare	10000	PRODUCED WATER	0.01	0.01
WT5	**Produced Water Tank**	Yes	Flare	10000	PRODUCED WATER	0.01	0.01
WT6	**Produced Water Tank**	Yes	Flare	10000	PRODUCED WATER	0.01	0.01
Water Tank Emissions						0.06	0.07

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

PRODUCED WATER TANK VAPOR ANALYSIS - PROMAX RESULTS

Conversion of Mole Percent to Weight Percent

Component	Mole %	Weight %
Carbon Dioxide	0.6485	1.5657
Nitrogen	0.0034	0.0052
Methane	1.4426	1.2695
Ethane	0.5095	0.8404
Propane	0.0337	0.0814
Isobutane	0.0007	0.0021
n-Butane	0.0022	0.0070
Isopentane	0.0001	0.0003
n-Pentane	0.0000	0.0000
n-Hexane	0.0000	0.0000
Cyclohexane	0.0000	0.0000
i-C6	0.0000	0.0000
i-C7	0.0000	0.0000
Methylcyclohexane	0.0000	0.0000
Octane	0.0000	0.0000
Nonane	0.0000	0.0000
Benzene	0.0033	0.0140
Toluene	0.0004	0.0019
Ethylbenzene	0.0000	0.0000
o-Xylene	0.0000	0.0001
H2S	0.0038	0.0071
Water	97.3518	96.2050
2,2,4 Trimethylpentane	0.0000	0.0000
Decanes Plus	0.0000	0.0000
Total	100.00	100.0000

MOLECULAR WEIGHT	18.23
SATURATED BTU	74
NMHC	0.95
VOCs (NMNEHC)	0.11
HAPs	0.02
H2S Mole Percentage	0.00

[1]**Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2**

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

PRODUCED WATER TANKS - EMISSIONS SUMMARY

Produced Water Tank VOC Emissions - Routed to Flare Vent System

Emission Component	Uncontrolled PW W&B Stream		Uncontrolled PW Flash Stream			PW Tank Stream Controlled By Flare	
	lb/hr	TPY	Max lb/hr	lb/hr	TPY	lb/hr	TPY
Carbon Dioxide	0.394	1.724	0.232	0.058	0.254	0.013	0.040
Nitrogen	0.001	0.006	0.071	0.018	0.078	0.001	0.002
Methane	0.319	1.398	5.801	1.450	6.352	0.122	0.155
Ethane	0.211	0.926	2.948	0.737	3.228	0.063	0.083
Propane	0.020	0.090	1.650	0.413	1.807	0.033	0.038
Isobutane	0.001	0.002	0.189	0.047	0.207	0.004	0.004
n-Butane	0.002	0.008	0.624	0.156	0.683	0.013	0.014
Isopentane	0.000	0.000	0.116	0.029	0.126	0.002	0.003
n-Pentane	0.000	0.000	0.057	0.014	0.062	0.001	0.001
n-Hexane	0.000	0.000	0.009	0.002	0.010	0.000	0.000
Cyclohexane	0.000	0.000	0.020	0.005	0.022	0.000	0.000
i-C6	0.000	0.000	0.028	0.007	0.031	0.001	0.001
i-C7	0.000	0.000	0.025	0.006	0.027	0.000	0.001
Methylcyclohexane	0.000	0.000	0.004	0.001	0.004	0.000	0.000
Octane	0.000	0.000	0.002	0.000	0.002	0.000	0.000
Nonane	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Benzene	0.004	0.015	0.162	0.040	0.177	0.003	0.004
Toluene	0.000	0.002	0.096	0.024	0.106	0.002	0.002
Ethylbenzene	0.000	0.000	0.005	0.001	0.005	0.000	0.000
o-Xylene	0.000	0.000	0.023	0.006	0.025	0.000	0.001
H2S	0.002	0.008	0.001	0.000	0.001	0.000	0.000
Water	24.193	105.964	0.484	0.121	0.530	0.494	2.130
2,2,4 Trimethylpentane	0.000	0.000	0.001	0.000	0.001	0.000	0.000
Decanes Plus	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Emission Component	Uncontrolled PW W&B Stream		Uncontrolled PW Flash Stream			PW Tank Stream Controlled by Flare	
	lb/hr	TPY	Max lb/hr	lb/hr	TPY	lb/hr	TPY
STREAM TOTAL	25.15	110.14	12.55	3.14	13.74	0.75	2.48
VOC TOTAL	0.03	0.12	3.01	0.75	3.30	0.06	0.07
HAP TOTAL	0.00	0.02	0.30	0.07	0.32	0.01	0.01

[1]Uncontrolled emissions and gas volume are based on Promax Results. Tank vapors are controlled using a flare.

[2]Controlled Emissions Were Calculated by the Following: Uncontrolled Emissions * (1 - Flare Destruction Efficiency)

Flare Destruction Efficiency **98%**

[3]Annual controlled rate (tpy) calculated by multiplying hourly emission rate by 8760 hours for normal operation .

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
OIL TRUCK LOADING EMISSIONS

Truck Loading Losses Calculations - VOCs

Oil Loading	**5000**	**bbls / Day**
Operating Schedule	**365**	**Day / Year**
Total Production	**1825000**	**bbls / Year**

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

Saturation Factor (S) =	0.6
Average True Vapor Pressure of liquid loaded (P) =	10.36
Maximum True Vapor Pressure of liquid loaded (P) =	12.19
Average Temperature of bulk liquid loaded in Rankin (T)[1] =	548.1
Maximum Temperature of bulk liquid loaded in Rankin (T)[1] =	560.0
Molecular Weight (M)[1] =	49.07
Collection Efficiency (EFF)[2]=	98.70
Hourly LL (lb Total HC / bbl Throughput) =	0.0044
Hourly LL (lb VOC / bbl Throughput) =	**0.0037**
Annual LL (lb Total HC / bbl Throughput) =	0.0038
Annual LL (lb VOC / bbl Throughput) =	**0.0032**
Estimated Throughput (bbls/Year) =	1825000
Truck Loading Rate (bbls/hour) =	210
Estimated # of Loads (Approximately 1 hr/Load) =	8690

COMPONENT	lb/hr	TPY
VOCs	0.77	2.92
HAPs	0.03	0.11
Benzene	0.01	0.02
n-Hexane	0.02	0.06

[1]Based on PROMAX Results
[2]Based on DOT Oil Trucks at a collection efficiency of 98.7%. Controlled emissions at 98% flare efficiency are shown on the LP Flare Truck Loading page. Emissions here include only those emitted as a result of incomplete collection.

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
WATER TRUCK LOADING EMISSIONS

Truck Loading Losses Calculations - VOCs

Water Loading	**5000**	**bbls / Day**
Operating Schedule	**365**	**Day / Year**
Total Production	**1825000**	**bbls / Year**

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

Saturation Factor (S) =	0.6
Average True Vapor Pressure of liquid loaded (P) =	0.56
Maximum True Vapor Pressure of liquid loaded (P) =	0.81
Average Temperature of bulk liquid loaded in Rankin (T)[1] =	542.2
Maximum Temperature of bulk liquid loaded in Rankin (T)[1] =	554.1
Molecular Weight (M)[1] =	18.23
Collection Efficiency (EFF) =	0.00
Hourly LL (lb Total HC / bbl Throughput) =	0.0084
Hourly LL (lb VOC / bbl Throughput) =	**0.0000**
Annual LL (lb Total HC / bbl Throughput) =	0.0059
Annual LL (lb VOC / bbl Throughput) =	**0.0000**
Estimated Throughput (bbls/Year) =	1825000
Truck Loading Rate (bbls/hour) =	210
Estimated # of Loads (Approximately 1 hr/Load) =	8690

COMPONENT	lb/hr	TPY
VOCs	0.00	0.01
HAPs	0.00	0.00
Benzene	0.00	0.00
n-Hexane	0.00	0.00

[1]Based on PROMAX Results

[2]Based on DOT Oil Trucks at a collection efficiency of 98.7%. Controlled emissions at 98% flare efficiency are shown on the LP Flare Truck Loading page. Emissions here include only those emitted as a result of incomplete collection.

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
LP FLARE - CONTROLLED TRUCK LOADING EMISSIONS

LP Flare - Truck Loading of Oil

	Oil Loading (Captured Vapors)[1]			LP Flare	
Component	Mole %	Weight %	lb/hr	lb/hr	TPY
Carbon Dioxide	0.074	0.067	0.034	0.034	0.147
Nitrogen	0.000	0.000	0.000	0.000	0.001
Methane	1.101	0.362	0.182	0.004	0.016
Ethane	25.305	15.603	7.828	0.157	0.686
Propane	36.023	32.574	16.342	0.327	1.432
Isobutane	6.309	7.520	3.772	0.075	0.330
n-Butane	16.640	19.833	9.950	0.199	0.872
Isopentane	4.196	6.209	3.115	0.062	0.273
n-Pentane	4.560	6.747	3.385	0.068	0.297
n-Hexane	1.024	1.810	0.908	0.018	0.080
Cyclohexane	0.133	0.230	0.116	0.002	0.010
i-C6	1.563	2.762	1.386	0.028	0.121
i-C7	1.837	3.774	1.893	0.038	0.166
Methylcyclohexane	0.043	0.087	0.044	0.001	0.004
Octane	0.438	1.025	0.514	0.010	0.045
Nonane	0.055	0.145	0.073	0.001	0.006
Benzene	0.371	0.594	0.298	0.006	0.026
Toluene	0.213	0.402	0.202	0.004	0.018
Ethylbenzene	0.010	0.023	0.011	0.000	0.001
o-Xylene	0.041	0.089	0.045	0.001	0.004
H2S	0.002	0.001	0.001	0.000	0.000
Water	0.001	0.000	0.000	0.000	0.000
2,2,4 Trimethylpentane	0.060	0.140	0.070	0.001	0.006
Decanes Plus	0.000	0.000	0.000	0.000	0.000

Stream Total	50.17	1.04	4.54
VOC Total	42.12	0.84	3.69
HAP Total	1.53	0.03	0.13

Annual Hours (hrs)	8690	Molecular Weight	49
Heating Value of Vapor (Btu/scf)	2756	Volumetric Flow (scf/hr)	395.54
Vapor Balance Loading Capture	98.7%	Heat Released (MMBtu/hr)	1.090
Destruction Efficiency of Flare	98%		

Criteria Pollutant Emissions from Flare [2]				
Component	**Emission Rate (lb/hr)**	**Emission Rate (TPY)**	**Emission Factor**	**Emission Factor Units**
NO_X	0.15	0.65	0.138	lb/MMBtu
CO	0.30	1.31	0.2755	lb/MMBtu
SO_2	0.00	0.00	--	--
PM_{10}	0.00	0.01	7.60	lb/MMscf
$PM_{2.5}$	0.00	0.01	7.60	lb/MMscf
H_2S	0.00	0.00	--	--

[1] Oil Loading vapors properties determined from ProMax

[2] Flare CO and NOx emission factors from TCEQ Air Permit Techincal Guidance for Chemical Sources. PM and PM2.5 emission factors from AP-42, Table 1.4-1 and 1.4-2, July 1998. SO2 emissions assume 100% conversion of H2S to SO2.

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

ROAD EMISSIONS

PM_{10} Emissions $E = k(s/12)^a(W/3)^b$	
a	0.9
b	0.45
k	1.5
Silt %	4.8
Vehicle Weight (tons)	28
E-Hourly (lbs/VMT)	1.80
Rain Days	70
E-Annual (lbs/VMT)	1.45
Truckloads per year	17381
Driving Distance Per Load (ft)	700
Annual Distance (miles)	2304
Control Efficiency - 15 MPH Limit	
Emissions (lbs/hr)	0.48
Emissions (tpy)	1.67

$PM_{2.5}$ Emissions $E = k(s/12)^a(W/3)^b$	
a	0.9
b	0.45
k	0.15
Silt %	4.8
Vehicle Weight (tons)	28
E-Hourly (lbs/VMT)	0.18
Rain Days	70
E-Annual (lbs/VMT)	0.15
Truckloads per year	17381
Driving Distance Per Load (ft)	700
Annual Distance (miles)	2304
Control Efficiency - 15 MPH Limit	
Emissions (lbs/hr)	0.05
Emissions (tpy)	0.17

Emissions (lbs/hr) = Driving Distance (ft)/ 5280 * E (lbs/VMT) *2 trucks per hour (One for oil and one for water)
Emissions (tpy) = Annual Distance * E / 2000

References:
EPA. "Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources," Section 13.2.2

AP-42, Ofice of Air Quality Planning and Standards, Research Triangle Park, NC. 5th edition (11/2006).

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

Calculation Methodology for Fugitive & Road Emissions

Calculation Methodology

Fugitives (Equipment Leaks) - VOC Emissions

Fugitives were calculated using AP-42 factors based on the type of fitting, valve, line, etc. and based on how the line is used (i.e. gas, light liquid service, etc.). Since these emission factors are for estimating total hydrocarbon emissions, the calculated emissions are multiplied by the VOC or HAP Weight Percentage of the service type. Fugitive Emissions are divided into sections of the facility to more accurately account for compositional analysis and counts.

Road Emissions - PM Emissions

The PM Emissions were calculated using AP-42 Factors from section 13.2.2 "Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources."

XTO ENERGY INC.

CORRAL CANYON 23 TANK BATTERY

FUGITIVE EMISSIONS - TOTAL EMISSION SUMMARY

EQUIPMENT LEAK EMISSION SUMMARY TABLE

Stream Source	Total VOCs		Total HAPs		Benzene		Hexane		CH4	CO2	CO2e
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	TPY	TPY	TPY
Inlet & Sales Section	0.85	3.74	0.05	0.21	0.01	0.03	0.01	0.06	4.46	6.10	117.55
Heater Treater Section	0.76	3.33	0.04	0.17	0.01	0.03	0.01	0.06	3.19	4.60	84.29
Storage Tank Section	0.83	3.63	0.05	0.20	0.01	0.05	0.02	0.10	4.58	6.18	120.64
Total Emissions	**2.44**	**10.69**	**0.13**	**0.59**	**0.03**	**0.11**	**0.05**	**0.22**	**12.22**	**16.88**	**322.48**

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
FACILITY INLET GAS ANALYSIS - PROMAX

Gas Composition

Component	Mole %	Weight %
Carbon Dioxide	0.1779	0.3290
Nitrogen	0.9132	1.0753
Methane	69.6002	46.9342
Ethane	14.4918	18.3168
Propane	7.8044	14.4657
Isobutane	1.0612	2.5928
n-Butane	2.6253	6.4140
Isopentane	0.6310	1.9136
n-Pentane	0.6807	2.0643
n-Hexane	0.2037	0.7379
Cyclohexane	0.1878	0.6644
i-C6	0.3150	1.1410
i-C7	0.2802	1.1803
Methylcyclohexane	0.1182	0.4880
Octane	0.0825	0.3960
Nonane	0.0278	0.1500
Benzene	0.0924	0.3034
Toluene	0.0517	0.2001
Ethylbenzene	0.0020	0.0089
o-Xylene	0.0119	0.0532
H2S	0.0010	0.0014
Water	0.6311	0.4779
2,2,4 Trimethylpentane	0.0000	0.0000
Decanes Plus	0.0089	0.0916
Total	100.00	100.0000

MOLECULAR WEIGHT	23.79
SATURATED BTU	1398
NMHC	51.182
VOCs (NMNEHC)	32.87
HAPs	1.30
H2S Mole Percentage	0.00

[1]Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
FACILITY INLET FLUID ANALYSIS - PROMAX

Fluid Composition

Component	Mole %	Weight %
Carbon Dioxide	0.0135	0.0041
Nitrogen	0.0262	0.0050
Methane	1.8491	0.2040
Ethane	2.5026	0.5174
Propane	4.3487	1.3185
Isobutane	1.3060	0.5219
n-Butane	4.5915	1.8349
Isopentane	2.5435	1.2618
n-Pentane	3.6721	1.8217
n-Hexane	2.5190	1.4926
Cyclohexane	0.0000	0.0000
i-C6	2.7051	1.6029
i-C7	10.9925	7.5734
Methylcyclohexane	0.0000	0.0000
Octane	12.6190	9.9111
Nonane	5.8823	5.1873
Benzene	1.4955	0.8032
Toluene	2.8516	1.8066
Ethylbenzene	0.4121	0.3009
o-Xylene	2.2869	1.6694
H2S	0.0000	0.0000
Water	0.0000	0.0000
2,2,4 Trimethylpentane	0.5060	0.3974
Decanes Plus	36.8766	61.7660
Total	100.00	100.0000

MOLECULAR WEIGHT	145.44
NMHC	99.79
VOCs (NMNEHC)	99.27
HAPs	6.47
H2S Mole Percentage	0.00

[1]**Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2**

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
INLET & SALES SECTION - FUGITIVE EMISSION VOCs

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total VOC Weight %	Emissions lb/hour	Emissions lb/year	Emissions tons/year	Total CH4 Weight %	Total CO2 Weight %	CH4 Emissions ton/year	CO2 Emissions ton/year	CO2e Emissions ton/year
Valves	Gas/Vapor	50	8760	0.00992000	32.87	0.16	1427.98	0.71	46.93	0.33	1.15	2.17	30.99
	Light Oil	50	8760	0.00550000	99.27	0.27	2391.40	1.20	0.20	0.00	1.20	1.20	31.26
	Heavy Oil	0	8760	0.00001900	99.27	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00021600	99.27	0.01	93.92	0.05	0.20	0.00	0.05	0.05	1.23
Pump Seals	Gas/Vapor	0	8760	0.00529000	32.87	0.00	0.00	0.00	46.93	0.33	0.00	0.00	0.00
	Light Oil	0	8760	0.02866000	99.27	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00113000	99.27	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Water/Light Oil	10	8760	0.00005300	99.27	0.00	4.61	0.00	0.20	0.00	0.00	0.00	0.06
Connectors	Gas/Vapor	200	8760	0.00044000	32.87	0.03	253.35	0.13	46.93	0.33	0.20	0.38	5.50
	Light Oil	200	8760	0.00046300	99.27	0.09	805.25	0.40	0.20	0.00	0.40	0.41	10.52
	Heavy Oil	0	8760	0.00001700	99.27	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00024300	99.27	0.01	105.66	0.05	0.20	0.00	0.05	0.05	1.38
Flanges	Gas/Vapor	200	8760	0.00086000	32.87	0.06	495.19	0.25	46.93	0.33	0.40	0.75	10.75
	Light Oil	200	8760	0.00024300	99.27	0.05	422.63	0.21	0.20	0.00	0.21	0.21	5.52
	Heavy Oil	0	8760	0.00000086	99.27	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00000620	99.27	0.00	2.70	0.00	0.20	0.00	0.00	0.00	0.04
Open-ended Lines	Gas/Vapor	10	8760	0.00441000	32.87	0.01	126.96	0.06	46.93	0.33	0.10	0.19	2.76
	Light Oil	0	8760	0.00309000	99.27	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	99.27	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	99.27	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
Other:	Gas/Vapor	0	8760	0.01940000	32.87	0.00	0.00	0.00	46.93	0.33	0.00	0.00	0.00
	Light Oil	0	8760	0.01650000	99.27	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	99.27	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Water/Light Oil	5	8760	0.03090000	99.27	0.15	1343.53	0.67	0.20	0.00	0.68	0.68	17.56

Emission Component	lb/hr	lb/year	TPY
Total VOC	0.85	7473.17	3.74

CH4 Emissions	CO2 Emissions	CO2e Emissions
4.46	6.10	117.55

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
INLET & SALES SECTION - FUGITIVE EMISSION HAPs

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total HAPs Weight %	Emissions lb/hour	Emissions lb/year	Emissions tons/year
Valves	Gas/Vapor	50	8760	0.00992000	1.30	0.01	56.64	0.03
	Light Oil	50	8760	0.00550000	6.47	0.02	155.86	0.08
	Heavy Oil	0	8760	0.00001900	6.47	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00021600	6.47	0.00	6.12	0.00
Pump Seals	Gas/Vapor	0	8760	0.00529000	1.30	0.00	0.00	0.00
	Light Oil	0	8760	0.02866000	6.47	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00113000	6.47	0.00	0.00	0.00
	Water/Light Oil	10	8760	0.00005200	6.47	0.00	0.29	0.00
Connectors	Gas/Vapor	200	8760	0.00044000	1.30	0.00	10.05	0.01
	Light Oil	200	8760	0.00046300	6.47	0.01	52.48	0.03
	Heavy Oil	0	8760	0.00001700	6.47	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00024300	6.47	0.00	6.89	0.00
Flanges	Gas/Vapor	200	8760	0.00086000	1.30	0.00	19.64	0.01
	Light Oil	200	8760	0.00024300	6.47	0.00	27.55	0.01
	Heavy Oil	0	8760	0.00000086	6.47	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00000620	6.47	0.00	0.18	0.00
Open-ended Lines	Gas/Vapor	10	8760	0.00441000	1.30	0.00	5.04	0.00
	Light Oil	0	8760	0.00309000	6.47	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	6.47	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	6.47	0.00	0.00	0.00
Other:	Gas/Vapor	0	8760	0.01940000	1.30	0.00	0.00	0.00
	Light Oil	0	8760	0.01650000	6.47	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	6.47	0.00	0.00	0.00
	Water/Light Oil	5	8760	0.03090000	6.47	0.01	87.57	0.04

Emission Component	lb/hr	lb/year	TPY
Total HAPs	0.05	428.30	0.21

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
INLET & SALES SECTION - FUGITIVE EMISSION BENZENE

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total Benzene Weight %	Emissions		
						lb/hour	lb/year	tons/year
Valves	Gas/Vapor	50	8760	0.00992000	0.30	0.00	13.18	0.01
	Light Oil	50	8760	0.00550000	0.80	0.00	19.35	0.01
	Heavy Oil	0	8760	0.00001900	0.80	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00021600	0.80	0.00	0.76	0.00
Pump Seals	Gas/Vapor	0	8760	0.00529000	0.30	0.00	0.00	0.00
	Light Oil	0	8760	0.02866000	0.80	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00113000	0.80	0.00	0.00	0.00
	Water/Light Oil	10	8760	0.00005300	0.80	0.00	0.04	0.00
Connectors	Gas/Vapor	200	8760	0.00044000	0.30	0.00	2.34	0.00
	Light Oil	200	8760	0.00046300	0.80	0.00	6.52	0.00
	Heavy Oil	0	8760	0.00001700	0.80	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00024300	0.80	0.00	0.85	0.00
Flanges	Gas/Vapor	200	8760	0.00086000	0.30	0.00	4.57	0.00
	Light Oil	200	8760	0.00024300	0.80	0.00	3.42	0.00
	Heavy Oil	0	8760	0.00000086	0.80	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00000620	0.80	0.00	0.02	0.00
Open-ended Lines	Gas/Vapor	10	8760	0.00441000	0.30	0.00	1.17	0.00
	Light Oil	0	8760	0.00309000	0.80	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	0.80	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	0.80	0.00	0.00	0.00
Other:	Gas/Vapor	0	8760	0.01940000	0.30	0.00	0.00	0.00
	Light Oil	0	8760	0.01650000	0.80	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	0.80	0.00	0.00	0.00
	Water/Light Oil	5	8760	0.03090000	0.80	0.00	10.87	0.01

Emission Component	lb/hr	lb/year	TPY
Total Benzene	0.007	63.09	0.032

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
INLET & SALES SECTION - FUGITIVE EMISSIONS HEXANE

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total Hexane Weight %	Emissions		
						lb/hour	lb/year	tons/year
Valves	Gas/Vapor	50	8760	0.00992000	0.74	0.00	32.06	0.02
	Light Oil	50	8760	0.00550000	1.49	0.00	35.96	0.02
	Heavy Oil	0	8760	0.00001900	1.49	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00021600	1.49	0.00	1.41	0.00
Pump Seals	Gas/Vapor	0	8760	0.00529000	0.74	0.00	0.00	0.00
	Light Oil	0	8760	0.02866000	1.49	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00113000	1.49	0.00	0.00	0.00
	Water/Light Oil	10	8760	0.00005300	1.49	0.00	0.07	0.00
Connectors	Gas/Vapor	200	8760	0.00044000	0.74	0.00	5.69	0.00
	Light Oil	200	8760	0.00046300	1.49	0.00	12.11	0.01
	Heavy Oil	0	8760	0.00001700	1.49	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00024300	1.49	0.00	1.59	0.00
Flanges	Gas/Vapor	200	8760	0.00086000	0.74	0.00	11.12	0.01
	Light Oil	200	8760	0.00024300	1.49	0.00	6.35	0.00
	Heavy Oil	0	8760	0.00000086	1.49	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00000620	1.49	0.00	0.04	0.00
Open-ended Lines	Gas/Vapor	10	8760	0.00441000	0.74	0.00	2.85	0.00
	Light Oil	0	8760	0.00309000	1.49	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	1.49	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	1.49	0.00	0.00	0.00
Other:	Gas/Vapor	0	8760	0.01940000	0.74	0.00	0.00	0.00
	Light Oil	0	8760	0.01650000	1.49	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	1.49	0.00	0.00	0.00
	Water/Light Oil	5	8760	0.03090000	1.49	0.00	20.20	0.01

Emission Component	lb/hr	lb/year	TPY
Total Hexane	0.015	129.45	0.065

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
TREATER GAS ANALYSIS - FUGITIVE EMISSIONS

Conversion of Mole Percent to Weight Percent

Component	Mole %	Weight %
Carbon Dioxide	0.1934	0.2592
Nitrogen	0.2235	0.1907
Methane	41.2006	20.1266
Ethane	23.1369	21.1846
Propane	17.9810	24.1438
Isobutane	2.7664	4.8961
n-Butane	7.0706	12.5139
Isopentane	1.7152	3.7682
n-Pentane	1.8965	4.1666
n-Hexane	0.4451	1.1679
Cyclohexane	0.0781	0.2002
i-C6	0.6778	1.7786
i-C7	0.9228	2.8157
Methylcyclohexane	0.0269	0.0804
Octane	0.2611	0.9080
Nonane	0.0441	0.1724
Benzene	0.2205	0.5245
Toluene	0.1298	0.3642
Ethylbenzene	0.0067	0.0217
o-Xylene	0.0305	0.0987
H2S	0.0017	0.0018
Water	0.9424	0.5170
2,2,4 Trimethylpentane	0.0284	0.0986
Decanes Plus	0.0001	0.0007
Total	100.00	100.0000

MOLECULAR WEIGHT	23.55
SATURATED BTU	1385.85
NMHC	78.90
VOCs (NMNEHC)	57.72
HAPs	2.28
H2S Mole Percentage	0.00

[1]Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
TREATER LIQUID ANALYSIS - FUGITIVE EMISSIONS

Conversion of Mole Percent to Weight Percent

Component	Mole %	Weight %
Carbon Dioxide	0.0064	0.0019
Nitrogen	0.0011	0.0002
Methane	0.5822	0.0639
Ethane	1.6081	0.3308
Propane	3.9204	1.1827
Isobutane	1.3881	0.5520
n-Butane	4.9496	1.9681
Isopentane	2.8231	1.3935
n-Pentane	3.9892	1.9691
n-Hexane	2.8193	1.6622
Cyclohexane	0.6883	0.3963
i-C6	3.1604	1.8633
i-C7	11.0042	7.5437
Methylcyclohexane	0.4611	0.3098
Octane	12.5592	9.8149
Nonane	5.8895	5.1677
Benzene	1.5767	0.8426
Toluene	2.8849	1.8185
Ethylbenzene	0.4086	0.2968
o-Xylene	2.2774	1.6542
H2S	0.0002	0.0000
Water	0.0543	0.0067
2,2,4 Trimethylpentane	0.4692	0.3667
Decanes Plus	36.4785	60.7944
Total	100.00	100.0000

MOLECULAR WEIGHT	146.17
NMHC	99.93
VOCs (NMNEHC)	99.60
HAPs	6.64
H2S Mole Percentage	0.00

[1]Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
TREATER SECTION - FUGITIVE EMISSION VOCs

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total VOC Weight %	Emissions			Total CH4 Weight %	Total CO2 Weight %	CH4 Emissions	CO2 Emissions	CO2e Emissions
						lb/hour	lb/year	tons/year			ton/year	ton/year	ton/year
Valves	Gas/Vapor	40	8760	0.00992000	57.72	0.23	2006.34	1.00	46.93	0.33	0.92	1.73	24.79
	Light Oil	40	8760	0.00550000	99.60	0.22	1919.42	0.96	0.20	0.00	0.96	0.96	25.00
	Heavy Oil	0	8760	0.00001900	99.60	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00021600	99.60	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
Pump Seals	Gas/Vapor	0	8760	0.00529000	57.72	0.00	0.00	0.00	46.93	0.33	0.00	0.00	0.00
	Light Oil	0	8760	0.02866000	99.60	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00113000	99.60	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00005300	99.60	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
Connectors	Gas/Vapor	200	8760	0.00044000	57.72	0.05	444.95	0.22	46.93	0.33	0.20	0.38	5.50
	Light Oil	200	8760	0.00046300	99.60	0.09	807.90	0.40	0.20	0.00	0.40	0.41	10.52
	Heavy Oil	0	8760	0.00001700	99.60	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00024300	99.60	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
Flanges	Gas/Vapor	200	8760	0.00086000	57.72	0.10	869.68	0.43	46.93	0.33	0.40	0.75	10.75
	Light Oil	200	8760	0.00024300	99.60	0.05	424.02	0.21	0.20	0.00	0.21	0.21	5.52
	Heavy Oil	0	8760	0.00000086	99.60	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00000620	99.60	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
Open-ended Lines	Gas/Vapor	8	8760	0.00441000	57.72	0.02	178.39	0.09	46.93	0.33	0.08	0.15	2.20
	Light Oil	0	8760	0.00309000	99.60	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	99.60	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	99.60	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
Other:	Gas/Vapor	0	8760	0.01940000	57.72	0.00	0.00	0.00	46.93	0.33	0.00	0.00	0.00
	Light Oil	0	8760	0.01650000	99.60	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	99.60	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.03090000	99.60	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00

Emission Component	lb/hr	lb/year	TPY
Total VOC	0.76	6650.70	3.33

CH4 Emissions	CO2 Emissions	CO2e Emissions
3.19	4.60	84.29

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
TREATER SECTION - FUGITIVE EMISSION HAPs

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total HAPs Weight %	Emissions		
						lb/hour	lb/year	tons/year
Valves	Gas/Vapor	40	8760	0.00992000	2.28	0.01	79.10	0.04
	Light Oil	40	8760	0.00550000	6.64	0.01	127.98	0.06
	Heavy Oil	0	8760	0.00001900	6.64	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00021600	6.64	0.00	0.00	0.00
Pump Seals	Gas/Vapor	0	8760	0.00529000	2.28	0.00	0.00	0.00
	Light Oil	0	8760	0.02866000	6.64	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00113000	6.64	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00005300	6.64	0.00	0.00	0.00
Connectors	Gas/Vapor	200	8760	0.00044000	2.28	0.00	17.54	0.01
	Light Oil	200	8760	0.00046300	6.64	0.01	53.87	0.03
	Heavy Oil	0	8760	0.00001700	6.64	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00024300	6.64	0.00	0.00	0.00
Flanges	Gas/Vapor	200	8760	0.00086000	2.28	0.00	34.29	0.02
	Light Oil	200	8760	0.00024300	6.64	0.00	28.27	0.01
	Heavy Oil	0	8760	0.00000086	6.64	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00000620	6.64	0.00	0.00	0.00
Open-ended Lines	Gas/Vapor	8	8760	0.00441000	2.28	0.00	7.03	0.00
	Light Oil	0	8760	0.00309000	6.64	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	6.64	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	6.64	0.00	0.00	0.00
Other:	Gas/Vapor	0	8760	0.01940000	2.28	0.00	0.00	0.00
	Light Oil	0	8760	0.01650000	6.64	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	6.64	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.03090000	6.64	0.00	0.00	0.00

Emission Component	lb/hr	lb/year	TPY
Total HAPs	0.04	348.09	0.17

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
TREATER SECTION - FUGITIVE EMISSION BENZENE

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total Benzene Weight %	Emissions		
						lb/hour	lb/year	tons/year
Valves	Gas/Vapor	40	8760	0.00992000	0.52	0.00	18.23	0.01
	Light Oil	40	8760	0.00550000	0.84	0.00	16.24	0.01
	Heavy Oil	0	8760	0.00001900	0.84	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00021600	0.84	0.00	0.00	0.00
Pump Seals	Gas/Vapor	0	8760	0.00529000	0.52	0.00	0.00	0.00
	Light Oil	0	8760	0.02866000	0.84	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00113000	0.84	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00005300	0.84	0.00	0.00	0.00
Connectors	Gas/Vapor	200	8760	0.00044000	0.52	0.00	4.04	0.00
	Light Oil	200	8760	0.00046300	0.84	0.00	6.83	0.00
	Heavy Oil	0	8760	0.00001700	0.84	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00024300	0.84	0.00	0.00	0.00
Flanges	Gas/Vapor	200	8760	0.00086000	0.52	0.00	7.90	0.00
	Light Oil	200	8760	0.00024300	0.84	0.00	3.59	0.00
	Heavy Oil	0	8760	0.00000086	0.84	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00000620	0.84	0.00	0.00	0.00
Open-ended Lines	Gas/Vapor	8	8760	0.00441000	0.52	0.00	1.62	0.00
	Light Oil	0	8760	0.00309000	0.84	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	0.84	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	0.84	0.00	0.00	0.00
Other:	Gas/Vapor	0	8760	0.01940000	0.52	0.00	0.00	0.00
	Light Oil	0	8760	0.01650000	0.84	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	0.84	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.03090000	0.84	0.00	0.00	0.00

Emission Component	lb/hr	lb/year	TPY
Total Benzene	0.007	58.46	0.029

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
TREATER SECTION - FUGITIVE EMISSION HEXANE

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total Hexane Weight %	Emissions		
						lb/hour	lb/year	tons/year
Valves	Gas/Vapor	40	8760	0.00992000	1.17	0.00	40.60	0.02
	Light Oil	40	8760	0.00550000	1.66	0.00	32.03	0.02
	Heavy Oil	0	8760	0.00001900	1.66	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00021600	1.66	0.00	0.00	0.00
Pump Seals	Gas/Vapor	0	8760	0.00529000	1.17	0.00	0.00	0.00
	Light Oil	0	8760	0.02866000	1.66	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00113000	1.66	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00005300	1.66	0.00	0.00	0.00
Connectors	Gas/Vapor	200	8760	0.00044000	1.17	0.00	9.00	0.00
	Light Oil	200	8760	0.00046300	1.66	0.00	13.48	0.01
	Heavy Oil	0	8760	0.00001700	1.66	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00024300	1.66	0.00	0.00	0.00
Flanges	Gas/Vapor	200	8760	0.00086000	1.17	0.00	17.60	0.01
	Light Oil	200	8760	0.00024300	1.66	0.00	7.08	0.00
	Heavy Oil	0	8760	0.00000086	1.66	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00000620	1.66	0.00	0.00	0.00
Open-ended Lines	Gas/Vapor	8	8760	0.00441000	1.17	0.00	3.61	0.00
	Light Oil	0	8760	0.00309000	1.66	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	1.66	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	1.66	0.00	0.00	0.00
Other:	Gas/Vapor	0	8760	0.01940000	1.17	0.00	0.00	0.00
	Light Oil	0	8760	0.01650000	1.66	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	1.66	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.03090000	1.66	0.00	0.00	0.00

Emission Component	lb/hr	lb/year	TPY
Total Hexane	0.014	123.40	0.062

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
OIL TANK SECTION GAS ANALYSIS - FUGITIVE EMISSIONS

Gas Composition

Component	Mole %	Weight %
Carbon Dioxide	0.0717	0.0643
Nitrogen	0.0007	0.0004
Methane	1.1693	0.3823
Ethane	24.5065	15.0161
Propane	35.9617	32.3141
Isobutane	6.3918	7.5704
n-Butane	16.9223	20.0428
Isopentane	4.3000	6.3220
n-Pentane	4.6824	6.8842
n-Hexane	1.0579	1.8577
Cyclohexane	0.1380	0.2367
i-C6	1.6116	2.8300
i-C7	1.9031	3.8860
Methylcyclohexane	0.0450	0.0901
Octane	0.4569	1.0634
Nonane	0.0575	0.1502
Benzene	0.3837	0.6107
Toluene	0.2214	0.4157
Ethylbenzene	0.0109	0.0236
o-Xylene	0.0429	0.0928
H2S	0.0019	0.0013
Water	0.0006	0.0002
2,2,4 Trimethylpentane	0.0621	0.1445
Decanes Plus	0.0001	0.0003
Total	100.00	100.0000

MOLECULAR WEIGHT	49.07
SATURATED BTU	2772.59
NMHC	99.55
VOCs (NMNEHC)	84.54
HAPs	3.15
H2S Mole Percentage	0.00

[1]Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
WATER TANK LIQUID ANALYSIS - FUGITIVE EMISSIONS

Water Composition

Component	Mole %	Weight %
Carbon Dioxide	0.0004	0.0009
Nitrogen	0.0000	0.0000
Methane	0.0013	0.0012
Ethane	0.0005	0.0008
Propane	0.0001	0.0003
Isobutane	0.0000	0.0000
n-Butane	0.0000	0.0001
Isopentane	0.0000	0.0000
n-Pentane	0.0000	0.0000
n-Hexane	0.0000	0.0000
Cyclohexane	0.0000	0.0000
i-C6	0.0000	0.0000
i-C7	0.0000	0.0000
Methylcyclohexane	0.0000	0.0000
Octane	0.0000	0.0000
Nonane	0.0000	0.0000
Benzene	0.0009	0.0038
Toluene	0.0003	0.0017
Ethylbenzene	0.0000	0.0001
o-Xylene	0.0001	0.0005
H2S	0.0000	0.0000
Water	99.9963	99.9905
2,2,4 Trimethylpentane	0.0000	0.0000
Decanes Plus	0.0000	0.0000
Total	100.00	100.0000

MOLECULAR WEIGHT	18.02
NMHC	0.01
VOCs (NMNEHC)	0.01
HAPs	0.01
H2S Mole Percentage	0.00

[1]Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
OIL TANK CONDENSATE ANALYSIS - FUGITIVE EMISSIONS

Conversion of Mole Percent to Weight Percent

Component	Mole %	Weight %
Carbon Dioxide	0.0009	0.0003
Nitrogen	0.0000	0.0000
Methane	0.0274	0.0029
Ethane	0.4614	0.0910
Propane	2.3763	0.6874
Isobutane	1.1140	0.4248
n-Butane	4.2699	1.6280
Isopentane	2.7140	1.2846
n-Pentane	3.9224	1.8565
n-Hexane	2.8780	1.6270
Cyclohexane	0.5763	0.3182
i-C6	3.1767	1.7959
i-C7	11.5849	7.6152
Methylcyclohexane	0.3886	0.2503
Octane	13.3381	9.9949
Nonane	6.2560	5.2636
Benzene	1.6310	0.8358
Toluene	3.0449	1.8404
Ethylbenzene	0.4345	0.3026
o-Xylene	2.4202	1.6856
H2S	0.0001	0.0000
Water	0.0105	0.0012
2,2,4 Trimethylpentane	0.5033	0.3772
Decanes Plus	38.8705	62.1167
Total	100.00	100.0000

MOLECULAR WEIGHT	152.44
NMHC	37.788
VOCs (NMNEHC)	37.100
HAPs	4.524
H2S Mole Percentage	0.01053

[1]**Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2**

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
STORAGE TANK SECTION - FUGITIVE EMISSIONS VOCs

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total VOC Weight %	Emissions			Total CH4 Weight %	Total CO2 Weight %	CH4 Emissions	CO2 Emissions	CO2e Emissions
						lb/hour	lb/year	tons/year			ton/year	ton/year	ton/year
Valves	Gas/Vapor	50	8760	0.00992000	84.54	0.42	3673.03	1.84	46.93	0.33	1.15	2.17	30.99
	Light Oil	50	8760	0.00550000	37.10	0.10	893.75	0.45	0.20	0.00	1.20	1.20	31.26
	Heavy Oil	0	8760	0.00001900	37.10	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00021600	0.01	0.00	0.01	0.00	0.20	0.00	0.05	0.05	1.23
Pump Seals	Gas/Vapor	5	8760	0.00529000	84.54	0.02	195.87	0.10	46.93	0.33	0.06	0.12	1.65
	Light Oil	5	8760	0.02866000	37.10	0.05	465.73	0.23	0.20	0.00	0.63	0.63	16.29
	Heavy Oil	0	8760	0.00113000	37.10	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Water/Light Oil	10	8760	0.00005300	0.01	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.06
Connectors	Gas/Vapor	50	8760	0.00044000	84.54	0.02	162.92	0.08	46.93	0.33	0.05	0.10	1.37
	Light Oil	50	8760	0.00046300	37.10	0.01	75.24	0.04	0.20	0.00	0.10	0.10	2.63
	Heavy Oil	0	8760	0.00001700	37.10	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00024300	0.01	0.00	0.01	0.00	0.20	0.00	0.05	0.05	1.38
Flanges	Gas/Vapor	50	8760	0.00086000	84.54	0.04	318.43	0.16	46.93	0.33	0.10	0.19	2.69
	Light Oil	50	8760	0.00024300	37.10	0.00	39.49	0.02	0.20	0.00	0.05	0.05	1.38
	Heavy Oil	0	8760	0.00000086	37.10	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00000620	0.01	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.04
Open-ended Lines	Gas/Vapor	0	8760	0.00441000	84.54	0.00	0.00	0.00	46.93	0.33	0.00	0.00	0.00
	Light Oil	0	8760	0.00309000	37.10	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	37.10	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	0.01	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
Other:	Gas/Vapor	10	8760	0.01940000	84.54	0.16	1436.63	0.72	46.93	0.33	0.45	0.85	12.12
	Light Oil	0	8760	0.01650000	37.10	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	37.10	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Water/Light Oil	5	8760	0.03090000	0.01	0.00	0.09	0.00	0.20	0.00	0.68	0.68	17.56

Emission Component	lb/hr	lb/year	TPY
Total VOC	0.83	7261.17	3.63

CH4 Emissions	CO2 Emissions	CO2e Emissions
4.58	6.18	120.64

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
STORAGE TANK SECTION - FUGITIVE EMISSIONS HAPs

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total HAPs Weight %	Emissions		
						lb/hour	lb/year	tons/year
Valves	Gas/Vapor	50	8760	0.00992000	3.15	0.02	136.65	0.07
	Light Oil	50	8760	0.00550000	4.52	0.01	108.98	0.05
	Heavy Oil	0	8760	0.00001900	4.52	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00021600	0.01	0.00	0.01	0.00
Pump Seals	Gas/Vapor	5	8760	0.00529000	3.15	0.00	7.29	0.00
	Light Oil	5	8760	0.02866000	4.52	0.01	56.79	0.03
	Heavy Oil	0	8760	0.00113000	4.52	0.00	0.00	0.00
	Water/Light Oil	10	8760	0.00005300	0.01	0.00	0.00	0.00
Connectors	Gas/Vapor	50	8760	0.00044000	3.15	0.00	6.06	0.00
	Light Oil	50	8760	0.00046300	4.52	0.00	9.17	0.00
	Heavy Oil	0	8760	0.00001700	4.52	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00024300	0.01	0.00	0.01	0.00
Flanges	Gas/Vapor	50	8760	0.00086000	3.15	0.00	11.85	0.01
	Light Oil	50	8760	0.00024300	4.52	0.00	4.82	0.00
	Heavy Oil	0	8760	0.00000086	4.52	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00000620	0.01	0.00	0.00	0.00
Open-ended Lines	Gas/Vapor	0	8760	0.00441000	3.15	0.00	0.00	0.00
	Light Oil	0	8760	0.00309000	4.52	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	4.52	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	0.01	0.00	0.00	0.00
Other:	Gas/Vapor	10	8760	0.01940000	3.15	0.01	53.45	0.03
	Light Oil	0	8760	0.01650000	4.52	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	4.52	0.00	0.00	0.00
	Water/Light Oil	5	8760	0.03090000	0.01	0.00	0.08	0.00

Emission Component	lb/hr	lb/year	TPY
Total HAPs	0.05	395.15	0.20

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
STORAGE TANK SECTION - FUGITIVE EMISSIONS BENZENE

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total Benzene Weight %	Emissions		
						lb/hour	lb/year	tons/year
Valves	Gas/Vapor	50	8760	0.00992000	0.42	0.00	18.06	0.01
	Light Oil	50	8760	0.00550000	1.84	0.01	44.34	0.02
	Heavy Oil	0	8760	0.00001900	1.84	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00021600	0.00	0.00	0.00	0.00
Pump Seals	Gas/Vapor	5	8760	0.00529000	0.42	0.00	0.96	0.00
	Light Oil	5	8760	0.02866000	1.84	0.00	23.10	0.01
	Heavy Oil	0	8760	0.00113000	1.84	0.00	0.00	0.00
	Water/Light Oil	10	8760	0.00005300	0.00	0.00	0.00	0.00
Connectors	Gas/Vapor	50	8760	0.00044000	0.42	0.00	0.80	0.00
	Light Oil	50	8760	0.00046300	1.84	0.00	3.73	0.00
	Heavy Oil	0	8760	0.00001700	1.84	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00024300	0.00	0.00	0.00	0.00
Flanges	Gas/Vapor	50	8760	0.00086000	0.42	0.00	1.57	0.00
	Light Oil	50	8760	0.00024300	1.84	0.00	1.96	0.00
	Heavy Oil	0	8760	0.00000086	1.84	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00000620	0.00	0.00	0.00	0.00
Open-ended Lines	Gas/Vapor	0	8760	0.00441000	0.42	0.00	0.00	0.00
	Light Oil	0	8760	0.00309000	1.84	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	1.84	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	0.00	0.00	0.00	0.00
Other:	Gas/Vapor	10	8760	0.01940000	0.42	0.00	7.06	0.00
	Light Oil	0	8760	0.01650000	1.84	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	1.84	0.00	0.00	0.00
	Water/Light Oil	5	8760	0.03090000	0.00	0.00	0.02	0.00

Emission Component	lb/hr	lb/year	TPY
Total Benzene	0.012	101.61	0.051

XTO ENERGY INC.
CORRAL CANYON 23 TANK BATTERY
STORAGE TANK SECTION - FUGITIVE EMISSIONS HEXANE

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total Hexane Weight %	Emissions		
						lb/hour	lb/year	tons/year
Valves	Gas/Vapor	50	8760	0.00992000	1.86	0.01	80.72	0.04
	Light Oil	50	8760	0.00550000	1.63	0.00	39.19	0.02
	Heavy Oil	0	8760	0.00001900	1.63	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00021600	0.00	0.00	0.00	0.00
Pump Seals	Gas/Vapor	5	8760	0.00529000	1.86	0.00	4.30	0.00
	Light Oil	5	8760	0.02866000	1.63	0.00	20.42	0.01
	Heavy Oil	0	8760	0.00113000	1.63	0.00	0.00	0.00
	Water/Light Oil	10	8760	0.00005300	0.00	0.00	0.00	0.00
Connectors	Gas/Vapor	50	8760	0.00044000	1.86	0.00	3.58	0.00
	Light Oil	50	8760	0.00046300	1.63	0.00	3.30	0.00
	Heavy Oil	0	8760	0.00001700	1.63	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00024300	0.00	0.00	0.00	0.00
Flanges	Gas/Vapor	50	8760	0.00086000	1.86	0.00	7.00	0.00
	Light Oil	50	8760	0.00024300	1.63	0.00	1.73	0.00
	Heavy Oil	0	8760	0.00000086	1.63	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00000620	0.00	0.00	0.00	0.00
Open-ended Lines	Gas/Vapor	0	8760	0.00441000	1.86	0.00	0.00	0.00
	Light Oil	0	8760	0.00309000	1.63	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	1.63	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	0.00	0.00	0.00	0.00
Other:	Gas/Vapor	10	8760	0.01940000	1.86	0.00	31.57	0.02
	Light Oil	0	8760	0.01650000	1.63	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	1.63	0.00	0.00	0.00
	Water/Light Oil	5	8760	0.03090000	0.00	0.00	0.02	0.00

Emission Component	lb/hr	lb/year	TPY
Total Hexane	0.022	191.85	0.096

AIR EMISSIONS CALCULATION TOOL

Instructions for Completing the Equipment Calculation Forms

1. Click the **Start Button** below to reset the form to begin data entry.

2. The ***Air Emissions Calculation Tool*** initially loads with the **Core Data Information Form.** Once all information is entered on this form, the necessary equipment calculation pages will be created based on the information entered on the Core Data Information Form. The customized ***Air Emissions Calculation Tool*** should now be saved to your computer before entering any other information on the equipment calculation pages. **Warning,** every time you click on the **Start Button b**elow, the ***Air Emissions Calculation Tool*** will reset and all data entered will be lost.

3. Green/Blue colored information boxes require users to enter the required information for the subject facility. Default values may be changed if not appropriate for the facility.

4. Yellow colored boxes represent calculated values based on user information entered and may not be changed.

5. Yellow boxes with green/blue cross-hatching represent calculated values based on user information entered, however users may input data in these boxes, if necessary.

Start

Core Data Information

Mandatory - All appropriate Data Must Be Entered For All Boxes Below. This Data Will Automatically Create All Required Equipment Forms And Populate This Data In All Emissions Calculation Forms.

Date Field	Feb 21, 2020	Permit/NOI/NPR Number	
Company Name:	XTO Energy Inc.	Select Application Type	GCP-O&G
Facility Name:	Corral Canyon 23	AI# if Known	

Max. Facility Gas Production	60,841.02 (Mscf/d)	2,535.04 (Mscf/h)	Elevation (ft.)	3,076
Max. Facility Oil Production	25,000 (BOPD)	1,041.67 (BOPH)	Sour Gas Streams at This Site?	NO
Max. Facility Produced Water	60,000 (BWPD)	2,500 (BWPH)		

Enter The Quantity Of All Air Emissions Sources Located At The Facility
(Leave Blank For Each Equipment Type That Is Not Present)

Equipment	Quantity	Equipment	Quantity
Amine Unit(s)		Compressor Engine (s)	
Dehydrator(s)		Enclosed Combustion Device(s) (ECD)	
Equipment Fugitives	✓	Flare(s)	2
Flash Tower/Ultra-Low Pressure Separator(s)^	1	Generator Engine (s)	
Gunbarrel Separator(s)/Tank(s)		Heater(s), Heater Treaters	2
Number of Paved Haul Roads Segments		Number of Unpaved Haul Road Segments	1
Low Pressure Compressor(s)* & Compressor(s)*	2	Oil/Condensate Storage Tank(s)	6
Oil/Condensate Truck Loading	✓	Produced Water Storage Tank(s)	6
Produced Water Truck Loading	✓	Pumpjack Engine(s)	
Reboilers(s) (Amine Units)		Placeholder for Future Use	
Reboilers(s) (Glycol, others)		Startup, Shutdown & Maintenance and Malfunction	✓
Skim Oil or Slop Oil Tank(s)	2	Thermal Oxidizer(s) (TO)	
Vapor Combustion Device(s) (VCU)		Vapor Recovery Unit(s) (VRU)^	2

Click Here to Generate Required Forms & Save to Your Computer

Complete all required forms that follow, for the equipment at the subject facility, based on the selections made above. Items with an * indicate an air emissions calculation form currently not required at this time and those with ^ indicate forms under construction at this time.

Date: Feb 21, 2020
Company Name: XTO Energy Inc.
Facility Name: Corral Canyon 23

Permit Number:
AI# if Known:
Elevation (ft.): 3,076

Heaters, Heated Separators & Heater Treaters (Only for units rated <100 MMBTU/Hr)

Enter appropriate information in green boxes below changing default values as appropriate and adding additional rows for each heater unit.

Enter the Sulfur Content of Gas or use default value (grains/10^6 scf). 2,000

SO_2 emissions based on AP-42 EF and assumes 100% conversion of fuel sulfur to SO2 and assumes sulfur content in natural gas of 2,000 grains/1000000 scf. Change default value of 2000 as needed based on gas analysis submitted with application.

Enter the Site Fuel Heat Value of Gas or use default value (Btu/scf). 1,385.8

Emissions From All Heaters, Heated Separators & Heater Treaters

Add/Remove Rows	Unit ID	Heat Input	NO_x		CO		VOC		SO_2		$PM/PM_{10}/PM_{2.5}$	
		MMBtu/hr	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy
+ -	HT1	4	0.533	2.335	0.448	1.962	0.029	0.127	0	0	0.04	0.175
+ -	HT2	4	0.533	2.335	0.448	1.962	0.029	0.127	0	0	0.04	0.175
	Totals		1.066	4.67	0.896	3.924	0.058	0.254	0	0	0.08	0.35

0108

Calculation Tool for Heaters, Heated Separators & Heater Treater Emissions (Uncontrolled) for Oil & Gas Production Sites (Only for units rated <100 MMBTU/Hr)

All emission factors based on AP-42, Table 1.4-1, Table 1.4-2 and Table 1.4-3 (July 1998)
https://www3.epa.gov/ttn/chief/ap42/ch01/final/c01s04.pdf

Emission factors for natural gas combustion in boilers and furnaces are presented in AP42, Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4. The Tables present emission factors on a volume basis (lb/10^6 scf). To convert to an energy basis (lb/MMBtu), divide by a heating value of 1,020 MMBtu/10^6 scf. The emission factors may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value.

NOx Sample Calculation

pph = AP 42 NOx Emission Factor (EF) * site fuel heat value Btu/scf/1020 Btu/scf * Maximum Heat Input (MMBtu/hr) * 1/site fuel heat Value Btu/scf * 1000000/1Btu/MMBtu
= 100 lb/1000000 scf * 2000 Btu/scf/1020 Btu/scf * 0.5 MMBtu/hr * 1/2000 Btu/scf * 1000000/1Btu/MMBtu
=0.096 lb/hr

tpy = AP 42 NOx Emission Factor (EF) * site fuel heat value Btu/scf/1020 Btu/scf * Maximum Heat Input (MMBtu/hr) * 1/site fuel heat value Btu/scf * 1000000/1 Btu/MMBtu * 8760 hrs/yr * 1ton/2000 lbs
= 100 lb/1000000 scf * 2000 Btu/scf/1020 Btu/scf * 0.5 MMBtu/hr * 1/2000 Btu/scf * 1000000/1 Btu/MMBtu * 8760 hrs/yr * 1ton/2000lbs
= 0.42 tpy

SO_2 emissions based on 100% conversion of fuel sulfur to SO_2 and assumes sulfur content in natural gas of 2,000 grains/10^6 scf. The SO_2 emission factor is converted to other natural gas sulfur contents by multiplying the SO_2 emission factor by the ratio of the site-specific sulfur content (grains/10^6 scf) to 2,000 grains/10^6 scf.

Date:	Feb 21, 2020	**Permit Number:**	GCP-O&G-null
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	Corral Canyon 23	**Elevation (ft.):**	3,076

Flash Tower/Ultra-low Pressure Separators Air Emissions Calculations Form

Under Development

Please submit all required calculations and supporting documentation for all Flash Tower/Ultra-low Pressure Separators emissions in the application.

Date:	Feb 21, 2020	**Permit Number:**	GCP-O&G-null
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	Corral Canyon 23	**Elevation (ft.):**	3,076

Vertical Fixed Roof (VFR) Oil/Condensate VOC Flash Emissions Calculations Form

Select Tanks Flash Emission Calculation Method

GOR	E & P Tanks	ProMax
Vasquez-Beggs	HYSYS	VMGSim

ProMax Oil Tanks Emission Calculations

Please attach the ProMAX printout with all input data provided along with the calculated emissions. Enter the uncontrolled VOC emissions below. If the tank vapors are routed to a flare, enclosed combustion device, vapor combustion unit, vapor recovery unit or thermal oxidizer select the appropriate VOC destruction method below along with selected VOC destruction efficiency supported by manufacturer specifications submitted with the application.

Tanks VOC Control Method			
Capture Efficiency	100	Represent Uncaptured/Uncollected VOC's at Tanks	NO
VOC Control Method[1]	VRU & Flare	Represent VRU/ULPC Downtime Emissions at Tanks	NO
VOC Destruction Efficiency[2]	99.96	Represent VOC Controlled Emissions at Tanks*	NO
Notes	Both the VRU and flare have control efficiencies of 98%. The AECT is not correctly calculating VOC emissions after control nor does it calculate emissions during VRU downtime.		

Total VOC Flash Emissions From Oil/Condensate Storage Tanks Calculated with ProMax

Add/Remove Rows	Tank ID	VOC Uncontrolled Emissions		VOC Emissions after Control		VOC Emissions at the Tanks	
Up To 10 Units		pph	tpy	pph*	tpy*	pph	tpy
+ -	OT1	194.26	212.71	0	0	0	0
+ -	OT2	194.26	212.71	0	0	0	0
+ -	OT3	194.26	212.71	0	0	0	0
+ -	OT4	194.26	212.71	0	0	0	0
+ -	OT5	194.26	212.71	0	0	0	0
+ -	OT6	194.26	212.71	0	0	0	0
	Totals	1,165.56	1,276.26	0	0	0	0

Notes 1 & 2 See next page; * Emissions only represented at tanks if "Yes" is selected to represent emissions at tanks.

Calculation Tool for Tanks Flashing & Working & Standing Emissions for Oil & Gas Production Sites

All flash emissions based on flash calculation methodology selected;

1) The appropriate ECD, flare, TO, VCU or VRU form must also be completed.
2) Manufacturer documentation required to support % control selected. If using a VRU/LPC, calculations assume VRU/ULPC with a 100% control efficiency, but with 5% downtime;
3) Information included in calculation tool must be based on representative oil and gas analysis which must be submitted with application;
4) GOR and Vasquez-Beggs sample calculations outlined below; E & P Tanks, ProMax, HYSYS & VMG Sim flash emissions require submittal of computer simulation model emissions calculations print-outs;
5) Working & Standing emissions based on AP-42 Chpt. 7, tanks 4.09d computer simulation or ProMax, or VMG computer simulation models.

<u>Sample Calculations</u>

GOR Methodology

VOC pph = GOR (scf/bbl) * Facility Oil Throughput (BOPD) * 1/24 (Hours/Day * 1/Universal Gas Constant 385 scf/lb-mole @ 70^{O}F, 1 atm) * Molecular Weight of Tank Vapors (lb/lb-mol)
= 40 (scf/bbl) * 1000 (BOPD)*1/24 (hrs/day) *1/385 scf/lb-mol * 50 lb/lb-mol
= 216.45 lbs/hr

VOC tpy = GOR (scf/bbl) * Facility Oil Throughput (BOPD) * 1/24 (Hours/Day * 1/Universal Gas Constant 385 scf/lb-mole @ 70^{O}F, 1 atm) * Molecular Weight of Tank Vapors (lb/lb-mol) * 8760 hr/yr * 1/2000 lbs/ton
= 40 (scf/bbl) * 1000 (BOPD)*1/24 (hrs/day) *1/385 scf/lb-mol * 50 lb/lb-mol * 8760 hr/yr * 1/2000 lbs/ton
= 948.05 tpy

Vasquez-Beggs Methodology

INPUTS			Constraints			
API Gravity		API	16	<API>	58	^{0}API
Separator Pressure (psig)		P	50	<P+Patm>	5250	psia
Separator Temp. (^{0}F)		Ti	70	<Ti>	295	^{0}F
Separator Gas Gravity at Initial Condition		SGi	0.56	<SGi>	1.18	MW/28.97
Barrels of Oil/Day (BOPD)	4,166.67	Q	None	<Q>	None	BOPD
Tank Gas MW		MW	18	<MW>	125	lb/lb-mole
VOC Fraction of Tank Gas		VOC	0.5	<VOC>	1.00	Fraction
Atmospheric Pressure (psia)		Patm	20	<Rs>	2070	scf/bbl

Constants			
	^{0}API Gravity		
^{0}APTI	<30	≥30	Given^{0}API
C1	0.0362	0.0178	
C2	1.0937	1.187	
C3	25.724	23.931	

SGx = Dissolved gas gravity at Separator pressure = SGi [1.0+0.00005912*API*Ti*Log(Pi/114.7)]

Rs = (C1 * SGx * Pi^C2) exp ((C3 * API) / (Ti + 460)) for P + Patm

THC = Rs * Q * MW * 1/385 scf/lb-mole * 365 D/Yr * 1 ton/2000 lbs

VOC =THC * Frac. of C3+ in the Stock Tank Vapor

Technical Disclaimer
This document is intended to help you accurately determine oil/condensate storage tank flash, working and standing emissions. It does not supersede or replace any state or federal law, rule, or regulation. This guidance reflects the current understanding of how these units work and how they generate emissions, how they are monitored or tested, and what data are available for emissions determination, may change over time as the AQB continue scientific studies and as new information becomes available. The AQB welcome any data, information, or feedback that may improve our understanding of oil/condensate storage tank flash, working and standing emissions and thereby further improve determinations within the emissions inventory. The calculation methods represented are intended as an emissions calculation aid; alternate calculation methods may be equally acceptable if they are based upon, and adequately demonstrate, sound engineering assumptions or data. If you have a question regarding the acceptability of a given emissions determination method, contact the Permitting Section at 505-476-4300.

Date:	Feb 21, 2020	**Permit Number:**	GCP-O&G-null
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	Corral Canyon 23	**Elevation (ft.):**	3,076

Vertical Fixed Roof (VFR) Oil/Condensate VOC Working & Standing Emissions Calculations Form

Select Tanks W & S Emission Calculation Method

AP-42 Chpt. 7 | EPA Tanks 4.09d | ProMax | E & P Tanks

ProMax Oil Tanks W & S Emission Calculations

Please attach the ProMAX printout with all input data provided along with the calculated emissions. Enter the uncontrolled VOC emissions below. If the tank vapors are routed to a flare, enclosed combustion device, vapor combustion unit, vapor recovery unit or thermal oxidizer select the appropriate VOC destruction method below along with selected VOC destruction efficiency supported by manufacturer specifications submitted with the application.

Tanks VOC Control Method			
Capture Efficiency	100	Represent Uncaptured and/or Controlled VOC's at Tanks	NO
VOC Control Method	VRU & Flare	Represent VRU/ULPC Downtime Emissions at Tanks	NO
VOC Destruction Efficiency	99.96	Represent VOC Controlled Emissions at Tanks*	NO
Notes	Both the VRU and flare have control efficiencies of 98%. The AECT does not calculate emissions during VRU downtime.		

Total VOC W & S Emissions From Oil/Condensate Storage Tanks Calculated with ProMax							
Add/Remove Rows Up To 10 Units	Tank ID	VOC Uncontrolled Emissions		VOC Emissions after Control		VOC Emissions at the Tanks	
		pph	tpy	pph*	tpy*	pph	tpy
+ -	OT1	74.52	326.41	0.03	0.14	0	0
+ -	OT2	74.52	326.41	0.03	0.14	0	0
+ -	OT3	74.52	326.41	0.03	0.14	0	0
+ -	OT4	74.52	326.41	0.03	0.14	0	0
+ -	OT5	74.52	326.41	0.03	0.14	0	0
+ -	OT6	74.52	326.41	0.03	0.14	0	0
	Totals	447.12	1,958.46	0.18	0.84	0	0

Notes 1 & 2 See next page; * Emissions only represented at tanks if "Yes" is selected to represent emissions at tanks.

Date:	Feb 21, 2020	**Permit Number:**	GCP-O&G-null
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	Corral Canyon 23	**Elevation (ft.):**	3,076

Emissions From Loading Petroleum Liquid

Select Appropriate AP-42 Petroleum Liquid Loading Methodology & Enter appropriate information in the green boxes below changing default values as appropriate.

Emission Unit ID: TL-O

Facility Oil Throughput (gal/yr)	76,650,000
Max. Hourly Loading Rate (gal/hr)	8,820

*Select Appropriate AP-42 Petroleum Liquid Loading Methodology Below**

- (●) AP-42, 5.2-4 Equation 1
- ( ) AP-42, Table 5.2-5

S - Saturation Factor (From AP-42 Table 5.2-1)	0.6	**M** - Molecular Weight of Vapors (lb/lb-mole)	49.07
P_{annual} - Avg. Annual True Vapor Pressure of Liquid Loaded (psia)	10.36	**P_{hourly}** - Max Hourly True Vapor Pressure of Liquid Loaded (psia)	12.19
T_{annual} - Average Annual Temperature ^{o}F of Bulk Liquid Loaded	88.1	**T_{hourly}** - Maximum Hourly Temperature ^{o}F of Bulk Liquid Loaded	100

Select Emission Source - From AP-42 Table 5.2-5

- (●) Submerged Loading Dedicated Normal Service
- ( ) Submerged Loading Vapor Balance Service
- ( ) Splash Loading Dedicated Normal Service
- ( ) Splash Loading Vapor Balance Service

Truck Loading VOC Control Method

Capture Efficiency	98.7	Represent Uncaptured/Uncollected VOC's at Loading Rack	YES
VOC Control Method[1]	Flare (FL)	Represent VRU/ULPC Downtime Emissions at Loading Rack	NA
VOC Destruction Efficiency[2]	98	Represent VOC Controlled Emissions at Loading Rack	NO

Notes: The VOC wt% in the gas stream is 84.5% The rates calculated using the AP-42 equation above are for total hydrocarbons and therefore artificially inflated. The values in the Excel workbook are correct.

Total VOC Emissions From Loading Petroleum Liquids

Pollutant	VOC Uncontrolled Emissions		VOC Emissions after Control		VOC Emissions at the Loading Rack	
	pph*	tpy*	pph*	tpy*	pph*	tpy*
VOC	70.43	265.75	2.31	9.63	0.92	3.45

Footnote: * All emission factors based on AP-42, 5.2-4 Equation 1 or AP-42 Table 5.2-5 (July 2008); See next page for calculation notes. You may elect to represent the controlled emissions at the loading rack or at the control device or tanks by selecting the appropriate drop-down options under *Truck Loading VOC Control Method*.

Calculation Tool for Emissions From Loading Petroleum Liquid

Emissions based on AP-42, 5.2-4 Equation 1 (July 2008) or AP-42, Table 5.2-5

https://www3.epa.gov/ttn/chief/ap42/ch05/final/c05s02.pdf

AP-42 5.2-4 Equation 1

Emissions from loading petroleum liquid can be estimated (with a probable error of ±30 percent)[4] using the following expression:

Equation 1 $\mathbf{L_L = 12.46 * SPM/T}$

where:

L_L = loading loss, pounds per 1000 gallons (lb/10^3 gal) of liquid loaded;

S = a saturation factor (see Table 5.2-1 reproduced below))

P = true vapor pressure of liquid loaded, pounds per square inch absolute (psia) (see Section 7.1, "Organic Liquid Storage Tanks")

M = molecular weight of vapors, pounds per pound-mole (lb/lb-mole) (see Section 7.1, "Organic Liquid Storage Tanks")

T = temperature of bulk liquid loaded, °R (°F + 460)

VOC pph = (12.46*0.6*7.0 (psia)*50 (lb/lb-mole)/550°R)/1000 (gal) * 8400 (gal/hr)
= 39.96 lb/hr

VOC tpy = (12.46*0.6*4.5 (psia)*50 (lb/lb-mole)/525°R)/1000 * 1533000 (gal/yr) * 1/2000 (ton/lbs)
= 2.46 tpy

Table 5.2-1. SATURATION (S) FACTORS FOR CALCULATING PETROLEUM LIQUID LOADING LOSSES

Cargo Carrier	Mode of Operation	S Factor
Tank trucks and rail tank cars	Submerged loading of a clean cargo tank	0.5
	Submerged loading: dedicated normal service	0.6
	Submerged loading: dedicated vapor balance service	1.0
	Splash loading of a clean cargo tank	1.45
	Splash loading: dedicated normal service	1.45
	Splash loading: dedicated vapor balance service	1.0
Marine vessels[a]	Submerged loading: ships	0.2
	Submerged loading: barges	0.5

[a] For products other than gasoline and crude oil. For marine loading of gasoline, use factors from Table 5.2-2. For marine Loading of crude oil, use Equations 2 and 3 and Table 5.2-3.

AP-42 Table 5.2-5

VOC pph = (2lb/1000 (gal) * ((100-15)/100) * 8400 (gal/hr) = 16.8 pph

VOC tpy = (2lb/1000 (gal) * ((100-15)/100) * 100 (BOPD) * 42 (gal/bbl) * 365 (days/yr) * 1/2000 (ton/lb) = 1.53 tpy

Table 5.2-5 TOTAL UNCONTROLLED ORGANIC EMISSION FACTORS FOR PETROLEUM LIQUID RAIL TANK CARS AND TANK TRUCKS

Emission Source	Mode of Operation	Crude Oil (lb/1000 gal transferred)[b]
Loading Operations[c]		
	Submerged loading: dedicated normal service	2
	Submerged loading: dedicated vapor balance service	3
	Splash loading: dedicated normal service	5
	Splash loading: dedicated vapor balance service	3

a Reference 2. ......VOC factors for crude oil can be assumed to be 15% lower than the total organic factors, to account for the methane and ethane content of crude oil evaporative emissions. All other products should be assumed to have VOC factors equal to total organics; b The example crude oil has an RVP of 34 kPa (5 psia); c Loading emission factors are calculated using Equation 1 for a dispensed product temperature of 16°C (60°F). In the absence of specific inputs for Equations 1 , the typical evaporative emission factors presented in Tables 5.2-5 should be used. It should be noted that, although the crude oil used to calculate the emission values presented in this tables has an RVP of 5, the RVP of crude oils can range from less than 1 up to 10. In areas where loading and transportation sources are major factors affecting air quality, it is advisable to obtain the necessary parameters and to calculate emission estimates using Equations 1.

1) The appropriate ECD, flare, TO, VCU or VRU form must also be completed.
2) Manufacturer documentation required to support % control selected. If using a VRU/LPC, calculations assume VRU/ULPC with a 100% control efficiency, but with 5% downtime;
3) Information included in calculation tool must be based on representative oil and gas analysis which must be submitted with application;
^) Vapor balancing emissions to tanks must be represented at the tanks;

Technical Disclaimer

This document is intended to help you accurately determine truck loading petroleum emissions. It does not supersede or replace any state or federal law, rule, or regulation. This guidance reflects the current understanding of how truck loading operations work and how it generates emissions, how it is monitored or tested, and what data are available for emissions determination, may change over time as the AQB continue scientific studies and as new information becomes available. The AQB welcome any data, information, or feedback that may improve our understanding of truck loading petroleum emissions and thereby further improve determinations within the emissions inventory. The calculation methods represented are intended as an emissions calculation aid; alternate calculation methods may be equally acceptable if they are based upon, and adequately demonstrate, sound engineering assumptions or data. If you have a question regarding the acceptability of a given emissions determination method, contact the Permitting Section at 505-476-4300.

Date:	Feb 21, 2020	**Permit Number:**	GCP-O&G-null
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	Corral Canyon 23	**Elevation (ft.):**	3,076

Slop Oil or Skim Oil Tanks VOC Flash Emissions Calculations Form

Select Flash Emission Calculation Method

GOR	E & P Tanks	ProMax
Vasquez-Beggs	HYSYS	VMGSim

ProMax Slop Oil or Skim Oil Tanks Emission Calculations

Please attach the ProMAX printout with all input data provided along with the calculated emissions. Enter the uncontrolled VOC emissions below. If the tank vapors are routed to a flare, enclosed combustion device, vapor combustion unit, vapor recovery unit or thermal oxidizer select the appropriate VOC destruction method below along with selected VOC destruction efficiency supported by manufacturer specifications submitted with the application.

Slop Oil or Skim Oil Tanks VOC Control Method			
Capture Efficiency	100	Represent Uncaptured/Uncollected VOC's at Tanks	NO
VOC Control Method[1]	Flare (FL)	Represent VRU/ULPC Downtime Emissions at Tanks	NO
VOC Destruction Efficiency[2]	98	Represent VOC Controlled Emissions at Tanks*	NO
Notes			

Total VOC Flash Emissions From Slop Oil or Skim Oil Tanks Calculated with ProMax

Add/Remove Rows Up To 10 Units	Tank ID	VOC Uncontrolled Emissions		VOC Emissions after Control		VOC Emissions at the Tanks	
		pph	tpy	pph*	tpy*	pph	tpy
+ -	STK-1	73.76	80.77	1.48	1.62	0	0
+ -	STK-2	73.76	80.77	1.48	1.62	0	0
	Totals	147.52	161.54	2.96	3.24	0	0

Notes 1 & 2 See next page; * Emissions only represented at tanks if "Yes" is selected to represent emissions at tanks.

Calculation Tool for Tanks Flashing & Working & Standing Emissions for Oil & Gas Production Sites

All flash emissions based on flash calculation methodology selected;

1) The appropriate ECD, flare, TO, VCU or VRU form must also be completed.
2) Manufacturer documentation required to support % control selected. Assumes VRU/ULPC with a 100% control efficieny, but with 5% downtime;
3) Information included in calculation tool must be based on representative oil and gas analysis which must be submitted with application;
4) GOR and Vasquez-Beggs sample calculations outlined below; E & P Tanks, ProMax, HYSYS & VMG Sim flash emissions require submittal of computer simulation model emissions calculations print-outs;
5) Working & Standing emissions based on AP-42 Chpt. 7, tanks 4.09d computer simulation or ProMax, or VMG computer simulation models.

Sample Calculations

GOR Methodology

VOC pph = GOR (scf/bbl) * Facility Oil Throughput (BOPD) * 1/24 (Hours/Day * 1/Universal Gas Constant 385 scf/lb-mole @ 70^{O}F, 1 atm) * Molecular Weight of Tank Vapors (lb/lb-mol)
= 40 (scf/bbl) * 1000 (BOPD)*1/24 (hrs/day) *1/385 scf/lb-mol * 50 lb/lb-mol
= 216.45 lbs/hr

VOC tpy = GOR (scf/bbl) * Facility Oil Throughput (BOPD) * 1/24 (Hours/Day * 1/Universal Gas Constant 385 scf/lb-mole @ 70^{O}F, 1 atm) * Molecular Weight of Tank Vapors (lb/lb-mol) * 8760 hr/yr * 1/2000 lbs/ton
= 40 (scf/bbl) * 1000 (BOPD)*1/24 (hrs/day) *1/385 scf/lb-mol * 50 lb/lb-mol * 8760 hr/yr * 1/2000 lbs/ton
= 948.05 tpy

Vasquez-Beggs Methodology

INPUTS			Constraints			
API Gravity		API	16	<API>	58	^{0}API
Separator Pressure (psig)		P	50	<P+Patm>	5250	psia
Separator Temp. (^{0}F)		Ti	70	<Ti>	295	^{0}F
Separator Gas Gravity at Initial Condition		SGi	0.56	<SGi>	1.18	MW/28.97
Barrels of Oil/Day (BOPD)		Q	None	<Q>	None	BOPD
Tank Gas MW		MW	18	<MW>	125	lb/lb-mole
VOC Fraction of Tank Gas		VOC	0.5	<VOC>	1.00	Fraction
Atmospheric Pressure (psia)		Patm	20	<Rs>	2070	scf/bbl

Constants			
	^{0}API Gravity		
^{0}APTI	<30	≥30	Given^{0}API
C1	0.0362	0.0178	
C2	1.0937	1.187	
C3	25.724	23.931	

SGx = Dissolved gas gravity at Separator pressure = SGi [1.0+0.00005912*API*Ti*Log(Pi/114.7)]

Rs = (C1 * SGx * Pi^C2) exp ((C3 * API) / (Ti + 460)) for P + Patm

THC = Rs * Q * MW * 1/385 scf/lb-mole * 365 D/Yr * 1 ton/2000 lbs

VOC =THC * Frac. of C3+ in the Stock Tank Vapor

Technical Disclaimer
This document is intended to help you accurately determine oil/condensate storage tank flash, working and standing emissions. It does not supersede or replace any state or federal law, rule, or regulation. This guidance reflects the current understanding of how these units work and how they generate emissions, how they are monitored or tested, and what data are available for emissions determination, may change over time as the AQB continue scientific studies and as new information becomes available. The AQB welcome any data, information, or feedback that may improve our understanding of oil/condensate storage tank flash, working and standing emissions and thereby further improve determinations within the emissions inventory. The calculation methods represented are intended as an emissions calculation aid; alternate calculation methods may be equally acceptable if they are based upon, and adequately demonstrate, sound engineering assumptions or data. If you have a question regarding the acceptability of a given emissions determination method, contact the Permitting Section at 505-476-4300.

Date:	Feb 21, 2020	**Permit Number:**	GCP-O&G-null
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	Corral Canyon 23	**Elevation (ft.):**	3,076

Vertical Fixed Roof (VFR) Slop Oil or Skim Oil VOC Working & Standing Emissions Calculations Form

Select Tanks W & S Emission Calculation Method

AP-42 Chpt. 7 | EPA Tanks 4.09d | ProMax | E & P Tanks

ProMax Slop Oil or Skim Oil Tanks W & S Emission Calculations

Please attach the ProMAX printout with all input data provided along with the calculated emissions. Enter the uncontrolled VOC emissions below. If the tank vapors are routed to a flare, enclosed combustion device, vapor combustion unit, vapor recovery unit or thermal oxidizer select the appropriate VOC destruction method below along with selected VOC destruction efficiency supported by manufacturer specifications submitted with the application.

Slop Oil or Skim Oil Tanks VOC Control Method			
Capture Efficiency	100	Represent Uncaptured and/or Controlled VOC's at Tanks	NO
VOC Control Method	Flare (FL)	Represent VRU/ULPC Downtime Emissions at Tanks	NO
VOC Destruction Efficiency	98	Represent VOC Controlled Emissions at Tanks*	NO
Notes			

Total VOC W & S Emissions From Slop Oil or Skim Oil Tanks Calculated with ProMax

Add/Remove Rows Up To 10 Units	Tank ID	VOC Uncontrolled Emissions		VOC Emissions after Control		VOC Emissions at the Tanks	
		pph	tpy	pph*	tpy*	pph	tpy
+ -	SKTK1	0.01	0.06	0	0	0	0
+ -	SKTK2	0.01	0.06	0	0	0	0
	Totals	0.02	0.12	0	0	0	0

Notes 1 & 2 See next page; * Emissions only represented at tanks if "Yes" is selected to represent emissions at tanks.

New Mexico Environment Department Air Quality Bureau Equipment Emissions Calculation Form

Date:	Feb 21, 2020	**Permit Number:**	GCP-O&G-null
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	Corral Canyon 23	**Elevation (ft.):**	3,076

Startup, Shutdown & Maintenance and Malfunction

- ○ No SSM emissions are expected from routine operations.
- ○ Request up to 10 tpy of VOC SSM emissions.
- ○ Request site specific VOC & H2S SSM and enter information below.
- ○ Request site specific VOC & H2S SSM plus 10 tpy VOC and enter information below.
- ◉ Request site specific combustion SSM and those emissions are included in Section 4 (attach calculations.)

- ○ Request 10 tpy VOC Malfunction emissions for GCP-O&G, GCP-6 or NSR permitting actions only.

	Blowdowns			Engine Startups		
Unit Numbers						
Quantity of Like-kind Blowdown Units or Engines	1					
Total Volume of Each Blowdown or Engine Startup Vent (acf)						
Duration of Event (Minutes)						
Maximum Blowdowns or Startups/hr	1					
Frequency of Blowdowns or Engine Startups (Events/yr)						
Total Actual Volume of Gas Vented (acf/yr)	0					
Pressure of Gas Inside Unit Before Venting (psig)						
Final Pressure (psia)	14.7					
Gas Temperature Prior to Venting (^oF)						
Vented Gas Molecular Weight (lb/lb-mol						
Vented Gas VOC wt %						
Vented Total HAP wt %						
Vented Gas Benzene wt %						
Vented Gas H_2S wt %						

Startup, Shutdown and Maintenance Emissions (SSM) and Malfunction Emissions

SSM	**VOC**		**Total HAP**		**Benzene**		**H_2S**	
	PPH	TPY	PPH	TPY	PPH	TPY	PPH	TPY
SSM Blowdowns								
SSM Startups								
SSM Other (Attach Calculations)								
SSM Totals								
Malfunction Total								

Notes

*SSM emissions are illustrated at the high and low pressure flares.

Planned SSM Emissions

The venting emissions calculations herein should only be used when only gas (no liquids) is present in the unit. The calculation of the vented gas is based on the volume of the unit and assumes the unit is saturated with vapor at the pressure and temperature of the unit before venting occurs. If liquids are also present in the gas, please enter the calculated amounts in the SSM Other row only and submit separate calculations, since the calculations on this form do not account for the evaporation of liquids that may be present in the unit.

Calculations are based on the Ideal gas law: P(V) = n(R)(T)

VOC result = (((Pressure of Gas Inside the Unit Before Venting) * (Actual Volume of the Vented Unit)) / (Frequency of events) * (Molecular Weight) * VOC wt%)/(Ideal Gas Constant) * (Temperature of Gas Inside the Unit Before Venting)

Where the Ideal Gas Constant = 10.73159 (ft^3*psia)/R*lb-mol

For SSM combustion emissions, attach separate calculations.

Date:	Feb 21, 2020	**Permit Number:**	GCP-O&G-null
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	Corral Canyon 23	**Elevation (ft.):**	3,076

Vertical Fixed Roof (VFR) Produced Water VOC Flash Emissions Calculations Form

Select Tanks Flash Emission Calculation Method

GWR	E & P Tanks	ProMax
Vasquez-Beggs	HYSIS	VMGSim

ProMax Produced Water Tanks Emission Calculations

Please attach the ProMAX printout with all input data provided along with the calculated emissions. Enter the uncontrolled VOC emissions below. If the tank vapors are routed to a flare, enclosed combustion device, vapor combustion unit, vapor recovery unit or thermal oxidizer select the appropriate VOC destruction method below along with selected VOC destruction efficiency supported by manufacturer specifications submitted with the application.

Tanks VOC Control Method

Select % Oil in Water	1	VOC Uncontrolled emissions entered includes this percentage.	
Capture Efficiency	100	Represent Uncaptured and/or Controlled VOC's at Tanks	NO
VOC Control Method	Flare (FL)	Represent VRU/ULPC Downtime Emissions at Tanks	NO
VOC Destruction Efficiency	98	Represent VOC Controlled Emissions at Tanks*	NO
Notes			

Total VOC Emissions From Produced Water Storage Tanks Calculated with ProMax

Add/Remove Rows Up To 10 Units	Tank ID	VOC Uncontrolled Emissions		VOC Emissions after Control		VOC Emissions at the Tanks	
		pph	tpy	pph*	tpy*	pph	tpy
+ -	WT 1	0.5	0.55	0.01	0.01	0	0
+ -	WT 2	0.5	0.55	0.01	0.01	0	0
+ -	WT 3	0.5	0.55	0.01	0.01	0	0
+ -	WT 4	0.5	0.55	0.01	0.01	0	0
+ -	WT 5	0.5	0.55	0.01	0.01	0	0
+ -	WT 6	0.5	0.55	0.01	0.01	0	0
	Totals	3	3.3	0.06	0.06	0	0

Calculation Tool for Tanks Flashing & Working & Standing Emissions for Oil & Gas Production Sites

All flash emissions based on flash calculation methodology selected ;

1) The appropriate ECD, flare, TO, VCU or VRU form must also be completed.
2) Manufacturer documentation required to support % control selected. Assumes VRU/ULPC with a 100% control efficieny, but with 5% downtime;
3) Information included in calculation tool must be based on representative oil and gas analysis which must be submitted with application;
4) GOR and Vasquez-Beggs sample calculations outlined below; E & P Tanks, ProMax, HYSYS & VMG Sim flash emissions require submittal of computer simulation model emissions calculations print-outs;
5) Working & Standing emissions based on AP-42 Chpt. 7, tanks 4.09d computer simulation or ProMax, or VMG computer simulation models.

<u>Sample Calculations</u>

GWR Methodology

VOC pph = GWR (scf/bbl) * Facility Water Throughput (BOPD) * 1/24 (Hours/Day * 1/Universal Gas Constant 385 scf/lb-mole @ 70^{O}F, 1 atm) * Molecular Weight of Tank Vapors (lb/lb-mol) * Percent Oil in Water
= 40 (scf/bbl) * 1000 (BOPD)*1/24 (hrs/day) *1/385 scf/lb-mol * 50 lb/lb-mol * 1/100
= 2.16 lbs/hr

VOC tpy = GWR (scf/bbl) * Facility Water Throughput (BOPD) * 1/24 (Hours/Day * 1/Universal Gas Constant 385 scf/lb-mole @ 70^{O}F, 1 atm) * Molecular Weight of Tank Vapors (lb/lb-mol) * 8760 hr/yr * 1/2000 lbs/ton * Percent Oil in Water
= 40 (scf/bbl) * 1000 (BOPD)*1/24 (hrs/day) *1/385 scf/lb-mol * 50 lb/lb-mol * 8760 hr/yr * 1/2000 lbs/ton * 1/100
= 9.48 tpy

Vasquez-Beggs Methodology

INPUTS			Constraints			
API Gravity		API	16	<API>	58	^{0}API
Separator Pressure (psig)		P	50	<P+Patm>	5250	psia
Separator Temp. (^{0}F)		Ti	70	<Ti>	295	^{0}F
Separator Gas Gravity at Initial Condition		SGi	0.56	<SGi>	1.18	MW/28.97
Barrels of Water/Day (BOPD)	10,000	Q	None	<Q>	None	BOPD
Tank Gas MW		MW	18	<MW>	125	lb/lb-mole
VOC Fraction of Tank Gas		VOC	0.5	<VOC>	1.00	Fraction
Atmospheric Pressure (psia)		Patm	20	<Rs>	2070	scf/bbl

Constants			
	^{0}API Gravity		
^{0}APTI	<30	≥30	Given^{0}API
C1	0.0362	0.0178	
C2	1.0937	1.187	
C3	25.724	23.931	

SGx = Dissolved gas gravity at Separator pressure = SGi [1.0+0.00005912*API*Ti*Log(Pi/114.7)]

Rs = (C1 * SGx * Pi^C2) exp ((C3 * API) / (Ti + 460)) for P + Patm

THC = Rs * Q * MW * 1/385 scf/lb-mole * 365 D/Yr * 1 ton/2000 lbs

VOC = THC * Frac. of C3+ in the Stock Tank Vapor

Technical Disclaimer
This document is intended to help you accurately determine produced water storage tank flash, working and standing emissions. It does not supersede or replace any state or federal law, rule, or regulation. This guidance reflects the current understanding of how these units work and how they generate emissions, how they are monitored or tested, and what data are available for emissions determination, may change over time as the AQB continue scientific studies and as new information becomes available. The AQB welcome any data, information, or feedback that may improve our understanding of produced water storage tank flash, working and standing emissions and thereby further improve determinations within the emissions inventory. The calculation methods represented are intended as an emissions calculation aid; alternate calculation methods may be equally acceptable if they are based upon, and adequately demonstrate, sound engineering assumptions or data. If you have a question regarding the acceptability of a given emissions determination method, contact the Permitting Section at 505-476-4300.

Date:	Feb 21, 2020	**Permit Number:**	GCP-O&G-null
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	Corral Canyon 23	**Elevation (ft.):**	3,076

Vertical Fixed Roof (VFR) Water Tanks VOC Working & Standing Emissions Calculations Form

Select Tanks W & S Emission Calculation Method

AP-42 Chpt. 7 | EPA Tanks 4.09d | ProMax | E & P Tanks

ProMax Produced Water Tanks W & S Emission Calculations

(Assumes W & S emissions are 1% of the emissions calculated based on oil properties and entered as uncontrolled emissions)

Please attach the ProMAX printout with all input data provided along with the calculated emissions. Enter the uncontrolled VOC emissions below. If the tank vapors are routed to a flare, enclosed combustion device, vapor combustion unit, vapor recovery unit or thermal oxidizer select the appropriate VOC destruction method below along with selected VOC destruction efficiency supported by manufacturer specifications submitted with the application.

Tanks VOC Control Method			
Capture Efficiency	100	Represent Uncaptured and/or Controlled VOC's at Tanks	NO
VOC Control Method	Flare (FL)	Represent VRU/ULPC Downtime Emissions at Tanks	NO
VOC Destruction Efficiency	98	Represent VOC Controlled Emissions at Tanks*	NO
Notes			

Total VOC W & S Emissions From Produced Water Storage Tanks Calculated with ProMax

Add/Remove Rows Up To 10 Units	Tank ID	VOC Uncontrolled Emissions		VOC Emissions after Control		VOC Emissions at the Tanks	
		pph	tpy	pph*	tpy*	pph	tpy
+ -	WT1	0	0.02	0	0	0	0
+ -	WT2	0	0.02	0	0	0	0
+ -	WT3	0	0.02	0	0	0	0
+ -	WT4	0	0.02	0	0	0	0
+ -	WT5	0	0.02	0	0	0	0
+ -	WT6	0	0.02	0	0	0	0
	Totals	0	0.12	0	0	0	0

Date:	Feb 21, 2020	**Permit Number:**	GCP-O&G-null
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	Corral Canyon 23	**Elevation (ft.):**	3,076

Emissions From Loading Produced Water Liquids

Select Appropriate AP-42 Petroleum Liquid Loading Methodology & Enter appropriate information in the green boxes below changing default values as appropriate.

Emission Unit ID: TL-W

Facility Produced Water Throughput (gal/yr)	1,825,000
Max. Hourly Loading Rate (gal/hr)	8,820
% Oil in Water	1

*Select Appropriate AP-42 Petroleum Liquid Loading Methodology Below**

- (●) AP-42, 5.2-4 Equation 1
- ( ) AP-42, Table 5.2-5

S - Saturation Factor (From AP-42 Table 5.2-1)	0.6
M - Molecular Weight of Vapors (lb/lb-mole)	18.23
$\mathbf{P_{annual}}$ - Avg. Annual True Vapor Pressure of Liquid Loaded (psia)	0.56
$\mathbf{P_{hourly}}$ - Max Hourly True Vapor Pressure of Liquid Loaded (psia)	0.81
$\mathbf{T_{annual}}$ - Average Annual Temperature ^{o}F of Bulk Liquid Loaded	82.2
$\mathbf{T_{hourly}}$ - Maximum Hourly Temperature ^{o}F of Bulk Liquid Loaded	94.1

Select Emission Source - From AP-42 Table 5.2-5

- (●) Submerged Loading Dedicated Normal Service
- ( ) Submerged Loading Vapor Balance Service
- ( ) Splash Loading Dedicated Normal Service
- ( ) Splash Loading Vapor Balance Service

Notes:The value below represents THC, not VOC. See the Excel workbook for VOC calculations since it uses the composition of the water rather than 1% of the oil.

Total VOC Emissions From Loading Produced Water Liquids Based On % Oil in Water Selected Above

Pollutant	Uncontrolled Emissions (pph)	Uncontrolled Emissions (tpy)
VOC	0.02	0

Footnote: * All emission factors based on AP-42, 5.2-4 Equation 1 or AP-42 Table 5.2-5 (July 2008); See reverse side for calculation notes

Calculation Tool for Emissions From Loading Produced Water Liquids

Emissions based on AP-42, 5.2-4 Equation 1 (July 2008) or AP-42, Table 5.2-5

https://www3.epa.gov/ttn/chief/ap42/ch05/final/c05s02.pdf

AP-42 5.2-4 Equation 1

Emissions from loading produced water liquids can be estimated (with a probable error of ±30 percent)[4] using the following expression:

Equation 1 $L_L = 12.46 * SPM/T$

where:

L_L = loading loss, pounds per 1000 gallons (lb/10^3 gal) of liquid loaded (assumes 1% oil in water)

S = a saturation factor (see Table 5.2-1 reproduced below))

P = true vapor pressure of liquid loaded, pounds per square inch absolute (psia) (see Section 7.1, "Organic Liquid Storage Tanks")

M = molecular weight of vapors, pounds per pound-mole (lb/lb-mole) (see Section 7.1, "Organic Liquid Storage Tanks")

T = temperature of bulk liquid loaded, °R (°F + 460)

VOC pph = (12.46*0.6*7.0 (psia)*50 (lb/lb-mole)/550°R)/1000 (gal) * 8400 (gal/hr) * 0.01 (1% oil in water)
= 39.96 lb/hr

VOC tpy = (12.46*0.6*4.5 (psia)*50 (lb/lb-mole)/525°R)/1000 * 1533000 (gal/hr) * 1/2000 (ton/lbs) * 0.01 (1% oil in water)
= 2.46 tpy

Table 5.2-1. SATURATION (S) FACTORS FOR CALCULATING PETROLEUM LIQUID LOADING LOSSES		
Cargo Carrier	Mode of Operation	S Factor
Tank trucks and rail tank cars	Submerged loading of a clean cargo tank	0.5
	Submerged loading: dedicated normal service	0.6
	Submerged loading: dedicated vapor balance service	1.0
	Splash loading of a clean cargo tank	1.45
	Splash loading: dedicated normal service	1.45
	Splash loading: dedicated vapor balance service	1.0
Marine vessels[a]	Submerged loading: ships	0.2
	Submerged loading: barges	0.5

[a] For products other than gasoline and crude oil. For marine loading of gasoline, use factors from Table 5.2-2. For marine Loading of crude oil, use Equations 2 and 3 and Table 5.2-3.

AP-42 Table 5.2-5 (assumes 1% oil in water)

VOC pph= (2lb/1000 (gal) * ((100-15)/100) * 8400 (gal/hr) * 0.01 (1% oil in water) = 0.168 pph

VOC tpy = (2lb/1000 (gal) * ((100-15)/100) * 100 (BOPD) * 42 (gal/bbl) * 365 (days/yr) * 1/2000 (ton/lb) * 0.01 (1% oil in water) = 0.0153 tpy

Table 5.2-5 TOTAL UNCONTROLLED ORGANIC EMISSION FACTORS FOR PETROLEUM LIQUID RAIL TANK CARS AND TANK TRUCKS		
Emission Source	Mode of Operation	Crude Oil (lb/1000 gal transferred)[b]
Loading Operations[c]		
	Submerged loading: dedicated normal service	2
	Submerged loading: dedicated vapor balance service	3
	Splash loading: dedicated normal service	5
	Splash loading: dedicated vapor balance service	3

a Reference 2. ……VOC factors for crude oil can be assumed to be 15% lower than the total organic factors, to account for the methane and ethane content of crude oil evaporative emissions. All other products should be assumed to have VOC factors equal to total organics; b The example crude oil has an RVP of 34 kPa (5 psia); c Loading emission factors are calculated using Equation 1 for a dispensed product temperature of 16°C (60°F). In the absence of specific inputs for Equations 1 , the typical evaporative emission factors presented in Tables 5.2-5 should be used. It should be noted that, although the crude oil used to calculate the emission values presented in this tables has an RVP of 5, the RVP of crude oils can range from less than 1 up to 10. In areas where loading and transportation sources are major factors affecting air quality, it is advisable to obtain the necessary parameters and to calculate emission estimates using Equations 1.

Technical Disclaimer

This document is intended to help you accurately determine truck loading produced water emissions. It does not supersede or replace any state or federal law, rule, or regulation. This guidance reflects the current understanding of how truck loading operations work and how it generates emissions, how it is monitored or tested, and what data are available for emissions determination, may change over time as the AQB continue scientific studies and as new information becomes available. The AQB welcome any data, information, or feedback that may improve our understanding of truck loading produced water emissions and thereby further improve determinations within the emissions inventory. The calculation methods represented are intended as an emissions calculation aid; alternate calculation methods may be equally acceptable if they are based upon, and adequately demonstrate, sound engineering assumptions or data. If you have a question regarding the acceptability of a given emissions determination method, contact the Permitting Section at 505-476-4300.

New Mexico Environment Department Air Quality Bureau Equipment Emissions Calculation Form

Date:	Feb 21, 2020	**Permit Number:**	GCP-O&G-null
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	Corral Canyon 23	**Elevation (ft.):**	3,076

Flare

Enter information in green boxes below changing default values as appropriate.

	Gas Stream 1	Gas Stream 2	Gas Stream 3		Gas Stream 1	Gas Stream 2	Gas Stream 3
Emission Unit ID	FL-1	FL-1b	FL-1c	Hourly Gas Routed to Flare (MMBtu/hr)	172.30735	3,513.18518	0
Hourly Gas Stream to Flare (Mscf/hr)	91.193	2,535.04		Annual Gas Routed to Flare (MMBtu/yr)	37,734.805(	170,293.248	0
Annual Gas Stream to Flare (MMscf/yr)	19.971	122.88		Pilot Gas Routed to Flare (MMBtu/hr)	0.55434	0	0
Max. Heat Value of Gas (Btu/scf)	1,889.48	1,385.85	1,200	Gas MW (lb/lbmol)	32.84	23.55	
Field Gas Mol Fraction (lbmol H2S/lb-mol)	0	0		Gas Pressure (psia)	14.7	14.7	14.7
Field Gas Sulfur Content (S grains/100 scf)	5	5	5	Gas Temperature (°F)	70	70	70
Pilot Gas to Flare (Mscf/hr)	0.4			Field Gas H2S Wt.% to Flare (%)	0	0	
Max. Heat Value Pilot Gas (Btu/scf)	1,385.85	1,020	1,020	Flare Control Efficiency	98	98	95
Pilot Gas Sulfur Content (S grains/100 scf)	0.25	0.25	0.25	Total VOC wt.% to Flare (%)[1]	57.72	31.92	100
Source of Flare Emission Factors	TCEQ Air or	TCEQ Air or		Safety Factor Applied to Total Emissions (%)			
Use Highest NOx & CO Emission Factors From AP-42 or TCEQ	NO	NO					

Total Emissions to Flare

Pollutant	NOx			CO			VOC			SO2			H2S		
Gas Streams to Flare	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Uncontrolled (pph)	0	0	0	0	0	0	4,467.78	49,253.8		0	0	0	0	0	0
Uncontrolled (tpy)	0	0	0	0	0	0	489.22	1,193.73		0	0	0	0	0	0
Field Gas (pph)	23.7784	484.8196		47.4707	967.8825		89.36	985.08		0	0		0	0	
Field Gas (tpy)	2.6037	11.7502	0	5.198	23.4579	0	9.78	23.87		0	0	0	0	0	0
Pilot Gas (pph)	0.0765			0.1527			0	0	0	0.0003	0	0	0	0	0
Pilot Gas (tpy)	0.3351			0.6689			0	0	0	0.0012	0	0	0	0	0
Subtotal Flare (pph)	23.8549	484.8196	0	47.6234	967.8825	0	89.36	985.08	0	0.0003	0	0	0	0	0
Subtotal Flare (tpy)	2.9388	11.7502	0	5.8669	23.4579	0	9.78	23.87	0	0.0012	0	0	0	0	0
Total Flare (pph)	508.67			1,015.51			1,074.44			0.0003			0		
Total Flare (tpy)	14.69			29.32			33.65			0.0012			0		

See reverse side for calculation notes.

1) Based on representative gas analysis which must be submitted with application; 2) Assumes pilot gas has a negligible amount of VOC & 0.25 grains H2S/100scf; *) Emission factors for NOx, CO & VOC based on AP-42, Table 13.5-1, (Dec. 2015) or TCEQ RG-360A/11 (February 2012); #) Assumes H_2S is converted to SO_2 at selected control efficiency; SO2 emissions based on mass balance; +) Assumes H_2S Destruction Efficiency equals flare destruction efficiency;

Calculation Tool for Flare Emissions for Oil & Gas Production Sites

All emission factors based on AP-42, Emission factors for NOx, CO & VOC, Table 13.5-1, (December 2016); https://www3.epa.gov/ttn/chief/ap42/ch13/final/C13S05_12-13-16.pdf or https://www.tceq.texas.gov/assets/public/comm_exec/pubs/rg/rg360/rg36011/rg-360a.pdf

1) Information included in calculation tool must be based on representative gas analysis which must be submitted with application;
2) Assumes pilot gas used has a negligible amount of VOC's and 0.25 grains H2S/100 scf;
3) SO_2 calculations assumes H_2S is converted to SO_2 at selected control efficiency; SO_2 emissions based on mass balance;
4) H_2S calculations assume H_2S Destruction Efficiency equals flare destruction efficiency;

Sample Calculations

NOx pph = hourly gas routed to flare (MMBtu/hr) * NOx Emission factor (lbs/MMBtu)
= 1(MMBtu/hr) * 0.068 (lbs/MMBtu)
= 0.068 lbs/hr

NOx tpy = annual gas routed to flare (MMBtu/yr) * NOx Emission factor (lbs/MMBtu) * 1/lbs/ton)
= 1000 (MMBtu/yr) * 0.068 (lb/MMBtu) * 1/2000 (lbs/ton)
= 0.034 tpy

SO_2 pph= Hourly Gas Stream to flare (MMScf/hr) * 1000000/1 (scf/MMScf) * Field Gas mol Fraction of H_2S (mol H_2S/lb-mol)/100 * 1/Universal Gas Constant 385 scf/lb-mole @ 60^{O}F, 1 atm * Conversion Rate of H_2S to SO_2 lb-mol SO_2/lb-mol H_2S * Molecular Weight of Sulfur Dioxide (64 lb SO_2/lb-mol SO_2)
= 1 MMScf/hr * 1000000/1 (Scf/MMScf) * 0.1 mol H_2S* 1/385 scf/lb-mole * 0.95 lb-mol SO_2/lb-mol H_2S * 64 lb/lb-mol

Residual
H_2S pph= Hourly Gas Stream to flare (MMScf/hr) * 1000000/1 (scf/MMScf) * Field Gas mol Fraction of H_2S (mol H_2S/lb-mol)/100 * 1/Universal Gas Constant 385 scf/lb-mole @ 60^{O}F, 1 atm * (100-(Flare Control Efficiency))/100) * Molecular Weight of Hydrogen Sulfide (34 lb H_2S/lb-mol H_2S)
= 1 MMScf/hr * 1000000/1 (Scf/MMScf) * 0.1 mol H_2S* 1/385 scf/lb-mole * (100-95%/100) * 34 lb/lb-mol

Flare, Vapor Combustion Devices & Enclosed Combustion Devices Emission Factors				
Contaminant	Assist Type	Waste Gas Stream Heat Value (Btu/scf)	AP-42 Emission Factor (lb/MMBtu)	TCEQ Emission Factor (lb/MMBtu)
NOx	Steam	≥1000	0.068	0.0485
	Steam	<1000	0.068	0.068
	Air or Unassisted	≥1000	0.068	0.138
	Air or Unassisted	<1000	0.068	0.0641
CO	Steam	≥1000	0.31	0.3503
	Steam	<1000	0.31	0.3465
	Air or Unassisted	≥1000	0.31	0.2755
	Air or Unassisted	<1000	0.31	0.5496
VOC	Air & Steam Assist	≥300	0.66	

Technical Disclaimer
This document is intended to help you accurately determine flares, enclosed combustion devices and vapor combustion units emissions. It does not supersede or replace any state or federal law, rule, or regulation. This guidance reflects the current understanding of how these combustion units work and how they generate emissions, how they are monitored or tested, and what data are available for emissions determination, may change over time as the AQB continue scientific studies and as new information becomes available. The AQB welcome any data, information, or feedback that may improve our understanding of flares, enclosed combustion devices and vapor combustion units emissions and thereby further improve determinations within the emissions inventory. The calculation methods represented are intended as an emissions calculation aid; alternate calculation methods may be equally acceptable if they are based upon, and adequately demonstrate, sound engineering assumptions or data. If you have a question regarding the acceptability of a given emissions determination method, contact the Permitting Section at 505-476-4300.

New Mexico Environment Department Air Quality Bureau Equipment Emissions Calculation Form

Date:	Feb 21, 2020	**Permit Number:**	GCP-O&G-null
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	Corral Canyon 23	**Elevation (ft.):**	3,076

Emission Unit ID: FUG **Fill all green/blue boxes changing default values as appropriate.**

Fugitive Volatile Organic Compounds (VOC), Total HAPs (HAP), Benzene (CH6) & Hydrogen Sulfide (H_2S) Emissions

					Uncontrolled Total								Controlled Total							
					VOC		Total HAP		CH_6		H_2S		VOC		Total HAP		CH_6		H_2S	
Service	%VOC	%HAP	%CH_6	%H_2S	PPH	TPY	PPH	TPY	PPH	TPY	PPH	TPY	PPH	TPY	PPH	TPY	PPH	TPY	PPH	TPY
Gas	32.87%	1.3			0.75	3.27	0.03	0.13	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Oil					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Light Oil	99.27%	6.47			1.22	5.36	0.08	0.35	0	0	0	0	0	0	0	0	0	0	0	0
Water/Oil	0.99%	0.065			0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals					1.97	8.64	0.11	0.48	0	0	0	0	0	0	0	0	0	0	0	0

				Uncontrolled VOC, HAP & CH_6 Emissions							Controlled VOC, HAP & CH_6 Emissions					
Equipment Type	Service[a]	EF[b] PPH/Source	No. of Sources	VOC PPH	VOC TPY	HAP PPH	HAP TPY	CH_6 PPH	CH_6 TPY	Control Efficiency	VOC PPH	VOC TPY	HAP PPH	HAP TPY	CH_6 PPH	CH_6 TPY
Valves	Gas	0.0099207	140	0.4565	1.9995	0.0181	0.0793	0	0	0%	0	0	0	0	0	0
	Heavy Oil	0.00001852	0	0	0	0	0	0	0	0%	0	0	0	0	0	0
	Light Oil	0.0055115	140	0.766	3.3551	0.0499	0.2186	0	0	0%	0	0	0	0	0	0
	Water/Oil	0.00021605	50	0.0001	0.0004	0	0	0	0	0%	0	0	0	0	0	0
Subtotals				1.2226	5.355	0.068	0.2979	0	0		0	0	0	0	0	0
Pump Seals	Gas	0.00529104	5	0.0087	0.0381	0.0003	0.0013	0	0	0%	0	0	0	0		0
	Heavy Oil	0.0286598	0	0	0	0	0	0	0	0%	0	0	0	0	0	0
	Light Oil	0.0286598	5	0.1423	0.6233	0.0093	0.0407	0	0	0%	0	0	0	0	0	0
	Water/Oil	0.00005291	10	0	0	0	0	0	0	0%	0	0	0	0	0	0
Subtotals				0.151	0.6614	0.0096	0.042	0	0		0	0	0	0	0	0
Connectors	Gas	0.00044092	450	0.0652	0.2856	0.0026	0.0114	0	0	0%	0	0	0	0	0	0
	Heavy Oil	0.00001653	0	0	0	0	0	0	0	0%	0	0	0	0	0	0
	Light Oil	0.00046297	450	0.2068	0.9058	0.0135	0.0591	0	0	0%	0	0	0	0	0	0
	Water/Oil	0.00024251	50	0.0001	0.0004	0	0	0	0	0%	0	0	0	0	0	0
Subtotals				0.2721	1.1918	0.0161	0.0705	0	0		0	0	0	0	0	0
Flanges	Gas	0.00085979	450	0.1272	0.5571	0.005	0.0219	0	0	0%	0	0	0	0	0	0
	Heavy Oil	0.00000086	0	0	0	0	0	0	0	0%	0	0	0	0	0	0
	Light Oil	0.00024251	450	0.1083	0.4744	0.0071	0.0311	0	0	0%	0	0	0	0	0	0
	Water/Oil	0.00000639	50	0	0	0	0	0	0	0%	0	0	0	0	0	0
Subtotals				0.2355	1.0315	0.0121	0.053	0	0		0	0	0	0	0	0
Open Ends	Gas	0.0044092	18	0.0261	0.1143	0.001	0.0044	0	0	0%	0	0	0	0	0	0
	Heavy Oil	0.00030864	0	0	0	0	0	0	0	0%	0	0	0	0	0	0
	Light Oil	0.00308644	0	0	0	0	0	0	0	0%	0	0	0	0	0	0
	Water/Oil	0.00055115	0	0	0	0	0	0	0	0%	0	0	0	0	0	0
Subtotals				0.0261	0.1143	0.001	0.0044	0	0		0	0	0	0	0	0
Other[c]	Gas	0.01940048	10	0.0638	0.2794	0.0025	0.011	0	0	0%	0	0	0	0	0	0
	Heavy Oil	0.00007055	0	0	0	0	0	0	0	0%	0	0	0	0	0	0
	Light Oil	0.0165345	0	0	0	0	0	0	0	0%	0	0	0	0	0	0
	Water/Oil	0.0308644	5	0.0015	0.0066	0.0001	0.0004	0	0	0%	0	0	0	0	0	0
Subtotals				0.0653	0.286	0.0026	0.0114	0	0		0	0	0	0	0	0

Based on: *1995 Protocol for Equipment Leak Emission Estimates*, Table 2.4 Version Date: 6/23/16; See next page for calculation notes.

Calculation Tool for Fugitive Emissions Oil & Gas Production

Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017), Table 2-4;
available at the EPA Web site at https://www3.epa.gov/ttn/chief/efdocs/equiplks.pdf

a) Service categories are defined as follows:

1) Gas/vapor - material in a gaseous state at operating conditions;
2) Light liquid - material in a liquid state in which the sum of the concentration of individual constituents with a vapor pressure over 0.3 kilopascals (kPa) at 200C is greater than or equal to 20 weight percent;
3) Heavy liquid - not in gas/vapor service or light liquid service.
4) Water/Oil emission factors apply to water streams in oil service with a water content greater than 50%, from the point of origin to the point where the water content reaches 99%. For water streams with a water content greater than 99%, the emission rate is considered negligible.

b) These factors are for total organic compound emission rates (including non-VOC's such as methane and ethane) and apply to light crude, heavy crude, gas plant, gas production, and off shore facilities. "NA" indicates that not enough data were available to develop the indicated emission factor.

c) The "other" equipment type was derived from compressors, diaphragms, drains, dump arms, hatches, instruments, meters, pressure relief valves, polished rods, relief valves, and vents. This "other" equipment type should be applied for any equipment type other than connectors, flanges, open-ended lines, pumps, or valves.

d) Note that the average factors generally determine total hydrocarbon emissions. Therefore, you may need to multiply the calculated emission rates by the stream's weight percentage of VOC compounds to determine total VOC emissions. Please attach a copy of the appropriate gas and oil analysis with the stream's weight percentage of VOC compounds identified.

VOC Sample Calculation
For 10 Valves in Gas Service with a gas stream weight percentage of 25% VOC

Emission Factor (EF) lb/hr=0.0045 kg/hr * 2.2046 lbs/kg
Gas Valves Uncontrolled Emissions

pph	EF (Valves in Gas Service) * Number of Valves in Gas Service & VOC wt%
	0.0099207 lb/hr * 10 valves = 0.099207 lb/hr * 25%/100
tpy	EF (Valves in Gas Service) * Number of Valves in Gas Service * 8760 hrs/yr * 1ton/2000 lbs
	0.0099207 lb/hr * 10 valves * 8760 hrs/yr * 1/2000 ton/lbs = 0.4345 tons/yr * 25%/100

Total Uncontrolled Fugitive Emissions for all Service types in Gas Service

pph	(Uncontrolled pph Emissions for Valves + Pump Seals + Connectors + Flanges + Open Ends + Other) * VOC wt%/100
tpy	(Uncontrolled tpy Emissions for Valves + Pump Seals + Connectors + Flanges + Open Ends + Other) * VOC wt%/100

Technical Disclaimer
This document is intended to help you accurately determine equipment leak fugitive emissions. It does not supersede or replace any state or federal law, rule, or regulation. This guidance reflects the current understanding of how piping components work and how they generate emissions, how they are monitored or tested, and what data are available for emissions determination, may change over time as we continue our scientific studies and as new information becomes available. We welcome any data, information, or feedback that may improve our understanding of equipment leak fugitive emissions and thereby further improve determinations within the emissions inventory. The calculation methods represented are intended as an emissions calculation aid; alternate calculation methods may be equally acceptable if they are based upon, and adequately demonstrate, sound engineering assumptions or data. If you have a question regarding the acceptability of a given emissions determination method, contact the Permitting Section at 505-476-4300.

Date:	Feb 21, 2020	**Permit Number:**	GCP-O&G-null
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	Corral Canyon 23	**Elevation (ft.):**	3,076

Unpaved Haul Roads

Enter Information in all green boxes.

Haul Road Fugitive Emission Unit ID: ROAD

% Silt	4.8	**Haul Road Distance-Round-trip in Miles (Only enter round-trip distance within facility boundaries)**	0.13
Mean Vehicle Weight (tons)	28	**Number of Haul Road Round-trips/hour**	2
Rain Days	70	**Number of Haul Road Round-trips/yr**	17,381
User % Control	0	**Vehicle Miles Traveled/hr (VMT/hr)**	0.26
		Vehicle Miles Traveled/yr (VMT/yr)	2,259.53

Notes:* The values here a slightly different from the Excel workbook due to rounding. The actual distance per load is 0.133 miles.

Hourly lbs/VMT			Annually lbs/VMT		
TSP	**PM10**	**PM2.5**	**TSP**	**PM10**	**PM2.5**
7.05	1.8	0.18	5.7	1.45	0.15

TSP/PM10/PM2.5 Emission Rates

Control	TSP		PM10		PM2.5	
	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
Continuous	1.83	6.49	0.47	1.65	0.05	0.17
0% Control	1.83	6.44	0.47	1.64	0.05	0.17
User % Control	1.83	6.44	0.47	1.64	0.05	0.17

Footnote: All emissions based on AP-42, 13.2.2-4 (November 2006); See reverse side for calculation notes.

NMED-AQB Unpaved Haul Road Calculation Tool

All emission factors based on AP-42, AP-42 13.2.2-4; November 2006

https://www3.epa.gov/ttn/chief/ap42/ch13/final/c13s0202.pdf

Emissions from vehicles traveling on unpaved surfaces at industrial sites (based on 8760 Hours/year) can be estimated using the following expression:

AP-42 13.2.2-4; Equation 1a: $$E = k\,(s/12)^a(W/3)^b$$

where k, a, b, c and d are empirical constants (Reference 6) given below and

E = size-specific emission factor (lb/VMT)

s = surface material silt content (%)

W = mean vehicle weight (tons)

M = surface material moisture content (%)

Table 13.2.2-2. CONSTANTS FOR EQUATION 1a

Constant	Industrial Roads (Equation 1a)		
	PM-2.5	PM-10	PM-30*
k (lb/VMT)	0.15	1.5	4.9
a	0.9	0.9	0.7
b	0.45	0.45	0.45
Quality Rating	B	B	B

*Assumed equivalent to total suspended particulate matter (TSP)

Technical Disclaimer

This document is intended to help you accurately determine unpaved haul road emissions. It does not supersede or replace any state or federal law, rule, or regulation. This guidance reflects the current understanding of how unpaved haul roads work and how they generate emissions, how they are monitored or tested, and what data are available for emissions determination, may change over time as we continue our scientific studies and as new information becomes available. We welcome any data, information, or feedback that may improve our understanding of unpaved haul road emissions and thereby further improve determinations within the emissions inventory. The calculation methods represented are intended as an emissions calculation aid; alternate calculation methods may be equally acceptable if they are based upon, and adequately demonstrate, sound engineering assumptions or data. If you have a question regarding the acceptability of a given emissions determination method, contact the Permitting Section at 505-476-4300.

New Mexico Environment Department Air Quality Bureau Emissions Calculation Forms

Date: Feb 21, 2020
Company Name: XTO Energy Inc.
Facility Name: Corral Canyon 23

Permit Number:
AI# if Known:
Elevation (ft.): 3,076

Total Requested Emissions For All Regulated Facility Equipment (GCP-O&G Request)

Emission Unit	NO_x		CO		VOC		SO_x		TSP		PM_{10}		$PM_{2.5}$		H_2S		Total HAP	
	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
Engines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0
Heaters	1.07	4.67	0.9	3.92	0.06	0.25	0	0	0.08	0.35	0.08	0.35	0.08	0.35	-	-		
Oil Tanks Flash	-	-	-	-	0	0	-	-	-	-	-	-	-	-				
Oil Tanks W & S	-	-	-	-	0	0	-	-	-	-	-	-	-	-				
Water Tks Flash	-	-	-	-	0	0	-	-	-	-	-	-	-	-				
Water Tks W & S	-	-	-	-	0	0	-	-	-	-	-	-	-	-				
Skim or Slop Tank	-	-	-	-	0	0	-	-	-	-	-	-	-	-				
GBS	-	-	-	-			-	-	-	-	-	-	-	-				
ECD	0	0	0	0	0	0	0	0										
VCU	0	0	0	0	0	0	0	0										
TO	0	0	0	0	0	0	0	0										
Flares	508.67	14.69	1,015.51	29.32	1,074.44	33.65	0	0										
Fugitives	-	-	-	-	1.97	8.64									0	0	0.11	0.48
SSM																		
Malf.	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Unpaved Haul Rds.	-	-	-	-	-	-	-	-	1.83	6.44	0.47	1.64	0.05	0.17	-	-	-	-
Paved Haul Rds.	-	-	-	-	-	-	-	-	0	0	0	0	0	0	-	-	0	0
Oil Load	-	-	-	-	0.92	3.45	-	-	-	-	-	-	-	-				
Water Loading	-	-	-	-	0.02	0	-	-	-	-	-	-	-	-				
Amine Unt	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0	0	0
Amine Reb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-		
Dehy Unit	-	-	-	-			-	-	-	-	-	-	-	-				
Dehy Reb.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-		
Totals	**509.74**	**19.36**	**1,016.4**	**33.24**	**1,077.4**	**45.99**	**0**	**0**	**1.91**	**6.79**	**0.55**	**1.99**	**0.13**	**0.52**	**0**	**0**	**0.11**	**0.48**

A red-outlined cell indicates that the facility exceeds the allowable emission limits for that pollutant for the requested permitting action and the application cannot be approved as proposed.

Section 6
Information Used to Determine Emissions

Section 6

Information Used to Determine Emissions

Check the box for each type of information submitted. This documentation is required. If applicable to the facility.

Failure to include applicable supporting documentation may result in application denial.

☒ Specifications for control equipment, including control efficiency specifications and sufficient engineering data for verification of control equipment operation, including design drawings, test reports, and design parameters that affect normal operation.

- ☐ Engine or Generator Manufacturer specifications
- ☐ Catalyst Manufacturer specifications (If a catalyst is being utilized to reduce emissions, the catalyst manufacturer emission factors must be used in all emission calculations. A 25% safety factor may be applied to each pollutant.
- ☐ NSPS JJJJ emission factors **may not** be utilized in lieu of catalyst manufacture specifications when a catalyst is installed, and the catalysts manufacturer achieves higher control efficiency.
- ☒ Flare Manufacturer specifications
- ☒ Oil/Liquid Analysis: This data is required to match the inputs in all applicable emission calculations. For facilities that have not been constructed and a representative analysis is used it cannot be older than 1 year. For existing facilities, the gas analyses required by Condition A201.A (must be 1 year old or less).
- ☐ Gas Analysis (must be 1 year old or less) This data is required to match the inputs in all applicable emission calculations.
- ☒ Extended Gas Analysis (must be 1 year old or less) This data is required to match the inputs in all applicable emission calculations.
- ☒ If requesting to use a representative gas sample, include a discussion of why the sample is representative for this facility and an explanation of how it is representative (e.g., same reservoir, same similar API gravity, similar composition).

☐ If test data are used, to support emissions calculations or to establish allowable emission limits, include a copy of the complete test report. If the test data are for an emissions unit other than the one being permitted, the emission units must be identical. Test data may not be used if any difference in operating conditions of the unit being permitted and the unit represented in the test report significantly effect emission rates.

☐ Fuel specifications sheet.

☒ If computer models are used to estimate emissions, include an input summary and a detailed report, and a disk containing the input file used to run the model.

☒ For tank-flashing emissions, include a discussion of the method used to estimate tank-flashing emissions, accuracy of the model, the **input and output** summary from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis.

Representative Gas Analysis Justification: * The analysis came from the Corral Canyon, which produces from the same reservoir and has similar characteristics.

Heaters (HT1-HT2)
Emission rates for NOx, CO, VOC, PM, and HAP were calculated using AP-42 factors for external natural gas combustion sources, Table 1.4-1 and 1.4-2. PM_{10} and $PM_{2.5}$ emissions are set equal to PM emissions as a conservative measure. Emissions were increase assuming a burner efficiency of 70%. The AECT calculated emissions are lower than the Excel workbook.

Vapor Recovery Tower (VRT)
Flashing, working and breathing losses were estimated using Promax. A VRU is used to capture 98% of the vapors when operating. During VRU downtime (876 hours), VRT vapors are routed from to the low pressure flare (LFP) with a control efficiency of 98%. The hourly VRT emissions and gas volumes were based upon the daily production rate then divided by 24. The maximum hourly VRT emissions and gas volumes were calculated by multiplying the normal hourly rate by 4.

Oil Storage Tanks (OT1-OT6)
Flashing, working and breathing losses were estimated using Promax. A VRU is used to capture 98% of the tank vapors when operating (LPF-OT). During VRU downtime (2,190 hours), tank vapors are routed from the storage tanks to the low pressure flare (LFP) with a control efficiency of 98% (LPF-OT SSM). Oil is normally piped offsite but up to 5000 BOPD can be trucked offsite. Truck loading is controlled by LPF. The hourly tank emissions and gas volumes were based upon the daily production rate then divided by 24. The maximum hourly tank emissions and gas volumes were calculated by multiplying the normal hourly rate by 4.

Water Skim Tanks (SKTK1-SKTK2)
Flashing, working and breathing losses were estimated using Promax, assuming a maximum throughput of 60000 BWPD. Tank vapors are routed to LPF, which has a control efficiency of 98% (LPF-WT). Water is normally piped offsite but up to 5000 BOPD can be trucked offsite. The hourly tank emissions and gas volumes were based upon the daily production rate then divided by 24. The maximum hourly tank emissions and gas volumes were calculated by multiplying the normal hourly rate by 4.

Water Tanks (WT1-WT6)
Working and breathing losses were estimated using Promax, assuming a maximum throughput of 60000 BWPD. Tank vapors are routed to LPF, which has a control efficiency of 98% (LPF-WT). Water is normally piped offsite but can be trucked offsite as well. The hourly tank emissions and gas volumes were based upon the daily production rate then divided by 24. The maximum hourly tank emissions and gas volumes were calculated by multiplying the normal hourly rate by 4.

High Pressure Flare (HPF)
The flare uses a continuously lit pilot. Heater treater gas is routed to the flare during booster compressor (BC1/BC2) downtime (HPF-HT SSM) and inlet gas is routed to the flare during sales line downtime or during unplanned maintenance activities (HPF-SALES SSM). Heater treater gas volumes were estimated using Promax. Inlet volumes are based on production estimates. Emission rates for NO_x and CO are calculated using factors from TNRCC. H_2S, SO_2 and VOC emissions were calculated based on the gas analysis. A VOC control efficiency of 98% was used. On the AECT, FL-1 is the treater gas stream during booster downtime and FL-1b is the inlet gas stream.

Low Pressure Flare (LPF)
The flare uses a continuously lit pilot. LPF collects 2% of all VRT and oil tanks gas during normal VRU operation and 100% of all tank gas during VRU downtime. All skim tank, water tank, and oil truck loading emissions are routed to the flare. The gas volumes are calculated using Promax. Emission rates for NO_x and CO are calculated using factors from TNRCC. H_2S, SO_2 and VOC emissions were calculated based on the gas analysis. A VOC control efficiency of 98% was used. The AECT does not work for the LPF since there are too many streams.

Fugitives (FUG)
Fugitives for the facility were calculated using factors in Table 2-4 of EPA-453/R-95-017, 1995 Protocol for Equipment Leak Emission Estimates.

Haul Road (ROAD)
Haul road emissions were calculated using Equation 1a in AP-42, Section 13.2.2.

August 30, 2019

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

For: XTO Energy, Inc.
22777 Springwoods Village Pkwy.
Spring, Texas 77389

Sample: Corral Canyon Tank Battery - FWKO 900
First Stage Separator
Spot Gas Sample @ 87 psig & 86 °F

Date Sampled: 08/20/2019

Job Number: 192968.001

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286

COMPONENT	MOL%	GPM
Hydrogen Sulfide*	< 0.001	
Nitrogen	0.919	
Carbon Dioxide	0.179	
Methane	70.043	
Ethane	14.584	3.997
Propane	7.854	2.218
Isobutane	1.068	0.358
n-Butane	2.635	0.851
2-2 Dimethylpropane	0.007	0.003
Isopentane	0.635	0.238
n-Pentane	0.685	0.254
Hexanes	0.522	0.220
Heptanes Plus	0.869	0.345
Totals	100.000	8.485

Computed Real Characteristics Of Heptanes Plus:

Specific Gravity ---------------------------	3.263	(Air=1)
Molecular Weight -------------------------	94.05	
Gross Heating Value --------------------	4891	BTU/CF

Computed Real Characteristics Of Total Sample:

Specific Gravity ---------------------------	0.826	(Air=1)
Compressibility (Z) -----------------------	0.9950	
Molecular Weight -------------------------	23.80	
Gross Heating Value		
Dry Basis --------------------------------	1442	BTU/CF
Saturated Basis ------------------------	1418	BTU/CF

*Hydrogen Sulfide tested on location by: Stain Tube Method (GPA 2377)
Results: <0.013 Gr/100 CF, <0.2 PPMV or <0.001 Mol %

Base Conditions: 15.025 PSI & 60 Deg F

Sampled By: (14) R. Perez
Analyst: NG
Processor: RG
Cylinder ID: T-2763

Certified: FESCO, Ltd. - Alice, Texas

David Dannhaus 361-661-7015

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286
TOTAL REPORT

COMPONENT	MOL %	GPM	WT %
Hydrogen Sulfide*	< 0.001		< 0.001
Nitrogen	0.919		1.082
Carbon Dioxide	0.179		0.331
Methane	70.043		47.216
Ethane	14.584	3.997	18.427
Propane	7.854	2.218	14.553
Isobutane	1.068	0.358	2.608
n-Butane	2.635	0.851	6.436
2,2 Dimethylpropane	0.007	0.003	0.021
Isopentane	0.635	0.238	1.925
n-Pentane	0.685	0.254	2.077
2,2 Dimethylbutane	0.007	0.003	0.025
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.058	0.024	0.210
2 Methylpentane	0.165	0.070	0.598
3 Methylpentane	0.087	0.036	0.315
n-Hexane	0.205	0.086	0.742
Methylcyclopentane	0.101	0.036	0.357
Benzene	0.093	0.027	0.305
Cyclohexane	0.189	0.066	0.668
2-Methylhexane	0.025	0.012	0.105
3-Methylhexane	0.028	0.013	0.118
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.071	0.032	0.296
n-Heptane	0.057	0.027	0.240
Methylcyclohexane	0.119	0.049	0.491
Toluene	0.052	0.018	0.201
Other C8's	0.065	0.031	0.301
n-Octane	0.018	0.009	0.086
Ethylbenzene	0.002	0.001	0.009
M & P Xylenes	0.010	0.004	0.045
O-Xylene	0.002	0.001	0.009
Other C9's	0.024	0.012	0.127
n-Nonane	0.004	0.002	0.022
Other C10's	0.007	0.004	0.042
n-Decane	0.001	0.001	0.006
Undecanes (11)	0.001	0.001	0.006
Totals	100.000	8.485	100.000

Computed Real Characteristics of Total Sample

Specific Gravity ------------------------------------	0.826	(Air=1)
Compressibility (Z) --------------------------------	0.9950	
Molecular Weight ----------------------------------	23.80	
Gross Heating Value		
Dry Basis --	1442	BTU/CF
Saturated Basis --------------------------------	1418	BTU/CF

August 30, 2019

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

Sample: Corral Canyon Tank Battery - FWKO 900
First Stage Separator
Spot Gas Sample @ 87 psig & 86 °F

Date Sampled: 08/20/2019 Job Number: 192968.001

GLYCALC FORMAT

COMPONENT	MOL%	GPM	Wt %
Carbon Dioxide	0.179		0.331
Hydrogen Sulfide	< 0.001		< 0.001
Nitrogen	0.919		1.082
Methane	70.043		47.216
Ethane	14.584	3.997	18.427
Propane	7.854	2.218	14.553
Isobutane	1.068	0.358	2.608
n-Butane	2.642	0.854	6.457
Isopentane	0.635	0.238	1.925
n-Pentane	0.685	0.254	2.077
Cyclopentane	0.000	0.000	0.000
n-Hexane	0.205	0.086	0.742
Cyclohexane	0.189	0.066	0.668
Other C6's	0.317	0.134	1.148
Heptanes	0.282	0.119	1.116
Methylcyclohexane	0.119	0.049	0.491
2,2,4 Trimethylpentane	0.000	0.000	0.000
Benzene	0.093	0.027	0.305
Toluene	0.052	0.018	0.201
Ethylbenzene	0.002	0.001	0.009
Xylenes	0.012	0.005	0.054
Octanes Plus	0.120	0.061	0.590
Totals	100.000	8.485	100.000

Real Characteristics Of Octanes Plus:

Specific Gravity -----------------------	4.060	(Air=1)
Molecular Weight -----------------------	117.01	
Gross Heating Value -----------------	6153	BTU/CF

Real Characteristics Of Total Sample:

Specific Gravity --------------------------	0.826	(Air=1)
Compressibility (Z) ----------------------	0.9950	
Molecular Weight ------------------------	23.80	
Gross Heating Value		
Dry Basis --------------------------------	1442	BTU/CF
Saturated Basis -----------------------	1418	BTU/CF

September 20, 2019

FESCO, Ltd.
1100 FESCO Avenue - Alice, Texas 78332

For: XTO Energy, Inc.
22777 Springwoods Village Pkwy.
Spring, Texas 77389

Sample: Corral Canyon Tank Battery - FWKO 900
First Stage Separator Hydrocarbon Liquid
Sampled @ 87 psig & 86 °F

Date Sampled: 08/21/19

Job Number: 192968.002

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2186-M

COMPONENT	MOL %	LIQ VOL %	WT %
Nitrogen	0.026	0.005	0.005
Carbon Dioxide	0.014	0.004	0.004
Methane	1.849	0.544	0.207
Ethane	2.503	1.162	0.525
Propane	4.349	2.080	1.338
Isobutane	1.306	0.742	0.530
n-Butane	4.542	2.486	1.841
2,2 Dimethylpropane	0.050	0.033	0.025
Isopentane	2.544	1.615	1.280
n-Pentane	3.672	2.311	1.848
2,2 Dimethylbutane	0.036	0.026	0.022
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.399	0.284	0.240
2 Methylpentane	1.412	1.018	0.849
3 Methylpentane	0.857	0.608	0.515
n-Hexane	2.519	1.798	1.514
Heptanes Plus	73.923	85.283	89.256
Totals:	100.000	100.000	100.000

Characteristics of Heptanes Plus:

Specific Gravity ---------------------------------	0.8254	(Water=1)
°API Gravity --------------------------------------	39.92	@ 60°F
Molecular Weight ------------------------------	173.1	
Vapor Volume ----------------------------------	14.76	CF/Gal
Weight --	6.88	Lbs/Gal

Characteristics of Total Sample:

Specific Gravity ---------------------------------	0.7887	(Water=1)
°API Gravity --------------------------------------	47.91	@ 60°F
Molecular Weight-------------------------------	143.4	
Vapor Volume ----------------------------------	17.03	CF/Gal
Weight --	6.57	Lbs/Gal

Base Conditions: 15.025 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas

Sampled By: (14) Perez
Analyst: RR
Processor: ANBdjv
Cylinder ID: W-2619

David Dannhaus 361-661-7015

TANKS DATA INPUT REPORT - GPA 2186-M

COMPONENT	Mol %	LiqVol %	Wt %
Carbon Dioxide	0.014	0.004	0.004
Nitrogen	0.026	0.005	0.005
Methane	1.849	0.544	0.207
Ethane	2.503	1.162	0.525
Propane	4.349	2.080	1.338
Isobutane	1.306	0.742	0.530
n-Butane	4.592	2.519	1.866
Isopentane	2.544	1.615	1.280
n-Pentane	3.672	2.311	1.848
Other C-6's	2.705	1.936	1.626
Heptanes	10.992	7.572	7.025
Octanes	12.619	9.783	9.308
Nonanes	5.882	5.437	5.201
Decanes Plus	36.877	57.841	62.672
Benzene	1.495	0.727	0.815
Toluene	2.852	1.658	1.833
E-Benzene	0.412	0.276	0.305
Xylenes	2.287	1.533	1.694
n-Hexane	2.519	1.798	1.514
2,2,4 Trimethylpentane	0.506	0.457	0.403
Totals:	100.000	100.000	100.000

Characteristics of Total Sample:

Specific Gravity --	0.7887	(Water=1)
°API Gravity --	47.91	@ 60°F
Molecular Weight--------------------------------------	143.4	
Vapor Volume ---	17.03	CF/Gal
Weight --	6.57	Lbs/Gal

Characteristics of Decanes (C10) Plus:

Specific Gravity --	0.8546	(Water=1)
Molecular Weight--------------------------------------	243.6	

Characteristics of Atmospheric Sample:

°API Gravity --	45.26	@ 60°F
Reid Vapor Pressure Equivalent (D-6377)---------	9.64	psi

QUALITY CONTROL CHECK			
	Sampling Conditions	Test Samples	
Cylinder Number	------	W-2619*	------
Pressure, PSIG	87	80	------
Temperature, °F	86	86	------

* Sample used for analysis

TOTAL EXTENDED REPORT - GPA 2186-M

COMPONENT	Mol %	LiqVol %	Wt %
Nitrogen	0.026	0.005	0.005
Carbon Dioxide	0.014	0.004	0.004
Methane	1.849	0.544	0.207
Ethane	2.503	1.162	0.525
Propane	4.349	2.080	1.338
Isobutane	1.306	0.742	0.530
n-Butane	4.542	2.486	1.841
2,2 Dimethylpropane	0.050	0.033	0.025
Isopentane	2.544	1.615	1.280
n-Pentane	3.672	2.311	1.848
2,2 Dimethylbutane	0.036	0.026	0.022
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.399	0.284	0.240
2 Methylpentane	1.412	1.018	0.849
3 Methylpentane	0.857	0.608	0.515
n-Hexane	2.519	1.798	1.514
Methylcyclopentane	1.687	1.036	0.990
Benzene	1.495	0.727	0.815
Cyclohexane	4.127	2.439	2.423
2-Methylhexane	0.929	0.750	0.650
3-Methylhexane	0.841	0.670	0.588
2,2,4 Trimethylpentane	0.506	0.457	0.403
Other C-7's	1.146	0.863	0.793
n-Heptane	2.263	1.813	1.582
Methylcyclohexane	5.342	3.728	3.659
Toluene	2.852	1.658	1.833
Other C-8's	5.341	4.333	4.106
n-Octane	1.936	1.722	1.543
E-Benzene	0.412	0.276	0.305
M & P Xylenes	1.715	1.155	1.270
O-Xylene	0.572	0.378	0.424
Other C-9's	4.372	3.962	3.851
n-Nonane	1.510	1.475	1.351
Other C-10's	4.633	4.614	4.566
n-decane	1.021	1.088	1.014
Undecanes(11)	4.261	4.353	4.369
Dodecanes(12)	2.994	3.303	3.362
Tridecanes(13)	3.042	3.600	3.714
Tetradecanes(14)	2.657	3.368	3.522
Pentadecanes(15)	2.326	3.158	3.342
Hexadecanes(16)	1.722	2.499	2.667
Heptadecanes(17)	1.501	2.304	2.482
Octadecanes(18)	1.395	2.254	2.443
Nonadecanes(19)	1.219	2.051	2.236
Eicosanes(20)	0.947	1.656	1.816
Heneicosanes(21)	0.841	1.547	1.706
Docosanes(22)	0.748	1.434	1.591
Tricosanes(23)	0.643	1.278	1.426
Tetracosanes(24)	0.562	1.157	1.297
Pentacosanes(25)	0.508	1.086	1.223
Hexacosanes(26)	0.458	1.014	1.147
Heptacosanes(27)	0.432	0.993	1.128
Octacosanes(28)	0.360	0.856	0.975
Nonacosanes(29)	0.337	0.825	0.944
Triacontanes(30)	0.282	0.713	0.818
Hentriacontanes Plus(31+)	3.988	12.690	14.883
Total	100.000	100.000	100.000

September 20, 2019

FESCO, Ltd.
1100 Fesco Avenue - Alice, Texas 78332

For: XTO Energy, Inc.
22777 Springwoods Village Pkwy.
Spring, Texas 77389

Date Sampled: 08/21/19

Date Analyzed: 09/09/19

Sample: Corral Canyon Tank Battery - FWKO 900

Job Number: J192968

FLASH LIBERATION OF HYDROCARBON LIQUID		
	Separator HC Liquid	**Stock Tank**
Pressure, psig	87	0
Temperature, °F	86	70
Density of Separator HC Liquid (g/cc)	0.7670	------
Gas Oil Ratio (1)	------	53.2
Gas Specific Gravity (2)	------	1.318

STOCK TANK FLUID PROPERTIES	
Shrinkage Recovery Factor (3)	0.9469
Density of Stock Tank HC Liquid (g/cc @ 60 °F)	0.7997
Oil API Gravity at 60 °F	45.26

Quality Control Check			
	Sampling Conditions	**Test Samples**	
Cylinder No.	------	W-2619*	------
Pressure, psig	87	80	------
Temperature, °F	86	86	------

(1) - Scf of flashed vapor per barrel of stock tank oil
(2) - Air = 1.000
(3) - Fraction of first stage separator liquid

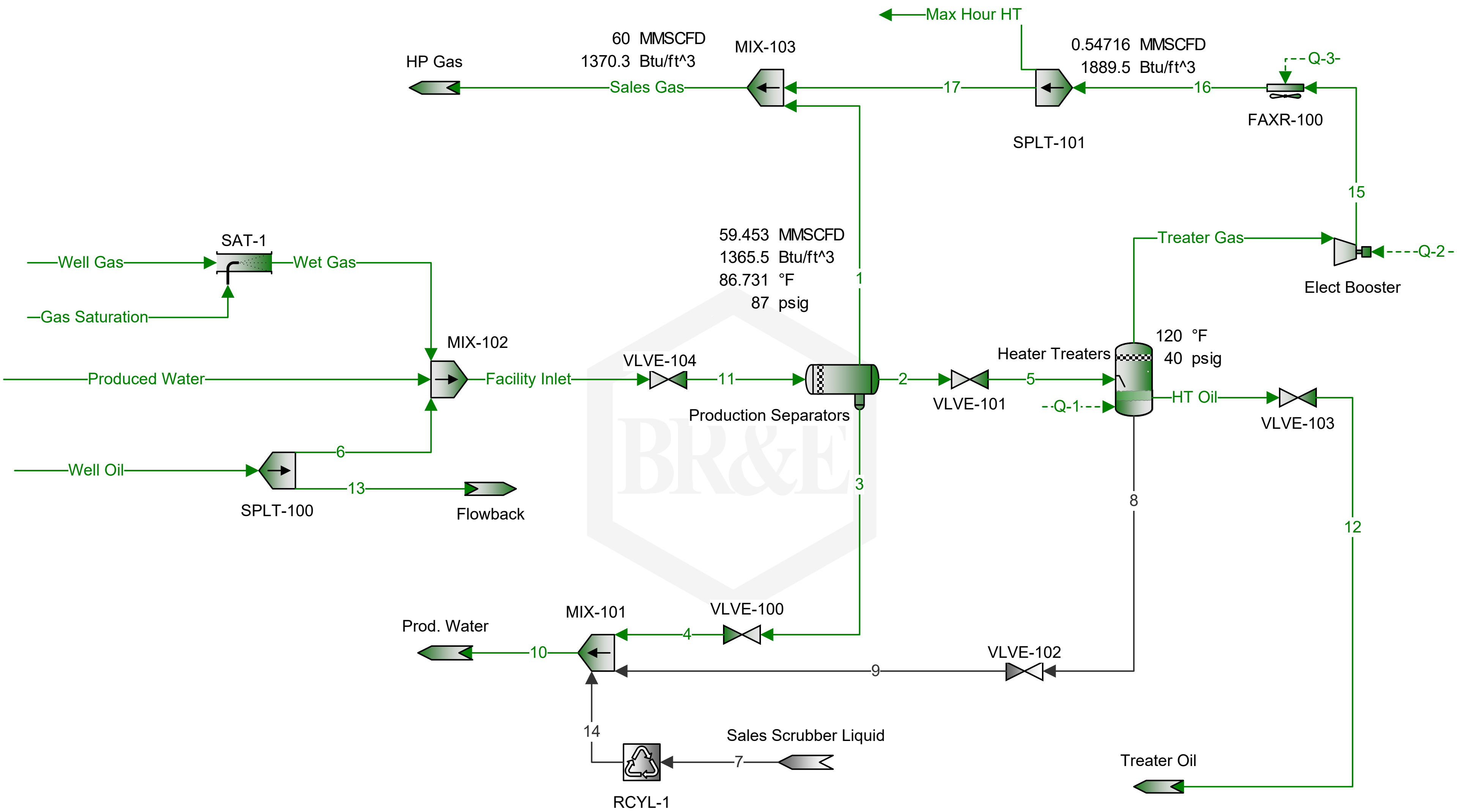
Analyst: E.T. III

Base Conditions: 15.025 PSI & 60 °F

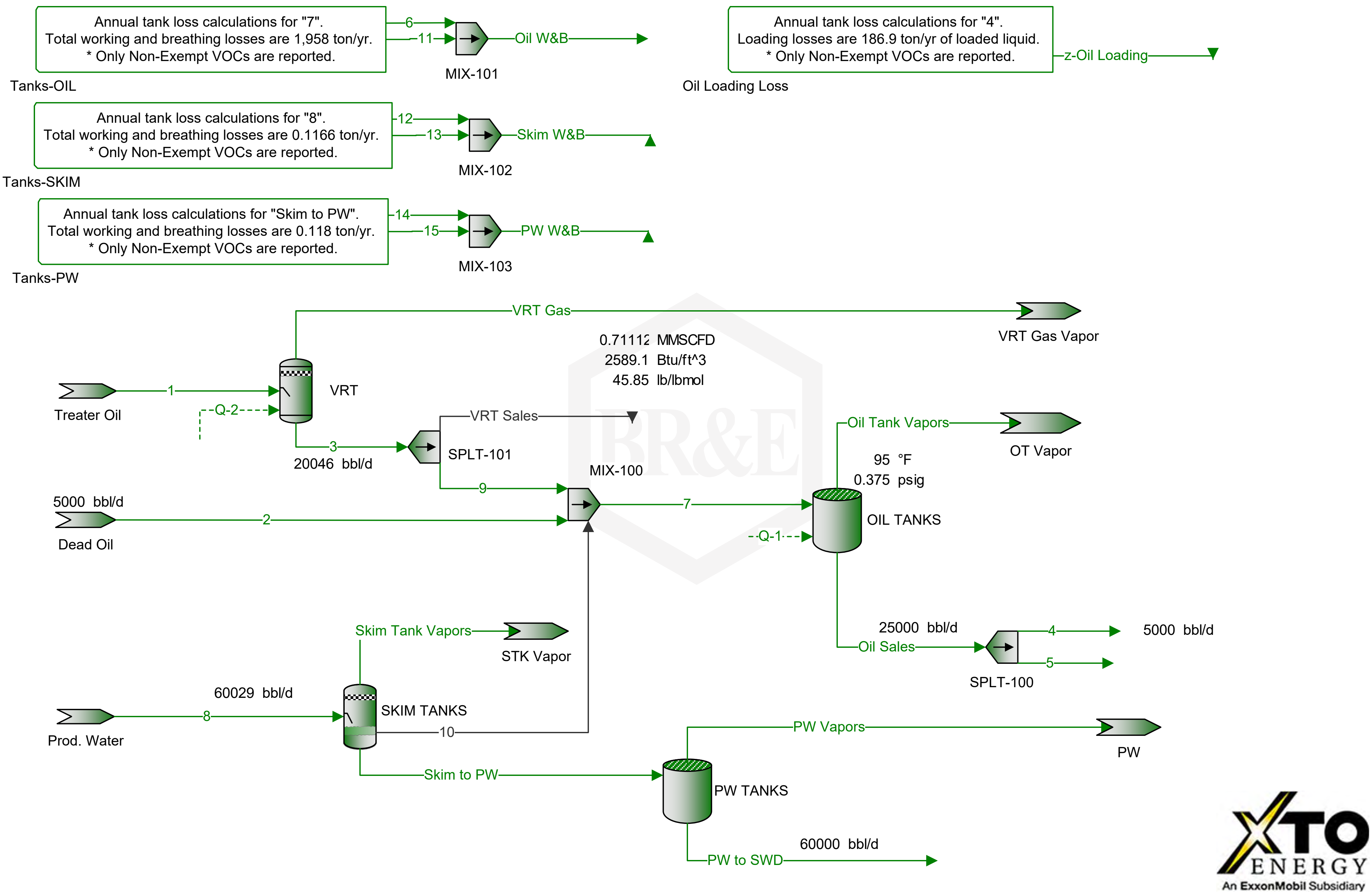
Certified: FESCO, Ltd. - Alice, Texas

David Dannhaus 361-661-7015

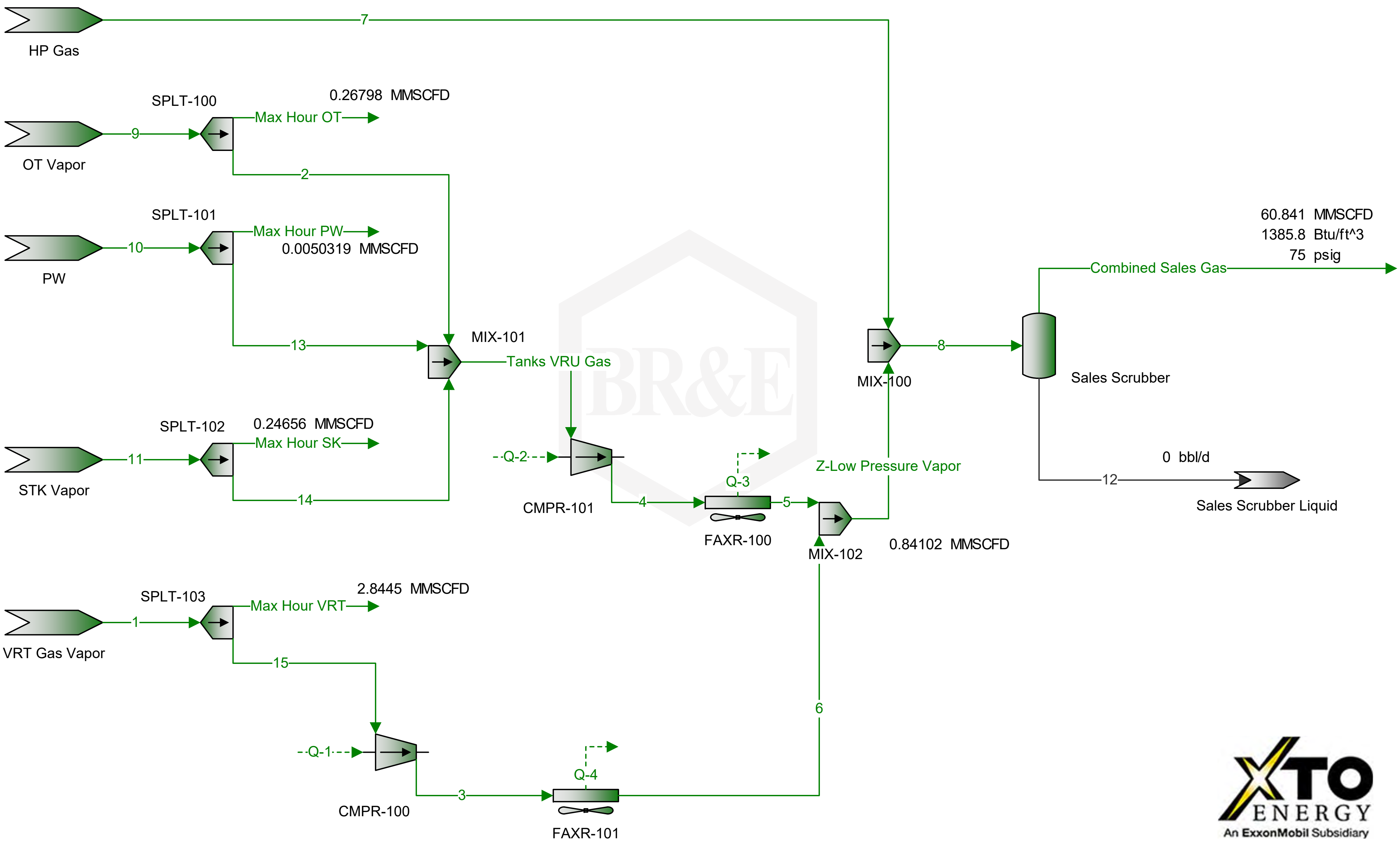
CORRAL CANYON 23 TANK BATTERY



CORRAL CANYON 23 TANK BATTERY

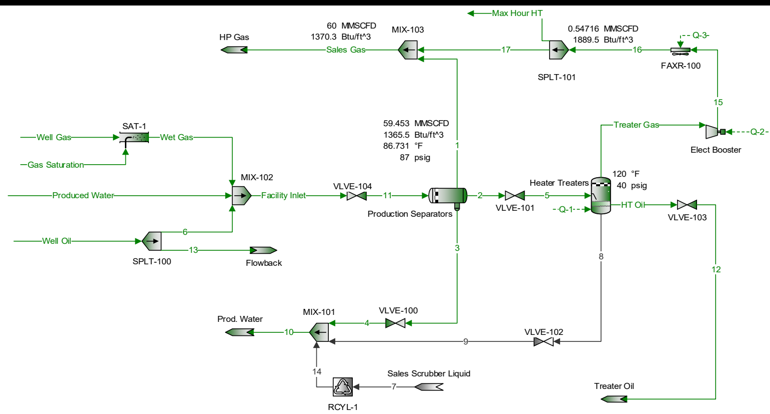


CORRAL CANYON 23 TANK BATTERY



Inlet
Plant Schematic

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Inlet	



Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Inlet	

Connections

	Facility Inlet	Gas Saturation	HT Oil	Max Hour HT	Produced Water
From Block	MIX-102	--	Heater Treaters	SPLT-101	--
To Block	VLVE-104	SAT-1	VLVE-103	--	MIX-102

Stream Composition

Mole Fraction	Facility Inlet %	Gas Saturation %	HT Oil %	Max Hour HT %	Produced Water %
Carbon Dioxide	0.0210923	0 *	0.00640699	0.193409	0 *
Nitrogen	0.107092	0 *	0.00114485	0.223507	0 *
Methane	8.15811	0 *	0.582155	41.2006	0 *
Ethane	1.75745	0 *	1.60806	23.1369	0 *
Propane	1.02979	0 *	3.92039	17.981	0 *
Isobutane	0.15988	0 *	1.38806	2.76637	0 *
n-Butane	0.433294	0 *	4.94956	7.07055	0 *
Isopentane	0.144131	0 *	2.82308	1.71516	0 *
n-Pentane	0.18126	0 *	3.98919	1.89651	0 *
n-Hexane	0.0936817	0 *	2.81933	0.445064	0 *
Cyclohexane	0.0218748	0 *	0.688286	0.0781276	0 *
i-C6	0.111814	0 *	3.16042	0.677803	0 *
i-C7	0.337909	0 *	11.0042	0.922818	0 *
Methylcyclohexane	0.013773	0 *	0.461149	0.0268863	0 *
Octane	0.360048	0 *	12.5592	0.261052	0 *
Nonane	0.166598	0 *	5.88946	0.0441425	0 *
Benzene	0.0522942	0 *	1.57673	0.220495	0 *
Toluene	0.0852112	0 *	2.88485	0.129813	0 *
Ethylbenzene	0.0116772	0 *	0.408626	0.00672125	0 *
o-Xylene	0.0648983	0 *	2.27745	0.0305318	0 *
H2S	0.00011574	0 *	0.000191494	0.00169526	0 *
Water	85.6488	100 *	0.0542826	0.942448	100 *
2,2,4-Trimethylpentane	0.014052	0 *	0.469211	0.0283546	0 *
Decanes Plus	1.02514	0 *	36.4785	0.000100962	0 *

Mass Fraction	Facility Inlet %	Gas Saturation %	HT Oil %	Max Hour HT %	Produced Water %
Carbon Dioxide	0.0417637	0 *	0.00192908	0.25919	0 *
Nitrogen	0.134974	0 *	0.000219414	0.190657	0 *
Methane	5.88828	0 *	0.0638938	20.1266	0 *
Ethane	2.37755	0 *	0.330805	21.1846	0 *
Propane	2.04301	0 *	1.1827	24.1438	0 *
Isobutane	0.418084	0 *	0.551951	4.89607	0 *
n-Butane	1.13306	0 *	1.96815	12.5139	0 *
Isopentane	0.467858	0 *	1.39348	3.76816	0 *
n-Pentane	0.58838	0 *	1.96908	4.16659	0 *
n-Hexane	0.363217	0 *	1.66218	1.16789	0 *
Cyclohexane	0.0828277	0 *	0.396298	0.200218	0 *
i-C6	0.433518	0 *	1.86327	1.77862	0 *
i-C7	1.52337	0 *	7.5437	2.81571	0 *
Methylcyclohexane	0.0608426	0 *	0.309771	0.0803854	0 *
Octane	1.85039	0 *	9.81493	0.908025	0 *
Nonane	0.96133	0 *	5.16772	0.172396	0 *
Benzene	0.18378	0 *	0.842603	0.52446	0 *
Toluene	0.353237	0 *	1.8185	0.364213	0 *
Ethylbenzene	0.0557763	0 *	0.296795	0.0217284	0 *
o-Xylene	0.309987	0 *	1.65417	0.098703	0 *
H2S	0.000177469	0 *	4.46493E-05	0.00175932	0 *
Water	69.421	100 *	0.00669039	0.517005	100 *
2,2,4-Trimethylpentane	0.0722175	0 *	0.366684	0.0986266	0 *

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Inlet	

Mass Fraction	Facility Inlet %	Gas Saturation %	HT Oil %	Max Hour HT %	Produced Water %
Decanes Plus	11.2354	0 *	60.7944	0.000748912	0 *

Mass Flow	Facility Inlet lb/h	Gas Saturation lb/h	HT Oil lb/h	Max Hour HT lb/h	Produced Water lb/h
Carbon Dioxide	527.041	0 *	4.49902	20.4546	0 *
Nitrogen	1703.32	0 *	0.511721	15.0462	0 *
Methane	74307.7	0 *	149.014	1588.34	0 *
Ethane	30003.8	0 *	771.507	1671.84	0 *
Propane	25782	0 *	2758.3	1905.37	0 *
Isobutane	5276.06	0 *	1287.27	386.386	0 *
n-Butane	14298.8	0 *	4590.14	987.563	0 *
Isopentane	5904.17	0 *	3249.89	297.374	0 *
n-Pentane	7425.12	0 *	4592.31	328.817	0 *
n-Hexane	4583.65	0 *	3876.55	92.1669	0 *
Cyclohexane	1045.25	0 *	924.25	15.8007	0 *
i-C6	5470.82	0 *	4345.55	140.364	0 *
i-C7	19224.3	0 *	17593.5	222.209	0 *
Methylcyclohexane	767.808	0 *	722.451	6.34381	0 *
Octane	23351.2	0 *	22890.5	71.659	0 *
Nonane	12131.6	0 *	12052.2	13.6051	0 *
Benzene	2319.23	0 *	1965.13	41.389	0 *
Toluene	4457.7	0 *	4241.13	28.7428	0 *
Ethylbenzene	703.874	0 *	692.189	1.71475	0 *
o-Xylene	3911.9	0 *	3857.86	7.78939	0 *
H2S	2.23958	0 *	0.104132	0.138841	0 *
Water	876065	751.927 *	15.6034	40.8007	875313 *
2,2,4-Trimethylpentane	911.355	0 *	855.186	7.78336	0 *
Decanes Plus	141786	0 *	141785	0.0591023	0 *

Stream Properties

Property	Units	Facility Inlet	Gas Saturation	HT Oil	Max Hour HT	Produced Water
Temperature	°F	86.7311	327.72	120	90	86 *
Pressure	psig	87	87	40	80	87 *
Molecular Weight	lb/lbmol	22.2265	18.0153	146.167	32.8401	18.0153
Mass Flow	lb/h	1.26196E+06	751.927	233221	7891.75	875313
Std Vapor Volumetric Flow	MMSCFD	517.105	0.380136	14.5319	2.18864	442.514
Std Liquid Volumetric Flow	sgpm	3183.41	1.50316	598.737	36.2482	1749.81 *
Gross Ideal Gas Heating Value	Btu/ft^3	418.996	50.31	7712.11	1889.48	50.31

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Inlet	

Connections

	Sales Gas	Treater Gas	Well Gas	Well Oil	Wet Gas
From Block	MIX-103	Heater Treaters	--	--	SAT-1
To Block	HP Gas	Elect Booster	SAT-1	SPLT-100	MIX-102

Stream Composition

Mole Fraction	Sales Gas %	Treater Gas %	Well Gas %	Well Oil %	Wet Gas %
Carbon Dioxide	0.176531	0.193409	0.178998 *	0.0135 *	0.177868
Nitrogen	0.92217	0.223507	0.918991 *	0.02618 *	0.913191
Methane	70.0906	41.2006	70.0423 *	1.84912 *	69.6002
Ethane	14.7346	23.1369	14.5839 *	2.50262 *	14.4918
Propane	7.9175	17.981	7.85392 *	4.34866 *	7.80435
Isobutane	1.04105	2.76637	1.06799 *	1.30604 *	1.06125
n-Butane	2.53323	7.07055	2.64197 *	4.5915 *	2.6253
Isopentane	0.558103	1.71516	0.634994 *	2.54353 *	0.630986
n-Pentane	0.595839	1.89651	0.684993 *	3.67212 *	0.68067
n-Hexane	0.124531	0.445064	0.204998 *	2.51901 *	0.203704
Cyclohexane	0.0217596	0.0781276	0.188998 *	0 *	0.187805
i-C6	0.198144	0.677803	0.316997 *	2.70515 *	0.314996
i-C7	0.246989	0.922818	0.281997 *	10.9925 *	0.280217
Methylcyclohexane	0.00700339	0.0268863	0.118999 *	0 *	0.118248
Octane	0.0612112	0.261052	0.0829992 *	12.619 *	0.0824753
Nonane	0.00939297	0.0441425	0.0279997 *	5.88233 *	0.027823
Benzene	0.0619714	0.220495	0.0929991 *	1.49547 *	0.0924121
Toluene	0.0330114	0.129813	0.0519995 *	2.85165 *	0.0516713
Ethylbenzene	0.00156635	0.00672125	0.00199998 *	0.41215 *	0.00198736
o-Xylene	0.00702742	0.0305318	0.0119999 *	2.28691 *	0.0119241
H2S	0.000895051	0.00169526	0.00099999 *	0 *	0.000993679
Water	0.649438	0.942448	0 *	0 *	0.631138
2,2,4-Trimethylpentane	0.00746299	0.0283546	0 *	0.506 *	0
Decanes Plus	1.11304E-05	0.000100962	0.00899991 *	36.8766 *	0.00894311

Mass Fraction	Sales Gas %	Treater Gas %	Well Gas %	Well Oil %	Wet Gas %
Carbon Dioxide	0.334029	0.25919	0.330624 *	0.00408509 *	0.329043
Nitrogen	1.11069	0.190657	1.08048 *	0.00504263 *	1.07531
Methane	48.3445	20.1266	47.1596 *	0.203966 *	46.9342
Ethane	19.0491	21.1846	18.4048 *	0.517411 *	18.3168
Propane	15.0107	24.1438	14.5352 *	1.31848 *	14.4657
Isobutane	2.60153	4.89607	2.60524 *	0.521939 *	2.59279
n-Butane	6.33043	12.5139	6.4448 *	1.83492 *	6.414
Isopentane	1.73125	3.76816	1.92281 *	1.26179 *	1.91362
n-Pentane	1.84831	4.16659	2.07422 *	1.82166 *	2.0643
n-Hexane	0.461399	1.16789	0.741432 *	1.49257 *	0.737889
Cyclohexane	0.0787354	0.200218	0.667574 *	0 *	0.664383
i-C6	0.734142	1.77862	1.14651 *	1.60286 *	1.14103
i-C7	1.06407	2.81571	1.18593 *	7.57344 *	1.18026
Methylcyclohexane	0.0295647	0.0803854	0.490378 *	0 *	0.488035
Octane	0.300622	0.908025	0.397912 *	9.9111 *	0.39601
Nonane	0.0517957	0.172396	0.150719 *	5.18735 *	0.149998
Benzene	0.208125	0.52446	0.304884 *	0.803185 *	0.303427
Toluene	0.130774	0.364213	0.201084 *	1.80658 *	0.200123
Ethylbenzene	0.00714966	0.0217284	0.0089114 *	0.300855 *	0.00886881
o-Xylene	0.032077	0.098703	0.0534684 *	1.66937 *	0.0532128
H2S	0.00131152	0.00175932	0.00143036 *	0 *	0.00142352
Water	0.503031	0.517005	0 *	0 *	0.47794
2,2,4-Trimethylpentane	0.0366525	0.0986266	0 *	0.397417 *	0
Decanes Plus	0.000116575	0.000748912	0.0920141 *	61.766 *	0.0915743

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Inlet	

Mass Flow	Sales Gas lb/h	Treater Gas lb/h	Well Gas lb/h	Well Oil lb/h	Wet Gas lb/h
Carbon Dioxide	511.817	5.11366	517.673 *	13.4248 *	517.673
Nitrogen	1701.86	3.76154	1691.75 *	16.5715 *	1691.75
Methane	74075.9	397.085	73840 *	670.291 *	73840
Ethane	29188	417.959	28817.2 *	1700.36 *	28817.2
Propane	23000.1	476.342	22758.4 *	4332.9 *	22758.4
Isobutane	3986.2	96.5964	4079.15 *	1715.24 *	4079.15
n-Butane	9699.81	246.891	10090.9 *	6030.09 *	10090.9
Isopentane	2652.71	74.3434	3010.64 *	4146.61 *	3010.64
n-Pentane	2832.07	82.2042	3247.7 *	5986.5 *	3247.7
n-Hexane	706.979	23.0417	1160.89 *	4905.02 *	1160.89
Cyclohexane	120.643	3.95018	1045.25 *	0 *	1045.25
i-C6	1124.89	35.091	1795.14 *	5267.47 *	1795.14
i-C7	1630.43	55.5522	1856.87 *	24888.5 *	1856.87
Methylcyclohexane	45.3007	1.58595	767.808 *	0 *	767.808
Octane	460.629	17.9148	623.029 *	32570.8 *	623.029
Nonane	79.3641	3.40126	235.987 *	17047.1 *	235.987
Benzene	318.9	10.3473	477.371 *	2639.5 *	477.371
Toluene	200.378	7.1857	314.847 *	5936.96 *	314.847
Ethylbenzene	10.9551	0.428687	13.953 *	988.699 *	13.953
o-Xylene	49.1501	1.94735	83.7179 *	5486.03 *	83.7179
H2S	2.00958	0.0347102	2.23958 *	0 *	2.23958
Water	770.771	10.2002	0 *	0 *	751.927
2,2,4-Trimethylpentane	56.1609	1.94584	0 *	1306.03 *	0
Decanes Plus	0.178623	0.0147756	144.071 *	202981 *	144.071

Stream Properties

Property	Units	Sales Gas	Treater Gas	Well Gas	Well Oil	Wet Gas
Temperature	°F	85.8543	120 *	86 *	86 *	86
Pressure	psig	80	40	87 *	87 *	87
Molecular Weight	lb/lbmol	23.2586	32.8401	23.8266	145.438	23.7899
Mass Flow	lb/h	153225	1972.94	156575	328629	157327
Std Vapor Volumetric Flow	MMSCFD	60	0.547159	59.8501 *	20.5794	60.2302
Std Liquid Volumetric Flow	sgpm	833.832	9.06205	841.87	845.833 *	843.373
Gross Ideal Gas Heating Value	Btu/ft^3	1370.25	1889.48	1406.59	7673.74	1398.03

Remarks

Well Gas:

Corral Canyon TB
Sample Data: 8/20/19

Well Oil:

Corral Canyon TB
Sample Data: 8/20/19

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Inlet	

Connections

	1	2	3	4	5
From Block	Production Separators	Production Separators	Production Separators	VLVE-100	VLVE-101
To Block	MIX-103	VLVE-101	VLVE-100	MIX-101	Heater Treaters

Stream Composition

Mole Fraction	1 %	2 %	3 %	4 %	5 %
Carbon Dioxide	0.176376	0.0131925	0.000501489	0.000501489	0.0131925
Nitrogen	0.9286	0.0092135	6.9629E-05	6.9629E-05	0.0092135
Methane	70.3565	2.05604	0.010618	0.010618	2.05604
Ethane	14.6573	2.38926	0.00302838	0.00302838	2.38926
Propane	7.82488	4.43059	0.00109828	0.00109828	4.43059
Isobutane	1.02517	1.43808	9.15467E-05	9.15467E-05	1.43808
n-Butane	2.49147	5.02652	0.000311853	0.000311853	5.02652
Isopentane	0.547454	2.78287	4.47826E-05	4.47826E-05	2.78287
n-Pentane	0.583868	3.91326	2.09676E-05	2.09676E-05	3.91326
n-Hexane	0.121581	2.73317	2.81089E-06	2.81089E-06	2.73317
Cyclohexane	0.0212408	0.666146	8.77955E-06	8.77955E-06	0.666146
i-C6	0.19373	3.07033	8.90055E-06	8.90055E-06	3.07033
i-C7	0.240769	10.6384	6.61318E-06	6.61318E-06	10.6384
Methylcyclohexane	0.0068204	0.445392	1.17539E-06	1.17539E-06	0.445392
Octane	0.059372	12.113	4.04429E-07	4.04429E-07	12.113
Nonane	0.00907316	5.67736	5.26689E-08	5.26689E-08	5.67736
Benzene	0.0605125	1.52752	0.000927472	0.000927472	1.52752
Toluene	0.0321205	2.78488	0.000361638	0.000361638	2.78488
Ethylbenzene	0.0015189	0.394043	1.41449E-05	1.41449E-05	0.394043
o-Xylene	0.00681111	2.19591	9.48013E-05	9.48013E-05	2.19591
H2S	0.000887687	0.00024606	7.60026E-06	7.60026E-06	0.00024606
Water	0.646741	0.0865107	99.9828	99.9828	0.0865107
2,2,4-Trimethylpentane	0.00727072	0.453215	1.54961E-07	1.54961E-07	0.453215
Decanes Plus	1.03037E-05	35.1549	6.35475E-09	6.35475E-09	35.1549

Mass Fraction	1 %	2 %	3 %	4 %	5 %
Carbon Dioxide	0.335005	0.00408712	0.00122497	0.00122497	0.00408712
Nitrogen	1.12269	0.00181691	0.000108261	0.000108261	0.00181691
Methane	48.7125	0.232191	0.00945434	0.00945434	0.232191
Ethane	19.0212	0.505738	0.00505415	0.00505415	0.505738
Propane	14.8915	1.37531	0.00268798	0.00268798	1.37531
Isobutane	2.5716	0.588392	0.000295326	0.000295326	0.588392
n-Butane	6.24977	2.05661	0.00100603	0.00100603	2.05661
Isopentane	1.70468	1.4134	0.000179331	0.000179331	1.4134
n-Pentane	1.81807	1.98751	8.39645E-05	8.39645E-05	1.98751
n-Hexane	0.452183	1.65803	1.34445E-05	1.34445E-05	1.65803
Cyclohexane	0.0771508	0.394653	4.10103E-05	4.10103E-05	0.394653
i-C6	0.720518	1.86256	4.25713E-05	4.25713E-05	1.86256
i-C7	1.04122	7.50404	3.67794E-05	3.67794E-05	7.50404
Methylcyclohexane	0.0289018	0.307847	6.40545E-06	6.40545E-06	0.307847
Octane	0.292699	9.74022	2.5641E-06	2.5641E-06	9.74022
Nonane	0.0502226	5.12582	3.74927E-07	3.74927E-07	5.12582
Benzene	0.203999	0.839934	0.00402101	0.00402101	0.839934
Toluene	0.127729	1.8063	0.0018494	0.0018494	1.8063
Ethylbenzene	0.00695949	0.294488	8.33486E-05	8.33486E-05	0.294488
o-Xylene	0.0312079	1.64112	0.000558616	0.000558616	1.64112
H2S	0.00130568	5.90329E-05	1.43766E-05	1.43766E-05	5.90329E-05
Water	0.502849	0.0109712	99.9732	99.9732	0.0109712
2,2,4-Trimethylpentane	0.0358441	0.364436	9.8246E-07	9.8246E-07	0.364436
Decanes Plus	0.000108327	60.2845	8.59198E-08	8.59198E-08	60.2845

* User Specified Values
? Extrapolated or Approximate Values

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Inlet	

Mass Flow	**1** **lb/h**	**2** **lb/h**	**3** **lb/h**	**4** **lb/h**	**5** **lb/h**
Carbon Dioxide	506.703	9.61268	10.7248	10.7248	9.61268
Nitrogen	1698.1	4.27326	0.947842	0.947842	4.27326
Methane	73678.9	546.099	82.774	82.774	546.099
Ethane	28770	1189.47	44.2497	44.2497	1189.47
Propane	22523.8	3234.64	23.5336	23.5336	3234.64
Isobutane	3889.61	1383.86	2.58562	2.58562	1383.86
n-Butane	9452.92	4837.03	8.8079	8.8079	4837.03
Isopentane	2578.37	3324.23	1.57007	1.57007	3324.23
n-Pentane	2749.87	4674.52	0.73512	0.73512	4674.52
n-Hexane	683.938	3899.59	0.117708	0.117708	3899.59
Cyclohexane	116.692	928.2	0.35905	0.35905	928.2
i-C6	1089.8	4380.64	0.372717	0.372717	4380.64
i-C7	1574.87	17649.1	0.322008	0.322008	17649.1
Methylcyclohexane	43.7147	724.037	0.0560805	0.0560805	724.037
Octane	442.715	22908.4	0.022449	0.022449	22908.4
Nonane	75.9628	12055.6	0.00328253	0.00328253	12055.6
Benzene	308.553	1975.48	35.2044	35.2044	1975.48
Toluene	193.193	4248.32	16.1918	16.1918	4248.32
Ethylbenzene	10.5264	692.618	0.729728	0.729728	692.618
o-Xylene	47.2027	3859.81	4.89075	4.89075	3859.81
H2S	1.97487	0.138842	0.125869	0.125869	0.138842
Water	760.571	25.8036	875278	875278	25.8036
2,2,4-Trimethylpentane	54.2151	857.132	0.00860156	0.00860156	857.132
Decanes Plus	0.163847	141786	0.000752239	0.000752239	141786

Stream Properties

Property	**Units**	**1**	**2**	**3**	**4**	**5**
Temperature	°F	86.7311	86.7311	86.7311	86.9382	85.7138
Pressure	psig	87	87	87	0.375 *	40 *
Molecular Weight	lb/lbmol	23.1704	142.055	18.017	18.017	142.055
Mass Flow	lb/h	151252	235194	875513	875513	235194
Std Vapor Volumetric Flow	MMSCFD	59.4528	15.079	442.573	442.573	15.079
Std Liquid Volumetric Flow	sgpm	824.77	607.799	1750.85	1750.85	607.799
Gross Ideal Gas Heating Value	Btu/ft^3	1365.47	7500.83	50.5636	50.5636	7500.83

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Inlet	

Connections

	6	7	8	9	10
From Block	SPLT-100	Sales Scrubber Liquid	Heater Treaters	VLVE-102	MIX-101
To Block	MIX-102	RCYL-1	VLVE-102	MIX-101	Prod. Water

Stream Composition

Mole Fraction	6 %	7 %	8 %	9 %	10 %
Carbon Dioxide	0.0135				0.000501489
Nitrogen	0.02618				6.9629E-05
Methane	1.84912				0.010618
Ethane	2.50262				0.00302838
Propane	4.34866				0.00109828
Isobutane	1.30604				9.15467E-05
n-Butane	4.5915				0.000311853
Isopentane	2.54353				4.47826E-05
n-Pentane	3.67212				2.09676E-05
n-Hexane	2.51901				2.81089E-06
Cyclohexane	0				8.77955E-06
i-C6	2.70515				8.90055E-06
i-C7	10.9925				6.61318E-06
Methylcyclohexane	0				1.17539E-06
Octane	12.619				4.04429E-07
Nonane	5.88233				5.26689E-08
Benzene	1.49547				0.000927472
Toluene	2.85165				0.000361638
Ethylbenzene	0.41215				1.41449E-05
o-Xylene	2.28691				9.48013E-05
H2S	0				7.60026E-06
Water	0				99.9828
2,2,4-Trimethylpentane	0.506				1.54961E-07
Decanes Plus	36.8766				6.35475E-09

Mass Fraction	6 %	7 %	8 %	9 %	10 %
Carbon Dioxide	0.00408509				0.00122497
Nitrogen	0.00504263				0.000108261
Methane	0.203966				0.00945434
Ethane	0.517411				0.00505415
Propane	1.31848				0.00268798
Isobutane	0.521939				0.000295326
n-Butane	1.83492				0.00100603
Isopentane	1.26179				0.000179331
n-Pentane	1.82166				8.39645E-05
n-Hexane	1.49257				1.34445E-05
Cyclohexane	0				4.10103E-05
i-C6	1.60286				4.25713E-05
i-C7	7.57344				3.67794E-05
Methylcyclohexane	0				6.40545E-06
Octane	9.9111				2.5641E-06
Nonane	5.18735				3.74927E-07
Benzene	0.803185				0.00402101
Toluene	1.80658				0.0018494
Ethylbenzene	0.300855				8.33486E-05
o-Xylene	1.66937				0.000558616
H2S	0				1.43766E-05
Water	0				99.9732
2,2,4-Trimethylpentane	0.397417				9.8246E-07
Decanes Plus	61.766				8.59198E-08

* User Specified Values
? Extrapolated or Approximate Values

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Inlet	

Mass Flow	6 lb/h	7 lb/h	8 lb/h	9 lb/h	10 lb/h
Carbon Dioxide	9.36791				10.7248
Nitrogen	11.5637				0.947842
Methane	467.734				82.774
Ethane	1186.53				44.2497
Propane	3023.53				23.5336
Isobutane	1196.91				2.58562
n-Butane	4207.84				8.8079
Isopentane	2893.53				1.57007
n-Pentane	4177.42				0.73512
n-Hexane	3422.75				0.117708
Cyclohexane	0				0.35905
i-C6	3675.68				0.372717
i-C7	17367.4				0.322008
Methylcyclohexane	0				0.0560805
Octane	22728.1				0.022449
Nonane	11895.6				0.00328253
Benzene	1841.86				35.2044
Toluene	4142.85				16.1918
Ethylbenzene	689.921				0.729728
o-Xylene	3828.19				4.89075
H2S	0				0.125869
Water	0				875278
2,2,4-Trimethylpentane	911.355				0.00860156
Decanes Plus	141642				0.000752239

Stream Properties

Property	Units	6	7	8	9	10
Temperature	°F	86		120		86.9382
Pressure	psig	87	75	40	0.375 *	0.375
Molecular Weight	lb/lbmol	145.438				18.017
Mass Flow	lb/h	229320	0	0	0	875513
Std Vapor Volumetric Flow	MMSCFD	14.3604	0	0	0	442.573
Std Liquid Volumetric Flow	sgpm	590.228 *	0	0	0	1750.85
Gross Ideal Gas Heating Value	Btu/ft^3	7673.74				50.5636

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Inlet	

Connections

	11	12	13	14	15
From Block	VLVE-104	VLVE-103	SPLT-100	RCYL-1	Elect Booster
To Block	Production Separators	Treater Oil	Flowback	MIX-101	FAXR-100

Stream Composition

Mole Fraction	11 %	12 %	13 %	14 %	15 %
Carbon Dioxide	0.0210923	0.00640699	0.0135	0 *	0.193409
Nitrogen	0.107092	0.00114485	0.02618	0 *	0.223507
Methane	8.15811	0.582155	1.84912	19 *	41.2006
Ethane	1.75745	1.60806	2.50262	0 *	23.1369
Propane	1.02979	3.92039	4.34866	0 *	17.981
Isobutane	0.15988	1.38806	1.30604	0 *	2.76637
n-Butane	0.433294	4.94956	4.5915	0 *	7.07055
Isopentane	0.144131	2.82308	2.54353	0 *	1.71516
n-Pentane	0.18126	3.98919	3.67212	0 *	1.89651
n-Hexane	0.0936817	2.81933	2.51901	0 *	0.445064
Cyclohexane	0.0218748	0.688286	0	0 *	0.0781276
i-C6	0.111814	3.16042	2.70515	0 *	0.677803
i-C7	0.337909	11.0042	10.9925	0 *	0.922818
Methylcyclohexane	0.013773	0.461149	0	0 *	0.0268863
Octane	0.360048	12.5592	12.619	0 *	0.261052
Nonane	0.166598	5.88946	5.88233	0 *	0.0441425
Benzene	0.0522942	1.57673	1.49547	0 *	0.220495
Toluene	0.0852112	2.88485	2.85165	0 *	0.129813
Ethylbenzene	0.0116772	0.408626	0.41215	0 *	0.00672125
o-Xylene	0.0648983	2.27745	2.28691	0 *	0.0305318
H2S	0.00011574	0.000191494	0	0 *	0.00169526
Water	85.6488	0.0542826	0	80 *	0.942448
2,2,4-Trimethylpentane	0.014052	0.469211	0.506	0 *	0.0283546
Decanes Plus	1.02514	36.4785	36.8766	1 *	0.000100962

Mass Fraction	11 %	12 %	13 %	14 %	15 %
Carbon Dioxide	0.0417637	0.00192908	0.00408509	0 *	0.25919
Nitrogen	0.134974	0.000219414	0.00504263	0 *	0.190657
Methane	5.88828	0.0638938	0.203966	15.3198 *	20.1266
Ethane	2.37755	0.330805	0.517411	0 *	21.1846
Propane	2.04301	1.1827	1.31848	0 *	24.1438
Isobutane	0.418084	0.551951	0.521939	0 *	4.89607
n-Butane	1.13306	1.96815	1.83492	0 *	12.5139
Isopentane	0.467858	1.39348	1.26179	0 *	3.76816
n-Pentane	0.58838	1.96908	1.82166	0 *	4.16659
n-Hexane	0.363217	1.66218	1.49257	0 *	1.16789
Cyclohexane	0.0828277	0.396298	0	0 *	0.200218
i-C6	0.433518	1.86327	1.60286	0 *	1.77862
i-C7	1.52337	7.5437	7.57344	0 *	2.81571
Methylcyclohexane	0.0608426	0.309771	0	0 *	0.0803854
Octane	1.85039	9.81493	9.9111	0 *	0.908025
Nonane	0.96133	5.16772	5.18735	0 *	0.172396
Benzene	0.18378	0.842603	0.803185	0 *	0.52446
Toluene	0.353237	1.8185	1.80658	0 *	0.364213
Ethylbenzene	0.0557763	0.296795	0.300855	0 *	0.0217284
o-Xylene	0.309987	1.65417	1.66937	0 *	0.098703
H2S	0.000177469	4.46493E-05	0	0 *	0.00175932
Water	69.421	0.00669039	0	72.4367 *	0.517005
2,2,4-Trimethylpentane	0.0722175	0.366684	0.397417	0 *	0.0986266
Decanes Plus	11.2354	60.7944	61.766	12.2435 *	0.000748912

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Inlet	

Mass Flow	11 lb/h	12 lb/h	13 lb/h	14 lb/h	15 lb/h
Carbon Dioxide	527.041	4.49902	2.40493	0 *	5.11366
Nitrogen	1703.32	0.511721	2.96864	0 *	3.76154
Methane	74307.7	149.014	120.077	0 *	397.085
Ethane	30003.8	771.507	304.605	0 *	417.959
Propane	25782	2758.3	776.199	0 *	476.342
Isobutane	5276.06	1287.27	307.27	0 *	96.5964
n-Butane	14298.8	4590.14	1080.24	0 *	246.891
Isopentane	5904.17	3249.89	742.828	0 *	74.3434
n-Pentane	7425.12	4592.31	1072.43	0 *	82.2042
n-Hexane	4583.65	3876.55	878.689	0 *	23.0417
Cyclohexane	1045.25	924.25	0	0 *	3.95018
i-C6	5470.82	4345.55	943.619	0 *	35.091
i-C7	19224.3	17593.5	4458.55	0 *	55.5522
Methylcyclohexane	767.808	722.451	0	0 *	1.58595
Octane	23351.2	22890.5	5834.76	0 *	17.9148
Nonane	12131.6	12052.2	3053.84	0 *	3.40126
Benzene	2319.23	1965.13	472.843	0 *	10.3473
Toluene	4457.7	4241.13	1063.55	0 *	7.1857
Ethylbenzene	703.874	692.189	177.116	0 *	0.428687
o-Xylene	3911.9	3857.86	982.772	0 *	1.94735
H2S	2.23958	0.104132	0	0 *	0.0347102
Water	876065	15.6034	0	0 *	10.2002
2,2,4-Trimethylpentane	911.355	855.186	233.963	0 *	1.94584
Decanes Plus	141786	141785	36362.2	0 *	0.0147756

Stream Properties

Property	Units	11	12	13	14	15
Temperature	°F	86.7311	113.769	86	75 *	218.062
Pressure	psig	87 *	3 *	87	80 *	85 *
Molecular Weight	lb/lbmol	22.2265	146.167	145.438	19.8963	32.8401
Mass Flow	lb/h	1.26196E+06	233221	58870.9	0	1972.94
Std Vapor Volumetric Flow	MMSCFD	517.105	14.5319	3.68661	0	0.547159
Std Liquid Volumetric Flow	sgpm	3183.41	598.737	151.523	0	9.06205
Gross Ideal Gas Heating Value	Btu/ft^3	418.996	7712.11	7673.74	358.435	1889.48

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Inlet	

Connections

	16	17			
From Block	FAXR-100	SPLT-101			
To Block	SPLT-101	MIX-103			

Stream Composition

Mole Fraction	16 %	17 %			
Carbon Dioxide	0.193409	0.193409			
Nitrogen	0.223507	0.223507			
Methane	41.2006	41.2006			
Ethane	23.1369	23.1369			
Propane	17.981	17.981			
Isobutane	2.76637	2.76637			
n-Butane	7.07055	7.07055			
Isopentane	1.71516	1.71516			
n-Pentane	1.89651	1.89651			
n-Hexane	0.445064	0.445064			
Cyclohexane	0.0781276	0.0781276			
i-C6	0.677803	0.677803			
i-C7	0.922818	0.922818			
Methylcyclohexane	0.0268863	0.0268863			
Octane	0.261052	0.261052			
Nonane	0.0441425	0.0441425			
Benzene	0.220495	0.220495			
Toluene	0.129813	0.129813			
Ethylbenzene	0.00672125	0.00672125			
o-Xylene	0.0305318	0.0305318			
H2S	0.00169526	0.00169526			
Water	0.942448	0.942448			
2,2,4-Trimethylpentane	0.0283546	0.0283546			
Decanes Plus	0.000100962	0.000100962			

Mass Fraction	16 %	17 %			
Carbon Dioxide	0.25919	0.25919			
Nitrogen	0.190657	0.190657			
Methane	20.1266	20.1266			
Ethane	21.1846	21.1846			
Propane	24.1438	24.1438			
Isobutane	4.89607	4.89607			
n-Butane	12.5139	12.5139			
Isopentane	3.76816	3.76816			
n-Pentane	4.16659	4.16659			
n-Hexane	1.16789	1.16789			
Cyclohexane	0.200218	0.200218			
i-C6	1.77862	1.77862			
i-C7	2.81571	2.81571			
Methylcyclohexane	0.0803854	0.0803854			
Octane	0.908025	0.908025			
Nonane	0.172396	0.172396			
Benzene	0.52446	0.52446			
Toluene	0.364213	0.364213			
Ethylbenzene	0.0217284	0.0217284			
o-Xylene	0.098703	0.098703			
H2S	0.00175932	0.00175932			
Water	0.517005	0.517005			
2,2,4-Trimethylpentane	0.0986266	0.0986266			
Decanes Plus	0.000748912	0.000748912			

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Inlet	

Mass Flow	16 lb/h	17 lb/h			
Carbon Dioxide	5.11366	5.11366			
Nitrogen	3.76154	3.76154			
Methane	397.085	397.085			
Ethane	417.959	417.959			
Propane	476.342	476.342			
Isobutane	96.5964	96.5964			
n-Butane	246.891	246.891			
Isopentane	74.3434	74.3434			
n-Pentane	82.2042	82.2042			
n-Hexane	23.0417	23.0417			
Cyclohexane	3.95018	3.95018			
i-C6	35.091	35.091			
i-C7	55.5522	55.5522			
Methylcyclohexane	1.58595	1.58595			
Octane	17.9148	17.9148			
Nonane	3.40126	3.40126			
Benzene	10.3473	10.3473			
Toluene	7.1857	7.1857			
Ethylbenzene	0.428687	0.428687			
o-Xylene	1.94735	1.94735			
H2S	0.0347102	0.0347102			
Water	10.2002	10.2002			
2,2,4-Trimethylpentane	1.94584	1.94584			
Decanes Plus	0.0147756	0.0147756			

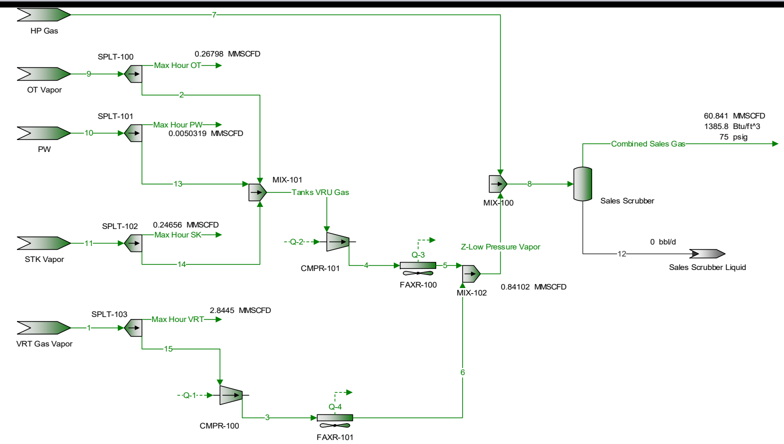
Stream Properties

Property	Units	16	17			
Temperature	°F	90 *	90			
Pressure	psig	80 *	80			
Molecular Weight	lb/lbmol	32.8401	32.8401			
Mass Flow	lb/h	1972.94	1972.94			
Std Vapor Volumetric Flow	MMSCFD	0.547159	0.547159			
Std Liquid Volumetric Flow	sgpm	9.06205	9.06205			
Gross Ideal Gas Heating Value	Btu/ft^3	1889.48	1889.48			

Remarks

Sales
Plant Schematic

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Sales	



Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Sales	

Connections

	Combined Sales Gas	Max Hour OT	Max Hour PW	Max Hour SK	Max Hour VRT
From Block	Sales Scrubber	SPLT-100	SPLT-101	SPLT-102	SPLT-103
To Block	--	--	--	--	--

Stream Composition

Mole Fraction	Combined Sales Gas %	Max Hour OT %	Max Hour PW %	Max Hour SK %	Max Hour VRT %
Carbon Dioxide	0.176437	0.0937901	0.95334	0.95334	0.10757
Nitrogen	0.910185	0.0204244	0.458365	0.458365	0.0227164
Methane	69.3253	7.25133	65.4527	65.4527	10.9458
Ethane	14.8343	21.9376	17.7429	17.7429	22.319
Propane	8.2101	32.57	6.77406	6.77406	30.7298
Isobutane	1.10126	6.15048	0.5899	0.5899	5.75074
n-Butane	2.6972	16.4431	1.94251	1.94251	15.3038
Isopentane	0.600041	4.11403	0.289757	0.289757	3.83492
n-Pentane	0.642071	4.53552	0.142068	0.142068	4.22026
n-Hexane	0.134983	0.997549	0.0192851	0.0192851	0.945867
Cyclohexane	0.0236035	0.143028	0.0425661	0.0425661	0.166254
i-C6	0.214442	1.55598	0.0596282	0.0596282	1.4769
i-C7	0.268067	2.03235	0.0451338	0.0451338	1.90002
Methylcyclohexane	0.0076043	0.0465341	0.00693399	0.00693399	0.0546973
Octane	0.0665929	0.506498	0.00282303	0.00282303	0.484864
Nonane	0.0102387	0.0779711	0.000367991	0.000367991	0.0760849
Benzene	0.0675964	0.50606	0.374993	0.374993	0.473698
Toluene	0.0360935	0.275233	0.189376	0.189376	0.260052
Ethylbenzene	0.00171413	0.0130703	0.00852577	0.00852577	0.0125112
o-Xylene	0.00769339	0.0586262	0.0392499	0.0392499	0.0562937
H2S	0.000916165	0.00181593	0.0057835	0.0057835	0.00218232
Water	0.655484	0.606727	4.85866	4.85866	0.798405
2,2,4-Trimethylpentane	0.00810115	0.0622288	0.00106449	0.00106449	0.057468
Decanes Plus	1.22385E-05	8.76523E-05	2.30528E-05	2.30528E-05	9.76646E-05

Mass Fraction	Combined Sales Gas %	Max Hour OT %	Max Hour PW %	Max Hour SK %	Max Hour VRT %
Carbon Dioxide	0.329737	0.0868451	1.84747	1.84747	0.103251
Nitrogen	1.08274	0.0120381	0.565404	0.565404	0.0138792
Methane	47.2273	2.44755	46.236	46.236	3.8298
Ethane	18.9416	13.8787	23.4924	23.4924	14.637
Propane	15.3736	30.2173	13.1531	13.1531	29.5538
Isobutane	2.71807	7.52131	1.50974	1.50974	7.28994
n-Butane	6.65712	20.108	4.97149	4.97149	19.3999
Isopentane	1.8384	6.24509	0.920543	0.920543	6.03453
n-Pentane	1.96717	6.88491	0.451343	0.451343	6.64089
n-Hexane	0.493962	1.80867	0.0731791	0.0731791	1.77775
Cyclohexane	0.084355	0.253261	0.157743	0.157743	0.305164
i-C6	0.784737	2.82118	0.226265	0.226265	2.77583
i-C7	1.14065	4.28466	0.199141	0.199141	4.15233
Methylcyclohexane	0.0317059	0.0961311	0.0299788	0.0299788	0.117132
Octane	0.323023	1.21729	0.0141995	0.0141995	1.20796
Nonane	0.0557633	0.210402	0.00207823	0.00207823	0.212829
Benzene	0.224218	0.831689	1.2898	1.2898	0.807006
Toluene	0.141221	0.533559	0.768332	0.768332	0.522588
Ethylbenzene	0.00772781	0.029195	0.0398563	0.0398563	0.0289693
o-Xylene	0.034684	0.130953	0.183486	0.183486	0.130347
H2S	0.00132591	0.00130212	0.00867928	0.00867928	0.00162214
Water	0.501457	0.229973	3.85424	3.85424	0.313706
2,2,4-Trimethylpentane	0.0392963	0.149558	0.00535426	0.00535426	0.143172
Decanes Plus	0.0001266	0.000449245	0.000247276	0.000247276	0.000518887

* User Specified Values
? Extrapolated or Approximate Values

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Sales	

Mass Flow	Combined Sales Gas lb/h	Max Hour OT lb/h	Max Hour PW lb/h	Max Hour SK lb/h	Max Hour VRT lb/h
Carbon Dioxide	518.715	1.21452	0.231804	11.3584	14.7855
Nitrogen	1703.28	0.168351	0.0709421	3.47616	1.98749
Methane	74294.1	34.2287	5.80129	284.263	548.424
Ethane	29797.4	194.093	2.94762	144.433	2096.01
Propane	24184.4	422.585	1.65033	80.8663	4232.08
Isobutane	4275.85	105.185	0.189429	9.28204	1043.91
n-Butane	10472.4	281.208	0.62378	30.5652	2778.06
Isopentane	2892.02	87.3369	0.115502	5.65959	864.141
n-Pentane	3094.59	96.2847	0.0566307	2.7749	950.971
n-Hexane	777.061	25.2941	0.00918188	0.449912	254.573
Cyclohexane	132.7	3.54182	0.0197922	0.969818	43.6993
i-C6	1234.48	39.4539	0.0283898	1.3911	397.496
i-C7	1794.37	59.9205	0.0249864	1.22434	594.61
Methylcyclohexane	49.8771	1.34438	0.00376149	0.184313	16.7732
Octane	508.152	17.0237	0.00178163	0.0872998	172.979
Nonane	87.7222	2.94245	0.000260758	0.0127772	30.477
Benzene	352.722	11.6311	0.161833	7.9298	115.563
Toluene	222.157	7.46177	0.0964036	4.72378	74.8343
Ethylbenzene	12.1568	0.408289	0.00500083	0.245041	4.14838
o-Xylene	54.5621	1.83136	0.0230222	1.12809	18.6655
H2S	2.08582	0.01821	0.001089	0.0533611	0.232289
Water	788.85	3.21615	0.483597	23.6963	44.9224
2,2,4-Trimethylpentane	61.8177	2.09155	0.000671807	0.0329185	20.5022
Decanes Plus	0.199157	0.00628264	3.10261E-05	0.00152028	0.0743042

Stream Properties

Property	Units	Combined Sales Gas	Max Hour OT	Max Hour PW	Max Hour SK	Max Hour VRT
Temperature	°F	83.6695	95	86.9382	86.9382	100
Pressure	psig	75	0.375	0.375	0.375	3
Molecular Weight	lb/lbmol	23.5488	47.5289	22.71	22.71	45.8502
Mass Flow	lb/h	157312	1398.49	12.5471	614.81	14319.9
Std Vapor Volumetric Flow	MMSCFD	60.841	0.267982	0.00503189	0.246563	2.84449
Std Liquid Volumetric Flow	sgpm	850.081	5.40768	0.0676927	3.31694	56.2064
Gross Ideal Gas Heating Value	Btu/ft^3	1385.85	2681.02	1281.58	1281.58	2589.13

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Sales	

Connections

	Tanks VRU Gas	Z-Low Pressure Vapor	1	2	3
From Block	MIX-101	MIX-102	VRT Gas Vapor	SPLT-100	CMPR-100
To Block	CMPR-101	MIX-100	SPLT-103	MIX-101	FAXR-101

Stream Composition

Mole Fraction	Tanks VRU Gas %	Z-Low Pressure Vapor %	1 %	2 %	3 %
Carbon Dioxide	0.51001	0.169726	0.10757	0.0937901	0.10757
Nitrogen	0.232488	0.0551155	0.0227164	0.0204244	0.0227164
Methane	35.4341	14.728	10.9458	7.25133	10.9458
Ethane	19.9064	21.9464	22.319	21.9376	22.319
Propane	20.0788	29.0847	30.7298	32.57	30.7298
Isobutane	3.45788	5.39661	5.75074	6.15048	5.75074
n-Butane	9.42149	14.3953	15.3038	16.4431	15.3038
Isopentane	2.2622	3.59202	3.83492	4.11403	3.83492
n-Pentane	2.40808	3.94037	4.22026	4.53552	4.22026
n-Hexane	0.523844	0.880686	0.945867	0.997549	0.945867
Cyclohexane	0.0943816	0.155153	0.166254	0.143028	0.166254
i-C6	0.831403	1.3772	1.4769	1.55598	1.4769
i-C7	1.07008	1.77183	1.90002	2.03235	1.90002
Methylcyclohexane	0.0273586	0.0504748	0.0546973	0.0465341	0.0546973
Octane	0.262604	0.450536	0.484864	0.506498	0.484864
Nonane	0.0403933	0.0705723	0.0760849	0.0779711	0.0760849
Benzene	0.442593	0.468894	0.473698	0.50606	0.473698
Toluene	0.233658	0.255976	0.260052	0.275233	0.260052
Ethylbenzene	0.0108697	0.0122576	0.0125112	0.0130703	0.0125112
o-Xylene	0.0492436	0.0552049	0.0562937	0.0586262	0.0562937
H2S	0.00373715	0.00242246	0.00218232	0.00181593	0.00218232
Water	2.66564	1.0868	0.798405	0.606727	0.798405
2,2,4-Trimethylpentane	0.0326112	0.0536289	0.057468	0.0622288	0.057468
Decanes Plus	5.63713E-05	9.12869E-05	9.76646E-05	8.76523E-05	9.76646E-05

Mass Fraction	Tanks VRU Gas %	Z-Low Pressure Vapor %	1 %	2 %	3 %
Carbon Dioxide	0.632068	0.168791	0.103251	0.0868451	0.103251
Nitrogen	0.183403	0.0348894	0.0138792	0.0120381	0.0138792
Methane	16.0078	5.3391	3.8298	2.44755	3.8298
Ethane	16.8559	14.912	14.637	13.8787	14.637
Propane	24.9329	28.9811	29.5538	30.2173	29.5538
Isobutane	5.65967	7.08789	7.28994	7.52131	7.28994
n-Butane	15.4206	18.9067	19.3999	20.108	19.3999
Isopentane	4.5962	5.85627	6.03453	6.24509	6.03453
n-Pentane	4.89259	6.42421	6.64089	6.88491	6.64089
n-Hexane	1.27123	1.71498	1.77775	1.80867	1.77775
Cyclohexane	0.223681	0.295066	0.305164	0.253261	0.305164
i-C6	2.01759	2.68185	2.77583	2.82118	2.77583
i-C7	3.01947	4.01193	4.15233	4.28466	4.15233
Methylcyclohexane	0.0756453	0.11199	0.117132	0.0961311	0.117132
Octane	0.844722	1.16294	1.20796	1.21729	1.20796
Nonane	0.145889	0.204533	0.212829	0.210402	0.212829
Benzene	0.973555	0.827647	0.807006	0.831689	0.807006
Toluene	0.606263	0.532959	0.522588	0.533559	0.522588
Ethylbenzene	0.0324966	0.0294064	0.0289693	0.029195	0.0289693
o-Xylene	0.147221	0.132438	0.130347	0.130953	0.130347

* User Specified Values
? Extrapolated or Approximate Values

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Sales	

Mass Fraction	Tanks VRU Gas %	Z-Low Pressure Vapor %	1 %	2 %	3 %
H2S	0.00358665	0.00186561	0.00162214	0.00130212	0.00162214
Water	1.35232	0.442429	0.313706	0.229973	0.313706
2,2,4-Trimethylpentane	0.104901	0.138429	0.143172	0.149558	0.143172
Decanes Plus	0.0003867	0.000502504	0.000518887	0.000449245	0.000518887

Mass Flow	Tanks VRU Gas lb/h	Z-Low Pressure Vapor lb/h	1 lb/h	2 lb/h	3 lb/h
Carbon Dioxide	3.20118	6.89756	3.69637	0.30363	3.69637
Nitrogen	0.928864	1.42574	0.496871	0.0420878	0.496871
Methane	81.0733	218.179	137.106	8.55717	137.106
Ethane	85.3684	609.372	524.003	48.5232	524.003
Propane	126.276	1184.3	1058.02	105.646	1058.02
Isobutane	28.664	289.643	260.979	26.2962	260.979
n-Butane	78.0992	772.613	694.514	70.302	694.514
Isopentane	23.278	239.313	216.035	21.8342	216.035
n-Pentane	24.7791	262.522	237.743	24.0712	237.743
n-Hexane	6.43829	70.0815	63.6433	6.32352	63.6433
Cyclohexane	1.13286	12.0577	10.9248	0.885456	10.9248
i-C6	10.2183	109.592	99.3741	9.86346	99.3741
i-C7	15.2924	163.945	148.653	14.9801	148.653
Methylcyclohexane	0.383114	4.5764	4.19329	0.336096	4.19329
Octane	4.27819	47.523	43.2448	4.25592	43.2448
Nonane	0.738873	8.35812	7.61925	0.735613	7.61925
Benzene	4.93068	33.8213	28.8907	2.90777	28.8907
Toluene	3.07049	21.7791	18.7086	1.86544	18.7086
Ethylbenzene	0.164583	1.20168	1.03709	0.102072	1.03709
o-Xylene	0.745618	5.412	4.66639	0.457841	4.66639
H2S	0.018165	0.0762372	0.0580721	0.00455251	0.0580721
Water	6.849	18.0796	11.2306	0.804037	11.2306
2,2,4-Trimethylpentane	0.531284	5.65683	5.12555	0.522887	5.12555
Decanes Plus	0.00195849	0.0205345	0.0185761	0.00157066	0.0185761

Stream Properties

Property	Units	Tanks VRU Gas	Z-Low Pressure Vapor	1	2	3
Temperature	°F	92.1103	98.6616	100	95	350 *
Pressure	psig	0.375	80	3	0.375	85 *
Molecular Weight	lb/lbmol	35.5109	44.2533	45.8502	47.5289	45.8502
Mass Flow	lb/h	506.462	4086.44	3579.98	349.622	3579.98
Std Vapor Volumetric Flow	MMSCFD	0.129894	0.841016	0.711122	0.0669956	0.711122
Std Liquid Volumetric Flow	sgpm	2.19808	16.2497	14.0516	1.35192	14.0516
Gross Ideal Gas Heating Value	Btu/ft^3	2003.37	2498.66	2589.13	2681.02	2589.13

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Sales	

Connections

	4	5	6	7	8
From Block	CMPR-101	FAXR-100	FAXR-101	HP Gas	MIX-100
To Block	FAXR-100	MIX-102	MIX-102	MIX-100	Sales Scrubber

Stream Composition

Mole Fraction	4 %	5 %	6 %	7 %	8 %
Carbon Dioxide	0.51001	0.51001	0.10757	0.176531	0.176437
Nitrogen	0.232488	0.232488	0.0227164	0.92217	0.910185
Methane	35.4341	35.4341	10.9458	70.0906	69.3253
Ethane	19.9064	19.9064	22.319	14.7346	14.8343
Propane	20.0788	20.0788	30.7298	7.9175	8.2101
Isobutane	3.45788	3.45788	5.75074	1.04105	1.10126
n-Butane	9.42149	9.42149	15.3038	2.53323	2.6972
Isopentane	2.2622	2.2622	3.83492	0.558103	0.600041
n-Pentane	2.40808	2.40808	4.22026	0.595839	0.642071
n-Hexane	0.523844	0.523844	0.945867	0.124531	0.134983
Cyclohexane	0.0943816	0.0943816	0.166254	0.0217596	0.0236035
i-C6	0.831403	0.831403	1.4769	0.198144	0.214442
i-C7	1.07008	1.07008	1.90002	0.246989	0.268067
Methylcyclohexane	0.0273586	0.0273586	0.0546973	0.00700339	0.0076043
Octane	0.262604	0.262604	0.484864	0.0612112	0.0665929
Nonane	0.0403933	0.0403933	0.0760849	0.00939297	0.0102387
Benzene	0.442593	0.442593	0.473698	0.0619714	0.0675964
Toluene	0.233658	0.233658	0.260052	0.0330114	0.0360935
Ethylbenzene	0.0108697	0.0108697	0.0125112	0.00156635	0.00171413
o-Xylene	0.0492436	0.0492436	0.0562937	0.00702742	0.00769339
H2S	0.00373715	0.00373715	0.00218232	0.000895051	0.000916165
Water	2.66564	2.66564	0.798405	0.649438	0.655484
2,2,4-Trimethylpentane	0.0326112	0.0326112	0.057468	0.00746299	0.00810115
Decanes Plus	5.63713E-05	5.63713E-05	9.76646E-05	1.11304E-05	1.22385E-05

Mass Fraction	4 %	5 %	6 %	7 %	8 %
Carbon Dioxide	0.632068	0.632068	0.103251	0.334029	0.329737
Nitrogen	0.183403	0.183403	0.0138792	1.11069	1.08274
Methane	16.0078	16.0078	3.8298	48.3445	47.2273
Ethane	16.8559	16.8559	14.637	19.0491	18.9416
Propane	24.9329	24.9329	29.5538	15.0107	15.3736
Isobutane	5.65967	5.65967	7.28994	2.60153	2.71807
n-Butane	15.4206	15.4206	19.3999	6.33043	6.65712
Isopentane	4.5962	4.5962	6.03453	1.73125	1.8384
n-Pentane	4.89259	4.89259	6.64089	1.84831	1.96717
n-Hexane	1.27123	1.27123	1.77775	0.461399	0.493962
Cyclohexane	0.223681	0.223681	0.305164	0.0787354	0.084355
i-C6	2.01759	2.01759	2.77583	0.734142	0.784737
i-C7	3.01947	3.01947	4.15233	1.06407	1.14065
Methylcyclohexane	0.0756453	0.0756453	0.117132	0.0295647	0.0317059
Octane	0.844722	0.844722	1.20796	0.300622	0.323023
Nonane	0.145889	0.145889	0.212829	0.0517957	0.0557633
Benzene	0.973555	0.973555	0.807006	0.208125	0.224218
Toluene	0.606263	0.606263	0.522588	0.130774	0.141221
Ethylbenzene	0.0324966	0.0324966	0.0289693	0.00714966	0.00772781
o-Xylene	0.147221	0.147221	0.130347	0.032077	0.034684
H2S	0.00358665	0.00358665	0.00162214	0.00131152	0.00132591
Water	1.35232	1.35232	0.313706	0.503031	0.501457
2,2,4-Trimethylpentane	0.104901	0.104901	0.143172	0.0366525	0.0392963
Decanes Plus	0.0003867	0.0003867	0.000518887	0.000116575	0.0001266

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Sales	

Mass Flow	**4** **lb/h**	**5** **lb/h**	**6** **lb/h**	**7** **lb/h**	**8** **lb/h**
Carbon Dioxide	3.20118	3.20118	3.69637	511.817	518.715
Nitrogen	0.928864	0.928864	0.496871	1701.86	1703.28
Methane	81.0733	81.0733	137.106	74075.9	74294.1
Ethane	85.3684	85.3684	524.003	29188	29797.4
Propane	126.276	126.276	1058.02	23000.1	24184.4
Isobutane	28.664	28.664	260.979	3986.2	4275.85
n-Butane	78.0992	78.0992	694.514	9699.81	10472.4
Isopentane	23.278	23.278	216.035	2652.71	2892.02
n-Pentane	24.7791	24.7791	237.743	2832.07	3094.59
n-Hexane	6.43829	6.43829	63.6433	706.979	777.061
Cyclohexane	1.13286	1.13286	10.9248	120.643	132.7
i-C6	10.2183	10.2183	99.3741	1124.89	1234.48
i-C7	15.2924	15.2924	148.653	1630.43	1794.37
Methylcyclohexane	0.383114	0.383114	4.19329	45.3007	49.8771
Octane	4.27819	4.27819	43.2448	460.629	508.152
Nonane	0.738873	0.738873	7.61925	79.3641	87.7222
Benzene	4.93068	4.93068	28.8907	318.9	352.722
Toluene	3.07049	3.07049	18.7086	200.378	222.157
Ethylbenzene	0.164583	0.164583	1.03709	10.9551	12.1568
o-Xylene	0.745618	0.745618	4.66639	49.1501	54.5621
H2S	0.018165	0.018165	0.0580721	2.00958	2.08582
Water	6.849	6.849	11.2306	770.771	788.85
2,2,4-Trimethylpentane	0.531284	0.531284	5.12555	56.1609	61.8177
Decanes Plus	0.00195849	0.00195849	0.0185761	0.178623	0.199157

Stream Properties

Property	**Units**	**4**	**5**	**6**	**7**	**8**
Temperature	°F	350 *	100 *	100 *	85.8543	84.3413
Pressure	psig	80 *	80 *	80 *	80	80
Molecular Weight	lb/lbmol	35.5109	35.5109	45.8502	23.2586	23.5488
Mass Flow	lb/h	506.462	506.462	3579.98	153225	157312
Std Vapor Volumetric Flow	MMSCFD	0.129894	0.129894	0.711122	60	60.841
Std Liquid Volumetric Flow	sgpm	2.19808	2.19808	14.0516	833.832	850.081
Gross Ideal Gas Heating Value	Btu/ft^3	2003.37	2003.37	2589.13	1370.25	1385.85

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Sales	

Connections

	9	10	11	12	13
From Block	OT Vapor	PW	STK Vapor	Sales Scrubber	SPLT-101
To Block	SPLT-100	SPLT-101	SPLT-102	Sales Scrubber Liquid	MIX-101

Stream Composition

Mole Fraction	9 %	10 %	11 %	12 %	13 %
Carbon Dioxide	0.0937901	0.95334	0.95334		0.95334
Nitrogen	0.0204244	0.458365	0.458365		0.458365
Methane	7.25133	65.4527	65.4527		65.4527
Ethane	21.9376	17.7429	17.7429		17.7429
Propane	32.57	6.77406	6.77406		6.77406
Isobutane	6.15048	0.5899	0.5899		0.5899
n-Butane	16.4431	1.94251	1.94251		1.94251
Isopentane	4.11403	0.289757	0.289757		0.289757
n-Pentane	4.53552	0.142068	0.142068		0.142068
n-Hexane	0.997549	0.0192851	0.0192851		0.0192851
Cyclohexane	0.143028	0.0425661	0.0425661		0.0425661
i-C6	1.55598	0.0596282	0.0596282		0.0596282
i-C7	2.03235	0.0451338	0.0451338		0.0451338
Methylcyclohexane	0.0465341	0.00693399	0.00693399		0.00693399
Octane	0.506498	0.00282303	0.00282303		0.00282303
Nonane	0.0779711	0.000367991	0.000367991		0.000367991
Benzene	0.50606	0.374993	0.374993		0.374993
Toluene	0.275233	0.189376	0.189376		0.189376
Ethylbenzene	0.0130703	0.00852577	0.00852577		0.00852577
o-Xylene	0.0586262	0.0392499	0.0392499		0.0392499
H2S	0.00181593	0.0057835	0.0057835		0.0057835
Water	0.606727	4.85866	4.85866		4.85866
2,2,4-Trimethylpentane	0.0622288	0.00106449	0.00106449		0.00106449
Decanes Plus	8.76523E-05	2.30528E-05	2.30528E-05		2.30528E-05

Mass Fraction	9 %	10 %	11 %	12 %	13 %
Carbon Dioxide	0.0868451	1.84747	1.84747		1.84747
Nitrogen	0.0120381	0.565404	0.565404		0.565404
Methane	2.44755	46.236	46.236		46.236
Ethane	13.8787	23.4924	23.4924		23.4924
Propane	30.2173	13.1531	13.1531		13.1531
Isobutane	7.52131	1.50974	1.50974		1.50974
n-Butane	20.108	4.97149	4.97149		4.97149
Isopentane	6.24509	0.920543	0.920543		0.920543
n-Pentane	6.88491	0.451343	0.451343		0.451343
n-Hexane	1.80867	0.0731791	0.0731791		0.0731791
Cyclohexane	0.253261	0.157743	0.157743		0.157743
i-C6	2.82118	0.226265	0.226265		0.226265
i-C7	4.28466	0.199141	0.199141		0.199141
Methylcyclohexane	0.0961311	0.0299788	0.0299788		0.0299788
Octane	1.21729	0.0141995	0.0141995		0.0141995
Nonane	0.210402	0.00207823	0.00207823		0.00207823
Benzene	0.831689	1.2898	1.2898		1.2898
Toluene	0.533559	0.768332	0.768332		0.768332
Ethylbenzene	0.029195	0.0398563	0.0398563		0.0398563
o-Xylene	0.130953	0.183486	0.183486		0.183486
H2S	0.00130212	0.00867928	0.00867928		0.00867928
Water	0.229973	3.85424	3.85424		3.85424
2,2,4-Trimethylpentane	0.149558	0.00535426	0.00535426		0.00535426
Decanes Plus	0.000449245	0.000247276	0.000247276		0.000247276

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Sales	

Mass Flow	9 lb/h	10 lb/h	11 lb/h	12 lb/h	13 lb/h
Carbon Dioxide	0.30363	0.057951	2.8396		0.057951
Nitrogen	0.0420878	0.0177355	0.86904		0.0177355
Methane	8.55717	1.45032	71.0659		1.45032
Ethane	48.5232	0.736905	36.1083		0.736905
Propane	105.646	0.412583	20.2166		0.412583
Isobutane	26.2962	0.0473573	2.32051		0.0473573
n-Butane	70.302	0.155945	7.64131		0.155945
Isopentane	21.8342	0.0288755	1.4149		0.0288755
n-Pentane	24.0712	0.0141577	0.693726		0.0141577
n-Hexane	6.32352	0.00229547	0.112478		0.00229547
Cyclohexane	0.885456	0.00494805	0.242454		0.00494805
i-C6	9.86346	0.00709744	0.347775		0.00709744
i-C7	14.9801	0.00624661	0.306084		0.00624661
Methylcyclohexane	0.336096	0.000940371	0.0460782		0.000940371
Octane	4.25592	0.000445407	0.021825		0.000445407
Nonane	0.735613	6.51895E-05	0.00319429		6.51895E-05
Benzene	2.90777	0.0404582	1.98245		0.0404582
Toluene	1.86544	0.0241009	1.18094		0.0241009
Ethylbenzene	0.102072	0.00125021	0.0612601		0.00125021
o-Xylene	0.457841	0.00575555	0.282022		0.00575555
H2S	0.00455251	0.00027225	0.0133403		0.00027225
Water	0.804037	0.120899	5.92406		0.120899
2,2,4-Trimethylpentane	0.522887	0.000167952	0.00822963		0.000167952
Decanes Plus	0.00157066	7.75652E-06	0.00038007		7.75652E-06

Stream Properties

Property	Units	9	10	11	12	13
Temperature	°F	95	86.9382	86.9382		86.9382
Pressure	psig	0.375	0.375	0.375	75	0.375
Molecular Weight	lb/lbmol	47.5289	22.71	22.71		22.71
Mass Flow	lb/h	349.622	3.13678	153.702	0	3.13678
Std Vapor Volumetric Flow	MMSCFD	0.0669956	0.00125797	0.0616407	0	0.00125797
Std Liquid Volumetric Flow	sgpm	1.35192	0.0169232	0.829235	0	0.0169232
Gross Ideal Gas Heating Value	Btu/ft^3	2681.02	1281.58	1281.58		1281.58

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Sales	

Connections

	14	15			
From Block	SPLT-102	SPLT-103			
To Block	MIX-101	CMPR-100			

Stream Composition

Mole Fraction	14 %	15 %			
Carbon Dioxide	0.95334	0.10757			
Nitrogen	0.458365	0.0227164			
Methane	65.4527	10.9458			
Ethane	17.7429	22.319			
Propane	6.77406	30.7298			
Isobutane	0.5899	5.75074			
n-Butane	1.94251	15.3038			
Isopentane	0.289757	3.83492			
n-Pentane	0.142068	4.22026			
n-Hexane	0.0192851	0.945867			
Cyclohexane	0.0425661	0.166254			
i-C6	0.0596282	1.4769			
i-C7	0.0451338	1.90002			
Methylcyclohexane	0.00693399	0.0546973			
Octane	0.00282303	0.484864			
Nonane	0.000367991	0.0760849			
Benzene	0.374993	0.473698			
Toluene	0.189376	0.260052			
Ethylbenzene	0.00852577	0.0125112			
o-Xylene	0.0392499	0.0562937			
H2S	0.0057835	0.00218232			
Water	4.85866	0.798405			
2,2,4-Trimethylpentane	0.00106449	0.057468			
Decanes Plus	2.30528E-05	9.76646E-05			

Mass Fraction	14 %	15 %			
Carbon Dioxide	1.84747	0.103251			
Nitrogen	0.565404	0.0138792			
Methane	46.236	3.8298			
Ethane	23.4924	14.637			
Propane	13.1531	29.5538			
Isobutane	1.50974	7.28994			
n-Butane	4.97149	19.3999			
Isopentane	0.920543	6.03453			
n-Pentane	0.451343	6.64089			
n-Hexane	0.0731791	1.77775			
Cyclohexane	0.157743	0.305164			
i-C6	0.226265	2.77583			
i-C7	0.199141	4.15233			
Methylcyclohexane	0.0299788	0.117132			
Octane	0.0141995	1.20796			
Nonane	0.00207823	0.212829			
Benzene	1.2898	0.807006			
Toluene	0.768332	0.522588			
Ethylbenzene	0.0398563	0.0289693			
o-Xylene	0.183486	0.130347			
H2S	0.00867928	0.00162214			
Water	3.85424	0.313706			
2,2,4-Trimethylpentane	0.00535426	0.143172			
Decanes Plus	0.000247276	0.000518887			

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Sales	

Mass Flow	14 lb/h	15 lb/h			
Carbon Dioxide	2.8396	3.69637			
Nitrogen	0.86904	0.496871			
Methane	71.0659	137.106			
Ethane	36.1083	524.003			
Propane	20.2166	1058.02			
Isobutane	2.32051	260.979			
n-Butane	7.64131	694.514			
Isopentane	1.4149	216.035			
n-Pentane	0.693726	237.743			
n-Hexane	0.112478	63.6433			
Cyclohexane	0.242454	10.9248			
i-C6	0.347775	99.3741			
i-C7	0.306084	148.653			
Methylcyclohexane	0.0460782	4.19329			
Octane	0.021825	43.2448			
Nonane	0.00319429	7.61925			
Benzene	1.98245	28.8907			
Toluene	1.18094	18.7086			
Ethylbenzene	0.0612601	1.03709			
o-Xylene	0.282022	4.66639			
H2S	0.0133403	0.0580721			
Water	5.92406	11.2306			
2,2,4-Trimethylpentane	0.00822963	5.12555			
Decanes Plus	0.00038007	0.0185761			

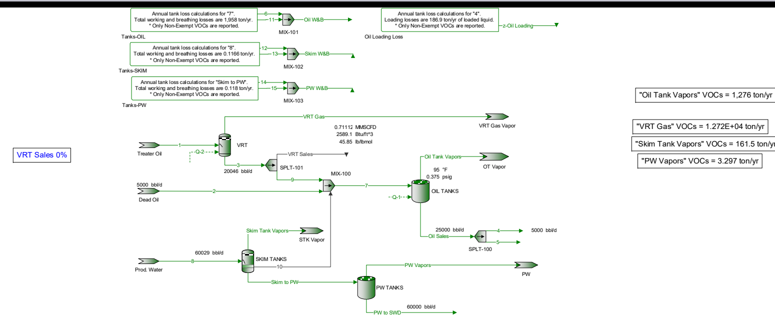
Stream Properties

Property	Units	14	15			
Temperature	°F	86.9382	100			
Pressure	psig	0.375	3			
Molecular Weight	lb/lbmol	22.71	45.8502			
Mass Flow	lb/h	153.702	3579.98			
Std Vapor Volumetric Flow	MMSCFD	0.0616407	0.711122			
Std Liquid Volumetric Flow	sgpm	0.829235	14.0516			
Gross Ideal Gas Heating Value	Btu/ft^3	1281.58	2589.13			

Remarks

Tankage
Plant Schematic

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Tankage	



Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Tankage	

Connections

	Oil Sales	Oil Tank Vapors	Oil W&B	PW to SWD	PW Vapors
From Block	OIL TANKS	OIL TANKS	MIX-101	PW TANKS	PW TANKS
To Block	SPLT-100	OT Vapor	--	--	PW

Stream Composition

Mole Fraction	Oil Sales %	Oil Tank Vapors %	Oil W&B %	PW to SWD %	PW Vapors %
Carbon Dioxide	0.000899867	0.0937901	0.0717366	0.000366051	0.95334
Nitrogen	2.62518E-05	0.0204244	0.000719174	4.4866E-06	0.458365
Methane	0.0273987	7.25133	1.16931	0.00131602	65.4527
Ethane	0.461359	21.9376	24.5065	0.000506823	17.7429
Propane	2.37634	32.57	35.9617	0.000135566	6.77406
Isobutane	1.11405	6.15048	6.39178	7.71091E-06	0.5899
n-Butane	4.26987	16.4431	16.9223	3.57883E-05	1.94251
Isopentane	2.71402	4.11403	4.30003	3.60273E-06	0.289757
n-Pentane	3.92242	4.53552	4.68242	7.76972E-07	0.142068
n-Hexane	2.87801	0.997549	1.05789	7.00935E-08	0.0192851
Cyclohexane	0.576259	0.143028	0.13802	2.73041E-06	0.0425661
i-C6	3.17671	1.55598	1.61158	4.26215E-07	0.0596282
i-C7	11.5849	2.03235	1.90313	1.98779E-07	0.0451338
Methylcyclohexane	0.388637	0.0465341	0.045047	1.89957E-07	0.00693399
Octane	13.3381	0.506498	0.456859	3.21899E-09	0.00282303
Nonane	6.25596	0.0779711	0.0574559	3.69957E-10	0.000367991
Benzene	1.63098	0.50606	0.383668	0.000874302	0.374993
Toluene	3.04488	0.275233	0.221377	0.000334771	0.189376
Ethylbenzene	0.434496	0.0130703	0.0109214	1.2935E-05	0.00852577
o-Xylene	2.42023	0.0586262	0.0429122	8.92357E-05	0.0392499
H2S	6.47333E-05	0.00181593	0.00192345	6.77927E-06	0.0057835
Water	0.0105291	0.606727	0.000562942	99.9963	4.85866
2,2,4-Trimethylpentane	0.503338	0.0622288	0.0620868	3.67518E-09	0.00106449
Decanes Plus	38.8705	8.76523E-05	5.3468E-05	3.07892E-09	2.30528E-05

Mass Fraction	Oil Sales %	Oil Tank Vapors %	Oil W&B %	PW to SWD %	PW Vapors %
Carbon Dioxide	0.000259798	0.0868451	0.0643344	0.000894174	1.84747
Nitrogen	4.82432E-06	0.0120381	0.000410541	6.97616E-06	0.565404
Methane	0.00288345	2.44755	0.382258	0.00117184	46.236
Ethane	0.091006	13.8787	15.0161	0.000845881	23.4924
Propane	0.687408	30.2173	32.3141	0.000331804	13.1531
Isobutane	0.424774	7.52131	7.57042	2.4876E-05	1.50974
n-Butane	1.62805	20.108	20.0428	0.000115456	4.97149
Isopentane	1.28455	6.24509	6.32204	1.44276E-05	0.920543
n-Pentane	1.8565	6.88491	6.88423	3.11149E-06	0.451343
n-Hexane	1.62699	1.80867	1.85773	3.3527E-07	0.0731791
Cyclohexane	0.31815	0.253261	0.236702	1.27545E-05	0.157743
i-C6	1.79586	2.82118	2.83004	2.03866E-06	0.226265
i-C7	7.6152	4.28466	3.88599	1.10555E-06	0.199141
Methylcyclohexane	0.250326	0.0961311	0.0901306	1.03523E-06	0.0299788
Octane	9.99494	1.21729	1.06344	2.04093E-08	0.0141995
Nonane	5.26356	0.210402	0.150164	2.63366E-09	0.00207823
Benzene	0.835751	0.831689	0.610702	0.00379063	1.2898
Toluene	1.84044	0.533559	0.415653	0.00171207	0.768332
Ethylbenzene	0.302606	0.029195	0.0236274	7.62224E-05	0.0398563
o-Xylene	1.68558	0.130953	0.0928365	0.00052584	0.183486
H2S	1.44727E-05	0.00130212	0.00133582	1.28241E-05	0.00867928
Water	0.00124436	0.229973	0.000206662	99.9905	3.85424
2,2,4-Trimethylpentane	0.377177	0.149558	0.144521	2.33016E-08	0.00535426
Decanes Plus	62.1167	0.000449245	0.000265416	4.16302E-08	0.000247276

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Tankage	

Mass Flow	Oil Sales lb/h	Oil Tank Vapors lb/h	Oil W&B lb/h	PW to SWD lb/h	PW Vapors lb/h
Carbon Dioxide	0.745088	0.30363	0.340287	7.82721	0.057951
Nitrogen	0.0138359	0.0420878	0.00217149	0.0610662	0.0177355
Methane	8.2696	8.55717	2.02189	10.2578	1.45032
Ethane	261.001	48.5232	79.4254	7.40447	0.736905
Propane	1971.45	105.646	170.92	2.90446	0.412583
Isobutane	1218.23	26.2962	40.0426	0.217754	0.0473573
n-Butane	4669.17	70.302	106.013	1.01065	0.155945
Isopentane	3684.04	21.8342	33.4395	0.126293	0.0288755
n-Pentane	5324.35	24.0712	36.4131	0.0272366	0.0141577
n-Hexane	4666.14	6.32352	9.82616	0.0029348	0.00229547
Cyclohexane	912.44	0.885456	1.252	0.111648	0.00494805
i-C6	5150.43	9.86346	14.969	0.0178455	0.00709744
i-C7	21840	14.9801	20.5544	0.00967753	0.00624661
Methylcyclohexane	717.922	0.336096	0.476732	0.00906196	0.000940371
Octane	28665	4.25592	5.6249	0.000178654	0.000445407
Nonane	15095.6	0.735613	0.794269	2.30539E-05	6.51895E-05
Benzene	2396.89	2.90777	3.23021	33.1815	0.0404582
Toluene	5278.3	1.86544	2.19853	14.9867	0.0241009
Ethylbenzene	867.86	0.102072	0.124973	0.667217	0.00125021
o-Xylene	4834.15	0.457841	0.491044	4.60297	0.00575555
H2S	0.041507	0.00455251	0.0070656	0.112257	0.00027225
Water	3.56875	0.804037	0.00109311	875272	0.120899
2,2,4-Trimethylpentane	1081.73	0.522887	0.76442	0.000203972	0.000167952
Decanes Plus	178148	0.00157066	0.00140388	0.000364413	7.75652E-06

Stream Properties

Property	Units	Oil Sales	Oil Tank Vapors	Oil W&B	PW to SWD	PW Vapors
Temperature	°F	95	95 *	100.014	86.9382	86.9382
Pressure	psig	0.375	0.375 *	7.07154	0.375	0.375 *
Molecular Weight	lb/lbmol	152.436	47.5289	49.0731	18.0163	22.71
Mass Flow	lb/h	286795	349.622	528.935	875356	3.13678
Std Vapor Volumetric Flow	MMSCFD	17.1351	0.0669956	0.0981664	442.51	0.00125797
Std Liquid Volumetric Flow	sgpm	729.167	1.35192	2.03468	1750	0.0169232
Gross Ideal Gas Heating Value	Btu/ft^3	8032.11	2681.02	2772.59	50.3886	1281.58

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Tankage	

Connections

	PW W&B	Skim Tank Vapors	Skim to PW	Skim W&B	VRT Gas
From Block	MIX-103	SKIM TANKS	SKIM TANKS	MIX-102	VRT
To Block	--	STK Vapor	PW TANKS	--	VRT Gas Vapor

Stream Composition

Mole Fraction	PW W&B %	Skim Tank Vapors %	Skim to PW %	Skim W&B %	VRT Gas %
Carbon Dioxide	0.648547	0.95334	0.000368761	0.624264	0.10757
Nitrogen	0.00341261	0.458365	5.78963E-06	0.00359083	0.0227164
Methane	1.44256	65.4527	0.00150209	1.42957	10.9458
Ethane	0.509533	17.7429	0.000557261	0.487163	22.319
Propane	0.0336609	6.77406	0.000154823	0.0327365	30.7298
Isobutane	0.000662284	0.5899	9.38786E-06	0.000647989	5.75074
n-Butane	0.00219098	1.94251	4.13104E-05	0.00214931	15.3038
Isopentane	8.23135E-05	0.289757	4.42644E-06	8.18037E-05	3.83492
n-Pentane	1.22991E-05	0.142068	1.18084E-06	1.39462E-05	4.22026
n-Hexane	3.13322E-07	0.0192851	1.24917E-07	3.72317E-07	0.945867
Cyclohexane	1.01073E-05	0.0425661	2.85141E-06	9.25893E-06	0.166254
i-C6	2.87972E-06	0.0596282	5.95725E-07	3.10367E-06	1.4769
i-C7	3.85197E-07	0.0451338	3.27085E-07	4.28998E-07	1.90002
Methylcyclohexane	3.23341E-07	0.00693399	2.09668E-07	3.01969E-07	0.0546973
Octane	1.10907E-09	0.00282303	1.12443E-08	1.52317E-09	0.484864
Nonane	3.12468E-11	0.000367991	1.41608E-09	4.25567E-11	0.0760849
Benzene	0.00327893	0.374993	0.000875365	0.00323333	0.473698
Toluene	0.000380707	0.189376	0.000335308	0.000374889	0.260052
Ethylbenzene	4.98541E-06	0.00852577	1.29592E-05	4.89378E-06	0.0125112
o-Xylene	2.41417E-05	0.0392499	8.93471E-05	2.38533E-05	0.0562937
H2S	0.00379357	0.0057835	6.79569E-06	0.0037158	0.00218232
Water	97.3518	4.85866	99.996	97.4124	0.798405
2,2,4-Trimethylpentane	4.98054E-09	0.00106449	6.70132E-09	5.63199E-09	0.057468
Decanes Plus	5.32297E-14	2.30528E-05	3.14444E-09	4.60254E-14	9.76646E-05

Mass Fraction	PW W&B %	Skim Tank Vapors %	Skim to PW %	Skim W&B %	VRT Gas %
Carbon Dioxide	1.56567	1.84747	0.000900791	1.5078	0.103251
Nitrogen	0.00524402	0.565404	9.00222E-06	0.00552063	0.0138792
Methane	1.26945	46.236	0.00133752	1.25865	3.8298
Ethane	0.840435	23.4924	0.000930061	0.803936	14.637
Propane	0.0814205	13.1531	0.000378935	0.0792239	29.5538
Isobutane	0.00211154	1.50974	3.0286E-05	0.00206699	7.28994
n-Butane	0.00698542	4.97149	0.000133271	0.00685596	19.3999
Isopentane	0.000325771	0.920543	1.77263E-05	0.000323914	6.03453
n-Pentane	4.86761E-05	0.451343	4.72883E-06	5.52222E-05	6.64089
n-Hexane	1.48111E-06	0.0731791	5.975E-07	1.76086E-06	1.77775
Cyclohexane	4.66607E-05	0.157743	1.33198E-05	4.27653E-05	0.305164
i-C6	1.36127E-05	0.226265	2.84946E-06	1.46787E-05	2.77583
i-C7	2.11724E-06	0.199141	1.81916E-06	2.35917E-06	4.15233
Methylcyclohexane	1.7415E-06	0.0299788	1.14266E-06	1.6272E-06	0.117132
Octane	6.94937E-09	0.0141995	7.1292E-08	9.54884E-09	1.20796
Nonane	2.19833E-10	0.00207823	1.00808E-08	2.99551E-10	0.212829
Benzene	0.0140495	1.2898	0.00379524	0.013861	0.807006
Toluene	0.00192417	0.768332	0.00171482	0.00189571	0.522588
Ethylbenzene	2.90332E-05	0.0398563	7.6365E-05	2.85137E-05	0.0289693
o-Xylene	0.000140592	0.183486	0.000526496	0.000138982	0.130347
H2S	0.00709205	0.00867928	1.28552E-05	0.00695011	0.00162214
Water	96.205	3.85424	99.9901	96.3126	0.313706
2,2,4-Trimethylpentane	3.12078E-08	0.00535426	4.24882E-08	3.53073E-08	0.143172

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Tankage	

Mass Fraction	PW W&B %	Skim Tank Vapors %	Skim to PW %	Skim W&B %	VRT Gas %
Decanes Plus	7.11285E-13	0.000247276	4.25162E-08	6.15323E-13	0.000518887

Mass Flow	PW W&B lb/h	Skim Tank Vapors lb/h	Skim to PW lb/h	Skim W&B lb/h	VRT Gas lb/h
Carbon Dioxide	0.393719	2.8396	7.88516	0.384117	3.69637
Nitrogen	0.00131872	0.86904	0.0788017	0.0014064	0.496871
Methane	0.319229	71.0659	11.7081	0.320645	137.106
Ethane	0.211344	36.1083	8.14137	0.204806	524.003
Propane	0.0204748	20.2166	3.31705	0.0201826	1058.02
Isobutane	0.000530989	2.32051	0.265111	0.000526573	260.979
n-Butane	0.00175662	7.64131	1.1666	0.00174659	694.514
Isopentane	8.19217E-05	1.4149	0.155168	8.25185E-05	216.035
n-Pentane	1.22406E-05	0.693726	0.0413942	1.40681E-05	237.743
n-Hexane	3.72454E-07	0.112478	0.00523027	4.48585E-07	63.6433
Cyclohexane	1.17338E-05	0.242454	0.116596	1.08946E-05	10.9248
i-C6	3.4232E-06	0.347775	0.024943	3.73945E-06	99.3741
i-C7	5.32424E-07	0.306084	0.0159241	6.01008E-07	148.653
Methylcyclohexane	4.37935E-07	0.0460782	0.0100023	4.14535E-07	4.19329
Octane	1.74756E-09	0.021825	0.000624061	2.43261E-09	43.2448
Nonane	5.52815E-11	0.00319429	8.82434E-05	7.63119E-11	7.61925
Benzene	0.00353304	1.98245	33.222	0.00353115	28.8907
Toluene	0.000483873	1.18094	15.0108	0.000482939	18.7086
Ethylbenzene	7.30098E-06	0.0612601	0.668468	7.26399E-06	1.03709
o-Xylene	3.53548E-05	0.282022	4.60873	3.54062E-05	4.66639
H2S	0.00178344	0.0133403	0.112529	0.00177057	0.0580721
Water	24.1927	5.92406	875272	24.536	11.2306
2,2,4-Trimethylpentane	7.84784E-09	0.00822963	0.000371924	8.99468E-09	5.12555
Decanes Plus	1.78867E-13	0.00038007	0.000372169	1.56756E-13	0.0185761

Stream Properties

Property	Units	PW W&B	Skim Tank Vapors	Skim to PW	Skim W&B	VRT Gas
Temperature	°F	94.0874	86.9382	86.9382	94.6044	100 *
Pressure	psig	-11.9148	0.375	0.375	-11.9022	3
Molecular Weight	lb/lbmol	18.23	22.71	18.0163	18.221	45.8502
Mass Flow	lb/h	25.147	153.702	875359	25.4754	3579.98
Std Vapor Volumetric Flow	MMSCFD	0.0125633	0.0616407	442.511	0.0127337	0.711122
Std Liquid Volumetric Flow	sgpm	0.052746	0.829235	1750.02	0.0533806	14.0516
Gross Ideal Gas Heating Value	Btu/ft^3	73.6745	1281.58	50.3921	73.1504	2589.13

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Tankage	

Connections

	VRT Sales	z-Oil Loading	1	2	3
From Block	SPLT-101	--	Treater Oil	Dead Oil	VRT
To Block	--	--	VRT	MIX-100	SPLT-101

Stream Composition

Mole Fraction	VRT Sales %	z-Oil Loading %	1 %	2 %	3 %
Carbon Dioxide	0.00120185	0.0739963	0.00640699	0.00150602	0.00120185
Nitrogen	3.4931E-05	0.000453105	0.00114485	0.000394928	3.4931E-05
Methane	0.0489144	1.10061	0.582155	0.0825859	0.0489144
Ethane	0.542419	25.3045	1.60806	0.555552	0.542419
Propane	2.54096	36.0232	3.92039	2.30169	2.54096
Isobutane	1.16359	6.30897	1.38806	1.01135	1.16359
n-Butane	4.4168	16.64	4.94956	3.91048	4.4168
Isopentane	2.77101	4.19637	2.82308	2.50879	2.77101
n-Pentane	3.9773	4.5605	3.98919	3.71025	3.9773
n-Hexane	2.91572	1.02427	2.81933	2.6866	2.91572
Cyclohexane	0.715146	0.133447	0.688286	0	0.715146
i-C6	3.24704	1.56302	3.16042	2.85715	3.24704
i-C7	11.4727	1.83674	11.0042	11.8546	11.4727
Methylcyclohexane	0.482062	0.0434509	0.461149	0	0.482062
Octane	13.1805	0.437649	12.5592	13.7281	13.1805
Nonane	6.18858	0.0550164	5.88946	6.40898	6.18858
Benzene	1.63348	0.370745	1.57673	1.59847	1.63348
Toluene	3.01991	0.213002	2.88485	3.09209	3.01991
Ethylbenzene	0.429007	0.0104634	0.408626	0.448578	0.429007
o-Xylene	2.39173	0.0410637	2.27745	2.4899	2.39173
H2S	8.90597E-05	0.00195628	0.000191494	0	8.90597E-05
Water	0.0159952	0.000566965	0.0542826	0	0.0159952
2,2,4-Trimethylpentane	0.490397	0.0598971	0.469211	0.547493	0.490397
Decanes Plus	38.3554	4.93068E-05	36.4785	40.2054	38.3554

Mass Fraction	VRT Sales %	z-Oil Loading %	1 %	2 %	3 %
Carbon Dioxide	0.000349521	0.0667809	0.00192908	0.000427927	0.000349521
Nitrogen	6.46629E-06	0.000260292	0.000219414	7.14294E-05	6.46629E-06
Methane	0.00518544	0.362076	0.0638938	0.00855403	0.00518544
Ethane	0.107778	15.6032	0.330805	0.107855	0.107778
Propane	0.740408	32.5742	1.1827	0.655293	0.740408
Isobutane	0.446909	7.51963	0.551951	0.379523	0.446909
n-Butane	1.6964	19.8331	1.96815	1.46746	1.6964
Isopentane	1.32113	6.20867	1.39348	1.16866	1.32113
n-Pentane	1.89625	6.74741	1.96908	1.72833	1.89625
n-Hexane	1.66038	1.81007	1.66218	1.49479	1.66038
Cyclohexane	0.397718	0.230307	0.396298	0	0.397718
i-C6	1.84905	2.76213	1.86327	1.58968	1.84905
i-C7	7.59657	3.77415	7.5437	7.66935	7.59657
Methylcyclohexane	0.312774	0.0874872	0.309771	0	0.312774
Octane	9.94911	1.02517	9.81493	10.1246	9.94911
Nonane	5.24497	0.144698	5.16772	5.3071	5.24497
Benzene	0.843158	0.593865	0.842603	0.806146	0.843158
Toluene	1.8387	0.402459	1.8185	1.83944	1.8387
Ethylbenzene	0.30097	0.0227798	0.296795	0.307478	0.30097
o-Xylene	1.67792	0.0893996	1.65417	1.7067	1.67792
H2S	2.00572E-05	0.00136722	4.46493E-05	0	2.00572E-05
Water	0.00190418	0.000209456	0.00669039	0	0.00190418
2,2,4-Trimethylpentane	0.370169	0.140306	0.366684	0.403782	0.370169
Decanes Plus	61.7422	0.000246309	60.7944	63.2348	61.7422

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Tankage	

Mass Flow	VRT Sales lb/h	z-Oil Loading lb/h	1 lb/h	2 lb/h	3 lb/h
Carbon Dioxide	0	0.0339434	4.49902	0.246073	0.802645
Nitrogen	0	0.000132301	0.511721	0.0410744	0.0148493
Methane	0	0.184036	149.014	4.91887	11.9079
Ethane	0	7.93081	771.507	62.0201	247.504
Propane	0	16.5568	2758.3	376.816	1700.28
Isobutane	0	3.82208	1287.27	218.239	1026.29
n-Butane	0	10.0808	4590.14	843.841	3895.63
Isopentane	0	3.15574	3249.89	672.019	3033.86
n-Pentane	0	3.42958	4592.31	993.849	4354.57
n-Hexane	0	0.920021	3876.55	859.556	3812.91
Cyclohexane	0	0.117061	924.25	0	913.325
i-C6	0	1.40394	4345.55	914.121	4246.18
i-C7	0	1.91832	17593.5	4410.14	17444.9
Methylcyclohexane	0	0.044468	722.451	0	718.258
Octane	0	0.521074	22890.5	5822.01	22847.3
Nonane	0	0.0735472	12052.2	3051.77	12044.6
Benzene	0	0.30185	1965.13	463.563	1936.24
Toluene	0	0.204562	4241.13	1057.75	4222.42
Ethylbenzene	0	0.0115785	692.189	176.81	691.152
o-Xylene	0	0.04544	3857.86	981.414	3853.2
H2S	0	0.000694931	0.104132	0	0.0460595
Water	0	0.000106463	15.6034	0	4.37279
2,2,4-Trimethylpentane	0	0.0713148	855.186	232.189	850.06
Decanes Plus	0	0.000125194	141785	36362.2	141785

Stream Properties

Property	Units	VRT Sales	z-Oil Loading	1	2	3
Temperature	°F	100	98.726	113.769	85.9447	100
Pressure	psig	3	7.16426	3	25	3
Molecular Weight	lb/lbmol	151.329	48.7645	146.167	154.884	151.329
Mass Flow	lb/h	0	50.828	233221	57503.5	229641
Std Vapor Volumetric Flow	MMSCFD	0	0.00949301	14.5319	3.38137	13.8208
Std Liquid Volumetric Flow	sgpm	0	0.196327	598.737	145.833	584.685
Gross Ideal Gas Heating Value	Btu/ft^3	7975.7	2756.33	7712.11	8156.66	7975.7

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Tankage	

Connections

	4	5	6	7	8
From Block	SPLT-100	SPLT-100	--	MIX-100	Prod. Water
To Block	--	--	MIX-101	OIL TANKS	SKIM TANKS

Stream Composition

Mole Fraction	4 %	5 %	6 %	7 %	8 %
Carbon Dioxide	0.000899867	0.000899867	0.0717366	0.00126164	0.000501489
Nitrogen	2.62518E-05	2.62518E-05	0.000719174	0.000105694	6.9629E-05
Methane	0.0273987	0.0273987	1.16931	0.0555331	0.010618
Ethane	0.461359	0.461359	24.5065	0.545	0.00302838
Propane	2.37634	2.37634	35.9617	2.49393	0.00109828
Isobutane	1.11405	1.11405	6.39178	1.13366	9.15467E-05
n-Butane	4.26987	4.26987	16.9223	4.31728	0.000311853
Isopentane	2.71402	2.71402	4.30003	2.71947	4.47826E-05
n-Pentane	3.92242	3.92242	4.68242	3.92481	2.09676E-05
n-Hexane	2.87801	2.87801	1.05789	2.87068	2.81089E-06
Cyclohexane	0.576259	0.576259	0.13802	0.574572	8.77955E-06
i-C6	3.17671	3.17671	1.61158	3.1704	8.90055E-06
i-C7	11.5849	11.5849	1.90313	11.5477	6.61318E-06
Methylcyclohexane	0.388637	0.388637	0.045047	0.387305	1.17539E-06
Octane	13.3381	13.3381	0.456859	13.2881	4.04429E-07
Nonane	6.25596	6.25596	0.0574559	6.2319	5.26689E-08
Benzene	1.63098	1.63098	0.383668	1.6266	0.000927472
Toluene	3.04488	3.04488	0.221377	3.0341	0.000361638
Ethylbenzene	0.434496	0.434496	0.0109214	0.432854	1.41449E-05
o-Xylene	2.42023	2.42023	0.0429122	2.41103	9.48013E-05
H2S	6.47333E-05	6.47333E-05	0.00192345	7.15535E-05	7.60026E-06
Water	0.0105291	0.0105291	0.000562942	0.0128511	99.9828
2,2,4-Trimethylpentane	0.503338	0.503338	0.0620868	0.50162	1.54961E-07
Decanes Plus	38.8705	38.8705	5.3468E-05	38.7191	6.35475E-09

Mass Fraction	4 %	5 %	6 %	7 %	8 %
Carbon Dioxide	0.000259798	0.000259798	0.0643344	0.000365223	0.00122497
Nitrogen	4.82432E-06	4.82432E-06	0.000410541	1.94758E-05	0.000108261
Methane	0.00288345	0.00288345	0.382258	0.00586003	0.00945434
Ethane	0.091006	0.091006	15.0161	0.107794	0.00505415
Propane	0.687408	0.687408	32.3141	0.723363	0.00268798
Isobutane	0.424774	0.424774	7.57042	0.433415	0.000295326
n-Butane	1.62805	1.62805	20.0428	1.65055	0.00100603
Isopentane	1.28455	1.28455	6.32204	1.29059	0.000179331
n-Pentane	1.8565	1.8565	6.88423	1.86262	8.39645E-05
n-Hexane	1.62699	1.62699	1.85773	1.62722	1.34445E-05
Cyclohexane	0.31815	0.31815	0.236702	0.318071	4.10103E-05
i-C6	1.79586	1.79586	2.83004	1.79711	4.25713E-05
i-C7	7.6152	7.6152	3.88599	7.61114	3.67794E-05
Methylcyclohexane	0.250326	0.250326	0.0901306	0.250138	6.40545E-06
Octane	9.99494	9.99494	1.06344	9.98425	2.5641E-06
Nonane	5.26356	5.26356	0.150164	5.25741	3.74927E-07
Benzene	0.835751	0.835751	0.610702	0.835746	0.00402101
Toluene	1.84044	1.84044	0.415653	1.83885	0.0018494
Ethylbenzene	0.302606	0.302606	0.0236274	0.302274	8.33486E-05
o-Xylene	1.68558	1.68558	0.0928365	1.68368	0.000558616
H2S	1.44727E-05	1.44727E-05	0.00133582	1.60405E-05	1.43766E-05
Water	0.00124436	0.00124436	0.000206662	0.00152285	99.9732
2,2,4-Trimethylpentane	0.377177	0.377177	0.144521	0.3769	9.8246E-07
Decanes Plus	62.1167	62.1167	0.000265416	62.0411	8.59198E-08

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Tankage	

Mass Flow	4 lb/h	5 lb/h	6 lb/h	7 lb/h	8 lb/h
Carbon Dioxide	0.149018	0.596071	0.336022	1.04872	10.7248
Nitrogen	0.00276718	0.0110687	0.00214427	0.0559237	0.947842
Methane	1.65392	6.61568	1.99655	16.8268	82.774
Ethane	52.2001	208.801	78.4299	309.524	44.2497
Propane	394.29	1577.16	168.778	2077.1	23.5336
Isobutane	243.646	974.585	39.5407	1244.53	2.58562
n-Butane	933.833	3735.33	104.684	4739.47	8.8079
Isopentane	736.808	2947.23	33.0203	3705.87	1.57007
n-Pentane	1064.87	4259.48	35.9567	5348.42	0.73512
n-Hexane	933.228	3732.91	9.70299	4672.47	0.117708
Cyclohexane	182.488	729.952	1.23631	913.325	0.35905
i-C6	1030.09	4120.35	14.7814	5160.3	0.372717
i-C7	4368	17472	20.2967	21855	0.322008
Methylcyclohexane	143.584	574.338	0.470756	718.258	0.0560805
Octane	5733	22932	5.5544	28669.3	0.022449
Nonane	3019.13	12076.5	0.784313	15096.4	0.00328253
Benzene	479.379	1917.51	3.18972	2399.8	35.2044
Toluene	1055.66	4222.64	2.17097	5280.17	16.1918
Ethylbenzene	173.572	694.288	0.123407	867.963	0.729728
o-Xylene	966.831	3867.32	0.48489	4834.61	4.89075
H2S	0.0083014	0.0332056	0.00697704	0.0460595	0.125869
Water	0.713751	2.855	0.00107941	4.37279	875278
2,2,4-Trimethylpentane	216.345	865.381	0.754839	1082.25	0.00860156
Decanes Plus	35629.5	142518	0.00138628	178148	0.000752239

Stream Properties

Property	Units	4	5	6	7	8
Temperature	°F	95	95	100.014	97.2388	86.9382
Pressure	psig	0.375	0.375	7.07154	3	0.375
Molecular Weight	lb/lbmol	152.436	152.436	49.0731	152.028	18.017
Mass Flow	lb/h	57359	229436	522.305	287145	875513
Std Vapor Volumetric Flow	MMSCFD	3.42703	13.7081	0.096936	17.2021	442.573
Std Liquid Volumetric Flow	sgpm	145.833 *	583.333	2.00918	730.519	1750.85
Gross Ideal Gas Heating Value	Btu/ft^3	8032.11	8032.11	2772.59	8011.27	50.5636

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Tankage	

Connections

	9	10	11	12	13
From Block	SPLT-101	SKIM TANKS	--	--	--
To Block	MIX-100	MIX-100	MIX-101	MIX-102	MIX-102

Stream Composition

Mole Fraction	9 %	10 %	11 %	12 %	13 %
Carbon Dioxide	0.00120185		0.0717366	0.624264	0.624264
Nitrogen	3.4931E-05		0.000719174	0.00359083	0.00359083
Methane	0.0489144		1.16931	1.42957	1.42957
Ethane	0.542419		24.5065	0.487163	0.487163
Propane	2.54096		35.9617	0.0327365	0.0327365
Isobutane	1.16359		6.39178	0.000647989	0.000647989
n-Butane	4.4168		16.9223	0.00214931	0.00214931
Isopentane	2.77101		4.30003	8.18037E-05	8.18037E-05
n-Pentane	3.9773		4.68242	1.39462E-05	1.39462E-05
n-Hexane	2.91572		1.05789	3.72317E-07	3.72317E-07
Cyclohexane	0.715146		0.13802	9.25893E-06	9.25893E-06
i-C6	3.24704		1.61158	3.10367E-06	3.10367E-06
i-C7	11.4727		1.90313	4.28998E-07	4.28998E-07
Methylcyclohexane	0.482062		0.045047	3.01969E-07	3.01969E-07
Octane	13.1805		0.456859	1.52317E-09	1.52317E-09
Nonane	6.18858		0.0574559	4.25567E-11	4.25567E-11
Benzene	1.63348		0.383668	0.00323333	0.00323333
Toluene	3.01991		0.221377	0.000374889	0.000374889
Ethylbenzene	0.429007		0.0109214	4.89378E-06	4.89378E-06
o-Xylene	2.39173		0.0429122	2.38533E-05	2.38533E-05
H2S	8.90597E-05		0.00192345	0.0037158	0.0037158
Water	0.0159952		0.000562942	97.4124	97.4124
2,2,4-Trimethylpentane	0.490397		0.0620868	5.63199E-09	5.63199E-09
Decanes Plus	38.3554		5.3468E-05	4.60254E-14	4.60254E-14

Mass Fraction	9 %	10 %	11 %	12 %	13 %
Carbon Dioxide	0.000349521		0.0643344	1.5078	1.5078
Nitrogen	6.46629E-06		0.000410541	0.00552063	0.00552063
Methane	0.00518544		0.382258	1.25865	1.25865
Ethane	0.107778		15.0161	0.803936	0.803936
Propane	0.740408		32.3141	0.0792239	0.0792239
Isobutane	0.446909		7.57042	0.00206699	0.00206699
n-Butane	1.6964		20.0428	0.00685596	0.00685596
Isopentane	1.32113		6.32204	0.000323914	0.000323914
n-Pentane	1.89625		6.88423	5.52222E-05	5.52222E-05
n-Hexane	1.66038		1.85773	1.76086E-06	1.76086E-06
Cyclohexane	0.397718		0.236702	4.27653E-05	4.27653E-05
i-C6	1.84905		2.83004	1.46787E-05	1.46787E-05
i-C7	7.59657		3.88599	2.35917E-06	2.35917E-06
Methylcyclohexane	0.312774		0.0901306	1.6272E-06	1.6272E-06
Octane	9.94911		1.06344	9.54884E-09	9.54884E-09
Nonane	5.24497		0.150164	2.99551E-10	2.99551E-10
Benzene	0.843158		0.610702	0.013861	0.013861
Toluene	1.8387		0.415653	0.00189571	0.00189571
Ethylbenzene	0.30097		0.0236274	2.85137E-05	2.85137E-05
o-Xylene	1.67792		0.0928365	0.000138982	0.000138982
H2S	2.00572E-05		0.00133582	0.00695011	0.00695011
Water	0.00190418		0.000206662	96.3126	96.3126
2,2,4-Trimethylpentane	0.370169		0.144521	3.53073E-08	3.53073E-08
Decanes Plus	61.7422		0.000265416	6.15323E-13	6.15323E-13

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Tankage	

Mass Flow	9 lb/h	10 lb/h	11 lb/h	12 lb/h	13 lb/h
Carbon Dioxide	0.802645		0.00426519	0.382843	0.00127436
Nitrogen	0.0148493		2.72177E-05	0.00140174	4.66595E-06
Methane	11.9079		0.0253426	0.319581	0.00106379
Ethane	247.504		0.995524	0.204127	0.000679474
Propane	1700.28		2.14233	0.0201156	6.69587E-05
Isobutane	1026.29		0.501897	0.000524826	1.74698E-06
n-Butane	3895.63		1.32878	0.00174079	5.79455E-06
Isopentane	3033.86		0.419133	8.22447E-05	2.73767E-07
n-Pentane	4354.57		0.456405	1.40214E-05	4.66729E-08
n-Hexane	3812.91		0.123162	4.47097E-07	1.48825E-09
Cyclohexane	913.325		0.0156927	1.08585E-05	3.61445E-08
i-C6	4246.18		0.187623	3.72705E-06	1.24062E-08
i-C7	17444.9		0.25763	5.99014E-07	1.99393E-09
Methylcyclohexane	718.258		0.00597539	4.1316E-07	1.37528E-09
Octane	22847.3		0.070503	2.42454E-09	8.07052E-12
Nonane	12044.6		0.00995543	7.60587E-11	2.53175E-13
Benzene	1936.24		0.0404877	0.00351943	1.17151E-05
Toluene	4222.42		0.0275566	0.000481337	1.60222E-06
Ethylbenzene	691.152		0.00156643	7.23989E-06	2.40993E-08
o-Xylene	3853.2		0.00615479	3.52887E-05	1.17465E-07
H2S	0.0460595		8.85609E-05	0.00176469	5.87411E-06
Water	4.37279		1.37011E-05	24.4546	0.0814018
2,2,4-Trimethylpentane	850.06		0.0095813	8.96484E-09	2.98412E-11
Decanes Plus	141785		1.75963E-05	1.56236E-13	5.2006E-16

Stream Properties

Property	Units	9	10	11	12	13
Temperature	°F	100		100.014	94.6044	94.6044
Pressure	psig	3	0.375	7.07154	-11.9022	-11.9022
Molecular Weight	lb/lbmol	151.329		49.0731	18.221	18.221
Mass Flow	lb/h	229641	0	6.62971	25.3909	0.0845183
Std Vapor Volumetric Flow	MMSCFD	13.8208	0	0.00123043	0.0126914	4.22458E-05
Std Liquid Volumetric Flow	sgpm	584.685	0	0.0255028	0.0532035	0.000177098
Gross Ideal Gas Heating Value	Btu/ft^3	7975.7		2772.59	73.1504	73.1504

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Tankage	

Connections

	14	15			
From Block	--	--			
To Block	MIX-103	MIX-103			

Stream Composition

Mole Fraction	14 %	15 %			
Carbon Dioxide	0.648547	0.648547			
Nitrogen	0.00341261	0.00341261			
Methane	1.44256	1.44256			
Ethane	0.509533	0.509533			
Propane	0.0336609	0.0336609			
Isobutane	0.000662284	0.000662284			
n-Butane	0.00219098	0.00219098			
Isopentane	8.23135E-05	8.23135E-05			
n-Pentane	1.22991E-05	1.22991E-05			
n-Hexane	3.13322E-07	3.13322E-07			
Cyclohexane	1.01073E-05	1.01073E-05			
i-C6	2.87972E-06	2.87972E-06			
i-C7	3.85197E-07	3.85197E-07			
Methylcyclohexane	3.23341E-07	3.23341E-07			
Octane	1.10907E-09	1.10907E-09			
Nonane	3.12468E-11	3.12468E-11			
Benzene	0.00327893	0.00327893			
Toluene	0.000380707	0.000380707			
Ethylbenzene	4.98541E-06	4.98541E-06			
o-Xylene	2.41417E-05	2.41417E-05			
H2S	0.00379357	0.00379357			
Water	97.3518	97.3518			
2,2,4-Trimethylpentane	4.98054E-09	4.98054E-09			
Decanes Plus	5.32297E-14	5.32297E-14			

Mass Fraction	14 %	15 %			
Carbon Dioxide	1.56567	1.56567			
Nitrogen	0.00524402	0.00524402			
Methane	1.26945	1.26945			
Ethane	0.840435	0.840435			
Propane	0.0814205	0.0814205			
Isobutane	0.00211154	0.00211154			
n-Butane	0.00698542	0.00698542			
Isopentane	0.000325771	0.000325771			
n-Pentane	4.86761E-05	4.86761E-05			
n-Hexane	1.48111E-06	1.48111E-06			
Cyclohexane	4.66607E-05	4.66607E-05			
i-C6	1.36127E-05	1.36127E-05			
i-C7	2.11724E-06	2.11724E-06			
Methylcyclohexane	1.7415E-06	1.7415E-06			
Octane	6.94937E-09	6.94937E-09			
Nonane	2.19833E-10	2.19833E-10			
Benzene	0.0140495	0.0140495			
Toluene	0.00192417	0.00192417			
Ethylbenzene	2.90332E-05	2.90332E-05			
o-Xylene	0.000140592	0.000140592			
H2S	0.00709205	0.00709205			
Water	96.205	96.205			
2,2,4-Trimethylpentane	3.12078E-08	3.12078E-08			
Decanes Plus	7.11285E-13	7.11285E-13			

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	
Flowsheet:	Tankage	

Mass Flow	**14** **lb/h**	**15** **lb/h**			
Carbon Dioxide	0.392333	0.00138666			
Nitrogen	0.00131407	4.64445E-06			
Methane	0.318105	0.00112431			
Ethane	0.2106	0.000744345			
Propane	0.0204027	7.21114E-05			
Isobutane	0.000529119	1.87012E-06			
n-Butane	0.00175044	6.18675E-06			
Isopentane	8.16332E-05	2.88524E-07			
n-Pentane	1.21975E-05	4.31108E-08			
n-Hexane	3.71143E-07	1.31177E-09			
Cyclohexane	1.16924E-05	4.13258E-08			
i-C6	3.41114E-06	1.20563E-08			
i-C7	5.30549E-07	1.87517E-09			
Methylcyclohexane	4.36393E-07	1.54239E-09			
Octane	1.7414E-09	6.15482E-12			
Nonane	5.50868E-11	1.94699E-13			
Benzene	0.00352059	1.24432E-05			
Toluene	0.000482168	1.70418E-06			
Ethylbenzene	7.27527E-06	2.57137E-08			
o-Xylene	3.52303E-05	1.24518E-07			
H2S	0.00177716	6.28118E-06			
Water	24.1075	0.0852055			
2,2,4-Trimethylpentane	7.8202E-09	2.76397E-11			
Decanes Plus	1.78237E-13	6.29961E-16			

Stream Properties

Property	**Units**	**14**	**15**			
Temperature	°F	94.0874	94.0874			
Pressure	psig	-11.9148	-11.9148			
Molecular Weight	lb/lbmol	18.23	18.23			
Mass Flow	lb/h	25.0584	0.0885666			
Std Vapor Volumetric Flow	MMSCFD	0.012519	4.42473E-05			
Std Liquid Volumetric Flow	sgpm	0.0525602	0.000185769			
Gross Ideal Gas Heating Value	Btu/ft^3	73.6745	73.6745			

Remarks

User Value Sets Report

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	Corral Canyon 23 TB	

Tanks-OIL

User Value [TVP]

* Parameter	10.3592	psia	Upper Bound		psia
Lower Bound		psia	* Enforce Bounds	False	

User Value [MaxVP]

* Parameter	12.1875	psia	Upper Bound		psia
Lower Bound		psia	* Enforce Bounds	False	

User Value [AvgLiqSurfaceT]

* Parameter	88.0877	°F	Upper Bound		°F
Lower Bound		°F	* Enforce Bounds	False	

User Value [MaxLiqSurfaceT]

* Parameter	100.014	°F	Upper Bound		°F
Lower Bound		°F	* Enforce Bounds	False	

Remarks
This User Value Set was programmatically generated. GUID={F45A91A3-BD50-45BF-BA6F-D3396A9121A2}

Tanks-PW

User Value [TVP]

* Parameter	0.559353	psia	Upper Bound		psia
Lower Bound		psia	* Enforce Bounds	False	

User Value [MaxVP]

* Parameter	0.809591	psia	Upper Bound		psia
Lower Bound		psia	* Enforce Bounds	False	

User Value [AvgLiqSurfaceT]

* Parameter	82.1609	°F	Upper Bound		°F
Lower Bound		°F	* Enforce Bounds	False	

User Value [MaxLiqSurfaceT]

* Parameter	94.0874	°F	Upper Bound		°F
Lower Bound		°F	* Enforce Bounds	False	

Remarks
This User Value Set was programmatically generated. GUID={AADD249D-3323-4DB5-8BE4-B48D5B5C5F5B}

June 27, 2019

XTO Energy Inc.
#700, 1 Riverway Drive
Houston, TX 77056

Attention: To Whom It May Concern

Subject: Compliance with 40 CFR 60.18 Flare Requirements and Destruction Removal Efficiency Confirmation

The Tornado Combustion Technologies Inc. (TCTI) designed a dual air assisted flare system for XTO Energy Inc. Battery Facilities (TCTI Design Reference No.: TOR0817B Rev. 0).

The flare has a 24-inch outer diameter air tip, 8-inch outer diameter annular low pressure air assisted waste gas tip for continuous flaring operations, and 6-inch outer diameter high pressure waste gas tip for facility emergency relieving cases. The tip as previously described is mounted on a riser and guy wire supporting structure so that the overall flare height is 40-feet tall. To date TCTI has provided twenty-four (24) flares of this design to XTO Energy Midstream Operations Compressor Facilities, under the following job number:

- 13881/16123;
- 14010/16304;
- 14206/16513;
- 14207/16514;
- 14208/16515;
- 14209/16516;
- 14210/16517;
- 14211/16518;
- 14329/16627;
- 14472/16792;
- 14465/16786;
- 14491/16806;
- 14531/16848;
- 14552/16870;
- 14553/16871;
- 14573/16892;
- 14589/16931;
- 14590/16932;
- 14653/16991;
- 14565/17000;
- 14712/17047;
- 14713/17048;
- 14714/17049;
- 14744/17100.

This flare design is intended to operate such that:

i) The maximum high pressure emergency flow rates does not exceed a maximum flow rate of 3,000,000 SCFD, a maximum continuous flowrate of 2,000,000 SCFD which will operate without visible emissions (i.e. excessive soot formation) and, and a maximum net heat release of 255,421,950.00 BTU/h; and,

ii) The maximum low pressure emergency flow rate does not exceed a maximum flow rate of 1,500,000 SCFD, a maximum continuous flowrate of 800,000 SCFD which will operate without visible emissions (i.e. excessive soot formation) and a maximum net heat release of and 127,710,975.00 BTU/h.

For more detailed information please refer to the design datasheets.

Due to the volume of sales of this flare design to XTO Energy specifically TCTI has provided this flare with the following model designation moving forward:

- TOR0817BR0-40FT.

To meet the requirements of 40 CFR 60.18 and industry best practices Tornado has designed the flare to operate as follows:

- TCTI has been designed the flare so each riser of the dual flare system will operate independently. Thus the calculated 40 CFR 60.18 maximum exit velocity for the high pressure and low pressure air assisted flares is 205.70 ft/s, as per paragraphs (c)(3)(ii), (c)(4)(iii), (c)(5), and (f)(6). The actual exit velocities of the high pressure air assisted flare as determined by paragraph (f)(4) in 40 CFR 60.18, are 385.91 ft/s, and 122.44 ft/s, for the emergency and continuous operating cases respectfully, and for the low pressure air assisted flare are 128.87 ft/s, and 70.55 ft/s, for the emergency and continuous operating cases respectfully. As can be seen the actual exit velocity of the low pressure air assisted flare and the continuous operating case of the high pressure air assisted flare are within the requirements of 40 CFR 60.18. The exit velocity of the emergency case through the high pressure air assisted flare although greater than the requirements of 40 CFR 60.18, is exempt from compliance with the standard as per Section 40 CFR 60.11 paragraph (a), and 40 CFR 60.8 paragraph (c), as the case presented to TCTI for the high pressure air assisted flare have been presented as an emergency case, that is not representative of the flare's performance;

- The calculated lower heating value of the waste gas for both the high pressure air assisted flare and low pressure air assisted flare is 2,043.38 BTU/SCF. The lower heating value of the provided waste gas composition was calculated as per paragraph (f)(3) of 40 CFR 60.18. This complies with paragraphs (c)(3)(ii) of 40 CFR 60.18 for an air assisted flare, as the heating value of the waste gas is greater than 300 BTU/SCF;

- Tornado has designed this flare to operate with a TSI #6 pilot and TPMR automatic relight and pilot monitoring system. If the flame failure contact is monitored by the client to the satisfaction of the local environmental authority having jurisdiction, then this complies with paragraph (f)(2) of 40 CFR 60.18;

- Tornado has designed the flare to modulate the air flow based upon the waste gas flow rate to the flare for the cases presented which are not considered startup, shutdown, or malfunction as per 40 CFR 60.8(c). By doing this in conjunction with proper flare tuning, the flare's air blower cannot introduce too much air into the jet exit stream thus lowering the destruction efficiency of the flare by quenching mechanisms.

With both flares being designed to operate as described above the Tornado Combustion Technologies Inc. flare system has been designed to operate in compliance with 40 CFR 60.18. As per EPA studies EPA-600/2-83-052, EPA-600/2-86-080, and EPA-600/2-85-106 meeting the criteria of 40 CFR 60.18 will attain a minimum Destruction Removal Efficiency (DRE) of 98% for hydrocarbon compounds.

XTO Energy has advised that the site under consideration does not need to meet the requirements of 40 CFR 60 Subpart OOOO and only the general requirements must be adhered.

Regards,

PROFESSIONAL ENGINEER ALBERTA
BRIAN HERRLER

Permit Number: P10806
Date: 2019-06-27

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Combustion Engineering
Tornado Combustion Technologies Inc.
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Municipal District of Rocky View, Alberta
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Cc:(4) Gene Kazmir, General Manager USA, Tornado Combustion Technologies Inc;
Cliff Kazmir, General Manager USA, Tornado Combustion Technologies Inc;
Bryce Thomas, Flare Manager, Tornado Combustion Technologies Inc;
Ian Burge, Combustion Engineering, Tornado Combustion Technologies Inc.

June 27, 2019

XTO Energy Inc.
6401 N. Holiday Hill Rd.
Midland, TX 79707

Attention: To Whom It May Concern

Subject: Compliance with 40 CFR 60.18 Flare Requirements and Destruction Removal Efficiency Confirmation

The Tornado Combustion Technologies Inc. (TCTI) designed a high pressure gas assisted flare system for XTO Energy Inc. Facilities designed on February 20, 2018 (TCTI Design Reference No.: TOR1017D Rev. 2).

The flare has a 14-inch outer diameter tip, with a set of twelve (12) high pressure gas assisted injection nozzles for facility emergency relieving cases and heater treater off gas. The tip as previously described is mounted on a riser and guy wire supporting structure so that the overall flare height is 145-feet tall. To date TCTI has provided twenty-nine (29) flares of this design to XTO Energy Inc. Facilities, under the following job numbers:

- 14144/16470;
- 14184/16523;
- 14203/16519;
- 14204/16520;
- 14205/16521;
- 14330/16628;
- 14464/16785;
- 14490/16805;
- 14530/16847;
- 14532/16849;
- 14549/16867;
- 14550/16868;
- 14551/16869;
- 14555/16885;
- 14571/16890;
- 14572/16891;
- 14586/16928;
- 14587/16929;
- 14588/16930;
- 14634/16977;
- 14643/16987;
- 14652/16992;
- 14707/17042;
- 14708/17043;
- 14709/17044;
- 14710/17045;
- 14711/17046;
- 14743/17099;
- 14766/17129.

This flare design is intended to operate such that:

i) The maximum emergency flow rate does not exceed a maximum flow rate of 60,000,000 SCFD, and a maximum net heat release of 3,572,833,240.71 BTU/h; and,
ii) The maximum continuous flowrate from the heater treater of 2,000,000 SCFD which will operate without visible emissions (i.e. excessive soot formation) and a maximum net heat release of 219,758,943.81 BTU/h.

For more detailed information please refer to the design datasheets of the flare stack.

Due to the volume of sales of this flare design to XTO Energy specifically TCTI has provided this flare with the following model designation moving forward:

- TOR1017DR2-145FT.

Thus either the above provided TCTI job numbers or above model number can be used to relate back to this design and the intended operating parameters of the flare system design.

To meet the requirements of 40 CFR 60.18 and industry best practices Tornado has designed the flare to operate as follows:

- The calculated 40 CFR 60.18 maximum exit velocity for the flare is 400 ft/s, as per paragraphs (c)(3)(ii), (c)(4)(iii), (c)(5), and (f)(6). The actual exit velocities of the flare as determined by paragraph (f)(4) in 40 CFR 60.18, is cases respectfully 671.88 ft/s for the emergency relief case and 28.60 ft/s for the heater treater off gas case. Where the flare's exit velocity is greater than the requirements of 40 CFR 60.18, the flare is exempt from compliance with the standard as per Section 40 CFR 60.11 paragraph (a), and 40 CFR 60.8 paragraph (c), as this case has been presented as an emergency case that is not representative of the flare's performance. The remaining case is in compliance with the requirements defined in 40 CFR 60.18, which respect to the maximum exit velocity;

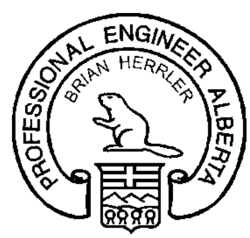
- The calculated lower heating value of the waste gas for the flare is 1,413.84 BTU/SCF and 1,986.95 BTU/SCF for the emergency relief and heater treater off gas cases respectfully. The lower heating value of the provided waste gas composition was calculated as per paragraph (f)(3) of 40 CFR 60.18. This complies with paragraphs (c)(3)(ii) of 40 CFR 60.18 for a non-assisted flare, as the heating value of the waste gas is greater than 200 BTU/SCF;

- Tornado has designed this flare to operate with a TSI #6 pilot and TPMR automatic relight and pilot monitoring system. If the flame failure contact is monitored by the client to the satisfaction of the local environmental authority having jurisdiction, then this complies with paragraph (f)(2) of 40 CFR 60.18;

With both flares being designed to operate as described above the Tornado Combustion Technologies Inc. flare system has been designed to operate in compliance with 40 CFR 60.18. As per EPA studies EPA-600/2-83-052, EPA-600/2-86-080, and EPA-600/2-85-106 meeting the criteria of 40 CFR 60.18 will attain a minimum Destruction Removal Efficiency (DRE) of 98% for hydrocarbon compounds.

XTO Energy has advised that the site under consideration does not need to meet the requirements of 40 CFR 60 Subpart OOOO and only the general requirements must be adhered.

Regards,



Permit Number: P10806
Date: 2019-06-27

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TABLE 2-4. OIL AND GAS PRODUCTION OPERATIONS AVERAGE EMISSION FACTORS (kg/hr/source)

Equipment Type	Service[a]	Emission Factor (kg/hr/source)[b]
Valves	Gas	4.5E-03
	Heavy Oil	8.4E-06
	Light Oil	2.5E-03
	Water/Oil	9.8E-05
Pump seals	Gas	2.4E-03
	Heavy Oil	NA
	Light Oil	1.3E-02
	Water/Oil	2.4E-05
Others[c]	Gas	8.8E-03
	Heavy Oil	3.2E-05
	Light Oil	7.5E-03
	Water/Oil	1.4E-02
Connectors	Gas	2.0E-04
	Heavy Oil	7.5E-06
	Light Oil	2.1E-04
	Water/Oil	1.1E-04
Flanges	Gas	3.9E-04
	Heavy Oil	3.9E-07
	Light Oil	1.1E-04
	Water/Oil	2.9E-06
Open-ended lines	Gas	2.0E-03
	Heavy Oil	1.4E-04
	Light Oil	1.4E-03
	Water/Oil	2.5E-04

[a]Water/Oil emission factors apply to water streams in oil service with a water content greater than 50%, from the point of origin to the point where the water content reaches 99%. For water streams with a water content greater than 99%, the emission rate is considered negligible.
[b]These factors are for total organic compound emission rates (including non-VOC's such as methane and ethane) and apply to light crude, heavy crude, gas plant, gas production, and off shore facilities. "NA" indicates that not enough data were available to develop the indicated emission factor.
[c]The "other" equipment type was derived from compressors, diaphrams, drains, dump arms, hatches, instruments, meters, pressure relief valves, polished rods, relief valves, and vents. This "other" equipment type should be applied for any equipment type other than connectors, flanges, open-ended lines, pumps, or valves.

For flares subject to Chapter 115, Subchapter H, relating to highly reactive volatile organic compounds, flow rate and composition data required by 30 TAC 115.725–26 should be used to determine emissions for any portions of 2009 that HRVOC monitors were installed and operational.

In the absence of monitoring data, selection of the most accurate method may sometimes require exercising scientific judgment. For example, when using the results of a one-time performance test, the test conditions should be compared to the flare's actual operating conditions during the inventory year to determine whether the test accurately represents the flare's performance. If test conditions do not accurately model flare operation, then engineering determinations based on detailed process evaluation may provide the best data.

NO_x and CO Emissions

To calculate NO_x and CO emissions, the net heating value of the flared gas must be known. Using the actual short-term flared gas composition and flow rate data for the inventory year, calculate the net heating value of the flared gas and the total heat release for each short time period. Use these total heat release data, in conjunction with the appropriate emission factors from TCEQ Air Permits guidance, to determine NO_x and CO emissions for each time segment. Since the calculated net heating value of the gas and the assist gas type will determine the appropriate emission factors, carefully select the correct factors for each flare from Table A-6.

Calculate emissions using the most accurate data for the gas flow rate and composition available. (See "Flared Gas Flow Rate and Composition" earlier in this supplement for more information on preferred data.)

Table A-6. TCEQ Air Permits Flare Emission Factors

Contaminant	Assist Type	Waste Gas Stream Net Heating Value[a,b]	Emission Factor
NO_x	Steam	High Btu	0.0485 lb/MMBtu
		Low Btu	0.068 lb/MMBtu
	Air or Unassisted	High Btu	0.138 lb/MMBtu
		Low Btu	0.0641 lb/MMBtu
CO	Steam	High Btu	0.3503 lb/MMBtu
		Low Btu	0.3465 lb/MMBtu
	Air or Unassisted	High Btu	0.2755 lb/MMBtu
		Low Btu	0.5496 lb/MMBtu

[a] High Btu: > 1000 Btu/scf

[b] Low Btu: 192–1000 Btu/scf

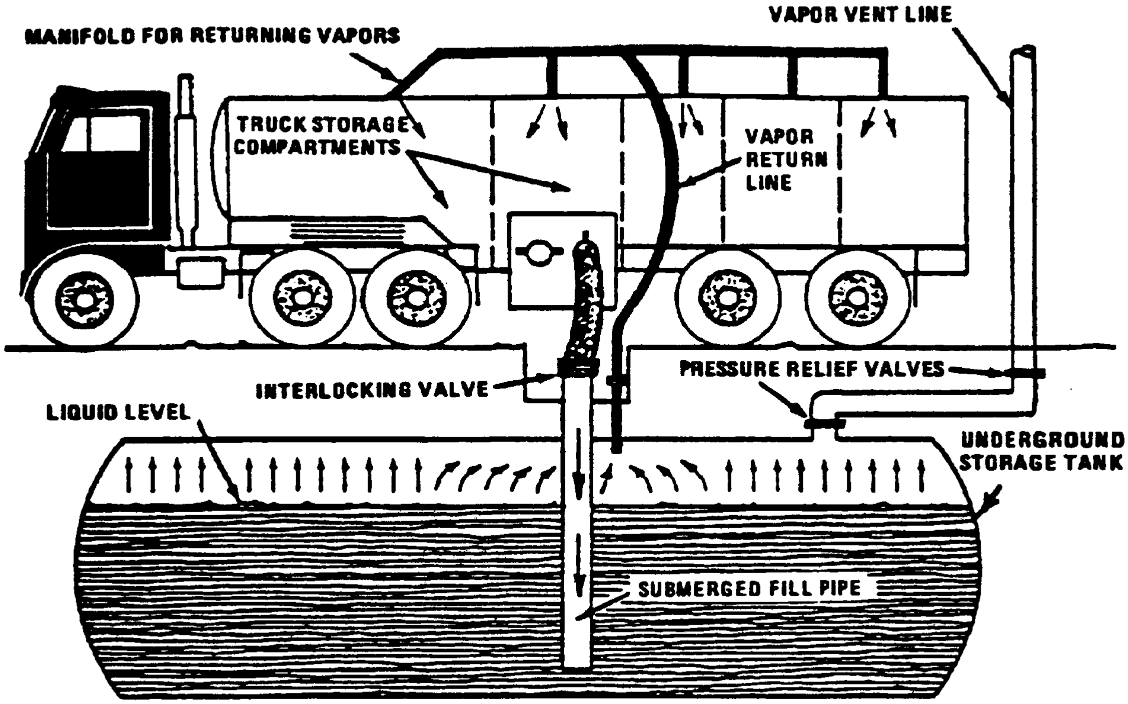


Figure 5.2-5. Tank truck unloading into a service station underground storage tank and practicing "vapor balance" form of emission control.

Table 5.2-1. SATURATION (S) FACTORS FOR CALCULATING PETROLEUM LIQUID LOADING LOSSES

Cargo Carrier	Mode Of Operation	S Factor
Tank trucks and rail tank cars	Submerged loading of a clean cargo tank	0.50
	Submerged loading: dedicated normal service	0.60
	Submerged loading: dedicated vapor balance service	1.00
	Splash loading of a clean cargo tank	1.45
	Splash loading: dedicated normal service	1.45
	Splash loading: dedicated vapor balance service	1.00
Marine vessels[a]	Submerged loading: ships	0.2
	Submerged loading: barges	0.5

[a] For products other than gasoline and crude oil. For marine loading of gasoline, use factors from Table 5.2-2. For marine loading of crude oil, use Equations 2 and 3 and Table 5.2-3.

The saturation factor, S, represents the expelled vapor's fractional approach to saturation, and it accounts for the variations observed in emission rates from the different unloading and loading methods. Table 5.2-1 lists suggested saturation factors.

Emissions from controlled loading operations can be calculated by multiplying the uncontrolled emission rate calculated in Equation 1 by an overall reduction efficiency term:

$$\left(1 - \frac{\text{eff}}{100}\right)$$

The overall reduction efficiency should account for the capture efficiency of the collection system as well as both the control efficiency and any downtime of the control device. Measures to reduce loading emissions include selection of alternate loading methods and application of vapor recovery equipment. The latter captures organic vapors displaced during loading operations and recovers the vapors by the use of refrigeration, absorption, adsorption, and/or compression. The recovered product is piped back to storage. Vapors can also be controlled through combustion in a thermal oxidation unit, with no product recovery. Figure 5.2-6 demonstrates the recovery of gasoline vapors from tank trucks during loading operations at bulk terminals. Control efficiencies for the recovery units range from 90 to over 99 percent, depending on both the nature of the vapors and the type of control equipment used.[5-6] However, not all of the displaced vapors reach the control device, because of leakage from both the tank truck and collection system. The collection efficiency should be assumed to be 99.2 percent for tanker trucks passing the MACT-level annual leak test (not more than 1 inch water column pressure change in 5 minutes after pressurizing to 18 inches water followed by pulling a vacuum of 6 inches water).[7] A collection efficiency of 98.7 percent (a 1.3 percent leakage rate) should be assumed for trucks passing the NSPS-level annual test (3 inches pressure change) A collection efficiency of 70 percent should be assumed for trucks not passing one of these annual leak tests[6].

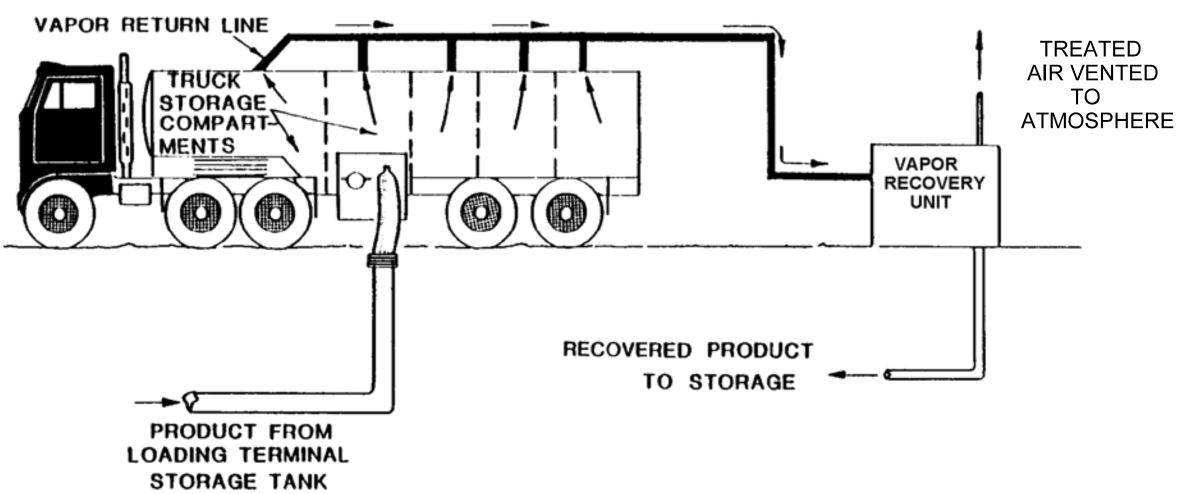


Figure 5.2-6. Tank truck loading with vapor recovery.

Sample Calculation -

Loading losses (L_L) from a gasoline tank truck in dedicated vapor balance service and practicing vapor recovery would be calculated as follows, using Equation 1:

Design basis -

Cargo tank volume is 8000 gal
Gasoline Reid vapor pressure (RVP) is 9 psia
Product temperature is 80°F
Vapor recovery efficiency is 95 percent
Vapor collection efficiency is 98.7 percent (NSPS-level annual leak test)

Loading loss equation -

$$L_L = 12.46 \frac{SPM}{T} \left(1 - \frac{eff}{100}\right)$$

where:

S = saturation factor (see Table 5.2-1) - 1.00
P = true vapor pressure of gasoline = 6.6 psia
M = molecular weight of gasoline vapors = 66
T = temperature of gasoline = 540°R
eff = overall reduction efficiency (95 percent control x 98.7 percent collection) = 94 percent

$$L_L = 12.46 \frac{(1.00)(6.6)(66)}{540} \left(1 - \frac{94}{100}\right)$$

$$= 0.60 \ \text{lb}/10^3 \text{gal}$$

Total loading losses are:

$$(0.60 \ \text{lb}/10^3 \ \text{gal})(8.0 \times 10^3 \ \text{gal}) = 4.8 \ \text{pounds (lb)}$$

Measurements of gasoline loading losses from ships and barges have led to the development of emission factors for these specific loading operations.[8] These factors are presented in Table 5.2-2 and should be used instead of Equation 1 for gasoline loading operations at marine terminals. Factors are expressed in units of milligrams per liter (mg/L) and pounds per 1000 gallons (lb/10^3 gal).

TABLE 1.4-2. EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM NATURAL GAS COMBUSTION[a]

Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
CO_2[b]	120,000	A
Lead	0.0005	D
N_2O (Uncontrolled)	2.2	E
N_2O (Controlled-low-NO_X burner)	0.64	E
PM (Total)[c]	7.6	D
PM (Condensable)[c]	5.7	D
PM (Filterable)[c]	1.9	B
SO_2[d]	0.6	A
TOC	11	B
Methane	2.3	B
VOC	5.5	C

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. To convert from $lb/10^6$ scf to 1b/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. TOC = Total Organic Compounds. VOC = Volatile Organic Compounds.

[b] Based on approximately 100% conversion of fuel carbon to CO_2. $CO_2[lb/10^6$ scf] = (3.67) (CON) (C)(D), where CON = fractional conversion of fuel carbon to CO_2, C = carbon content of fuel by weight (0.76), and D = density of fuel, $4.2x10^4$ $lb/10^6$ scf.

[c] All PM (total, condensible, and filterable) is assumed to be less than 1.0 micrometer in diameter. Therefore, the PM emission factors presented here may be used to estimate PM_{10}, $PM_{2.5}$ or PM_1 emissions. Total PM is the sum of the filterable PM and condensible PM. Condensible PM is the particulate matter collected using EPA Method 202 (or equivalent). Filterable PM is the particulate matter collected on, or prior to, the filter of an EPA Method 5 (or equivalent) sampling train.

[d] Based on 100% conversion of fuel sulfur to SO_2.
Assumes sulfur content is natural gas of 2,000 grains/10^6 scf. The SO_2 emission factor in this table can be converted to other natural gas sulfur contents by multiplying the SO_2 emission factor by the ratio of the site-specific sulfur content (grains/10^6 scf) to 2,000 grains/10^6 scf.

TABLE 1.4-3. EMISSION FACTORS FOR SPECIATED ORGANIC COMPOUNDS FROM NATURAL GAS COMBUSTION[a]

CAS No.	Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
91-57-6	2-Methylnaphthalene[b, c]	2.4E-05	D
56-49-5	3-Methylchloranthrene[b, c]	<1.8E-06	E
	7,12-Dimethylbenz(a)anthracene[b,c]	<1.6E-05	E
83-32-9	Acenaphthene[b,c]	<1.8E-06	E
203-96-8	Acenaphthylene[b,c]	<1.8E-06	E
120-12-7	Anthracene[b,c]	<2.4E-06	E
56-55-3	Benz(a)anthracene[b,c]	<1.8E-06	E
71-43-2	Benzene[b]	2.1E-03	B
50-32-8	Benzo(a)pyrene[b,c]	<1.2E-06	E
205-99-2	Benzo(b)fluoranthene[b,c]	<1.8E-06	E
191-24-2	Benzo(g,h,i)perylene[b,c]	<1.2E-06	E
205-82-3	Benzo(k)fluoranthene[b,c]	<1.8E-06	E
106-97-8	Butane	2.1E+00	E
218-01-9	Chrysene[b,c]	<1.8E-06	E
53-70-3	Dibenzo(a,h)anthracene[b,c]	<1.2E-06	E
25321-22-6	Dichlorobenzene[b]	1.2E-03	E
74-84-0	Ethane	3.1E+00	E
206-44-0	Fluoranthene[b,c]	3.0E-06	E
86-73-7	Fluorene[b,c]	2.8E-06	E
50-00-0	Formaldehyde[b]	7.5E-02	B
110-54-3	Hexane[b]	1.8E+00	E
193-39-5	Indeno(1,2,3-cd)pyrene[b,c]	<1.8E-06	E
91-20-3	Naphthalene[b]	6.1E-04	E
109-66-0	Pentane	2.6E+00	E
85-01-8	Phenanathrene[b,c]	1.7E-05	D

TABLE 1.4-3. EMISSION FACTORS FOR SPECIATED ORGANIC COMPOUNDS FROM NATURAL GAS COMBUSTION (Continued)

CAS No.	Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
74-98-6	Propane	1.6E+00	E
129-00-0	Pyrene[b, c]	5.0E-06	E
108-88-3	Toluene[b]	3.4E-03	C

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. To convert from $1b/10^6$ scf to lb/MMBtu, divide by 1,020. Emission Factors preceeded with a less-than symbol are based on method detection limits.

[b] Hazardous Air Pollutant (HAP) as defined by Section 112(b) of the Clean Air Act.

[c] HAP because it is Polycyclic Organic Matter (POM). POM is a HAP as defined by Section 112(b) of the Clean Air Act.

[d] The sum of individual organic compounds may exceed the VOC and TOC emission factors due to differences in test methods and the availability of test data for each pollutant.

Section 7
Maps

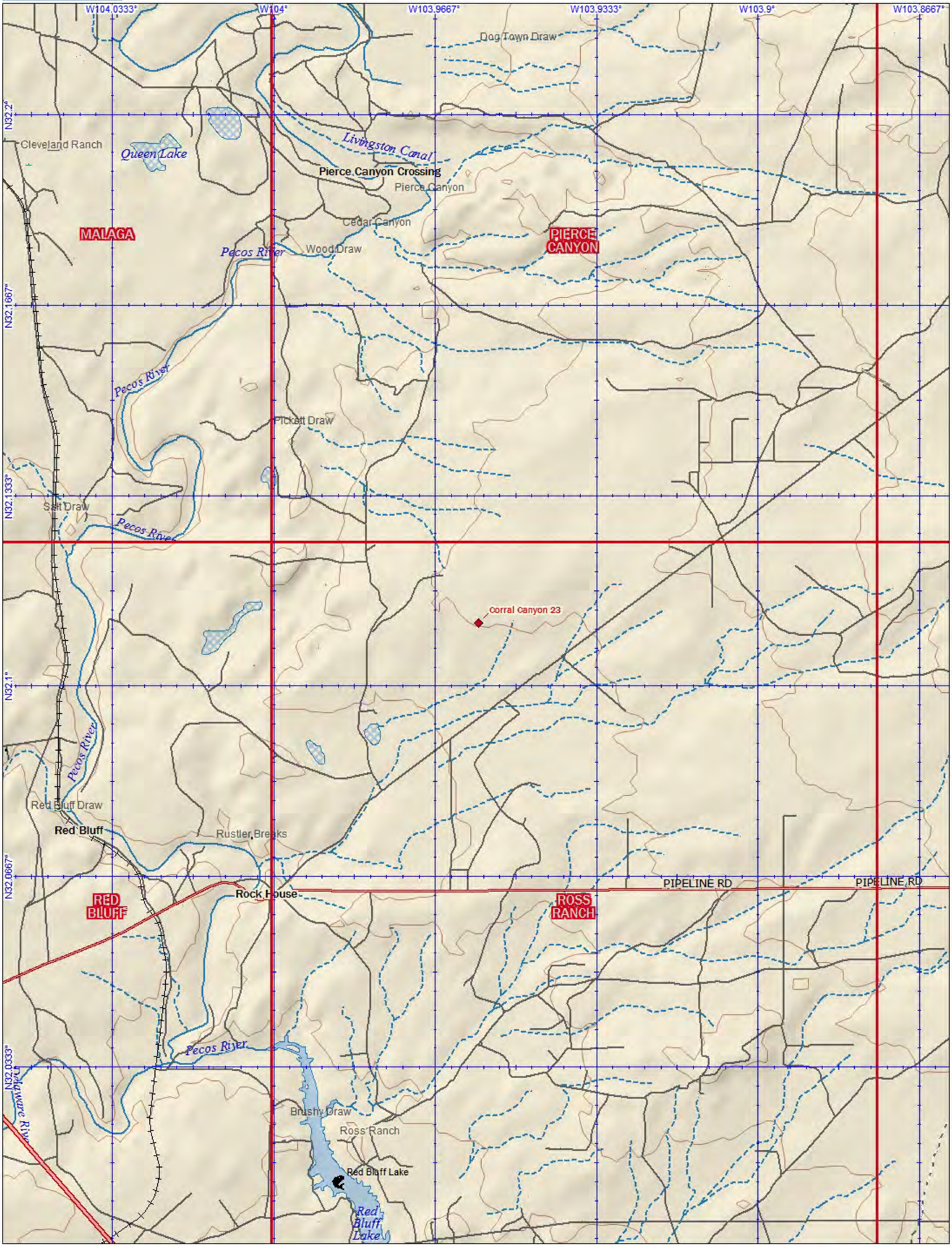
Section 7

Map(s)

A map such as a 7.5 minute topographic quadrangle showing the exact location of the source. The map shall also include the following:

The UTM or Longitudinal coordinate system on both axes	An indicator showing which direction is north
A minimum radius around the plant of 0.8km (0.5 miles)	Access and haul roads
Topographic features of the area	Facility property boundaries
The name of the map	A graphical scale

A site location map and an aerial illustrating access roads and a 0.5 mile boundary are attached.



Data use subject to license.

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MN (7.4° E)

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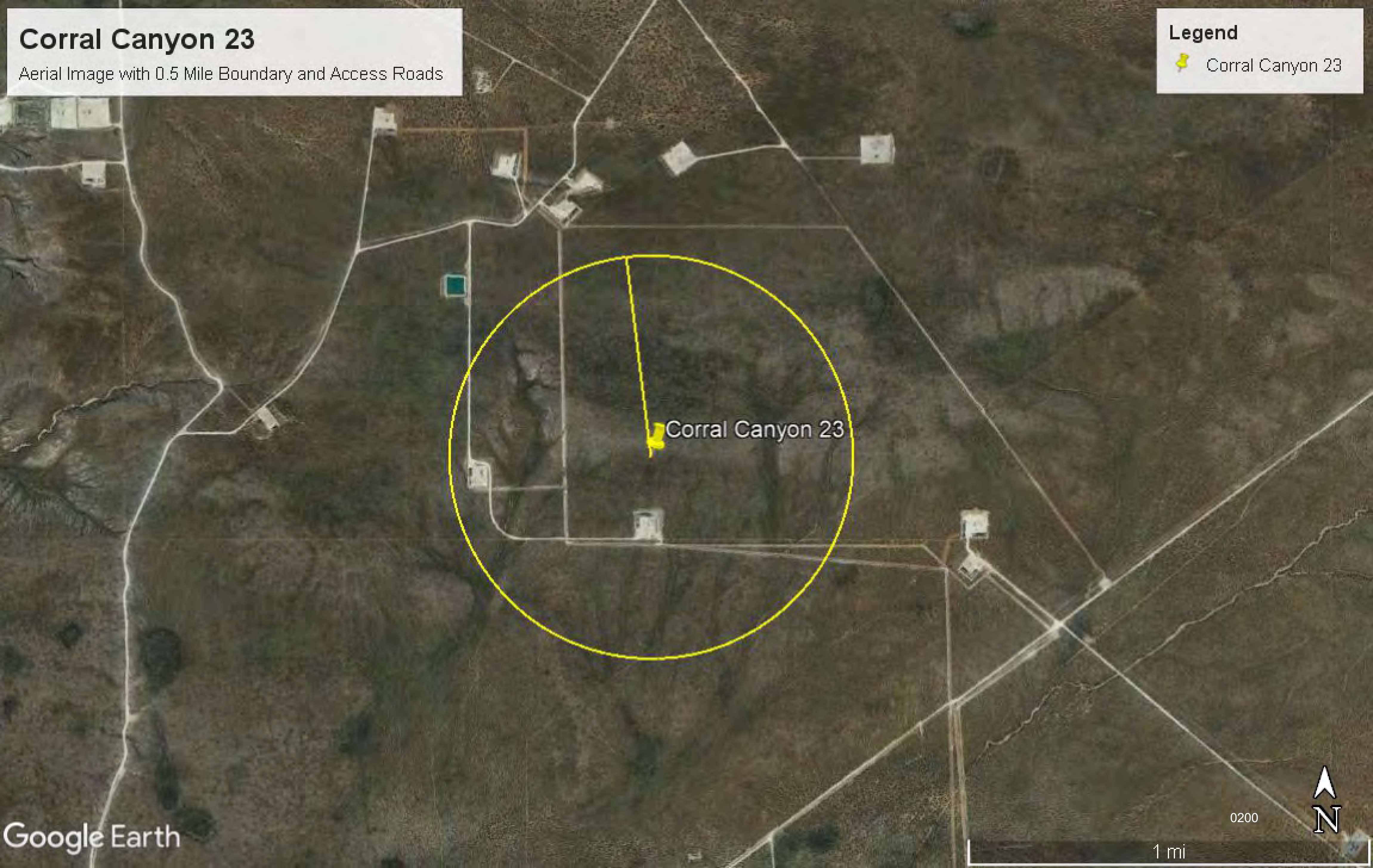
Data Zoom 11-0

Corral Canyon 23

Aerial Image with 0.5 Mile Boundary and Access Roads



Section 8
Applicable State and Federal Regulations

Section 8A

Applicable State & Federal Regulations

Provide a discussion demonstrating compliance with each applicable state & federal regulation. All input cells should be filled in, even if the response is 'No' or 'N/A'.

In the "Justification" column, identify the criteria that are critical to the applicability determination, numbering each. For each unit listed in the "Applies to Unit No(s)" column, after each listed unit, include the lowest level citation of the applicable regulation. For each unit, list the information necessary to verify the applicability of the regulation, including date of manufacture, date of construction, size (hp), and combustion type. Doing so will provide the applicability criteria for each unit.

STATE REGU-LATIONS CITATION	Title	Federally Enforceable	Overview of Regulation	Unit(s) or Facility	Applies? (Yes or No)	JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m^3, 3. VOL)
20.2.1 NMAC	General Provisions	Yes	General Provisions apply to Notice of Intent, Construction, and Title V permit applications.	Facility	Yes	This applies to all sites.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	20.2.3 NMAC is a State Implementation Plan (SIP) approved regulation that limits the maximum allowable concentration of Sulfur Compounds, Carbon Monoxide, and Nitrogen Dioxide.	Facility	Yes	This applies to all sites.
20.2.7 NMAC	Excess Emissions	Yes	If your entire facility or individual pieces of equipment are subject to emissions limits in a permit or numerical emissions standards in a federal or state regulation, this applies.	Facility	Yes	This applies to all sites.
20.2.38 NMAC	Hydrocarbon Storage Facility	No	Use the regulation link (left) then cut & paste applicable sections.	OT1-OT6	Yes	The site is subject to 20.2.38.109 since the capacity is > 20,000 gallons. Liquids are pumped into the tanks below liquid level and a VRU/flare vent system is used to control tank emissions.
20.2.61.109 NMAC	Smoke & Visible Emissions	No	Engines and heaters are Stationary Combustion Equipment. Specify units subject to this regulation.	HPF, LPF, HT1-HT2	Yes	These units are fuel burning equipment.
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	NOI: 20.2.73.200 NMAC applies to all facilities emitting over 10 TPY of any regulated air contaminate. Thus, permitted facilities are also subject to this rule. This GCP-O&G registration also serves the purpose of meeting 20.2.73 the NMAC notification requirements.) Emissions Inventory: 20.2.73.300.A(1) NMAC applies to facilities registering under the GCP. Emission Inventory reporting is required upon request by the department per 20.2.73.300.B(4) NMAC.	Facility	Yes	Under 20.2.73.300.B(4) NMAC, the NMED is requesting emissions inventory reporting from minor sources for **calendar year 2020**.

STATE REGU-LATIONS CITATION	**Title**	**Federally Enforceable**	**Overview of Regulation**	**Unit(s) or Facility**	**Applies? (Yes or No)**	**JUSTIFICATION:** Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m^3, 3. VOL)
20.2.77 NMAC	New Source Performance	Yes	This is a stationary source which is subject to the requirements of 40 CFR Part 60, as amended on the date of certification.	FUG	Yes	See discussion in Federal regulations.
20.2.78 NMAC	Emission Standards for HAPS	Yes	This facility emits hazardous air pollutants which are subject to the requirements of 40 CFR Part 61, as amended on the date of certification.	N/A	No	The facility does not fit into any of the source categories.
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 63, as amended on the date of certification.	N/A	No	The facility does not fit into any of the source categories.

FEDERAL REGU-LATIONS CITATION	**Title**	**Overview of Regulation**	**Units(s) or Facility**	**Applies? (Yes or No)**	**JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m3, 3. VOL)**
40 CFR 50	NAAQS	Defined as applicable at 20.2.70.7.E.11, Any national ambient air quality standard	Facility	Yes	Compliance with the requirements of the GCP indicates compliance with NAAQS.
40 CFR 60, Subpart A	General Provisions	Applies if any other NSPS subpart applies.	FUG	Yes	See discussion below.
40 CFR 60, Subpart OOOO	Crude Oil and Natural Gas Production, Transmission and Distribution After August 23, 2011, and on or before September 18, 2015		N/A	No	This facility will be constructed after the applicability date of NSPS OOOO. See NSPS OOOOa.
40 CFR 60, Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015	If there is a standard or other requirement, then the facility is an "affected facility." Currently there are standards for: gas wells (60.5375a); centrifugal compressors (60.5380a); reciprocating compressors (60.5385a): controllers (60.5390a); storage vessels (60.5395a); fugitive emissions at well sites and compressor stations (60.5397a); equipment leaks at gas plants (60.5400a); sweetening units (60.5405a).	FUG	Yes	The oil and water storage tanks were constructed after the applicability date of the rule; however emissions are limited by permit to less than 6 tpy. The tanks are exempt per 60.5365a(e) The site does not use high bleed pneumatic controllers. Since the compressors on the VRU are servicing the well, they are exempt per 60.5365a(c)). Fugitive leaks will be subject to NSPS OOOOa per 60.5365a(i).
40 CFR 60, Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	See 40 CFR 60.4200(a) 1 through 4 to determine applicable category and state engine size, fuel type, and date of manufacture.	N/A	No	The facility does not operate any affected sources.
40 CFR 60, Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	See 40 CFR 60.4230(a), 1 through 5 to determine applicable category and state engine size, fuel type, and date of manufacture.	N/A	No	The facility does not operate any affected sources.

FEDERAL REGULATIONS CITATION	Title	Overview of Regulation	Units(s) or Facility	Applies? (Yes or No)	JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m3, 3. VOL)
40 CFR 63, Subpart A	General Provisions	Applies if any other subpart applies.	N/A	No	The facility does not operate any affected sources.
40 CFR 63, Subpart HH	NESHAP for Glycol Dehydrators	See 40 CFR 63, Subpart HH	N/A	No	The facility does not operate any affected sources.
40 CFR 63, Subpart ZZZZ	NESHAP for Stationary Reciprocating Internal Combustion Engines (**RICE MACT**)	Facilities are subject to this subpart if they own or operate a stationary RICE, except if the stationary RICE is being tested at a stationary RICE test cell/stand.	N/A	No	The facility does not operate any affected sources.

Section 8B
Compliance Test History

To evaluate the requirement for compliance tests, you must submit a compliance test history. The table below provides an example.

Since this is a proposed facility, no testing has been conducted.

Section 9
Proof of Public Notice

Religion

For whoever needs to hear this: Luke 12:32

Pastor's Corner

By Ty Houghtaling

I don't know exactly who needs to hear this. But, for those of you who do, this is for you.

Fear has no place in the Christ follower's world. Fear only brings discouragement, failure and anxiety.

I am talking about the kind of fear that paralyzes one from acting in good faith. I have often struggled to make some hard decisions or say some honest things to people out of fear. I don't want them to think I am self-righteous, or judgmental, or overly critical. I worry about their perception of me, and I lack the faith to actually step in when someone I know needs a compassionate hand and the truth of God's sovereignty.

As some of you know, this world is a broken place. Politicians lie and cheat to secure power. Nations war with each other over issues of race and religion. They don't just work through their differences with love and understanding, they kill each other and murder innocent bystanders. Sicknesses take the lives of our most precious, delicate little ones. The elderly are cheated and defrauded by scam artists who prey on the trust of senior adults.

This world is broken.

Marriages fail because men and women selfishly pursue relationships outside their covenant agreements. Children are abused by adults who have never discovered the hope found in a loving Heavenly Father. When there is no hope for ever finding anything but brokenness, people will surrender themselves over to their sin nature.

Let's be honest – we become self-absorbed, self-centered and self-destructive. We will let worry and fear consume us. We become callous to the needs of others. We spend gross amounts of time focusing on all the things we don't have while neglecting and destroying the things we do have. We want but we do not have, we fight but we ultimately lose because we don't fight the good fight.

Yet God, in His wisdom, still calls to us and speaks softly to our hearts. He invites us to call upon Him for all our needs. He calls us to trust Him, to have faith in Him, to join Him in the only effort that will touch eternity. He calls you and me.

You might be pretty special, but I am not. Yet, He calls me to join Him. And when I do join Him, I find great satisfaction. My eyes lift up. My heart finds peace. I experience real joy, not circumstantial happiness. When I join God, fear is driven from me.

In the Gospel of Luke, Jesus tells the listening crowds, "Do not be afraid, little flock, for your Father has been pleased to give you the kingdom" (Luke 12:32 NIV). I am so blessed by that promise. I know that no matter what happens in this broken world, I have been given the Kingdom of God. That makes me a little less worried and a whole lot more excited about what God is going to do through me and my church.

I don't know who needed to hear this; but listen, God loves you and His love drives out fear.

(EDITOR'S NOTE: Ty Houghtaling is the lead pastor at First Baptist Church. Contact him at ty@fbcartesia.org.)

Does your church have an upcoming event the public should know about? Email editor@artesianews.com

No retirement from serving God

Pastor's Corner

By Rick Smith

Years ago when I was working with Marvin Clack, BMA of Texas missionary, starting a church mission on Cedar Creek Lake in Gun Barrel City, Texas, we went to visit a family that had moved into the area that our mission church was located.

We were told about this family by their former pastor from the community they had left to move to the Cedar Creek Lake area. We had a real cordial visit until we began talking about them coming to help in the work at the mission. At that point the husband said, "Brother Clack, we were real active in the church we left, but we have retired and we aren't going get involved like that again."

I thought as we left, "Who told them that they could retire from serving God?" In the book of Joshua we have a man that may have had a reason to retire. He was eighty-five years old and had served God for more than forty-five years. Yet, he was not ready for retirement. His name was Caleb, and you will find his story in Joshua chapter fourteen (14:6-15).

Those that don't retire from serving God remember all the experiences of faith they have had in the past. Like Caleb they remember how faithfully they served God (Joshua 14:7-8). If you have not been serving the Lord in the past, your not retiring. You are just continuing your rebellion into your old age. But if you have been serving the Lord then you know what I mean.

You remember both your victories and defeats in serving the Lord. You remember all that you learned and experienced. They also remember God's promises (v. 9). They know the Lord keeps His promises and they look forward to receiving all that God has for them. The they remember God's blessings, both past and present, (v. 10). They have learned through experience that God can and will use them if they will only submit to obey Him. Don't just look back and remember when. What you did in the past you can do now. Put yourself in the path of faithful obedience and expect God to use you.

Unlike Caleb, your physical strength may have declined, but you now have more spiritual strength than when you started (v. 11). Within the physical limitations that you have there are things that you can do that younger believers don't have the experience to do. You know more scripture than they do. In fact, you know more scripture than you obey. Give your physical weaknesses to God and He will make you strong.

The Lord told Paul, "My grace is sufficient for thee: for my strength is made perfect in weakness (2 Corinthians 12:9)." God can use your weakness as an opening to share the gospel with those that are trying to help you. You can be a witness to the doctors and nurses that minister to you physical infirmities. God can use your weaknesses to bring others to Christ. Don't retire. Instead let God use you until He calls you home.

Like Caleb you need to ask for a mountain and get into the battle (v. 12). Don't sit around letting George, whoever George is, do it. Jesus said, "Follow Me...". He didn't say follow me until 60 or 70 or 85. Pick up your sword and fight until the battle is won or they carry you off the field dead on your shield. Paul said, "I have fought the good fight, I have finished the race, I have kept the faith (2 Timothy 4:7)." This is not the time to quit and retire, but to finish well for the Lord. "...who knoweth whether thou art come to the kingdom for such a time as this? (Esther 4:14)." God may have reserved you just for this time in your life for greater service. Gratefully and willingly call on God to use you for great things at this time in your life.

Don't make excuses. Give your life to be used by the Lord until the Father calls you home. As He has used you in the past, the Lord wants to use you now and in the future. Ask for the mountain and the Lord will give you the strength to win it. What is the mountain that God wants you to claim? Pray, trust God, and fight for it.

If you have any questions, we invite you to visit with us this Sunday. Bible study is at 9:45 a.m. and worship at 10:50 a.m. We are located at 711 W. Washington Ave. Visit online at www.facebook.com/calvarymissionarybaptistartesia.

(EDITOR'S NOTE: Rick Smith is the pastor at Calvary Baptist Church.)

Legal Notice

NOTICE

XTO Energy Inc. announces its intent to apply to the New Mexico Environment Department for an air quality General Construction Permit, (GCP-Oil and Gas) for the facilities listed below. The expected date of the submittal of our Registration for an air quality permit to the Air Quality Bureau is January 23, 2020. This notice is a requirement according to New Mexico air quality regulations. The names, county, exact initial location, direction and approximate mileage of nearby city for the facilities are listed below. The standard operating schedule of this facility will be continuous.

Facility	UTM Zone	UTM Easting	UTM Northing	County	Direction	Miles	City
Poker Lake Unit 17 Twin Wells Ranch West Tank Battery	13	612707	3563902	Eddy	E	16	Malaga
Poker Lake Unit 30 Big Sinks West Tank Battery	13	611218	3552581	Eddy	SE	17	Malaga
Big Eddy Unit DI 5 Tank Battery	13	607478	3601404	Eddy	NE	23	Carlsbad
Big Eddy Unit DI 38 Tank Battery	13	595853	3582266	Eddy	NE	9	Loving
Corral Canyon 23 Tank Battery	13	598284	3553224	Eddy	SE	10	Malaga
James Ranch Unit DI 7 Tank Battery	13	611463	3578497	Eddy	E	17	Loving
Poker Lake Unit Big Sinks 2-25-30 Tank Battery	13	608494	3558022	Eddy	SE	14	Malaga
Poker Lake Unit 423 Tank Battery	13	602371	3553461	Eddy	SE	12	Malaga
Poker Lake Unit 26 Brushy Draw West Tank Battery	13	607857	3552568	Eddy	SE	15	Malaga
Ross Draw 25 Central Tank Battery	13	599903	3543069	Eddy	S	16	Malaga

Air emissions of any regulated air contaminant will be less than or equal to:

		Tons per year (TPY)
1.	Nitrogen Oxides (NOx)	95
2.	Carbon Monoxide (CO)	95
3.	Volatile Organic Compounds (VOC) (stack)	95
4.	Particulate Matter (PM10)	25
5.	Particulate Matter (PM2.5)	25
6.	Sulfur Dioxide (SO2)	95
7.	Hydrogen Sulfide (H2S)	25
8.	Any one (1) Hazardous Air Pollutant (HAP)	<10
9.	Sum of all Hazardous Air Pollutants (HAPs)	< 25

The owner and/or operator of the Plant is:
XTO Energy Inc.; 22777 Springwoods Village Pkwy, W4.6B.344; Spring, TX 77389

If you have any questions or comments about construction or operation of above facility, and want your comments to be made as a part of the permit review process, you must submit your comments in writing to the address below:

New Mexico Environment Department
Air Quality Bureau Permit Section
525 Camino de los Marquez, Suite 1
Santa Fe, New Mexico, 87505
Phone (505) 476-4300
Fax (505) 476-4375

Other comments and questions may be submitted verbally.

Please refer to the company name and site name, as used in this notice or send a copy of this notice along with your comments, since the Department may not have received the permit Registration at the time of this notice.

Atención

Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-476-5557.

Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kristine Yurdin, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

Published in the Artesia Daily Press, Artesia, N.M., Jan. 23, 2020 Legal No. 25362.

0207

Section 9 Proof of Public Notice

General Posting of Notice Coral Canyon 23

I, Brayden Hamlin, the undersigned, certify that on 1-23-2020 (DATE), I posted a true and correct copy of the attached Public Notice in a publicly accessible and conspicuous place, visible from the nearest public road, at the entrance of the property on which the facility is, or is proposed to be, located.

Signed this 23rd day of January, 2020.

Signature: [signature] Date: 1-23-2020

Printed Name: Brayden Hamlin Title {APPLICANT OR RELATIONSHIP TO APPLICANT}: Safety Environmental

Newspaper Publication of Notice

☒ An original or copy of the actual newspaper advertisement posted in a newspaper in general circulation in the applicable county is attached. The original or copy of the advertisement includes the header showing the date and newspaper or publication title.

OR

☐ An affidavit from the newspaper or publication in general circulation in the applicable county stating that the advertisement was published is attached. The affidavit includes the date of the advertisement's publication, and a legible photocopy of the entire ad.

Signature: Evan Tullos Date: 2/21/20

Evan Tullos - Vice President - Consultant for

Printed Name Title {APPLICANT OR RELATIONSHIP TO APPLICANT}


NOTICE

Section 10
Certification

Section 10
Certification

Company Name: PEI on behalf of XTO Energy Inc.

I, Evan Tullos, hereby certify that the information and data submitted in this Registration are true and as accurate as possible, to the best of my knowledge and professional expertise and experience.

Signed this 24th day of February, 2020, upon my oath or affirmation, before a notary of the State of Illinois.

*Signature

2.24.20
Date

Evan Tullos
Printed Name

Vice President
Title

Scribed and sworn before me on this 24 day of February, 2020.

My authorization as a notary of the State of Illinois expires on the 2nd day of August, 2020.

Notary's Signature

2/24/2020
Date

Mark Reed
Notary's Printed Name

MARK L. REED
OFFICIAL SEAL
Notary Public, State of Illinois
My Commission Expires
August 02, 2020

MergeMaster

Facility Name: XTO - Corral Canyon 23

Datum:	WGS84		UTM east (meters)	598284	m
Lattitude	32.11109	degrees	UTM north (meters)	3553224	m
Longitude	-103.95823		Zone	13	

Elevation: 3094 ft / 943.0512 m

PSD Major source

Record created on: 3/13/2020

By: Save?

Surroundings | Application Info. | Calculator | Sources | Groups | Concentrations | Buildings | Receptors | View Map | Elevations

Retrieve surrounding sources | Evaluate Location Information | Print Location Information | Determine Bowen Ratio, albedo, and roughness

Last Neighboring Sources Update: 3/6/2020

Location Information

Heading	Distance (miles)	Distance (km)	Direction (The facility is...	Site	Company	AI ID	Emissions (T/yr)	Pollutant
City (First closest).	9.87	15.89	southeast of	Malaga		0	0	
City (Second closest).	14.60	23.49	southeast of	Loving		0	0	
Class I area (First closest).	24.60	39.60	east of	Carlsbad Caverns National Park		0	0	
Class I area (Fourth closest).	135.01	217.28	southeast of	White Mountain Wilderness Area		0	0	
Class I area (Second closest).	45.72	73.58	east-northeast of	Guadalupe Mountains National Park		0	0	
Class I area (Third closest).	103.18	166.05	south-southeast of	Salt Creek		0	0	

Record: 1 of 1 | Unfiltered | Search

MergeMaster

Facility Name: XTO - Corral Canyon 23

Datum:	WGS84	UTM east (meters)	598284 m	Elevation:	3094 ft
Lattitude	32.11109 degrees	UTM north (meters)	3553224 m		943.0512 m
Longitude	-103.95823 degrees	Zone	13	PSD Major source	

Record created on: 3/13/2020

By: Save?

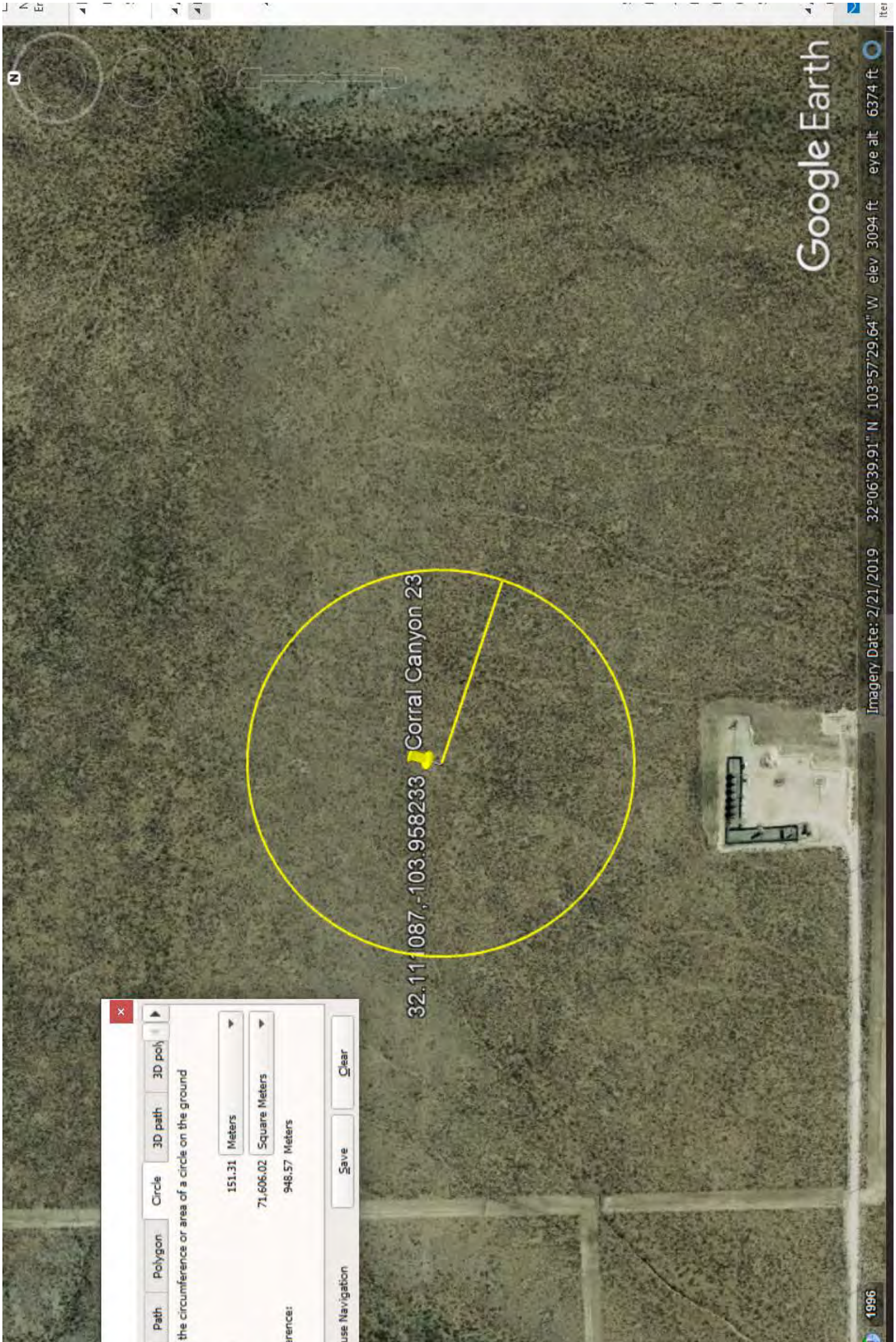
Surroundings | Application Info. | Calculator | Sources | Groups | Concentrations | Buildings | Receptors | View Map | Elevations

Retrieve surrounding sources | Evaluate Location Information | Print Location Information | Determine Bowen Ratio, albedo, and roughness

Last Neighboring Sources Update: 3/6/2020

Location Information

Heading	Distance (miles)	Distance (km)	Direction (The facility is...	Site	Company	AI ID	Emissions (T/yr)	Pollutant
Class I area (Second closest).	45.72	73.58	east-northeast of	Guadalupe Mountains National Park		0	0	
Class I area (Third closest).	103.18	166.05	south-southeast of	Salt Creek		0	0	
CO monitor (First closest).	148.49	238.97	east of	800 S San Marcial Street, El Paso, TX	481410044	0	0	CO
CO monitor (Second closest).	254.15	409.01	southeast of	201 PROSPERITY SE	350010029	0	0	CO
Facility emitting over 25 tons/year (first closest)	2.08	3.35	southeast of	Delaware - Macy J Compressor Station	Delaware G & P, LLC	38912	69.8	NO2
Facility emitting over 25 tons/year (second closest)	2.13	3.43	west-southwest of	XTO - Muy Wano 18 Tank Battery	XTO Energy Inc	38111	33.6	NO2



Corral Canyon 23
32.111087,-103.958233
Path
Polygon
Circle
3D path
3D poly
the circumference or area of a circle on the ground
151.31 Meters
71,606.02 Square Meters
948.57 Meters
Save
Clear
use Navigation
Google Earth
Imagery Date: 2/21/2019 32°06'39.91" N 103°57'29.64" W elev 3094 ft eye alt 6374 ft
1996

GCP Oil & Gas Stack Calculator

Program version: November 25, 2019

NOX Total emission rate: 1.12

Group 2 NOX emission rate:

SO2 total emission rate: 0

Equivalent Diameter (for facility): 1.414214

Set flare NOX emission rate to 0.
Set SO2 emission rate to 0 for all equipment but flares and ECD's.

Calculate | Clear Facility | Export Facility | Import Facility

Equipment

ID	Equipment Name	Equipment Type	NOX Rate (lb/hr)	SO2 Rate (lb/hr)		Height (ft)	Diameter (ft)	Velocity (ft/s)	Temperature (deg. F)	Group	Comments
1	HT-1	Heater	0.56	0	Actual	20	1	31.5	1000	3	Small heater, no minimum stack parameters.
					Minimum	0	0	0	0		
2	HT-2	Heater	0.56	0	Actual	20	1	31.5	1000	3	Small heater, no minimum stack parameters.
					Minimum	0	0	0	0		
3	HPF	Flare	0	0	Actual	145	0	0	0	1	
					Minimum	6.6	0	0	0		
4	LPF	Flare	0	0	Actual	40	0	0	0	1	
					Minimum	6.6	0	0	0		
*			0	0	Actual	0	0	0	0	0	
					Minimum	0	0	0	0		

March 11, 2020

BY ELECTRONIC MAIL

Olivia Yiu, Asheley Coriz,
Marvin Mascarenas, Joseph Kimbrell,
Joseph Mashburn, Arianna Espinoza,
Kathleen Primm, Vanessa Springer
New Mexico Environment Department
Air Quality Bureau
525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505
Olivia.yiu@state.nm.us, marvin.mascarenas@state.nm.us,
Joseph.kimbrell@state.nm.us, joseph.mashburn@state.nm.us,
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Vanessa.springer@state.nm.us

Re: Comments on Applications for General Construction Permits for Oil and Gas Facilities, Concerns Over Approval of General Permits in Southeast New Mexico

Dear New Mexico Air Quality Bureau Contacts:

WildEarth Guardians submits the following comments in response to several applications for general construction permits for oil and gas facilities in southeast New Mexico for which you have been identified as New Mexico Environment Department ("NMED") contacts.

In light of ongoing violations of the 8-hour ozone national ambient air quality standards ("NAAQS") in Eddy and Lea Counties, the New Mexico Environment Department ("NMED") is no longer permitted to allow oil and gas companies to obtain general permits for their operations. In light of this, NMED must reject the following registrations for general construction permits and must immediately halt the issuance of any further general construction permits for oil and gas facilities in Eddy and Lea Counties.

Our comments are specific to the following applications for general construction permits submitted for oil and gas facilities located in Eddy or Lea Counties:

Company	Facility(ies)	NSR Permit No.	Date Application Received
DCP Operating Company LP	West Turkey Track Compressor Station	2098M5	March 4, 2020
DCP Operating Company LP	Jackson Booster Station	2041M6	March 4, 2020
XTO Energy Inc.	James Ranch Unit DI 7	8746	March 4, 2020
OXY USA Inc.	NC Sand Dunes Compressor Station	8744	March 3, 2020
EOG Resources Inc.	Viper Localized Gas Lift Station	8739	March 2, 2020
EOG Resources Inc.	Date 14 CTB	8738	March 2, 2020
Lucid Energy Delaware LLC	Greyhound Compressor Station	8084M2	March 2, 2020
Matador Production Co.	Dr. Scrivner Facility	7825M3	March 2, 2020
ConocoPhillips Co.	Zeppo 5 Fed Com 25H Battery	8737	March 2, 2020
Ameredev II LLC	Pine Straw CTB	8217M2	February 27, 2020
Devon Production Co.	Blue Krait 23 CTB 2	8734	February 27, 2020
Kaiser-Francis Oil Co.	South Bell Lake Pad 11	7132M3	February 27, 2020
Kaiser-Francis Oil Co.	North Bell Lake Pad 0	8149M1	February 27, 2020
Spur Energy Partners LLC	Dorami 2H, 4H and 9H Federal Oil Tank Battery	8733	February 27, 2020
XTO Energy Inc.	Big Eddy Unit DI 38	8730	February 26, 2020
XTO Energy Inc.	Corral Canyon 23	8729	February 26, 2020

At issue is the fact that ozone monitors in southeast New Mexico are currently violating the ozone NAAQS. At this point, all three ozone monitors in both Eddy and Lea Counties are in nonattainment, with 2017-2019 design values all above the 2015 NAAQS of 0.070 parts per million. What's more, these monitoring sites have recorded regular exceedances of the 2015 8-hour ozone NAAQS since 2015. The tables below show the annual first, second, third, and fourth maximum 8-hour ozone readings at the three monitors in Lea and Eddy Counties between 2015 and 2019.

Hobbs, NM 8-Hour Ozone Readings (in ppm), 2015-2019

	2015	2016	2017	2018	2019
1st Max.	0.070	0.069	0.080	0.083	0.082
2nd Max.	0.069	0.066	0.074	0.078	0.075
3rd Max.	0.069	0.065	0.072	0.077	0.073
4th Max.	0.067	0.065	0.069	0.076	0.070
Number of Days Above NAAQS	0	0	3	6	3

Carlsbad, NM 8-Hour Ozone Readings (in ppm), 2015-2019

	2015	2016	2017	2018	2019
1st Max.	0.069	0.065	0.082	0.096	0.095
2nd Max.	0.068	0.064	0.078	0.095	0.092
3rd Max.	0.067	0.064	0.077	0.091	0.084
4th Max.	0.067	0.063	0.076	0.083	0.080
Number of Days Above NAAQS	0	0	10	18	19

Carlsbad Caverns National Park 8-Hour Ozone Readings, 2015-2019

	2015	2016	2017	2018	2019
1st Max.	0.068	0.070	0.069	0.099	0.082
2nd Max.	0.068	0.069	0.065	0.081	0.080
3rd Max.	0.065	0.069	0.065	0.080	0.078
4th Max.	0.065	0.069	0.065	0.080	0.074
Number of Days Above NAAQS	0	0	0	10	6

A violation of the 8-hour ozone NAAQS is triggered when the three-year average of the annual fourth highest daily reading exceeds the NAAQS. *See* 40 C.F.R. § 50.19(b). This three-year average value is commonly referred to as the "design value." Based on this monitoring data, all three ozone monitors are in violation of the NAAQS, with the design value at the Carlsbad monitor even violating the ozone NAAQS adopted in 2008, which limited 8-hour concentrations to no more than 0.075 parts per million. The table below shows that the design values at the Lea and Eddy County monitors have increased over the last five years and that currently, all three monitors are violating the ozone NAAQS.

8-Hour Ozone Design Values for Lea and Eddy County, New Mexico Monitoring Sites

Monitor	Monitor ID	2015-2017 Design Value	2016-2018 Design Value	2017-2019 Design Value
Hobbs	350250008	0.067	0.070	0.071
Carlsbad	350151005	0.068	0.074	0.079
Carlsbad Caverns	350150010	0.066	0.071	0.073

Under NMED's regulations, a general construction permit cannot be approved if it would "cause or contribute to air contaminant levels in excess of any national or New Mexico ambient air quality standard." 20.2.72.220(A)(2)(c) NMAC. To this end, a source may only register for an oil and gas general construction permit if it can demonstrate compliance with the NAAQS. Indeed, the registration forms for general construction permits for oil and gas facilities requires operators to demonstrate compliance with the NAAQS. Furthermore, NMED

can only approve a general construction permit if it determines that "all facilities registered [] will not cause or contribute to air contaminant levels in excess of any national [] ambient air quality standard." *See e.g.* NMED, "Air Quality Bureau General Construction Permit for Oil and Gas Facilities, GCP-Oil and Gas" at Condition B100.

In light of current ozone levels in Eddy and Lea Counties, there is no possible way for NMED or sources to conclude that construction and operation of new oil and gas facilities would not cause or contribute to violations of the ozone NAAQS. Every general construction permit registration would authorize increases in nitrogen oxides ("NOx") and volatile organic compounds ("VOCs")—both gases that react with sunlight to form ozone. The general construction permit applications for each facility listed above anticipate increases of up to 95 tons/year for both VOCs and NOx for each source. This means that every source seeking general construction permits will cause or contribute to ozone violations in Eddy and Lea Counties by increasing overall ozone-forming pollution in the region at a time when ozone levels are in violation of the NAAQS.

Given this, there is currently no legal justification for oil and gas sources to qualify for registration for general permits in Eddy and Lea Counties. Accordingly, NMED cannot approve the aforementioned applications for general construction permits, as well as any additional general construction permits, unless and until the ozone NAAQS are attained in Eddy and Lea Counties.

If NMED continues to approve general construction permits for oil and gas facilities in southeast New Mexico, then it will indicate the state implementation plan ("SIP") is inadequate to attain and maintain compliance with the NAAQS and will jeopardize the state's ability to continue implementing its air quality regulatory program under the Clean Air Act.

Thank you for the opportunity to provide these comments.

Sincerely,

Jeremy Nichols
Climate and Energy Program Director
WildEarth Guardians
(303) 437-7663
jnichols@wildearthguardians.org

New Mexico
Environment Department

525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505-1816
Phone (505) 476-4300
Fax (505) 476-4375
www.env.nm.gov

MICHELLE LUJAN GRISHAM
GOVERNOR

HOWIE C. MORALES
LT. GOVERNOR

JAMES C. KENNEY
CABINET SECRETARY

JENNIFER J. PRUETT
DEPUTY SECRETARY

March 27, 2020

Return Receipt Requested

Raymond Tole
Engineer
XTO Energy Inc
22777 Springwood Village Parkway
W4.6B.344
Spring, TX 77389

Air Quality General Permit GCP-O&G 8729
Agency Interest No. 39444 - PRN20200001
XTO- Corral Canyon 23
AIRS No. 350152320

Dear Mr. Tole:

This letter is in response to your air quality General Construction Permit - Oil & Gas (GCP-O&G) application dated February 24, 2020 for an oil and gas facility in New Mexico. The application was received by the Department on February 26, 2020.

A review has been completed and the information provided is sufficient to issue your permit in accordance with 20.2.72.220 NMAC and the GCP-O&G conditions. Construction or modification may commence 10.2 mi SE of Malaga in Eddy County at latitude and longitude decimal degrees: 32.111087, -103.958233, as represented in the application.

Attached is a copy of your permit registration and the GCP-O&G Permit. The GCP-O&G Permit includes the terms and conditions for operation as well as emission and compliance requirements.

Pursuant to 20.2.75.11 NMAC, the Department will assess an annual fee for this facility. This regulation set the fee amount at $1,500 through 2004 and requires it to be adjusted annually for the Consumer Price Index on January 1. The current fee amount is available by contacting the Department or can be found on the Department's website. The AQB will invoice the permittee for the annual fee amount at the beginning of each calendar year. This fee does not apply to sources which are assessed an annual fee in accordance with 20.2.71 NMAC. For sources that satisfy the definition of "small business" in subsection F of 20.2.75.7 NMAC, this annual fee will be divided by two.

All fees shall be remitted in the form of a corporate check, certified check, or money order made payable to the "NM Environment Department, AQB" mailed to the address shown on the invoice and shall be accompanied by the remittance slip attached to the invoice. If there is no invoice included, there is no fee balance due at this time.

If you have any questions, please contact me in Santa Fe at 505-476-4367**.**

Sincerely,

Arianna Espinoza Digitally signed by Arianna Espinoza Date: 2020.03.27 09:30:33 -06'00'

Arianna Espinoza
Air Permit Specialist
Permits Section
Air Quality Bureau

cc via email: Evan Tullos, PEI, etullos@pei-tx.com

Enclosure: Instructions to access the Industry/Consultant Feedback Questionnaire online.

Minor Source Emission Inventory in 2020

P.S. The NM Environment Department – Air Quality Bureau (Bureau) will conduct a Minor Source Emissions Inventory (per 20.2.73.300 NMAC) for calendar year 2020. This inventory will apply to all sources with air quality construction permits (20.2.72 NMAC), including General Construction Permits (GCPs). It will also apply to Notices of Intent (NOIs) sources (20.2.73 NMAC). Facility-wide emissions during the calendar year 2020 must be calculated and reported to the Bureau during the period of January 1 through April 1, 2021, using the online reporting tool specified by the Bureau.

We encourage you to sign up for the Minor Source Emissions Inventory bulletins at: https://public.govdelivery.com/accounts/NMED/subscriber/new to receive updates and guidance on the implementation of this requirement.

New Mexico
ENVIRONMENT DEPARTMENT

525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505-1816
Phone (505) 476-4300
Fax (505) 476-4375
www.env.nm.gov

MICHELLE LUJAN GRISHAM
GOVERNOR

HOWIE C. MORALES
LT. GOVERNOR

JAMES C. KENNEY
CABINET SECRETARY

JENNIFER J. PRUETT
DEPUTY SECRETARY

Statement of Basis/Data Base Summary
GCP- Oil & Gas (O&G) Permit

Size
SM>80

Permit Writer:	Arianna Espinoza
GCP No.	8729
Agency Interest No.	39444 - PRN20200001
AIRS ID No.	350152320
SIC Code:	1311: Crude petroleum and natural gas
Facility Type:	O&G-Tank Battery/Bulk Fuel Storage
Company:	XTO Energy Inc
Facility:	XTO- Corral Canyon 23
Type of Permit Action:	GCP - Oil and Gas
Registration Date:	February 24, 2020
Receive Date:	February 26, 2020
Co. Pub Notice Date/Paper:	January 23, 2020/ The Artesia Daily Press
Public Hearing:	NA
Permit Due:	March 27, 2020
Permit Issued:	March 27, 2020
Facility Location:	Drive S on US 285 for 12.5 mi. to L on Whitehorn Rd. Drive 2.4 mi. to L on Longhorn Rd. Drive 1.8 mi. to L on Pipeline Road 1. Drive 1.8 mi. to L on lease road. After 2.2 mi., go R at Y, then right at Y after 0.7 mi. Drive 0.3 mi. to R, then 0.5 mi. to new access road on R
UTM Zone:	13
UTM Easting:	598280 meters
UTM Northing:	3553220 meters
Elevation:	3094 ft feet
County:	Eddy
Contact Name:	Raymond Tole **Phone:** 832-624-4426 **Email:** raymond_tole@xtoenergy.com

Contact Address: 22777 Springwoods Village Parkway
W4.6B.344
Spring, TX 77389

Consultant Name: PEI
Phone: 865-850-2007
Email: etullos@pei-tx.com

Consultant Address: 5 Cardinal Court
Edwardsville, IL 62025

1.0 Registration Summary:

This application requests a GCP-O&G permit for a proposed facility under 20.2.72 NMAC. The Corral Canyon 23 is an oil and gas production battery, with an average well production of 20,000 BOPD, 60,000 BWPD, and 60.84 MMscfd. An additional 5,000 BOPD of dead oil may be transferred directly into the storage tanks from surrounding batteries. The site will consist of the following permitted equipment: WT1-WT6: Six (6) produced water tanks, OT1-OT6: Six (6) oil tanks, SKTK1-SKTK2: Two (2) water skim tanks, BC1-BC2: Two (2) electric booster compressors, FUG: Fugitive equipment leaks, HT1-HT2: Two (2) heater treaters, TL-O: Truck loading of oil, TL-W: Truck loading of water, ROAD: Haul road emissions, VRT: Vapor recovery tower, VRU1: Vapor recovery unit for VRT, VRU2: Vapor recovery unit for OT1-OT6, HPF: High pressure flare, and LPF: Low pressure flare.

2.0 Description of Modification:

NA

3.0 History (In descending chronological order)

Permit Number	Issue Date	Action Type	Description of Action (Changes)
8729	3/27/2020	GCP O&G – New etc.	New GCP O&G Registration

Public Response/Concerns: The Climate and Energy Program Director from WildEarth Guardians, Jeremy Nichols, submitted a comment about this facility. This was provided to upper management, and permit writer was instructed to process the application as usual.

4.0 Facility Specifications:

Total Pollutant Emissions from Entire Facility (for information only, not an enforceable condition):

Pollutant	Emissions (tons per year)	Emission Type	Other
Particulate Matter (2.5 microns or less)	**1.35**	**Allowable**	
Nitrogen Dioxide	**31.79**	**Allowable**	
Particulate Matter (10 microns or less)	**2.85**	**Allowable**	
Volatile Organic Compounds (VOC)	**103**	**Allowable**	
Carbon Monoxide	**57.79**	**Allowable**	

Total HAPS* and NM TAPS that exceed 1.0 ton per year (for information only, not an enforceable condition):

Pollutant	Emissions (tons per year)	Emission Type	Other
Total HAP	4.28	Potential	
Benzene	1.25	Potential	
Hexane	2.5	Potential	

*** HAP emissions are already included in VOC emissions**

Note: The Total HAPS may not match the sum of the individual HAPS in this table as it will include values from HAPS that are below 1.0 tpy.

Air Pollution Control Devices:

Subject Item ID, Type, ID, (Unit #)	SI Description	Primary	Secondary
OT1 (EQPT7)	Oil Storage Tank, 750 bbl	Flare	Vapor Recovery Unit
OT2 (EQPT8)	Oil Storage Tank, 750 bbl	Flare	Vapor Recovery Unit
OT3 (EQPT9)	Oil Storage Tank, 750 bbl	Flare	Vapor Recovery Unit
OT4 (EQPT10)	Oil Storage Tank, 750 bbl	Flare	Vapor Recovery Unit
OT5 (EQPT11)	Oil Storage Tank, 750 bbl	Flare	Vapor Recovery Unit
OT6 (EQPT12)	Oil Storage Tank, 750 bbl	Flare	Vapor Recovery Unit
SWTK1 (EQPT13)	Skim Tank, 1000 bbl	Flare	
SWTK2 (EQPT14)	Skim Tank, 1000 bbl	Flare	
TL-O (EQPT3)	Truck Loading - Oil	Flare	
WT1 (EQPT15)	Produced Water Tank, 750 bbl	Flare	
WT2 (EQPT16)	Produced Water Tank, 750 bbl	Flare	
WT3 (EQPT17)	Produced Water Tank, 750 bbl	Flare	
WT4 (EQPT18)	Produced Water Tank, 750 bbl	Flare	
WT5 (EQPT19)	Produced Water Tank, 750 bbl	Flare	
WT6 (EQPT20)	Produced Water Tank, 750 bbl	Flare	

Equipment Specifications (Active):

Unit No.	Unit Type	Manufacturer	Model No.	Serial No.	Yr of Construction	Yr of Manufacture	Operating Rate Max/Site	Operating Capacity Max/Site	Subject Item Status	Subject Item Description

Unit No.	Unit Type	Manufacturer	Model No.	Serial No.	Yr of Construction	Yr of Manufacture	Operating Rate Max/Site	Operating Capacity Max/Site	Subject Item Status	Subject Item Description
FUG RPNT1	Fugitives	NA	NA	NA			/	/	Active	Fugitives
HPF EQPT5	Process Flare	Tornado	TBD	TBD			/	60 MM SCF/d / 60 MM SCF/d	Active	High Pressure Flare
HT-1 EQPT1	Heater Treater/Stack Pak	TBD	TBD	TBD			/	4 MM BTU/h / 4 MM BTU/h	Active	Heater Treater
HT-2 EQPT2	Heater Treater/Stack Pak	TBD	TBD	TBD			/	4 MM BTU/h / 4 MM BTU/h	Active	Heater Treater
LPF EQPT6	Process Flare	Tornado	TBD	TBD			/	2 MM SCF/d / 2 MM SCF/d	Active	Low Pressure Flare
OT1 EQPT7	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	750 bbl / 63874.99 M gal/y	Active	Oil Storage Tank, 750 bbl
OT2 EQPT8	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	750 bbl / 63874.99 M gal/y	Active	Oil Storage Tank, 750 bbl
OT3 EQPT9	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	750 bbl / 63874.99 M gal/y	Active	Oil Storage Tank, 750 bbl
OT4 EQPT10	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	750 bbl / 63874.99 M gal/y	Active	Oil Storage Tank, 750 bbl
OT5 EQPT11	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	750 bbl / 63874.99 M gal/y	Active	Oil Storage Tank, 750 bbl
OT6 EQPT12	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	750 bbl / 63874.99 M gal/y	Active	Oil Storage Tank, 750 bbl

Unit No.	Unit Type	Manufacturer	Model No.	Serial No.	Yr of Construction	Yr of Manufacture	Operating Rate Max/Site	Operating Capacity Max/Site	Subject Item Status	Subject Item Description
ROAD AREA1	Unpaved roads	NA	NA	NA			/	/	Active	Road Emissions
SWTK1 EQPT13	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	1000 bbl / 459904.95 M gal/y	Active	Skim Tank, 1000 bbl
SWTK2 EQPT14	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	1000 bbl / 459904.95 M gal/y	Active	Skim Tank, 1000 bbl
TL-O EQPT3	Loading/Unloading Rack	NA	NA	NA			/	1825000 bbl/y / 1825000 bbl/y	Active	Truck Loading - Oil
TL-W EQPT4	Loading/Unloading Rack	NA	NA	NA			/	1825000 bbl/y / 1825000 bbl/y	Active	Truck Loading - Water
WT1 EQPT15	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	750 bbl / 1533 M gal/y	Active	Produced Water Tank, 750 bbl
WT2 EQPT16	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	750 bbl / 1533 M gal/y	Active	Produced Water Tank, 750 bbl
WT3 EQPT17	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	750 bbl / 1533 M gal/y	Active	Produced Water Tank, 750 bbl
WT4 EQPT18	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	750 bbl / 1533 M gal/y	Active	Produced Water Tank, 750 bbl
WT5 EQPT19	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	750 bbl / 1533 M gal/y	Active	Produced Water Tank, 750 bbl

Unit No.	Unit Type	Manufacturer	Model No.	Serial No.	Yr of Construction	Yr of Manufacture	Operating Rate Max/Site	Operating Capacity Max/Site	Subject Item Status	Subject Item Description
WT6 EQPT20	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	750 bbl / 1533 M gal/y	Active	Produced Water Tank, 750 bbl

Emissions: Pollutant **Permitted** (Allowable) Emissions per piece of equipment or Subject Item as represented by applicant.

Unit No.	NO_x (pph)	[1]NO_x (tpy)	CO (pph)	CO (tpy)	VOC (pph)	VOC (tpy)	SO_2 (pph)	SO_2 (tpy)	TSP (pph)	TSP (tpy)	PM_{10} (pph)	PM_{10} (tpy)	$PM_{2.5}$ (pph)	$PM_{2.5}$ (tpy)	H_2S (pph)	H_2S (tpy)
OT3 (EQPT9)																
OT4 (EQPT10)																
SWTK1 (EQPT13)																
FUG (RPNT1)					2.44	10.69										
HT-1 (EQPT1)	0.56	2.45	0.47	2.06	0.03	0.13		0.01			0.04	0.19	0.04	0.19		
OT2 (EQPT8)																
OT5 (EQPT11)																
WT5 (EQPT19)																

Unit No.	NO_x (pph)	[1]NO_x (tpy)	CO (pph)	CO (tpy)	VOC (pph)	VOC (tpy)	SO_2 (pph)	SO_2 (tpy)	TSP (pph)	TSP (tpy)	PM_{10} (pph)	PM_{10} (tpy)	$PM_{2.5}$ (pph)	$PM_{2.5}$ (tpy)	H_2S (pph)	H_2S (tpy)
WT6 (EQPT20)																
WT2 (EQPT16)																
TL-W (EQPT4)						0.01										
WT1 (EQPT15)																
HT-2 (EQPT2)	0.56	2.45	0.47	2.06	0.03	0.13		0.01			0.04	0.19	0.04	0.19		
LPF (EQPT6)	3.2	12.19	6.37	24.36	9.23	54.48										
OT6 (EQPT12)																
WT3 (EQPT17)																
WT4 (EQPT18)																
TL-O (EQPT3)					0.77	2.92										
HPF (EQPT5)		14.69		29.33		34.62						0.49		0.49		

Unit No.	NO_x (pph)	[1]NO_x (tpy)	CO (pph)	CO (tpy)	VOC (pph)	VOC (tpy)	SO_2 (pph)	SO_2 (tpy)	TSP (pph)	TSP (tpy)	PM_{10} (pph)	PM_{10} (tpy)	$PM_{2.5}$ (pph)	$PM_{2.5}$ (tpy)	H_2S (pph)	H_2S (tpy)
ROAD (AREA1)											0.48	1.67	0.05	0.17		
OT1 (EQPT7)																
SWTK2 (EQPT14)																

[1] Nitrogen dioxide emissions include all oxides of nitrogen expressed as NO_2

5.0 Compliance Testing: That may apply.

Unit(s)	Compliance Test	Timeline
Engine(s) or Turbine(s) > 180 hp Exemption: Existing units that have been tested within the last five (5) years are not required to perform an initial compliance test.	Initial Compliance Test Testing requirements shall be conducted in accordance with Section B111 of the GCP- O&G Permit. A test may be waived by the Department if the test is not required under a NMAC, NSPS, NESHAP or MACT.	Compliance tests shall be conducted within sixty (60) days after the unit(s) achieve the maximum normal production rate. If the maximum normal production rate does not occur within one hundred twenty (120) days of source startup, then the tests must be conducted no later than one hundred eighty (180) days after initial startup of the source.
Engine(s) or Turbine(s) > 180 hp Facilities with a PER less than 80 tpy of each regulated air pollutant shall perform periodic testing every three (3) years.	Periodic Testing Testing requirements shall be conducted in accordance with Section B111 of the GCP- O&G Permit. A test may be waived by the Department if the test is not required under a NMAC, NSPS, NESHAP or MACT.	Every three (3) years.
Engine(s) or Turbine(s) > 180 hp Facilities with PER greater than the 80 tpy of any regulated air pollutant shall perform periodic testing once per calendar year for each engine or turbine > 180 hp.	Periodic Testing Testing requirements shall be conducted in accordance with Section B111 of the GCP- O&G Permit	Every calendar year.
Flares	N/A unless subject to compliance test under a NMAC, NSPS, NESHAP or MACT.	Test dates according to applicable regulation

Thermal Oxidizers	If the owner or operator does not provide manufacturer's data to establish the minimum operating temperature required to achieve 98% control efficiency, the owner/operator shall perform an initial compliance test to determine such operating temperature.	Within sixty (60) days of the start of operations, and the results shall be submitted to the Department within thirty (30) days of the test.
Storage Tanks	N/A unless subject to compliance test under a NMAC, NSPS, NESHAP or MACT.	Test dates according to applicable Regulation.

6.0 Startup and Shutdown:

Were emissions from startup, shutdown, and scheduled maintenance operations calculated and included in the emission tables? ☒ Yes
☐ No:

7.0 State and Federal Regulatory Analysis (NMAC/AQCR): Refer to Section 8 of the GCP O&G Registration Form.

8.0 Permit Writer Comments: NA

Administrative Record

XTO Big Eddy

GCP No. 8730

Bates Numbers: 0233 - 0461

Adminstrative Record Index

XTO Big Eddy Unit DI 38 - GCP No. 8730

DATE	FROM	TO	FORMAT	SUBJECT
3/11/2020 - 5/12/2020	NMED/XTO/ WEG	NMED/XTO/WEG	Emails	Email correspondence relating to XTO Energy Inc. Big Eddy General Construcion Oil and Gas Permit Application
2/18/2020	XTO	NMED	Documents	XTO Application for GCP-Oil and Gas
2/18/2020	XTO	N/A	Photos	Location Verification
2/18/2020	XTO	N/A	Documents	Gas Stack Verification
3/11/2020	Jeremy Nichols (WEG)	NMED	Email	Comments on application for GCP-Oil and Gas
3/27/2020	NMED	XTO	Letter	Approval letter for GCP-Oil and Gas
3/27/2020	NMED	N/A	Documents	Statement of Basis / Data Base Summary GCP-Oil and Gas (O&G)

From:	Jeremy Nichols
To:	Olivia.yiu@state.nm.us; Coriz, Asheley, NMENV; Mascarenas, Marvin, NMENV; Kimbrell, Joseph, NMENV; Mashburn, Joseph, NMENV; Espinoza, Arianna, NMENV; Primm, Kathleen, NMENV; Springer, Vanessa, NMENV
Cc:	Schooley, Ted, NMENV; Romero, Rhonda, NMENV
Subject:	[EXT] Comments on Applications for General Construction Permits for Oil and Gas Facilities
Date:	Wednesday, March 11, 2020 9:39:54 PM
Attachments:	2020-3-11 WG Comments on GCP Applications.pdf

Dear New Mexico Environment Department, Air Quality Bureau Staff:

Attached, please find comments from WildEarth Guardians regarding several general construction permit applications for oil and gas facilities in Eddy and Lea Counties in southeast New Mexico. These comments are directed to New Mexico Environment Department, Air Quality Bureau staff listed as contacts for the specific permits. Our comments address common issues related to ozone pollution in southeast New Mexico and therefore are directed to all staff contacts. We look forward to our comments being considered as the Air Quality Bureau reviews the referenced permit applications. Thank you.

Sincerely,

Jeremy Nichols

Climate and Energy Program Director
(303) 437-7663
www.wildearthguardians.org/climate-energy

From: Espinoza, Arianna, NMENV
To: "Tole, Raymond"
Cc: "Evan Tullos"
Subject: GCP O&G Application for Big Eddy Unit DI 38
Date: Friday, March 27, 2020 9:09:49 AM
Attachments: image001.png
Copy of Registration Form (8730).pdf
GCP OG Approval (8730).pdf

Regarding:
XTO Energy Inc
Big Eddy Unit DI 38
Permit No. 8730
AI: 39443

Good morning Mr. Tole,

Please find the attached courtesy copy of GCP O&G Approval Letter and Registration Form, and to XTO Energy Inc, Big Eddy Unit DI 38.

Here is a link to the GCP Oil and Gas Permit: https://www.env.nm.gov/wp-content/uploads/sites/2/2018/06/GCP-Oil-Gas-Final-002.pdf

The letter and copy of registration form will be mailed to your attention.

Thank you,

Link to Industry/Consultant Feedback Questionnaire.

If guidance or a determination is included in this email, it is intended to serve as general guidance and is in no way a formal statement of Department policy. New information or changes to regulations may result in a different determination or guidance.

Arianna Espinoza
Permitting – Technical Services Permit Writer
New Mexico Environment Department
Air Quality Bureau
525 Camino de los Marquez, Suite 1, Santa Fe, NM 87505
Office: (505) 476-4367
arianna.espinoza@state.nm.us
https://www.env.nm.gov/

From:	Schooley, Ted, NMENV
To:	Jeremy Nichols; Romero, Rhonda, NMENV
Subject:	RE: [EXT] request for updates on oil and gas general permit registrations
Date:	Tuesday, May 12, 2020 8:20:00 AM

Mr. Nichols,

Thank you for your email regarding the status of the Oil and Gas General Construction Permits (O&G GCPs) for which WEG has submitted comments. At the bottom of this email is a table showing the status of the registrations WEG has inquired about. Information regarding GCP registration applications can be found on the Bureau's website on the following page: https://www.env.nm.gov/air-quality/aqb-p_current_permitting_activites/, which includes this link: **Current Permitting Actions for NSR and Title V – Updated 04/30/2020**.

Administrative review of the Department's determination to grant an application to register under a GCP is available pursuant to the Environmental Improvement Board's GCP regulations at subsection 20.2.72.220.C(5) NMAC (available here), which in turn references the Air Quality Control Act at NMSA 1978, Section 74-2-7. Subsection 74-2-7(H) of the statute provides that any person who participated in a permitting action before the Department and who is adversely affected by such permitting action may file a petition for hearing before the EIB within 30 days from the date notice is given of the Department's action.

For any of the O&G GCP registration applications listed below on which WEG submitted comments, you may regard the date of this email as the date notice was provided to WEG of the Department's action on those applications.

Best,

Ted Schooley
Permit Programs Section Chief
New Mexico Environment Department
Air Quality Bureau
525 Camino de los Marquez, Suite 1, Santa Fe, NM 87505
Office: (505) 476-4334
ted.schooley@state.nm.us
https://www.env.nm.gov/air-quality/

"Innovation, Science, Collaboration, Compliance"

Company	**Facility(ies)**	**NSR Permit No.**	**Date Application Received**	**Permitting Action Type**	**Status**
Cimarex Energy Co. of Colorado	Dos Equis 11-14 Federal Com 4H	8136M1	March 30, 2020	GCP-Oil and Gas	Issued
Matador Production Co.	Ray state Slot 3 Facility	8793	March 30, 2020	GCP-Oil and Gas	Issued
Matador Production Co.	Stebbins 19 Fed 3 Facility	7811M2	March 26, 2020	GCP-Oil and Gas	Issued
Matador Production Co.	Grevey Com Tank Battery	8780	March 26, 2020	GCP-Oil and Gas	Issued
New Mexico Gas Company	Lea County Compressor Station	8781	March 26, 2020	GCP-Oil and Gas	Issued

Summit Midstream Permian LLC	Lane Gas Plant	7426M1	March 26, 2020	GCP-Oil and Gas	Withdrawn
XTO Energy Inc.	Poker Lake Unit 28, Big Sinks Tank Battery	8395M1	March 26, 2020	GCP- GCP Oil and Gas	Issued
XTO Energy Inc.	Poker Lake Unit 21, Brushy Draw West Tank	8398M1	March 26, 2020	GCP- GCP Oil and Gas	Issued
XTO Energy Inc.	Poker Lake Unit 17, Twin Wells Ranch West	8782	March 26, 2020	GCP-Oil and Gas	Issued
Devon Energy Production Co.	Belloq 11 CTB 1	8201M2	March 26, 2020	GCP- Oil and Gas	Issued
Ameredev II LLC	Nandina CBT	8189M1	March 25, 2020	GCP- Oil and Gas	Issued
Marathon Oil Permian LLC	Mazer Rackham 20 Fed Com CTB	8652M1	March 23, 2020	GCP- Oil and Gas	Issued
Chevron USA Inc.	Dagger Lake Section 4 CTB	8776	March 20, 2020	GCP6/NOI	Issued
Chevron USA Inc.	Dagger Lake Section 4 CS	8777	March 20, 2020	GCP- Oil and Gas	Issued
Devon Energy Production Co.	Papa Fritas 27 CTB 2	8778	March 20, 2020	GCP- Oil and Gas	Issued
Devon Energy Production Co.	Papas Fritas 27 CTB 1	8779	March 19, 2020	GCP- Oil and Gas	Issued
Cotton Draw Midstream LLC	Moon Compressor Station	8110M2	March 18, 2020	GCP- Oil and Gas	Issued
Devon Energy Production Co.	Uraninite 32 CTB 2	8773	March 18, 2020	GCP- Oil and Gas	Issued
Matador Production Co.	Stebbins 20 Fed Facility	7585M1	March 18, 2020	GCP- Oil and Gas	Issued
Matador Production Co.	Jack Sleeper Facility	8772	March 18, 20209	GCP- Oil and Gas	Issued
Cimarex Energy Co. of Colorado	Parkway 15-14, North State Com 1H, 2H	8701M1	March 17, 2020	GCP- Oil and Gas	Issued
Matador Production Co.	Leslie Fed West Facility	8769	March 16, 2020	GCP- Oil and Gas	Issued
Tap Rock Operating LLC	Money Graham Facility	8634M1	March 16, 2020	GCP- Oil and Gas	Issued
ConocoPhillips Co.	Emerald Federal No. 3 Production	4610M1	March 12, 2020	GCP- Oil and Gas	Issued
Devon Energy Production Co.	Boundary Raider 7 CTB 2	8766	March 12, 2020	GCP- Oil and Gas	Issued
Matador Production Co.	Rodney Robinson North Facility	8765	March 12, 2020	GCP- Oil and Gas	Issued
XTO Energy Inc.	Legg Federal Tank Battery	5044M4	March 12, 2020	GCP- Oil and Gas	Issued
Cimarex Energy Co. of Colorado	Tar Heel 19-18 Fed 1-3H and 17-19H	8763	March 11, 2020	GCP- Oil and Gas	Issued
Matador Production	Stebbins 20/19 Fed	7792M2	March 11, 2020	GCP- Oil and	Issued

Co.	Facility			Gas	
DCP Operating Company LP	West Turkey Track Compressor Station	2098M5	March 4, 2020	GCP- Oil and Gas	Issued
DCP Operating Company LP	Jackson Booster Station	2041M6	March 4, 2020	GCP- Oil and Gas	Issued
XTO Energy Inc.	James Ranch Unit DI 7	8746	March 4, 2020	GCP-Oil and Gas	Issued
OXY USA Inc.	NC Sand Dunes Compressor Station	8744	March 3, 2020	GCP- Oil and Gas	Issued
EOG Resources Inc.	Viper Localized Gas Lift Station	8739	March 2, 2020	GCP-Oil and Gas	Issued
EOG Resources Inc.	Date 14 CTB	8738	March 2, 2020	GCP-Oil and Gas	Issued
Lucid Energy Delaware LLC	Greyhound Compressor Station	8084M2	March 2, 2020	GCP-Oil and Gas	Issued
Matador Production Co.	Dr. Scrivner Facility	7825M3	March 2, 2020	GCP-Oil and Gas	Issued
ConocoPhillips Co.	Zeppo 5 Fed Com 25H Battery	8015M1	March 2, 2020	GCP-Oil and Gas	Issued
Ameredev II LLC	Pine Straw CTB	8217M2	February 27, 2020	GCP- Oil and Gas	Issued
Devon Production Co.	Blue Krait 23 CTB 2	8734	February 27, 2020	GCP-Oil and Gas	Issued
Kaiser-Francis Oil Co.	South Bell Lake Pad 11	7132M3	February 27, 2020	GCP-Oil and Gas	Issued
Kaiser-Francis Oil Co.	North Bell Lake Pad 0	8149M3	February 10, 2020	GCP Oil and Gas	Issued
Spur Energy Partners LLC	Dorami 2H, 4H and 9H Federal Oil Tank Battery	8733	February 27, 2020	GCP-Oil and Gas	Issued
XTO Energy Inc.	Big Eddy Unit DI 38	8730	February 26, 2020	GCP-Oil and Gas	Issued
XTO Energy Inc.	Corral Canyon 23	8729	February 26, 2020	GCP-Oil and Gas	Issued

From: Jeremy Nichols <jnichols@wildearthguardians.org>
Sent: Monday, May 4, 2020 7:45 PM
To: Schooley, Ted, NMENV <ted.schooley@state.nm.us>; Romero, Rhonda, NMENV <Rhonda.Romero@state.nm.us>
Subject: [EXT] request for updates on oil and gas general permit registrations

Dear Mr. Schooley and Ms. Romero:

I am writing regarding the status of the oil and gas general permit registrations listed below that are under review by the New Mexico Environment Department. As you know, WildEarth Guardians has commented on general permit applications listed below over the past several weeks. We have not

received a response from the Environment Department or a notification that any registration has been approved. It is not currently possible to determine online whether registrations have been granted or denied. Pursuant to Section 74-7-H NMSA, a person participating in a permitting action has 30 days after notification of the permitting action to file a request for hearing with the Environmental Improvement Board. If general permit registrations that WildEarth Guardians has commented on have been granted, we reques the Environment Department provide us notification so that we may file a request for hearing with the Board.

To this end, if you could please provide the status of each of the following general permit registrations, it would be much appreciated. Thank you. - Jeremy Nichols

Company	**Facility(ies)**	**NSR Permit No.**	**Date Application Received**
Cimarex Energy Co. of Colorado	Dos Equis 11-14 Federal Com 4H	8136M1	March 30, 2020
Matador Production Co.	Ray state Slot 3 Facility	8793	March 30, 2020
Matador Production Co.	Stebbins 19 Fed 3 Facility	7811M2	March 26, 2020
Matador Production Co.	Grevey Com Tank Battery	8780	March 26, 2020
New Mexico Gas Company	Lea County Compressor Station	8781	March 26, 2020
Summit Midstream Permian LLC	Lane Gas Plant	7426M1	March 26, 2020
XTO Energy Inc.	Poker Lake Unit 28, Big Sinks Tank Battery	8395M1	March 26, 2020
XTO Energy Inc.	Poker Lake Unit 21, Brushy Draw West Tank	8398M1	March 26, 2020
Matador Production Co.	Stebbins 19 Fed 3 Facility	7811M2	March 26, 2020
XTO Energy Inc.	Poker Lake Unit 17, Twin Wells Ranch West	8782	March 26, 2020
Devon Energy Production Co.	Belloq 11 CTB 1	8201M2	March 26, 2020
Ameredev II LLC	Nandina CBT	8189M1	March 25, 2020
Marathon Oil Permian LLC	Mazer Rackham 20 Fed Com CTB	8652M1	March 23, 2020
Chevron USA Inc.	Dagger Lake Section 4 CTB	8776	March 20, 2020
Chevron USA Inc.	Dagger Lake Section 4 CS	8777	March 20, 2020
Devon Energy Production Co.	Papa Fritas 27 CTB 2	8778	March 20, 2020
Devon Energy Production Co.	Papas Fritas 27 CTB 1	8779	March 19, 2020
Cotton Draw Midstream LLC	Moon Compressor Station	8110M2	March 18, 2020
Devon Energy Production Co.	Uraninite 32 CTB 2	8773	March 18, 2020
Matador Production Co.	Stebbins 20 Fed Facility	7585M1	March 18, 2020
Matador Production Co.	Jack Sleeper Facility	8772	March 18, 20209
Cimarex Energy Co. of Colorado	Parkway 15-14, North State Com 1H, 2H	8701M1	March 17, 2020

Matador Production Co.	Leslie Fed West Facility	8769	March 16, 2020
Tap Rock Operating LLC	Money Graham Facility	8634M1	March 16, 2020
ConocoPhillips Co.	Emerald Federal No. 3 Production	4610M1	March 12, 2020
Devon Energy Production Co.	Boundary Raider 7 CTB 2	8766	March 12, 2020
Matador Production Co.	Rodney Robinson North Facility	8765	March 12, 2020
XTO Energy Inc.	Legg Federal Tank Battery	5044M4	March 12, 2020
Cimarex Energy Co. of Colorado	Tar Heel 19-18 Fed 1-3H and 17-19H	8763	March 11, 2020
Matador Production Co.	Stebbins 20/19 Fed Facility	7792M2	March 11, 2020
DCP Operating Company LP	West Turkey Track Compressor Station	2098M5	March 4, 2020
DCP Operating Company LP	Jackson Booster Station	2041M6	March 4, 2020
XTO Energy Inc.	James Ranch Unit DI 7	8746	March 4, 2020
OXY USA Inc.	NC Sand Dunes Compressor Station	8744	March 3, 2020
EOG Resources Inc.	Viper Localized Gas Lift Station	8739	March 2, 2020
EOG Resources Inc.	Date 14 CTB	8738	March 2, 2020
Lucid Energy Delaware LLC	Greyhound Compressor Station	8084M2	March 2, 2020
Matador Production Co.	Dr. Scrivner Facility	7825M3	March 2, 2020
ConocoPhillips Co.	Zeppo 5 Fed Com 25H Battery	8737	March 2, 2020
Ameredev II LLC	Pine Straw CTB	8217M2	February 27, 2020
Devon Production Co.	Blue Krait 23 CTB 2	8734	February 27, 2020
Kaiser-Francis Oil Co.	South Bell Lake Pad 11	7132M3	February 27, 2020
Kaiser-Francis Oil Co.	North Bell Lake Pad 0	8149M1	February 27, 2020
Spur Energy Partners LLC	Dorami 2H, 4H and 9H Federal Oil Tank Battery	8733	February 27, 2020
XTO Energy Inc.	Big Eddy Unit DI 38	8730	February 26, 2020
XTO Energy Inc.	Corral Canyon 23	8729	February 26, 2020

Climate and Energy Program Director
[(303) 437-7663](tel:3034377663)
www.wildearthguardians.org/climate-energy

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

EDDY COUNTY, NEW MEXICO

GCP-OIL AND GAS PERMIT APPLICATION

PREPARED BY:

T.J. TOLE

ENVIRONMENTAL ENGINEER

XTO ENERGY INC.

2/18/2020

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

GCP-OIL AND GAS PERMIT APPLICATION

Table of Contents

Section 1
Company Information

Mail Registration To:		For Department use only:
New Mexico Environment Department Air Quality Bureau 525 Camino de los Marquez, Suite 1 Santa Fe, New Mexico, 87505 Phone (505) 476-4300 Fax (505) 476-4375 www.env.nm.gov/aqb		

General Construction Permit (GCP-Oil and Gas) Registration Form
Section 1

(Locating outside of Bernalillo County, Tribal Lands, and Nonattainment Areas)

This Registration is being submitted as (check all that apply)**:**
☒ An initial GCP-Oil and Gas Registration Form for a new facility (**Registration fee required**).
☐ An updated GCP-Oil and Gas Registration Form for a modification to an existing facility (**Registration fee required**).
☐ A GCP-Oil and Gas Registration Form for an existing facility currently operating under GCP-1 or GCP-4 **(No fee required)**

The Permitting Administrative Multi-Form may be used for administrative changes identified in the GCP O&G Permit Condition C101.A. No public notification is required, and no filing fees or permit fees apply.

Construction Status: ☑ Not Constructed . Existing Permitted (or NOI) Facility ☐ Existing Non-Permitted (or NOI) Facility

Acknowledgements:
☒ I acknowledge that a pre-application meeting is available to me upon request.
☒ An original signed and notarized Certification for Submittal for this GCP-Oil and Gas Registration is included.
☒ Proof of public notice is included, if required.
☒ The Air Emission Calculation Tool (AECT) is included.
☒ The emissions specified in this Registration Form will establish the emission limits in the GCP-Oil and Gas.
☒ **For new registrations or modifications, a check for the registration fee is included for $4190 prior to 1/1/20 or $4260 beginning 1/1/20.** There is an annual fee in addition to the registration fee: www.env.nm.gov/air-quality/permit-fees-2/
Facilities qualifying as a "small business" under 20.2.75.7.F NMAC qualify for reduced fees, provided that NMED has a Small Business Certification Form from your company on file. This form can be found at: www.env.nm.gov/aqb/sbap/Small_Business_Forms.html
Provide your Check Number: **1289** and Amount: **$4260**

If a fee is required and is not submitted with the application, the registration will be denied.

1) Company Information		AI # (if known):	If updating, provide Permit/NOI #:
1	Facility Name: Big Eddy Unit DI 38	Plant primary SIC Code (4 digits): 1311 Plant NAIC code (6 digits): 211120	
a	Facility Street Address (If no facility street address, check here ☒ and provide directions in Section 4):		
2	Plant Operator Company Name: XTO Energy Inc.	Phone/Fax: (832) 624-4426	
a	Plant Operator Address: 22777 Springwoods Village Parkway, W4.6B.344, Spring, TX 77389		
3	Plant Owner(s) name(s): XTO Energy Inc.	Phone/Fax: (832) 624-4426	
a	Plant Owner(s) Mailing Address(s): 22777 Springwoods Village Parkway, W4.6B.344, Spring, TX 77389		

4	Bill To (Company): XTO Energy Inc.	Phone/Fax: (832) 624-4426
a	Mailing Address: 22777 Springwoods Village Parkway, W4.6B.344, Spring, TX 77389	E-mail: raymond_tole@xtoenergy.com
5	☐ Preparer: ☑ Consultant: Evan Tullos	Phone/Fax: (865) 850-2007
a	Mailing Address: 5 Cardinal Court; Edwardsville, IL 620205	E-mail: etullos@pei-tx.com
6	Plant Operator Contact:	E-mail: raymond_tole@xtoenergy.com
a	Mailing Address: 22777 Springwoods Village Parkway, W4.6B.344, Spring, TX 77389	E-mail: raymond_tole@xtoenergy.com
7	Air Permit Contact[1]: Raymond (TJ) Tole	Title: Environmental Engineer
a	E-mail: raymond_tole@xtoenergy.com	Phone/Fax: (832) 624-4426
b	Mailing Address: 22777 Springwoods Village Parkway, W4.6B.344, Spring, TX 77389	
	[1]The Air Permit Contact will receive official correspondence from the Department.	
8	Will this facility operate in conjunction with other air regulated parties on the same property? ☒ No ☐ Yes If yes, what is the name and NOI or permit number (if known) of the other facility?	

2) Applicability

1	Is the facility located in Bernalillo County, on tribal lands, or in a nonattainment area?	☒**No** ☐**Yes**
	If you answered ***Yes*** to the question above, your facility **does not** qualify for this general construction permit.	
2	Is the facility's SIC code 1311, 1321, 4619, 4612 or 4922? (Other SIC codes may be approved provided that all the equipment at the facility is allowed in the GCP-Oil & Gas Permit.)	☐**No** ☒**Yes**
3	Does the regulated equipment under this GCP-Oil and Gas Registration include any combination of Allowable Equipment listed in Table 104 of the GCP Oil & Gas Permit, and no others?	☐**No** ☒**Yes**
4	Will the regulated equipment as specified in this GCP-Oil and Gas Registration emit less than the total emissions in Table 106 of the GCP-Oil and Gas permit?	☐**No** ☒**Yes**
5	Does all equipment comply with the stack parameter requirements as established in the GCP-Oil and Gas Permit?	☐**No** ☒**Yes**
6	Equipment shall be at least 100 meters (m) from any stack to terrain that is five (5) or more meters above the top of the stack. Will the equipment at the facility meet this terrain requirement?	☐**No** ☒**Yes**
7	Is the facility at least 150 m from any source that emits over 25 tons/year of NO_x? This is the distance between the two nearest stacks that emit NOx at each of the facilities. Not the facility boundaries or the center to center distances.	☐**No** ☒**Yes**
8	Is the facility at least 3 miles from any Class I area? This is the distance from the nearest facility boundary to the nearest boundary of the Class I area.	☐**No** ☒**Yes**
	If you answered ***NO*** to any of questions 2-8, your facility **does not** qualify for this general construction permit.	

3) Current Facility Status

1	Has this facility already been constructed? ☐Yes ☒No	If yes, is it currently operating in New Mexico? ☐ Yes ☒ No	
2	Does this facility currently have a construction permit or Notice of Intent (NOI) (20.2.72 NMAC or 20.2.73 NMAC)? ☐Yes ☒No	If yes, the permit No. or NOI No., and whether it will remain active or not:	
3	Is this Registration in response to a Notice of Violation (NOV)? ☐Yes ☒No If so, provide current permit #:	If yes, NOV date:	NOV Tracking No.
4	Check if facility is a: Minor Source: ☐ Synthetic Minor Source: ☒ (SM80 = Controlled Emissions > 80 TPY of any regulated air pollutant): ☒		

4) Facility Location Information

1	a) Latitude (decimal degrees): 32.37218	b) Longitude (decimal degrees): -103.98081	c) County: Eddy	d) Elevation (ft): 3076
2	a) UTM Zone: ☐12 or ☒13	b) UTME (to nearest 10 meters) 595850	c) UTMN (to nearest 10 meters): 3582270	

3	e) Specify which datum is used: ☐ NAD 27 ☐ NAD 83 ☒ WGS 84 See this link for more info. http://en.wikipedia.org/wiki/North_American_Datum
4	Name and zip code of nearest New Mexico town and tribal community: Loving - 88256
5	Detailed Driving Instructions including direction and distance from nearest NM town and tribal community (attach a road map if necessary). If there is no street address, provide public road mileage marker: Drive E on GR Howard Rd. for 1.6 miles to a L on Hwy 387. Drive 1.5 mi. to R on NM 31. Drive 7.1 mi. to L on lease road. Site is on L in 0.2 mi.
6	The facility is 9 (distance) miles NE (direction) of Loving, NM (nearest town).
7	Land Status of facility (check one): ☐ Private ☐ Indian/Pueblo ☐ Government ☒ BLM ☐ Forest Service ☐ Military

5) Other Facility Information

1	Enter the maximum daily and annual throughput of oil, gas, and natural gas liquids (NGL).	**Oil (bbl/day): 25,000** **Gas (MMscf/day): 60.6** **NGL (bbl/day):**	**(bbl/yr): 9,124,999** **(MMscf/yr): 22,118** **(bbl/yr):**
2	The facility, as described in this Registration, constitutes the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes.	☐**No** ☒**Yes**	

6) Submittal Requirements

1	Include one hard copy **original signed and notarized Registration package printed double sided 'head-to-toe' 2-hole punched** as we bind the document on top, not on the side; except landscape tables, which should be head-to-head. If 'head-to-toe printing' is not possible, print single sided. Please use **numbered tab separators** in the hard copy submittal(s) as this facilitates the review process.
2	Include one **double sided hard copy, flip on long edge** for Department use. This copy does not need to be 2-hole punched.
3	The entire Registration package should be submitted electronically on one compact disk (CD). Include a single PDF document of the entire Registration as submitted and the individual documents comprising the Registration. The documents should also be submitted in Microsoft Office compatible file format (Word, Excel, etc.) allowing us to access the text in the documents (copy & paste). Any documents that cannot be submitted in a Microsoft Office compatible format shall be saved as a PDF file from within the electronic document that created the file. If you are unable to provide Microsoft office compatible electronic files or internally generated PDFs of files (items that were not created electronically: i.e. brochures, maps, graphics, etc.), submit these items in hard copy format. Spreadsheets must be unlocked since we must be able to review the formulas and inputs. **Ensure all of these are included in both the electronic and hard copies.** ☒Word Document part of the Registration Form (Sections 1 and 3-10) ☒Excel Document part of the Registration Form (Section 2) ☒Air Emissions Calculation Tool (AECT) If there is a justified reason for including other calculations, include the unlocked Excel Spreadsheet. Justification must be provided in Section 5 of the application. ☒PDF of entire application **To avoid errors, it is best to start with both a blank version of this form and the AECT for each application.**

Section 2
Tables

Section 2
Tables

Insert Excel spreadsheet with applicable tables filled out. If applicable to the facility all tables must be filled out completely. The unit numbering system must be consistent throughout this Registration

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Table 2-A: Regulated Emission Sources

Unit and stack numbering must correspond throughout the application package. Equipment that qualifies for an exemption under 20.2.72.202.B

Unit Number[1]	Source Description	Manufacturer/Make /Model	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classi-fication Code (SCC)	RICE Ignition Type (CI, SI, 4SLB, 2SLB)[4]	For Each Piece of Equipment, Check Onc
BC1-BC2	ELECTRIC BOOSTER COMPRESSORS	TBD	TBD	N/A	N/A	TBD TBD	N/A N/A	31088811	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
FUG	FUGITIVE EMISSIONS	TBD	TBD	N/A	N/A	TBD TBD	N/A N/A	31088811	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
HT1	HEATER TREATER	TBD	TBD	4 MMBtu/hr	4 MMBtu/hr	TBD TBD	N/A HT1	31000404	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
HT2	HEATER TREATER	TBD	TBD	4 MMBtu/hr	4 MMBtu/hr	TBD TBD	N/A HT2	31000404	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
VRT	VAPOR RECOVERY TOWER	TBD	TBD	N/A	N/A	TBD TBD	VRU1 & LPF LPF	N/A	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
VRU1	VAPOR RECOVERY UNIT FOR VRT	TBD	TBD	N/A	N/A	TBD TBD	LPF LPF	N/A	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
VRU2	VAPOR RECOVERY UNIT FOR OIL TANKS	TBD	TBD	N/A	N/A	TBD TBD	LPF LPF	N/A	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
OT1	OIL STORAGE TANK	TBD	TBD	750 bbl	750 bbl	TBD TBD	VRU2 & LPF LPF	40400312	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
OT2	OIL STORAGE TANK	TBD	TBD	750 bbl	750 bbl	TBD TBD	VRU2 & LPF LPF	40400312	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
OT3	OIL STORAGE TANK	TBD	TBD	750 bbl	750 bbl	TBD TBD	VRU2 & LPF LPF	40400312	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
SKTK1	SKIM TANK	TBD	TBD	1000 bbl	1000 bbl	TBD TBD	LPF LPF	40400315	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
SKTK2	SKIM TANK	TBD	TBD	1000 bbl	1000 bbl	TBD TBD	LPF LPF	40400315	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

Table 2-A: Regulated Emission Sources

Unit and stack numbering must correspond throughout the application package. Equipment that qualifies for an exemption under 20.2.72.202.B

Unit Number[1]	Source Description	Manufacturer/Make /Model	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] Date of Construction/ Reconstruction[2]	Controlled by Unit # Emissions vented to Stack #	Source Classi-fication Code (SCC)	RICE Ignition Type (CI, SI, 4SLB, 2SLB)[4]	For Each Piece of Equipment, Check Onc
WT1	PRODUCED WATER TANK	TBD	TBD	750 bbl	750 bbl	TBD TBD	LPF LPF	40400315	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
WT2	PRODUCED WATER TANK	TBD	TBD	750 bbl	750 bbl	TBD TBD	LPF LPF	40400315	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
WT3	PRODUCED WATER TANK	TBD	TBD	750 bbl	750 bbl	TBD TBD	LPF LPF	40400315	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
WT4	PRODUCED WATER TANK	TBD	TBD	750 bbl	750 bbl	TBD TBD	LPF LPF	40400315	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
WT5	PRODUCED WATER TANK	TBD	TBD	750 bbl	750 bbl	TBD TBD	LPF LPF	40400315	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
WT6	PRODUCED WATER TANK	TBD	TBD	750 bbl	750 bbl	TBD TBD	LPF LPF	40400315	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
HPF	HIGH PRESSURE FLARE	Tornado	TBD	60 MMscf/d	60 MMscf/d	TBD TBD	N/A HPF	31000160	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
HPF-HT SSM	HIGH PRESSURE FLARE - HT SSM	Tornado	TBD	N/A	N/A	TBD TBD	N/A HPF	31000160	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
HPF-SALES SSM	HIGH PRESSURE FLARE - SALES GAS SSM	Tornado	TBD	N/A	N/A	TBD TBD	N/A HPF	31000160	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
LPF	LOW PRESSURE FLARE - PILOT	Tornado	TBD	2 MMscf/d	2 MMscf/d	TBD TBD	N/A LPF	31000160	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
LPF-VRT	LOW PRESSURE FLARE - VRT	Tornado	TBD	N/A	N/A	TBD TBD	N/A LPF	31000160	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
LPF-OT	LOW PRESSURE FLARE - OIL TANKS	Tornado	TBD	N/A	N/A	TBD TBD	N/A LPF	31000160	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
LPF-TL	LOW PRESSURE FLARE - TRUCK LOADING	Tornado	TBD	N/A	N/A	TBD TBD	N/A LPF	31000160	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
LPF-WT	LOW PRESSURE FLARE - WATER TANKS	Tornado	TBD	N/A	N/A	TBD TBD	N/A LPF	31000160	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

Table 2-A: Regulated Emission Sources

Unit and stack numbering must correspond throughout the application package. Equipment that qualifies for an exemption under 20.2.72.202.B										
Unit Number[1]	Source Description	Manufacturer/Make /Model	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classi-fication Code (SCC)	RICE Ignition Type (CI, SI, 4SLB, 2SLB)[4]	For Each Piece of Equipment, Check Onc
LPF-VRT SSM	LOW PRESSURE FLARE - VRT SSM	Tornado	TBD	N/A	N/A	TBD / TBD	N/A / LPF	31000160	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
LPF-OT SSM	LOW PRESSURE FLARE - OIL TANK SSM	Tornado	TBD	N/A	N/A	TBD / TBD	N/A / LPF	31000160	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TL-O	TRUCK LOADING - OIL (UNCOLLECTED VAPORS)	N/A	N/A	1,825,000 bbl/yr	1,825,000 bbl/yr	TBD / TBD	LPF / LPF	40600132	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TL-W	TRUCK LOADING - H20 (UNCOLLECTED VAPORS)	N/A	N/A	1,825,000 bbl/yr	1,825,000 bbl/yr	TBD / TBD	N/A / N/A	40600250	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
ROAD	ROAD EMISSIONS	N/A	N/A	N/A	N/A	N/A / N/A	N/A / N/A	31088811	N/A	☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

[1] Unit numbers must correspond to unit numbers in the previous permit unless a complete cross reference table of all units in both permits is provided.

[2] Specify dates required to determine regulatory applicability.

[3] To properly account for power conversion efficiencies, generator set rated capacity shall be reported as the rated capacity of the engine in horsepower, not the kilowatt capacity of the generator set.

[4] "4SLB" means four stroke lean burn engine, "4SRB" means four stroke rich burn engine, "2SLB" means two stroke lean burn engine, "CI" means compression ignition, and "SI" means spark ignition

Table 2-B: Exempted Equipment (20.2.72 NMAC)							
All 20.2.72 NMAC applications must list Exempted Equipment in this table. If equipment listed on this table is exempt under 20.2.72.202.B.5, include emissions calculations and emissions totals for 202.B.5 "similar functions" units, operations, and activities in Section 5, Calculations. Unit & stack numbering must be consistent throughout the application package.							
Unit Number	**Source Description**	**Manufacturer**	**Model No.**	**Max Capacity**	**List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)**	**Date of Manufacture /Reconstruction[1]**	**For Each Piece of Equipment, Check Onc**
			Serial No.	**Capacity Units**		**Date of Installation /Construction[1]**	
	None						☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

1 Specify date(s) required to determine regulatory applicability.

Table 2-C: Emissions Control Equipment

Unit and stack numbering must correspond throughout the application package. In accordance with 20.2.72.203.A(3) and (8) NMAC, 20.2.70.300.D(5)(b) and (e) NMAC, and 20.2.73.200.B(7) NMAC, the permittee shall report all control devices and list each pollutant controlled by the control device regardless if the applicant takes credit for the reduction in emissions.

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
LPF	Low Pressure Flare	TBD	VOC, HAPs	OT1-3, SKTK1-2, WT1-6, VRT, TL-O	98%	Manufacturer Data
VRU1	Vapor Recovery Unit	TBD	VOC, HAPs	VRT	98%	Engineering Estimate
VRU2	Vapor Recovery Unit	TBD	VOC, HAPs	OT1-3	98%	Engineering Estimate
HPF	High Pressure Flare	TBD	VOC, HAPs	Sales Gas, Heater Treater	98%	Manufacturer Data

[1] List each control device on a separate line. For each control device, list all emission units controlled by the control device.

[2] Glycol Dehydration Units: Indicate each stream that is being controlled and which unit is controlling each stream (condensables, non-condensables, flash tank, reboiler etc.)

Table 2-D: Maximum Emissions (Consider federally enforceable controls under normal operating conditions)

This table must be filled out

Maximum Federally Enforceable Emissions are the emissions at maximum capacity with only federally enforceable methods of reducing emissions. Calculate the hourly emissions using the worst case hourly emissions for each pollutant. For each pollutant, calculate the annual emissions as if the facility were operating at maximum facility capacity without pollution controls for 8760 hours per year. Account for federally enforcable controls, such as an NSPS or MACT regulation. Consider federally enforceable controls due to permitting. List Hazardous Air Pollutants (HAP) in Table 2-I. Unit & stack numbering must be consistent throughout the application package. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or 1.41E-4).

Unit No.	NOx		CO		VOC		SOx		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
BC1 & BC2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FUG	-	-	-	-	2.30	10.08	-	-	-	-	-	-	-	-	-	-
HT1	0.56	2.45	0.47	2.06	0.03	0.13	0.00	0.01	0.04	0.19	0.04	0.19	-	-	-	-
HT2	0.56	2.45	0.47	2.06	0.03	0.13	0.00	0.01	0.04	0.19	0.04	0.19	-	-	-	-
VRT	-	-	-	-	7039.89	7708.68	-	-	-	-	-	-	-	-	-	-
OT1	-	-	-	-	330.97	782.34	-	-	-	-	-	-	-	-	-	-
OT2	-	-	-	-	330.97	782.34	-	-	-	-	-	-	-	-	-	-
OT3	-	-	-	-	330.97	782.34	-	-	-	-	-	-	-	-	-	-
SKTK1	-	-	-	-	71.17	77.97	-	-	-	-	-	-	-	-	-	-
SKTK2	-	-	-	-	71.17	77.97	-	-	-	-	-	-	-	-	-	-
WT1	-	-	-	-	0.49	0.55	-	-	-	-	-	-	-	-	-	-
WT2	-	-	-	-	0.49	0.55	-	-	-	-	-	-	-	-	-	-
WT3	-	-	-	-	0.49	0.55	-	-	-	-	-	-	-	-	-	-
WT4	-	-	-	-	0.49	0.55	-	-	-	-	-	-	-	-	-	-
WT5	-	-	-	-	0.49	0.55	-	-	-	-	-	-	-	-	-	-
WT6	-	-	-	-	0.49	0.55	-	-	-	-	-	-	-	-	-	-
HPF	0.07	0.31	0.14	0.61	0.12	0.53	0.00	0.00	0.00	0.01	0.00	0.01	-	-	-	-
LPF	0.04	0.15	0.07	0.31	0.06	0.27	0.00	0.00	0.00	0.01	0.00	0.01	-	-	-	-
TL-O	-	-	-	-	50.91	193.53	-	-	-	-	-	-	-	-	-	-
TL-W	-	-	-	-	0.00	0.01	-	-	-	-	-	-	-	-	-	-
ROAD	-	-	-	-	-	-	-	-	0.48	1.67	0.05	0.17	-	-	-	-
Totals	1.23	5.37	1.15	5.04	8231.52	10419.61	0.01	0.03	0.57	2.07	0.14	0.56	0	0	0	0

[1] **Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source.

Table 2-E: Requested Allowable Emissions

Enter an allowable emission limit for each piece of equipment with either an uncontrolled emission rate greater than 1 lb/hr or 1 ton per year (tpy) or a controlled emission rate of any amount. For H2S please represent all emissions even if they are less than 1 lb/hr and 1 tpy. If selecting combustion SSM emissions, enter lb/hr and tpy values. If selecting up to 10 tpy of Malfunction VOC emissions, enter tpy values. Combustion emissions from malfunction events are **not authorized** under this permit. Fill all cells in this table with the emissions in lb/hr and tpy, or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Total the emissions from all equipment in the Totals row. Add additional rows as necessary. Unit & stack numbering must be consistent throughout the application package. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or $1.41E^{-4}$).

Unit No.	NOx		CO		VOC		SOx		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
BC1-BC2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FUG	-	-	-	-	2.30	10.08	-	-	-	-	-	-	-	-	-	-
HT1	0.56	2.45	0.47	2.06	0.03	0.13	0.00	0.01	0.04	0.19	0.04	0.19	-	-	-	-
HT2	0.56	2.45	0.47	2.06	0.03	0.13	0.00	0.01	0.04	0.19	0.04	0.19	-	-	-	-
TL-O	-	-	-	-	0.66	2.52	-	-	-	-	-	-	-	-	-	-
TL-W	-	-	-	-	0.00	0.01	-	-	-	-	-	-	-	-	-	-
ROAD	-	-	-	-	-	-	-	-	0.48	1.67	0.05	0.17	-	-	-	-
VRT	Emissions Represented at LPF.															
OT1	Emissions Represented at LPF.															
OT2	Emissions Represented at LPF.															
OT3	Emissions Represented at LPF.															
SKTK1	Emissions Represented at LPF.															
SKTK2	Emissions Represented at LPF.															
WT1	Emissions Represented at LPF.															
WT2	Emissions Represented at LPF.															
WT3	Emissions Represented at LPF.															
WT4	Emissions Represented at LPF.															
WT5	Emissions Represented at LPF.															
WT6	Emissions Represented at LPF.															
HPF-NO	0.07	0.31	0.14	0.61	0.12	0.53	0.00	0.00	0.00	0.01	0.00	0.01	-	-	-	-
HPF-HT SSM	20.55	2.25	41.03	4.49	72.24	7.91	0.26	0.03	0.06	0.01	0.06	0.01	-	-	-	-
HPF-SALES SSM	443.79	21.14	885.97	42.21	764.02	36.40	3.81	0.18	19.19	0.91	19.19	0.91	-	-	-	-
LPF-NO	0.04	0.15	0.07	0.31	0.06	0.27	0.00	0.00	0.00	0.01	0.00	0.01	-	-	-	-
LPF-VRT	0.54	0.54	1.09	1.07	2.82	2.78	0.01	0.01	0.01	0.01	0.01	0.01	-	-	-	-
LPF-OT	0.08	0.11	0.15	0.23	0.40	0.60	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-
LPF-TL	0.13	0.59	0.27	1.17	0.72	3.15	0.00	0.00	0.00	0.01	0.00	0.01				
LPF-WT	2.19	3.00	4.37	6.00	2.91	3.18	0.14	0.19	0.10	0.14	0.10	0.14	-	-	-	-
LPF-VRT SSM	27.19	2.98	54.28	5.94	140.80	15.42	0.38	0.04	0.62	0.07	0.62	0.07				
LPF-OT SSM	3.84	3.17	7.66	6.33	19.86	16.90	0.05	0.04	0.08	0.07	0.08	0.07	-	-	-	-
Totals	498.91	39.15	994.73	72.48	1003.75	100.00	4.66	0.53	20.62	3.28	20.19	1.78	0	0	0	0

Table 2-H: Stack Exit Conditions							
Unit and stack numbering must correspond throughout the application package. Include the stack exit conditions for each unit that emits from a stack, including blowdown venting parameters and tank emissions.							
Stack Type (Engine,	**Serving Unit Number(s) from Table 2-A**	**Orientation (H-Horizontal**	**Height Above Ground (ft)**	**Temp. (F)**	**Flow Rate (acfs)**	**Velocity (ft/sec)**	**Inside Diameter (ft)**
Heater	HT1	Vertical	20	1000	27	34.3	1.00
Heater	HT2	Vertical	20	1000	27	34.3	1.00
Flare	HPF	Vertical	145	1800	366	671.9	0.83
Flare	LPF	Vertical	40	1800	404	128.8	2.00

Table 2-I: Emission Rates for HAPs

HAP In the table below, report the potential emission rate for each HAP from each regulated emission unit listed in Table 1, only if the entire facility emits the HAP. For each such emission unit, HAP shall be reported to the nearest 0.1 tpy. Each facility-wide Individual HAP total and the facility-wide Total HAP shall be the sum of all HAP sources calculated to the nearest 0.1 ton per year. Use the HAP nomenclature as it appears in Section 112 (b) of the 1990 CAAA. Include tank-flashing emissions estimates of HAP in this table. For each HAP listed, fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected, or the pollutant is emitted in a quantity less than the threshold amounts described above. Add additional rows as necessary.

Stack No.	Unit No.(s)	Total HAPs		n-Hexane ☑ HAP ☐ TAP		Benzene ☑ HAP ☐ TAP		Provide Pollutant Name Here ☐ HAP		Provide Pollutant Name Here ☐ HAP		Provide Pollutant Name Here ☐ HAP		Provide Pollutant Name Here ☐ HAP		Provide Pollutant Name Here ☐ HAP	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
FUG	FUG	0.14	0.63	0.04	0.15	0.04	0.16	-	-	-	-	-	-	-	-	-	-
HT1	HT1	0.01	0.03	0.01	0.03	0.00	0.00	-	-	-	-	-	-	-	-	-	-
HT2	HT2	0.01	0.03	0.01	0.03	0.00	0.00	-	-	-	-	-	-	-	-	-	-
TL-O	TL-O	0.03	0.11	0.01	0.04	0.01	0.03	-	-	-	-	-	-	-	-	-	-
TL-W	TL-W	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-	-
ROAD	ROAD	---	---	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	VRT	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	OT1	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	OT2	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	OT3	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	SKTK1	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	SKTK2	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	WT1	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	WT2	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	WT3	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	WT4	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	WT5	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	WT6	See LPF	See LPF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HPF	HPF-NO	0.00	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HPF	HPF-HT SSM	3.46	0.38	1.22	0.13	1.15	0.13	-	-	-	-	-	-	-	-	-	-
HPF	HPF-SALES SSM	27.65	1.32	9.97	0.48	9.44	0.45	-	-	-	-	-	-	-	-	-	-
LPF	LPF-NO	0.00	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LPF	LPF-VRT	0.14	0.14	2.46	0.27	2.34	0.26	-	-	-	-	-	-	-	-	-	-
LPF	LPF-OT	0.02	0.03	0.01	0.01	0.01	0.01	-	-	-	-	-	-	-	-	-	-
LPF	LPF-TL	0.03	0.13	0.01	0.05	0.01	0.04	-	-	-	-	-	-	-	-	-	-
LPF	LPF-WT	0.50	0.55	0.01	0.01	0.29	0.32	-	-	-	-	-	-	-	-	-	-
LPF	LPF-VRT SSM	6.88	0.75	2.46	0.27	2.34	0.26	-	-	-	-	-	-	-	-	-	-
LPF	LPF-OT SSM	0.93	0.76	0.35	0.30	0.31	0.24	-	-	-	-	-	-	-	-	-	-
Totals:		39.65	4.88	16.55	1.78	15.93	1.89	-	-	-	-	-	-	-	-	-	-

Table 2-J: Allowable Fuels and Fuel Sulfur for Combustion Emission Units:

Specify fuel characteristics and usage. Unit and stack numbering must correspond throughout the application package.

			Specify Units				
Unit No.	**Fuel Type (Natural Gas, Field Gas, Propane, Diesel, …)**	**Fuel Source (purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas, or other**	**Engines and Turbines: SO2 percentage (%) of the NOx emission rate (except flares)**	**Diesel Fuel Only: ppm of Sulfur**	**Lower Heating Value (BTU/SCF)**	**Annual Fuel Usage (MMSCF/y)**	**Does the Allowable Fuel and Fuel Sulfur Content meet GCP O&G Condition A110.A?**
HT1	Field Gas	Field Natural Gas	N/A	N/A	1273.6	27.5	☑ Yes ☐ No
HT2	Field Gas	Field Natural Gas	N/A	N/A	1273.6	27.5	☑ Yes ☐ No
HPF	Field Gas	Field Natural Gas	N/A	N/A	1273.6	3.5	☑ Yes ☐ No
LPF	Field Gas	Field Natural Gas	N/A	N/A	1273.6	1.8	☑ Yes ☐ No

Table 2-L: Tank Data												
Include appropriate tank-flashing modeling input data. Unit and stack numbering must correspond throughout the application package.												
Tank No.	**Date Installed**	**Materials Stored**	**Roof Type**	**Seal Type**	**Capacity (bbl)**	**Diameter (M)**	**Vapor Space (M)**	**Color**		**Separator Pressure** (psia)	**Annual Throughput** (gal/yr)	**Turn-overs** (per year)
								Roof	**Shell**			
OT1	TBD	OIL	Vertical - Fixed Roof (FX)	N/A	750	4.7	7.3	OT	OT	17.7	127,749,989	4,056
OT2	TBD	OIL	Vertical - Fixed Roof (FX)	N/A	750	4.7	7.3	OT	OT	17.7	127,749,989	4,056
OT3	TBD	OIL	Vertical - Fixed Roof (FX)	N/A	750	4.7	7.3	OT	OT	17.7	127,749,989	4,056
SKTK1	TBD	PRODUCED WATER	Vertical - Fixed Roof (FX)	N/A	1,000	4.7	9.1	OT	OT	117.7	459,904,948	10,950
SKTK2	TBD	PRODUCED WATER	Vertical - Fixed Roof (FX)	N/A	1,000	4.7	9.1	OT	OT	117.7	459,904,948	10,950
WT1	TBD	PRODUCED WATER	Vertical - Fixed Roof (FX)	N/A	750	4.7	7.3	OT	OT	15.1	153,300,000	4,867
WT2	TBD	PRODUCED WATER	Vertical - Fixed Roof (FX)	N/A	750	4.7	7.3	OT	OT	15.1	153,300,000	4,867
WT3	TBD	PRODUCED WATER	Vertical - Fixed Roof (FX)	N/A	750	4.7	7.3	OT	OT	15.1	153,300,000	4,867
WT4	TBD	PRODUCED WATER	Vertical - Fixed Roof (FX)	N/A	750	4.7	7.3	OT	OT	15.1	153,300,000	4,867
WT5	TBD	PRODUCED WATER	Vertical - Fixed Roof (FX)	N/A	750	4.7	7.3	OT	OT	15.1	153,300,000	4,867
WT6	TBD	PRODUCED WATER	Vertical - Fixed Roof (FX)	N/A	750	4.7	7.3	OT	OT	15.1	153,300,000	4,867

Section 3
Registration Summary

Section 3
Registration Summary

The Registration Summary: Provide information about the registration submittal. The Registration Summary shall include a brief description of the facility and its process. In case of a modification to a facility, please describe the proposed changes.

Specify Facility Type: Check the appropriate box below:

☐ Production Site

☒ Tank Battery

☐ Compressor Station

☐ Natural Gas Plant

☐ Other, please specify:______________

Registration Summary: This application requests a GCP-O&G permit for a proposed facility under 20.2.72 NMAC. The Big Eddy Unit (BEU) DI 38 is an oil and gas production battery, with an average well production of 20,000 BOPD, 60,000 BWPD, and 60.6 MMscfd. An additional 5,000 BOPD of dead oil may be transferred directly into the storage tanks from surrounding batteries. The site will consist of the following permitted equipment:

- WT1-WT6: Six (6) produced water tanks
- OT1-OT3: Three (3) oil tanks
- SKTK1-SKTK2: Two (2) water skim tanks
- BC1-BC2: Two (2) electric booster compressors
- FUG: Fugitive equipment leaks
- HT1-HT2: Two (2) heater treaters
- TL-O: Truck loading of oil
- TL-W: Truck loading of water
- ROAD: Haul road emissions
- VRT: Vapor recovery tower
- VRU1: Vapor recovery unit for VRT
- VRU2: Vapor recovery unit for OT1-OT3
- HPF: High pressure flare
- LPF: Low pressure flare

Written description of the routine operations of the facility: Mixed hydrocarbons (20000 BOPD/60000 BWPD/60.6 MMSCFD) enter the facility through inlet separators where the gas is sent to the sales line and the oil is sent to auxiliary heaters (HT1-HT2). The remainder of the gas is picked up by electric booster compressors (BC1-BC2) for sales. During normal operation, 100% of the gas is routed to sales. During BC1-BC2 downtime (876 hours), all gas is flared at the high pressure flare (HPF). Water from the inlet is routed to two water skim tanks (SKTK1-SKTK2), then to six water storage tanks (WT1-WT6). Skim tank and water tank vapors are routed to the low pressure flare (LPF).

Oil flows from the heaters to a vapor recovery tower (VRT), then to three sales tanks (OT1-OT3). Gas from the VRT is routed to a vapor recovery unit (VRU)/flare closed vent system. Gas is picked up for sales by the VRU (VRU1), with gas routed to LPF during VRU downtime. XTO assumes a VRU collection efficiency of 98%, with 876 hours of downtime. Up to 5,000 BOPD of dead oil may also be piped into OT1-OT3. Gas from the oil tanks is also routed to the VRU/LPF vent system, with the tanks using VRU2. XTO assumes a VRU collection efficiency of 98%, with 3,154 hours of downtime. Oil is primarily shipped offsite via pipeline LACT; however 1,825,000 barrels per year of oil truck loading and 1,825,000 barrels per year of water truck loading were included. 98.7% of the loading vapors are routed to LPF, with the remaining volume accounted for at the truck loading station.

HPF would also be used in the event of third party sales line maintenance or downtime which required gas flaring. These emissions are illustrated in the application.

A process flow diagram is included in Section 4 of the application.

Routine or predictable emissions during Startup, Shutdown and Maintenance (SSM): SSM emissions related to VRU downtime are illustrated at the low pressure flare. Booster compressor downtime and any internal or sales line maintenance is illustrated at the high pressure flare.

Malfunction Emissions (M): Malfunctions would be reported in accordance with 20.2.7 NMAC.

The permit does not authorize emissions from SSM and Malfunction to be combined as 10 TPY VOC. However, they may be permitted separately. In the allowable emissions table in Section 2, these two events are separate line items and must be kept separate.

Allowable Operations: Check the appropriate box below:

☒ Facility operates continuously (8760 hours per year)

☐ The following regulated equipment will operate less than 8760 hours per year. Add additional rows as necessary. These units are subject to Condition A108.C of the Permit.

Table A – Equipment Operating Less Than 8760 hours per year

Unit #	Requested Annual Operating Hours

Verification of Compliance with Stack Parameter Requirements:

Please use the Stack Calculator and Stack Requirements Explained Guidance on our website: All of the verification information below is required to be filled out.

www.env.nm.gov/air-quality/air-quality-oil-and-gas-gcp-application-forms/

Check the box for each type of equipment at this facility:

☐ Engine(s)
☐ Turbine(s)
☒ Flares(s)
☐ Enclosed Combustion Device (s)
☒ Heater(s)
☐ Reboiler(s)

For each type of equipment checked above, complete the applicable section below.

Engines

1. Calculate the pound per hour (lb/hr) NO_x emission rate according to GCP O&G Condition A202.I Step 1 on page 15 of the GCP O&G. Enter this value in the top row of the table below.
2. Based on the calculated facility total NO_x emission rate, determine the minimum stack parameter requirements for engines and heaters from Table 1: Engines (page 17) of the GCP O&G and enter the minimum parameters from Table 1 (page 17) of the GCP O&G in the bottom row of the table below.
3. Enter the stack parameters from each engine and heater in the blank rows of the table below. Add rows as necessary.

Table B: Engine/Generator/Heater/Reboiler Stack Parameter Verification:

Calculated Facility Total NOx Emission Rate: 1.12 lb/hr				
Engine/Generator/Heater/Reboiler Unit Number	**Height (ft)**	**Temperature (^{o}F)**	**Velocity (ft/s)**	**Diameter (ft)**
HT1	20	1000	34.3	1
HT2	20	1000	34.3	1
Table 1 Minimum Parameters: For verification, list the minimum parameters based on the NOx lb/hr emission rate from the GCP O&G Table 1.	5.9	571	49.2	0.3

4. Do all engines and heaters comply with the minimum stack parameters from Table 1 (page 17) of the GCP O&G?
   ☐ Yes.
   ☒ Skip step 5 below.
   No. Go to step 5 below.

5. For engines and heaters that do not comply with the minimum stack parameters in Table 1 of the GCP O&G, explain and demonstrate in detail how the engines and heaters will be authorized according to the steps on page 16 of the GCP O&G or Condition A203.C of the GCP O&G. Show all calculations.
   - **The heater emit less than 1.23 lb/hr.**

Turbines

1. Calculate the pound per hour (lb/hr) NO_x emission rate according to GCP O&G Condition A202.I Step 1 on page 17 of the GCP O&G. Enter this value in the top row of the table below.
2. Based on the calculated facility total NO_x emission rate, determine the minimum stack parameter requirements for turbines and heaters from Table 2: Turbines (page 18) of the GCP O&G. Enter the minimum parameters from Table 2 (page 18) of the GCP O&G in the bottom row of the table below.
3. Enter the stack parameters from each turbine and heater in the blank rows of the table below. Add rows as necessary.

Table C: Turbine/Heater/Reboiler Stack Parameter Verification:

Calculated Facility Total NOx Emission Rate: _____lb/hr				
Turbine/Heater/Reboiler Unit Number	**Height (ft)**	**Temperature (^{o}F)**	**Velocity (ft/s)**	**Diameter (ft)**
Table 2 Minimum Parameters: For verification, list the minimum parameters based on the NOx lb/hr emission rate from the GCP O&G Table 2.				

4. Do all turbines and heaters comply with the minimum stack parameters from Table 2 (page 18) of the GCP O&G?
   ☐ Yes. Skip step 5 below.
   ☐ No. Go to step 5 below.

5. For turbines and heaters that do not comply with the minimum stack parameters in Table 2 of the GCP O&G, explain and demonstrate in detail how the turbines and heaters will be authorized according to the steps on page 18 of the GCP O&G or Condition A203.C of the GCP O&G. Show all calculations.

Flares

1. Enter SO_2 emission rates (lb/hr) for each flare in the second column of the table below.
2. Based on the SO_2 emission rates, determine the minimum stack height requirements for flares from Table 3 (page 26) of the GCP O&G and enter the minimum stack height requirements for flares from Table 3 (page 26) of the GCP O&G in the last column of the table below.
3. Enter the stack height of each flare in the third column of the table below. Add rows as necessary.

Table D: Flare Stack Height Parameter Verification:

Flare Unit Number	SO_2 Emission Rate (lb/hr)	Height (ft)	**Table 3 Minimum Stack Height:** For verification, list the minimum height parameters based on the SO2 emission rate from the GCP O&G Table 3.
HPF	4.08	145	9.8
LPF	0.57	40	6.6

4. Do all flares comply with minimum stack height requirements?
   ☒ Yes
   ☐ No

5. Does the flare gas contain 6% H_2S or less by volume (pre-combustion)?
   ☒ Yes. Skip step 6 below.
   ☐ No. Go to step 6 below.

6. Explain in detail how assist gas will be added to reduce the gas composition to 6% H_2S or less by volume.

Enclosed Combustion Device(s) (ECD):

According to GCP O&G Condition A208.A, the facility must meet one of the following options if an ECD is installed at the facility:

Option 1:

1. Will the ECD(s) meet the SO_2 emission limit of 0.7 lb/hr and operate with a velocity of at least one (1) foot per second?
   - ☐ Yes. Skip Option 2 below.
   - ☐ No. Go to Option 2 below.

Option 2:

2. Will the ECD(s) meet the SO_2 emission limit of 0.9 lb/hr and operate with a velocity of at least two (2) feet per second?
   - ☐ Yes
   - ☐ No

Section 4
Process Flow Sheet

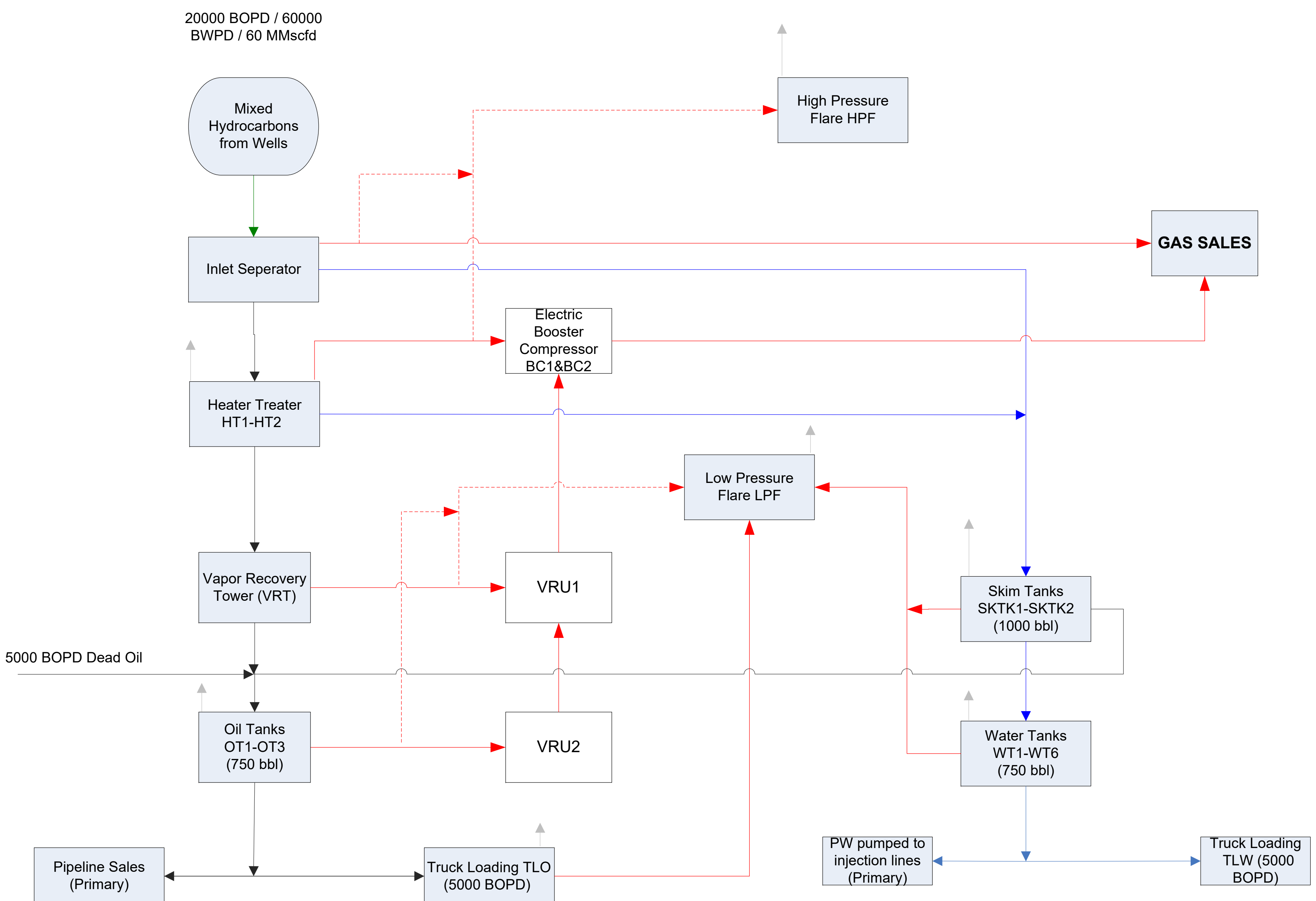
Section 4

Process Flow Sheet

Attach a **process flow sheet** indicating all individual equipment, all emission points, and types of control applied to those points. All units must be labeled, and the unit numbering system must be consistent throughout this Registration. Identify all sources of emissions with a vertical arrow. Label each of the different material streams (e.g. crude oil, gas, water). The process flow sheet must be a legible size.

A process flow diagram is included.

XTO Energy Inc.
Big Eddy Unit DI 38 Tank Battery
Process Flow Diagram



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Section 5
Emissions Calculations Forms

Section 5

Emissions Calculation Forms

The Department has developed the Air Emissions Calculation Tool (AECT), which is required to be used in the GCP-Oil and Gas Registration. If the AECT, for a piece of equipment is under development, provide alternate calculations. **Do not include alternative calculations unless there is an issue being resolved with the AECT. This will delay review of the application.** The AECT and this Registration Form may be updated as needed.

Tank Emissions Calculations: Provide the method used to estimate tank-flashing emissions, the input and output summary from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis. If Pro-Max or Hysis is used, all relevant input parameters shall be reported, including separator pressure, gas throughput, and all other relevant parameters necessary for flashing calculation. **The inputs must match the gas analyses information submitted. Inputs that don't match may be grounds for denial of the application submittal.**

SSM Calculations: In this Section, provide emissions calculations for Startup, Shutdown, and Routine Maintenance (SSM) emissions listed in the Table 2, and the rational for why the others are reported as zero (or left blank).

Control Devices: Report all control devices and list each pollutant controlled by the control device. Indicate in this section if you chose to not take credit for the reduction in emission rates. Only uncontrolled emission rates can be considered to determine applicability unless the state or federal acts require the control. This information is necessary to determine if federally enforceable conditions are necessary for the control device, and if the control device produces its own regulated pollutants or increases emission rates of other pollutants.

Calculation Details: The AECT is required for all emission calculations. If the AECT is not functioning, alternative calculations may be submitted only for the portions of the AECT with issues being resolved. Utilize this section to explain in detail, on an equipment-by-equipment basis, why alternative calculations are necessary.

Explain here: The AECT does not work for the LPF since there are more streams than the AECT can manage. The AECT does not work for the storage tanks since we consider the VRU to be 98% efficient instead of 100%. The AECT also cannot handle differing downtimes. The AECT will work only for the heaters, roads, and VRT emissions. Since XTO assumes the burners are only 70% efficient, the AECT does not match the Excel calculations. Since XTO breaks down the liquid and gas compositions for each section of the plant, the fugitive calculations are more accurate than the AECT, which uses the same analysis across the site.

Equipment Forms Submitted in this Section (add additional rows as necessary):

Equipment Type	Quantity	Check Box to Indicate Units that are Controlled	Enter Control Device Type and Pollutant Controlled
Engine		☐	
Turbine		☐	
Tanks	**11**	☒	Oil – VRU/Flare; Skim & Water – Flare (VOC/HAP)
Generator		☐	
VRU	**2**	☒	Flare (VOC/HAP)
VRT	**1**	☒	VRU/Flare (VOC/HAP)
ULPS		☐	
Glycol Dehydrator		☐	
Flare	**2**	☒	Sales gas, Tank Vapors, VRT Vapors, Truck loading (VOC/HAP)

Amine Unit		☐	
Cryogenic Unit		☐	
Fugitive Emissions	**1**	☒	
Heater	**2**	☒	
Truck Loading	**2**	☒	Flare (VOC/HAP)
Enclosed Combustion Device (ECD)		☐	*List all streams controlled by the ECD*
Thermal Oxidizer (TO)		☐	*List all streams controlled by the TO*
Other		☐	
Other		☐	

For each scenario below, if there are more than one emissions unit, control device, or gas combustion scenario. Please copy and paste each applicable section and label the unit number(s) if the scenarios vary.

Vapor Recovery Tower, Ultra Low-Pressure Separator, or Flash Tower Located Upstream of Storage Vessels: If the facility contains one of the following units located upstream of the storage vessels and is used to flash and capture flashing emissions, check the appropriate box.
Unit number: **VRT and VRU1**
☒ Vapor Recovery Tower and VRU Compressor
☐ ULPS and VRU Compressor
☐ Flash Tower and VRU Compressor

Vapor Recovery Unit (VRU) located upstream of Storage Vessels: Check the box below if the facility is using a VRU to capture flashing emissions prior to any storage vessels to limit the PTE of the storage vessels to below applicability thresholds of NSPS OOOO or NSPS OOOOa. A process vs control determination should be prepared for this type of VRU application.
Unit number:
☐ VRU capturing emissions prior to any storage vessel and routing directly to the sales pipeline

Vapor Recovery Unit (VRU) attached to Storage Vessels: Check the box below if this facility is using a VRU to reduce storage vessel emissions to limit the PTE to below NSPS OOOO or NSPS OOOOa applicability thresholds:
Unit number: **VRU2**
☐ VRU controlling Storage Vessel emissions and the facility is subject to the requirements under NSPS OOOO, 40 CFR 60.5411
☒ VRU controlling Storage Vessel emissions and the facility is subject to the requirements under NSPS OOOOa, 40 CFR 60.5411a

Gas Combustion Scenarios: Read through the scenarios below and check the boxes next to any appropriate facility operating scenarios. Flares shall assume a destruction efficiency of 95%, unless the facility is subject to requirements for flares under 40 CFR 60.18, or a higher destruction efficiency (up to 98%) is supported by a manufacturer specification sheet (MSS) for that unit. If so, include the MSS.

A flare, vapor combustion unit (VCU), enclosed combustion device (ECD), thermal oxidizer (TO):
Unit number: HPF/LPF
☐ Controls storage vessels in accordance with 40 CFR 60, Subpart OOOO or OOOOa.
☒ Provides a federally enforceable control for the storage vessels to limit the PTE to below applicability thresholds of 40 CFR 60, Subpart OOOO or OOOOa. **LPF**
☐ Controls the glycol dehydrator
☐ Controls the amine unit
☒ Controls truck loading **LPF**
☒ Operates only during maintenance events, such as VRU downtime, check one below:
  ☐ The emissions during VRU downtime are represented as uncontrolled VOC emissions from the compressor
  ☒ The combustion emissions during VRU downtime are represented as controlled emissions from the combustion device **LPF (Tank VRU) and HPF (VRT VRU)**

☒ Controls the facility during plant turnaround **HPF**

Amine Unit: Provide the following information for each amine unit.

Design Capacity in MMscf/day	
Rich Amine Flowrate in gal/min	

Lean Amine Flowrate in gal/min	
Mole Loading H_2S	
Sour Gas Input in MMscf/day	

Glycol Dehydration Unit(s): Provide the following information for each glycol dehydration unit:
Please include an extended gas analysis in Section 6 of this application.

Unit #	**Glycol Pump Circulation Rate**

Voluntary Monitoring in Accordance with §40 CFR 60.5416(a): Check the box(s) to implement a program that meets the requirements of 40 CFR 60.5416(a). This monitoring program will be conducted in lieu of the monitoring requirements established in the GCP-Oil and Gas for individual equipment. Ceasing to implement this alternative monitoring must be reported in an updated Registration Form to the Department.

☐ Condition A205.B Control Device Options, Requirements, and Inspections for Tanks
☐ Condition A206.B Truck Loading Control Device Inspection
☐ Condition A206.C Vapor Balancing During Truck Loading
☐ Condition A209.A Vapor Recovery Unit or Department-approved Equivalent
☐ Condition A210.B Amine Unit Control Device Inspection

Fugitive H_2S Screening Threshold and Monitoring in accordance with Condition A212: Check the box that applies.

☒ Condition A212.A does not apply because the facility is below the fugitive H_2S screening threshold in Condition A212, or

☐ Condition A212.A applies. Because the facility is above the fugitive H_2S screening threshold in Condition A212, or the facility is voluntarily complying with Condition A212.A, and Condition A212.A applies

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
FACILITY EMISSIONS SUMMARY

EMISSIONS SUMMARY TABLE

EMISSION SOURCE DESCRIPTION	FACILITY IDENTIFICATION NUMBER (FIN)	STACK NUMBER	NOx		CO		VOC (INCLUDES HAPs)		SO_2		PM_{10}		HAPs		CO2e
			lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	TPY
FUGITIVE EMISSIONS	FUG	FUG	---	---	---	---	2.30	10.08	---	---	---	---	0.14	0.63	312.03
HEATER TREATER	HT1	HT1	0.56	2.45	0.47	2.06	0.03	0.13	0.00	0.01	0.04	0.19	0.01	0.03	2051.91
HEATER TREATER	HT2	HT2	0.56	2.45	0.47	2.06	0.03	0.13	0.00	0.01	0.04	0.19	0.01	0.03	2051.91
TRUCK LOADING - OIL (UNCOLLECTED VAPORS)	TL-O	TL-O	---	---	---	---	0.66	2.52	---	---	---	---	0.03	0.11	0.57
TRUCK LOADING - H20 (UNCOLLECTED VAPORS)	TL-W	TL-W	---	---	---	---	0.00	0.01	---	---	---	---	0.00	0.00	1.89
ROAD EMISSIONS	ROAD	ROAD	---	---	---	---	---	---	---	---	0.48	1.67	---	---	---
VAPOR RECOVERY TOWER	VRT	LPF	Emissions Represented at LPF.												---
OIL STORAGE TANK	OT1	LPF	Emissions Represented at LPF.												---
OIL STORAGE TANK	OT2	LPF	Emissions Represented at LPF.												---
OIL STORAGE TANK	OT3	LPF	Emissions Represented at LPF.												---
SKIM TANK	SKTK1	LPF	Emissions Represented at LPF.												---
SKIM TANK	SKTK2	LPF	Emissions Represented at LPF.												---
PRODUCED WATER TANK	WT1	LPF	Emissions Represented at LPF.												---
PRODUCED WATER TANK	WT2	LPF	Emissions Represented at LPF.												---
PRODUCED WATER TANK	WT3	LPF	Emissions Represented at LPF.												---
PRODUCED WATER TANK	WT4	LPF	Emissions Represented at LPF.												---
PRODUCED WATER TANK	WT5	LPF	Emissions Represented at LPF.												---
PRODUCED WATER TANK	WT6	LPF	Emissions Represented at LPF.												---
HIGH PRESSURE FLARE - NORMAL OPERATION	HPF-NO	HPF	0.07	0.31	0.14	0.61	0.12	0.53	0.00	0.00	0.00	0.01	0.00	0.02	
HIGH PRESSURE FLARE - HT SSM	HPF-HT SSM	HPF	20.55	2.25	41.03	4.49	72.24	7.91	0.26	0.03	0.06	0.01	3.46	0.38	18672.76
HIGH PRESSURE FLARE - SALES GAS SSM	HPF-SALES SSM	HPF	443.79	21.14	885.97	42.21	764.02	36.40	3.81	0.18	19.19	0.91	27.65	1.32	
LOW PRESSURE FLARE - PILOT	LPF-NO	LPF	0.04	0.15	0.07	0.31	0.06	0.27	0.00	0.00	0.00	0.01	0.00	0.01	
LOW PRESSURE FLARE - VRT	LPF-VRT	LPF	0.54	0.54	1.09	1.07	2.82	2.78	0.01	0.01	0.01	0.01	0.14	0.14	
LOW PRESSURE FLARE - OIL TANKS	LPF-OT	LPF	0.08	0.11	0.15	0.23	0.40	0.60	0.00	0.00	0.00	0.00	0.02	0.03	
LOW PRESSURE FLARE - TRUCK LOADING	LPF-TL	LPF	0.13	0.59	0.27	1.17	0.72	3.15	0.00	0.00	0.00	0.01	0.03	0.13	9865.73
LOW PRESSURE FLARE - WATER TANKS	LPF-WT	LPF	2.19	3.00	4.37	6.00	2.91	3.18	0.14	0.19	0.10	0.14	0.50	0.55	

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
FACILITY EMISSIONS SUMMARY

EMISSIONS SUMMARY TABLE

EMISSION SOURCE DESCRIPTION	FACILITY IDENTIFICATION NUMBER (FIN)	STACK NUMBER	NOx		CO		VOC (INCLUDES HAPs)		SO_2		PM_{10}		HAPs		CO2e
			lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	TPY
LOW PRESSURE FLARE - VRT SSM	LPF-VRT SSM	LPF	27.19	2.98	54.28	5.94	140.80	15.42	0.38	0.04	0.62	0.07	6.88	0.75	
LOW PRESSURE FLARE - OIL TANK SSM	LPF-OT SSM	LPF	3.84	3.17	7.66	6.33	19.86	16.90	0.05	0.04	0.08	0.07	0.93	0.76	
UTILITY FLARES: HIGH PRESSURE SUMMARY	HPF	HPF	464.41	23.70	927.13	47.31	836.38	44.84	4.08	0.21	19.26	0.93	31.12	1.72	18672.76
UTILITY FLARES: LOW PRESSURE SUMMARY	LPF	LPF	33.39	10.54	66.65	21.05	164.34	42.29	0.57	0.29	0.80	0.30	8.34	2.37	9865.73

TOTAL FACILITY WIDE EMISSIONS	NOx		CO		VOC (INCLUDES HAPs)		SO_2		PM_{10}		HAPs		CO2e
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	TPY
	498.91	**39.15**	**994.73**	**72.48**	**1003.75**	**100.00**	**4.66**	**0.53**	**20.62**	**3.28**	**39.65**	**4.88**	**32956.80**

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

FACILITY EMISSIONS SUMMARY - UNCONTROLLED EMISSIONS DURING NORMAL OPERATION

EMISSIONS SUMMARY TABLE

EMISSION SOURCE DESCRIPTION	FACILITY IDENTIFICATION NUMBER (FIN)	STACK NUMBER	NOx		CO		VOC (INCLUDES HAPs)		SO_2		PM_{10}		HAPs	
			lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
FUGITIVE EMISSIONS	FUG	FUG	---	---	---	---	2.30	10.08	---	---	---	---	0.14	0.63
HEATER TREATER	HT1	HT1	0.56	2.45	0.47	2.06	0.03	0.13	0.00	0.01	0.04	0.19	0.01	0.03
HEATER TREATER	HT2	HT2	0.56	2.45	0.47	2.06	0.03	0.13	0.00	0.01	0.04	0.19	0.01	0.03
VAPOR RECOVERY TOWER	VRT	LPF	---	---	---	---	7039.89	7708.68	---	---	---	---	344.03	376.72
OIL STORAGE TANK	OT1	LPF	---	---	---	---	330.97	782.34	---	---	---	---	15.46	35.12
OIL STORAGE TANK	OT2	LPF	---	---	---	---	330.97	782.34	---	---	---	---	15.46	35.12
OIL STORAGE TANK	OT3	LPF	---	---	---	---	330.97	782.34	---	---	---	---	15.46	35.12
SKIM TANK	SKTK1	LPF	---	---	---	---	71.17	77.97	---	---	---	---	12.29	13.46
SKIM TANK	SKTK2	LPF	---	---	---	---	71.17	77.97	---	---	---	---	12.29	13.46
PRODUCED WATER TANK	WT1	LPF	---	---	---	---	0.49	0.55	---	---	---	---	0.09	0.12
PRODUCED WATER TANK	WT2	LPF	---	---	---	---	0.49	0.55	---	---	---	---	0.09	0.12
PRODUCED WATER TANK	WT3	LPF	---	---	---	---	0.49	0.55	---	---	---	---	0.09	0.12
PRODUCED WATER TANK	WT4	LPF	---	---	---	---	0.49	0.55	---	---	---	---	0.09	0.12
PRODUCED WATER TANK	WT5	LPF	---	---	---	---	0.49	0.55	---	---	---	---	0.09	0.12
PRODUCED WATER TANK	WT6	LPF	---	---	---	---	0.49	0.55	---	---	---	---	0.09	0.12
UTILITY FLARES: HIGH PRESSURE SUMMARY	HPF	HPF	0.07	0.31	0.14	0.61	0.12	0.53	0.00	0.00	0.00	0.01	0.00	0.02
UTILITY FLARES: LOW PRESSURE SUMMARY	LPF	LPF	0.04	0.15	0.07	0.31	0.06	0.27	0.00	0.00	0.00	0.01	0.00	0.01
TRUCK LOADING - OIL (UNCOLLECTED VAPORS)	TL-O	TL-O	---	---	---	---	50.91	193.53	---	---	---	---	2.21	8.38
TRUCK LOADING - H20 (UNCOLLECTED VAPORS)	TL-W	TL-W	---	---	---	---	0.00	0.01	---	---	---	---	0.00	0.00
ROAD EMISSIONS	ROAD	ROAD	---	---	---	---	---	---	---	---	0.48	1.67	---	---

TOTAL FACILITY WIDE EMISSIONS	NOx		CO		VOC (INCLUDES HAPs)		SO_2		PM_{10}		HAPs	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
	1.23	**5.37**	**1.15**	**5.04**	**8231.52**	**10419.61**	**0.01**	**0.03**	**0.57**	**2.07**	**417.91**	**518.83**

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

Methodology for Burner Calculations

Burner Emission Calculations

AP 42 Emission Factors: Tables 1.4-1, 1.4-2, & 1.4-3

Emission $Rate_X$ (lb/hr) = Burner Rating (MMBTU/hr) * EF_X (lb/MMSCF) / Heating Value of Fuel Gas (BTU/SCF)

Annual Emission $Rate_X$ (TPY) = Emission Rate (lb/hr) * 8760 (hour/year) / 2000 (lb/ton)

Mass Balance - SO_2 & H_2S Calculations

H_2S Mass Flow Rate (lb/hr) = P * V / 10.73 / T * MW_{GAS} * $H_2S_{WEIGHT\ \%}$ * (1 - DRE)

P = Pressure (psia), V = Fuel Consumed in a hour (ft^3/hr), 10.73 = Ideal Gas Constant, T = Temperature (°R)

Uncontrolled H_2S Mass Flow Rate (lb/hr) = P * V / 10.73 / T * MW_{GAS} * $H_2S_{WEIGHT\ \%}$

SO_2 Emission Rate (lb/hr) = Uncontrolled H_2S Mass Rate (lb/hr) * SO_2 Conversion Efficiency * (MW of SO_2 (lb/lb-mol) / MW of H_2S (lb/lb-mol))

Annual Emission Rate (TPY) = Emission Rate (lb/hr) * 8760 (hour/year) / 2000 (lb/ton)

MW_{GAS} = Molecular Weight of the Gas, $H_2S_{WEIGHT\%}$ = Weight Percent of the H_2S in the Fuel Gas, DRE = Burner Combustion Efficiency of H_2S

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

BURNER CALCULATIONS

CRITERIA & REGULATED POLLUTANTS

				AP-42 Factors[1] lb/MMSCF					lb/hr					tpy				
Source ID	Fuel Gas (BTU/SCF)	Operating Hours	Burner Rating (MMBTU/Hr)[2]	NOx	CO	VOC	SO_2	$PM_{10\ \&\ 2.5}$	NOx	CO	VOC	SO_2	$PM_{10\ \&\ 2.5}$	NOx	CO	VOC	SO_2	$PM_{10\ \&\ 2.5}$
HT1	1273.6	8760	4.00	125	105	6.9	0.75	9.5	0.56	0.47	0.03	0.00	0.04	2.45	2.06	0.13	0.01	0.19
HT2	1273.6	8760	4.00	125	105	6.9	0.75	9.5	0.56	0.47	0.03	0.00	0.04	2.45	2.06	0.13	0.01	0.19

[1]Factors are adjusted for Site Fuel Heating Value: Example Calculation - Nox Factor = 100 * 1273.6 / 1020 = 125 lb/MMSCF. AP-42 Table 1.4-1, 1.4-2, & 1.4-3.
70% burner efficiency.

	NOx	CO	VOC	SO_2	$PM_{10\ \&\ 2.5}$
Total (tpy)	**4.91**	**4.12**	**0.27**	**0.03**	**0.37**

HAZARDOUS AIR POLLUTANTS (HAPs)

				AP-42 Factors lb/MMSCF					lb/hr					tpy				
Source ID	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.
HT1	1273.6	8760	4.00	0.002622	0.004245	2.248	0.093650	0.001498	0.000008	0.000013	0.007059	0.000294	0.000005	0.000036	0.000058	0.030918	0.001288	0.000021
HT2	1273.6	8760	4.00	0.002622	0.004245	2.248	0.093650	0.001498	0.000008	0.000013	0.007059	0.000294	0.000005	0.000036	0.000058	0.030918	0.001288	0.000021

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

[1]Factors are adjusted for Site Fuel Heating Value: Example Calculation - Nox Factor = 100 * 1348.4 / 1020 = 132 lb/MMSCF

	Benzene	Toluene	Hexane	HCHO	Diclorobenz.
Total Individual HAPS (tpy)	**0.000072**	**0.000117**	**0.061835**	**0.002576**	**0.000041**

Total Combined HAPS (tpy)	**0.06464**

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

BURNER CALCULATIONS - GHG EMISSIONS

CRITERIA & REGULATED POLLUTANTS

				40 CFR 98 Factors[1] lb/MMSCF			lb/hr			Tons / Year		
Source ID	Fuel Gas (BTU/SCF)	Operating Hours	Burner Rating (MMBTU/Hr)	CO_2	CH_4	N_2O	CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
AUXH1	1273.6	8760	4.00	117	0.002	0.0002	467.989	0.009	0.001	2049.793	0.039	0.004
AUXH2	1273.6	8760	4.00	117	0.002	0.0002	467.989	0.009	0.001	2049.793	0.039	0.004
							Total Emissions (Tons/Year)			**4099.585**	**0.077**	**0.008**

***Source: 40 CFR 98**

Conversion to CO2e						
Source	CO_2	**CH4**	**CH4 → CO2e**	**N2O**	**N2O → CO2e**	**Total CO2e**
AUXH1	2049.793	**0.039**	**0.966**	**0.004**	**1.151**	**2051.910**
AUXH2	2049.793	**0.039**	**0.966**	**0.004**	**1.151**	**2051.910**
Total	4099.585	**0.039**	**0.966**	**0.004**	**1.151**	**4101.702**

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

AUXH - EXHAUST STACK FLOW & FUEL CONSUMPTION RATES

Exhaust Stack and Fuel Consumption Data

Source Name	AUXH1 and AUXH2
Burner Rating (btu/hr)	4000000
Heating Value (btu/scf)	1274
3" eclipse air mixer: (Air/Gas Ratio)[1]	5/1
Stack Temperature (°F)	1000
Stack Diameter (ft)	1
Stack Height (ft)	20
Fuel Consumption (scf/hr)	3141
Fuel Consumption (scf/day)	75375
Fuel Consumption (mmscf/year)	27.512
Air Injection Rate (scf/hr)	31406.2
Total exhaust flow rate @ STP (scf/hr)	34546.8
Total exhaust flow rate @ STP (scf/sec)	9.6
Total exhaust flow rate @ 1000 °F (acf/hr)	96996.7
Total exhaust flow rate @ 1000 °F (acf/sec)	26.9
Exhaust Stack Exit Velocity @ STP (ft/sec)	12.218
Exhaust Stack Exit Velocity @ 1000 °F (ft/sec)	34.306

[1] **Air/Gas Ratio is based on the Manufacturer's Data of XTO's typical burner installations**

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
FUEL GAS ANALYSIS - PROMAX RESULTS

Conversion of Mole Percent to Weight Percent

Component	Mole %	Weight %
Carbon Dioxide	0.2434	0.4779
Nitrogen	3.9200	4.8996
Methane	71.7985	51.3920
Ethane	12.4565	16.7118
Propane	6.5455	12.8780
Isobutane	0.7754	2.0108
n-Butane	2.0098	5.2119
Isopentane	0.4411	1.4201
n-Pentane	0.4627	1.4895
n-Hexane	0.0883	0.3397
Cyclohexane	0.0177	0.0665
i-C6	0.1708	0.6565
i-C7	0.2189	0.9787
Methylcyclohexane	0.0057	0.0249
Octane	0.0562	0.2862
Nonane	0.0091	0.0519
Benzene	0.0922	0.3214
Toluene	0.0458	0.1884
Ethylbenzene	0.0038	0.0179
o-Xylene	0.0063	0.0298
H2S	0.0009	0.0014
Water	0.6228	0.5006
2,2,4 Trimethylpentane	0.0087	0.0445
Decanes Plus	0.0000	0.0000
Total	100.00	100.0000

MOLECULAR WEIGHT	22.41
SATURATED BTU	1273.6
NMHC	42.73
VOCs (NMNEHC)	26.02
HAPs	0.94
H2S Mole Percentage	0.00

[1]Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

Methodology for Flare Calculations

Flare Calculations

VOC Flare Calculations - Uses the Ideal Gas Law for Mixtures

VOC Mass Flow Rate (lb/day) = P * V / 10.73 / T * MW_{GAS} * $VOC_{WEIGHT\ \%}$ * (1 - DRE)

P = Pressure (psia), V = Volume of Gas in a Day (ft^3/day), 10.73 = Ideal Gas Constant, T = Temperature (°R)

MW_{GAS} = Molecular Weight of the Gas, $VOC_{WEIGHT\%}$ = Weight Percent of the Total VOC, DRE = Flare Destruction Efficiency

NOx & CO Calculations - TCEQ Emission Factors Used

NOx (lb/day) = Heating Value (BTU/ft^3) * EF (lb/MMBTU) * V (ft^3/Day) / 10^6 (BTU/MMBTU)

CO (lb/day) = Heating Value (BTU/ft^3) * EF (lb/MMBTU) * V (ft^3/Day) / 10^6 (BTU/MMBTU)

COEF = 0.5496 or 0.2755, NOxEF = 0.138, EF = Emission Factor, V = Volume of Gas in a Day

*NOx and CO Emission Factors are the highest of Low BTU and High BTU options for TCEQ Flare Emission Factors - Calculating emissions using these factors overestimates either NOx or CO depending on the Heating Value of the Gas

SO_2 & H_2S Calculations - Mass Balance

H_2S Mass Flow Rate (lb/hr) = P * V / 10.73 / T * MW_{GAS} * $H_2S_{WEIGHT\ \%}$ * (1 - DRE)

P = Pressure (psia), V = Fuel Consumed in a hour (ft^3/hr), 10.73 = Ideal Gas Constant, T = Temperature (°R)

Uncontrolled H_2S Mass Flow Rate (lb/hr) = P * V / 10.73 / T * MW_{GAS} * $H_2S_{WEIGHT\ \%}$

SO_2 Emission Rate (lb/hr) = Uncontrolled H_2S Mass Rate (lb/hr) * SO_2 Conversion Efficiency * (MW of SO_2 (lb/lb-mol) / MW of H_2S (lb/lb-mol))

Annual Emission Rate (TPY) = Emission Rate (lb/hr) * 8760 (hour/year) / 2000 (lb/ton)

MW_{GAS} = Molecular Weight of the Gas, $H_2S_{WEIGHT\%}$ = Weight Percent of the H_2S in Gas Stream, DRE = Flare Destruction Efficiency of H_2S

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

COMBINED HP & LP FLARING - TOTAL EMISSIONS SUMMARY

Flare Emissions Summary Table

Stream Source	NOx		CO		Total VOC (Includes Total HAPs)		SO_2		$PM_{10\ \&\ 2.5}$		Total HAPs		CO2e
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	TPY
High Pressure Flaring	464.41	23.70	927.13	47.31	836.38	44.84	4.08	0.21	19.26	0.93	31.12	1.72	18672.76
Low Pressure Flaring	33.39	10.54	66.65	21.05	164.34	42.29	0.57	0.29	0.80	0.30	8.34	2.37	9865.73
Total Emissions	**497.79**	**34.24**	**993.78**	**68.36**	**1000.72**	**87.13**	**4.65**	**0.50**	**20.06**	**1.24**	**39.46**	**4.08**	**28538.49**

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

HP FLARING - TOTAL EMISSIONS SUMMARY

Flare Emissions Summary Table

Stream Source	NOx		CO		Total VOC (Includes Total HAPs)		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
Pilot Fuel & Purge Gas	0.07	0.31	0.14	0.61	0.12	0.53	0.00	0.00	0.00	0.01	0.00	0.02
Booster Compressor SSM	20.55	2.25	41.03	4.49	72.24	7.91	0.26	0.03	0.06	0.01	3.46	0.38
Sales Gas Flaring	443.79	21.14	885.97	42.21	764.02	36.40	3.81	0.18	19.19	0.91	27.65	1.32
Total Emissions	**464.41**	**23.70**	**927.13**	**47.31**	**836.38**	**44.84**	**4.08**	**0.21**	**19.26**	**0.93**	**31.12**	**1.72**

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
HP FLARE - PILOT & PURGE GAS

Flare Pilot & Purge Gas Emissions

Pilot Fuel + Purge Gas	9600	SCF/Day
Duration	8760	Hours/Year
Flared	Yes	(Yes/No)
Vented	No	(Yes/No)
BTU	1273.64	Btu/scf

Component	Estimated Quantity Emitted from the Flare (lb/day)	Total Estimated Quantity Emitted (lb/day)	Hourly Emission Rate (lb/hr)	Annualized Emission Rate (TPY)
CO[1]	3.369	3.369	0.14	0.61
NOx[1]	1.687	1.687	0.07	0.31
VOCs[2]	2.905	2.905	0.12	0.53
SO_2[3]	0.015	0.015	0.00	0.00
H_2S[3]	0.000	0.000	0.00	0.00
$PM_{10 \& 2.5}$[4]	0.073	0.073	0.00	0.01

[1] The CO and NOx emission factors (0.2755lb and 0.138/MMBtu) are based on TCEQ document RG-109, Basis for Emission Calculation from Flare Systems.

[2] Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * VOC weight % * Gas MW

[3] Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * H2S PPM * H2S MW. SO2 is calculated assuming MW ratio of 64.07:34.08.

[4] PM 10 & 2.5 emissions are based on AP-42, Section 1.4 (External Combustion). The value was reduced by 90% since AP-42 does not have PM factors for flares.

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
TREATER GAS ANALYSIS - PROMAX RESULTS

Gas Composition

Component	Mole %	Weight %
Carbon Dioxide	0.2903	0.4153
Nitrogen	1.0619	0.9669
Methane	46.8801	24.4459
Ethane	21.4011	20.9172
Propane	15.8500	22.7180
Isobutane	2.1539	4.0693
n-Butane	5.8244	11.0037
Isopentane	1.3867	3.2519
n-Pentane	1.5008	3.5197
n-Hexane	0.3164	0.8862
Cyclohexane	0.0638	0.1747
i-C6	0.5889	1.6496
i-C7	0.8153	2.6556
Methylcyclohexane	0.0217	0.0692
Octane	0.2341	0.8692
Nonane	0.0410	0.1710
Benzene	0.3290	0.8352
Toluene	0.1782	0.5337
Ethylbenzene	0.0158	0.0545
o-Xylene	0.0266	0.0919
H2S	0.0019	0.0021
Water	0.9851	0.5769
2,2,4 Trimethylpentane	0.0329	0.1222
Decanes Plus	0.0000	0.0003
Total	100.00	100.0000

MOLECULAR WEIGHT	30.76
SATURATED BTU	1760.70
NMHC	73.59
VOCs (NMNEHC)	52.68
HAPs	2.52
H2S Mole Percentage	0.00

[1]Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

HEATER TREATER GAS - FLARING VOC EMISSIONS

Heater Treater VOC Emissions[1]

Emissions Component	Uncontrolled Heater Treater Stream			Controlled Heater Treater Stream (Booster Downtime - 100% Flared)[2]	
	Max lb/hr	**lb/hr**	**TPY**	**lb/hr**	**TPY**
Carbon Dioxide	28.478	7.120	31.184	0.570	0.062
Nitrogen	66.300	16.575	72.598	1.326	0.145
Methane	1676.198	419.049	1835.437	33.524	3.671
Ethane	1434.240	358.560	1570.493	28.685	3.141
Propane	1557.719	389.430	1705.702	31.154	3.411
Isobutane	279.022	69.755	305.529	5.580	0.611
n-Butane	754.495	188.624	826.172	15.090	1.652
Isopentane	222.978	55.744	244.161	4.460	0.488
n-Pentane	241.336	60.334	264.263	4.827	0.529
n-Hexane	60.766	15.191	66.538	1.215	0.133
Cyclohexane	11.976	2.994	13.114	0.240	0.026
i-C6	113.107	28.277	123.852	2.262	0.248
i-C7	182.086	45.521	199.384	3.642	0.399
Methylcyclohexane	4.745	1.186	5.196	0.095	0.010
Octane	59.602	14.901	65.264	1.192	0.131
Nonane	11.722	2.930	12.835	0.234	0.026
Benzene	57.269	14.317	62.709	1.145	0.125
Toluene	36.596	9.149	40.073	0.732	0.080
Ethylbenzene	3.737	0.934	4.092	0.075	0.008
o-Xylene	6.300	1.575	6.899	0.126	0.014
H2S	0.143	0.036	0.157	0.003	0.000
Water	39.554	9.889	43.312	0.791	0.087
2,2,4 Trimethylpentane	8.376	2.094	9.171	0.168	0.018
Decanes Plus	0.020	0.005	0.022	0.000	0.000

Emissions Component	Uncontrolled Heater Treater Stream			Controlled Heater Treater Stream (Booster Downtime - 100% Flared)[2]	
	Max lb/hr	**lb/hr**	**TPY**	**lb/hr**	**TPY**
STREAM TOTAL	6856.76	1714.19	7508.16	137.14	15.02
VOC TOTAL	3611.85	902.96	3954.98	72.24	7.91
HAP TOTAL	173.04	43.26	189.48	3.46	0.38

[1]Uncontrolled emissions and gas volume are based on Promax Results. Treater vapors are collected for sales by booster compressor. 100% of vapors are flared during booster downtime.

[2]Controlled Emissions were calculated by the following: Uncontrolled Emissions * (1 - VRU Efficiency) * (1 - Flare Destruction Efficiency)

Flare Reduction = **98%** Booster Collection Efficiency = **100%**

[3]Annual controlled rate (tpy) calculated by multiplying hourly emission rate by booster downtime.

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
HP FLARE COMBUSTION EMISSIONS - HEATER TREATER GAS

Heater Treater Gas Routed to HP Flare During Booster Downtime - Combustion Emissions

Daily Treater Gas Flared	2,029,879	SCF/Day (Based on Maximum Hourly)
Hourly Treater Gas Flared	84,578	SCF/Hr (Based on Maximum Hourly)
Daily Treater Gas Flared	507,470	SCF/Day (Based on Annual Average)
Annual Treater Gas Flared	18,522,645	SCF/Year (Based on Annual Average)
Duration	876	Hours/Year
Flared	Yes	(Yes/No)
Vented	No	(Yes/No)
Heating Volume	1760.70	Btu/scf

Component	Hourly Emission Rate (lb/hr)	Annualized Emission Rate (TPY)
CO[1]	41.03	4.49
NOx[1]	20.55	2.25
SO_2[2]	0.26	0.03
H_2S[2]	0.00	0.00
$PM_{10\ \&\ 2.5}$[3]	0.06	0.01

[1] The CO and NOx emission factors (0.2755 and 0.138 lb/MMBtu) are based on TCEQ document RG-109, Basis for Emission Calculation from Flare Systems.

[2] Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * H2S PPM * H2S MW. SO2 is calculated assuming MW ratio of 64.07:34.08.

[3] PM 10 & 2.5 emissions are based on AP-42, Section 1.4 (External Combustion). The value was reduced by 90% since AP-42 does not have PM factors for flares.

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
INLET GAS ANALYSIS - PROMAX RESULTS

Gas Composition

Component	Mole %	Weight %
Carbon Dioxide	0.2434	0.4779
Nitrogen	3.9200	4.8996
Methane	71.7985	51.3920
Ethane	12.4565	16.7118
Propane	6.5455	12.8780
Isobutane	0.7754	2.0108
n-Butane	2.0098	5.2119
Isopentane	0.4411	1.4201
n-Pentane	0.4627	1.4895
n-Hexane	0.0883	0.3397
Cyclohexane	0.0177	0.0665
i-C6	0.1708	0.6565
i-C7	0.2189	0.9787
Methylcyclohexane	0.0057	0.0249
Octane	0.0562	0.2862
Nonane	0.0091	0.0519
Benzene	0.0922	0.3214
Toluene	0.0458	0.1884
Ethylbenzene	0.0038	0.0179
o-Xylene	0.0063	0.0298
H2S	0.0009	0.0014
Water	0.6228	0.5006
2,2,4 Trimethylpentane	0.0087	0.0445
Decanes Plus	0.0000	0.0000
Total	100.00	100.0000

MOLECULAR WEIGHT	22.41
SATURATED BTU	1273.64
NMHC	42.73
VOCs (NMNEHC)	26.02
HAPs	0.94
H2S Mole Percentage	0.00

[1] **Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2**

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
HP FLARE COMBUSTION EMISSIONS

HP Gas Routed to HP Flare - Sales Gas Downtime - Combustion Emissions

Total Gas Flared	60,598,405	SCF/Day
Total Gas Flared	240,566,316	SCF/Year
Duration	95	Hours/Year[2]
Flared	Yes	(Yes/No)
Vented	No	(Yes/No)
Heat Content	1273.64	Btu/scf

Component	Estimated Quantity Emitted from the Flare (lb/day)	Total Estimated Quantity Emitted (lb/day)	Hourly Emission Rate (lb/hr)[1]	Annualized Emission Rate (TPY)
CO[1]	21263.17	21263.17	885.97	42.21
NOx[1]	10650.88	10650.88	443.79	21.14
VOCs[2]	18336.52	18336.52	764.02	36.40
SO_2[3]	91.54	91.54	3.81	0.18
H_2S[3]	0.97	0.97	0.04	0.00
$PM_{10\ \&\ 2.5}$[4]	460.55	460.55	19.19	0.91
HAPs[2]	663.66	663.66	27.65	1.32
n-Hexane[2]	239.39	239.39	9.97	0.48
Benzene[2]	226.51	226.51	9.44	0.45

1 The CO and NOx emission factors (0.2755lb and 0.138/MMBtu) are based on TCEQ document RG-109, Basis for Emission Calculation from Flare Systems.

2 Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * Weight % * Gas MW

3 Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * H2S PPM * H2S MW. SO2 is calculated assuming MW ratio of 64.07:34.08.

4 PM 10 & 2.5 emissions are based on AP-42, Section 1.4 (External Combustion). The value was reduced by 90% since AP-42 does not have PM factors for flares.

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
HIGH PRESSURE FLARING EMISSIONS - GHG

Pilot Consumption Rate (scf/year)	Inlet Gas Flare Rate (scf/year)	Treater Gas Flare Rate (scf/year)
3,504,000	240,566,316	18,522,645

Pilot & Purge Gas		Inlet Gas Combusted		Treater Gas Combusted	
Ea,CH4 = Va * XCH4 * [(1- η)* ZL + ZU					
Va =	3504000	Va =	240566315.9	Va =	18522645
XCH_4 =	0.7180	XCH_4 =	0.7180	XCH_4 =	0.4688
N =	0.98	N =	0.98	N =	0.98
Z_L =	1	Z_L =	1	Z_L =	1
Z_U =	0	Z_U =	0	Z_U =	0
Ea,CH_4 =	50316	Ea,CH_4 =	3454460	Ea,CH_4 =	173669
Ea,CO2 (uncombusted) = Va * XCO2					
Va =	3504000	Va =	240566315.9	Va =	18522645
X_{CO2} =	0.0024	X_{CO2} =	0.0024	X_{CO2} =	0.0024
Ea,CO2 (uncombusted)	8528	Ea,CO2 (uncombusted)	585503	Ea,CO2 (uncombusted)	45081
Ea,CO2 (combusted) = Σ (η * Va * Yj * Rj * ZL)					
Ea,CO2 (combusted) =	4657255	Ea,CO2 (combusted) =	319742799	Ea,CO2 (combusted) =	35741973
Es,n = Ea,n * (459.67 + Ts) * Pa / (459.67 + Ta) * Ps					
$E_{a,n}$(CH4) =	45295	$E_{a,n}$(CH4) =	3109728	$E_{a,n}$(CH4) =	156338
$E_{a,n}$(CO2) =	4200171	$E_{a,n}$(CO2) =	288361765	$E_{a,n}$(CO2) =	32215756
Masss,i = Es,i * ρi * 103					
$Mass_{CH4}$	0.870	$Mass_{CH4}$	59.707	$Mass_{CH4}$	3.002
$Mass_{C02}$	220.929	$Mass_{C02}$	15167.829	$Mass_{C02}$	1694.549
CO2e = CO2 + (CH4 X GWP)					
CO_2	221	CO_2	15168	CO_2	1695
CH_4	1	CH_4	60	CH_4	3
CO_2e	243	CO_2e	16660	CO_2e	1770

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

LP FLARING - TOTAL EMISSIONS SUMMARY

Flare Emissions Summary Table - Total Emissions

Normal Operations

Stream Source	NOx		CO		Total VOC (Includes Total HAPs)		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
Pilot Fuel & Purge Gas	0.04	0.15	0.07	0.31	0.06	0.27	0.00	0.00	0.00	0.01	0.00	0.01
Vapor Recovery Tower (VRT)	0.54	0.54	1.09	1.07	2.82	2.78	0.01	0.01	0.01	0.01	0.14	0.14
Oil Storage Tanks	0.08	0.11	0.15	0.23	0.40	0.60	0.00	0.00	0.00	0.00	0.02	0.03
Truck Loading of Oil	0.13	0.59	0.27	1.17	0.72	3.15	0.00	0.00	0.00	0.01	0.03	0.13
Skim & Water Tanks	2.19	3.00	4.37	6.00	2.91	3.18	0.14	0.19	0.10	0.14	0.50	0.55

VRU Downtime Emissions - SSM

Stream Source	NOx		CO		Total VOC (Includes Total HAPs)		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
Vapor Recovery Tower (VRT)	27.19	2.98	54.28	5.94	140.80	15.42	0.38	0.04	0.62	0.07	6.88	0.75
Oil Storage Tanks	3.84	3.17	7.66	6.33	19.86	16.90	0.05	0.04	0.08	0.07	0.93	0.76

Low Pressure Flaring Summary

Stream Source	NOx		CO		Total VOC (Includes Total HAPs)		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
Normal Operations[1]	2.36	4.39	4.71	8.77	3.69	9.98	0.14	0.21	0.10	0.17	0.53	0.86
VRU Downtime - SSM	31.03	6.15	61.94	12.28	160.66	32.32	0.43	0.08	0.70	0.13	7.81	1.51
Combined Flaring Total[2]	**33.39**	**10.54**	**66.65**	**21.05**	**164.34**	**42.29**	**0.57**	**0.29**	**0.80**	**0.30**	**8.34**	**2.37**

[1]Hourly emissions during normal operations do not include emissions from the VRT & Oil Tanks during normal operation as they cannot occur at the same time as VRU downtime.

[2]Combined Flaring Hourly Rates denotes the peak hourly rate possible.

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
LP FLARE - PILOT & PURGE GAS

Flare Pilot & Purge Gas Emissions

Pilot Fuel + Purge Gas	4800	SCF/Day
Duration	8760	Hours/Year
Flared	Yes	(Yes/No)
Vented	No	(Yes/No)
BTU	1273.64	Btu/scf

Component	Estimated Quantity Emitted from the Flare (lb/day)	Total Estimated Quantity Emitted (lb/day)	Hourly Emission Rate (lb/hr)	Annualized Emission Rate (TPY)
CO[1]	1.684	1.684	0.07	0.31
NOx[1]	0.844	0.844	0.04	0.15
VOCs[2]	1.452	1.452	0.06	0.27
SO_2[3]	0.007	0.007	0.00	0.00
H_2S[3]	0.000	0.000	0.00	0.00
$PM_{10\ \&\ 2.5}$[4]	0.036	0.036	0.00	0.01

1 The CO and NOx emission factors (0.2755lb and 0.138/MMBtu) are based on TCEQ document RG-109, Basis for Emission Calculation from Flare Systems.

2 Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * VOC weight % * Gas MW

3 Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * H2S PPM * H2S MW. SO2 is calculated assuming MW ratio of 64.07:34.08.

4 PM 10 & 2.5 emissions are based on AP-42, Section 1.4 (External Combustion). The value was reduced by 90% since AP-42 does not have PM factors for flares.

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
LOW PRESSURE FLARING EMISSIONS - GHG

LP FLARE - GHG EMISSIONS

Pilot Consumption Rate (scf/year)	Total LP Flare Gas Rate (scf/year)
1,752,000	**78,184,701**

Pilot & Purge Gas		Total Gas Combusted	
$E_{a,CH_4} = V_a * X_{CH_4} * [(1-\eta) * Z_L + Z_U$			
Va =	1752000	**Va =**	78184701
XCH_4 =	0.7180	**XCH_4 =**	0.2171
N =	0.98	**N =**	0.98
Z_L =	1	**Z_L =**	1
Z_U =	0	**Z_U =**	0
Ea,CH_4 =	25158	**Ea,CH_4 =**	339521
$E_{a,CO2}$ (uncombusted) = $V_a * X_{CO2}$			
Va =	1752000	**Va =**	78184701
X_{CO2} =	0.0024	**X_{CO2} =**	0.0034
Ea,CO2 (uncombusted)	4264	**Ea,CO2 (uncombusted)**	268156
Ea,CO2 (combusted) = Σ (η * Va * Yj * Rj * ZL)			
Ea,CO2 (combusted) =	2328628	**Ea,CO2 (combusted) =**	202424798
Es,n = Ea,n * (459.67 + Ts) * Pa / (459.67 + Ta) * Ps			
$E_{a,n}$(CH4) =	22648	**$E_{a,n}$(CH4) =**	305639
$E_{a,n}$(CO2) =	2100085	**$E_{a,n}$(CO2) =**	182465607
$Mass_{s,i} = E_{s,i} * \rho i * 10^3$			
$Mass_{CH4}$	0.435	**$Mass_{CH4}$**	5.868
$Mass_{C02}$	110.464	**$Mass_{C02}$**	9597.691
$CO_2e = CO_2 + (CH_4 \text{ X GWP})$			
CO_2	110	**CO_2**	9598
CH_4	0.4	**CH_4**	5.9
CO_2e	121	**CO_2e**	9744

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
VRT VAPOR ANALYSIS - PROMAX RESULTS

Gas Composition

Component	Mole %	Weight %
Carbon Dioxide	0.1950	0.1995
Nitrogen	0.1374	0.0895
Methane	15.6098	5.8197
Ethane	24.1551	16.8794
Propane	29.3639	30.0911
Isobutane	4.6487	6.2791
n-Butane	12.9343	17.4709
Isopentane	3.1199	5.2312
n-Pentane	3.3505	5.6179
n-Hexane	0.6694	1.3406
Cyclohexane	0.1351	0.2641
i-C6	1.2794	2.5622
i-C7	1.6666	3.8809
Methylcyclohexane	0.0438	0.0998
Octane	0.4322	1.1474
Nonane	0.0702	0.2094
Benzene	0.7027	1.2755
Toluene	0.3544	0.7589
Ethylbenzene	0.0292	0.0720
o-Xylene	0.0487	0.1203
H2S	0.0028	0.0022
Water	0.9846	0.4122
2,2,4 Trimethylpentane	0.0663	0.1759
Decanes Plus	0.0000	0.0002
Total	100.00	100.0000

MOLECULAR WEIGHT	43.03
SATURATED BTU	2430.73
NMHC	93.48
VOCs (NMNEHC)	76.60
HAPs	3.74
H2S Mole Percentage	0.00

[1]Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

VAPOR RECOVERY TOWER EMISSIONS

VRT VOC Emissions Routed to VRU/Flare Vent System[1]

Emissions Component	Uncontrolled VRT Stream			Controlled VRT Stream (Normal Operations)		Controlled VRT Stream (VRU Downtime - 100% Flared)	
	Max lb/hr	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Carbon Dioxide	18.331	4.583	20.073	0.007	0.007	0.367	0.040
Nitrogen	8.224	2.056	9.005	0.003	0.003	0.164	0.018
Methane	534.872	133.718	585.685	0.214	0.211	10.697	1.171
Ethane	1551.347	387.837	1698.725	0.621	0.612	31.027	3.397
Propane	2765.601	691.400	3028.333	1.106	1.090	55.312	6.057
Isobutane	577.099	144.275	631.924	0.231	0.227	11.542	1.264
n-Butane	1605.703	401.426	1758.245	0.642	0.633	32.114	3.516
Isopentane	480.782	120.196	526.457	0.192	0.190	9.616	1.053
n-Pentane	516.323	129.081	565.374	0.207	0.204	10.326	1.131
n-Hexane	123.215	30.804	134.920	0.049	0.049	2.464	0.270
Cyclohexane	24.277	6.069	26.583	0.010	0.010	0.486	0.053
i-C6	235.488	58.872	257.860	0.094	0.093	4.710	0.516
i-C7	356.683	89.171	390.568	0.143	0.141	7.134	0.781
Methylcyclohexane	9.177	2.294	10.049	0.004	0.004	0.184	0.020
Octane	105.458	26.365	115.477	0.042	0.042	2.109	0.231
Nonane	19.244	4.811	21.072	0.008	0.008	0.385	0.042
Benzene	117.231	29.308	128.368	0.047	0.046	2.345	0.257
Toluene	69.750	17.437	76.376	0.028	0.027	1.395	0.153
Ethylbenzene	6.618	1.654	7.247	0.003	0.003	0.132	0.014
o-Xylene	11.053	2.763	12.104	0.004	0.004	0.221	0.024
H2S	0.204	0.051	0.224	0.000	0.000	0.004	0.000
Water	37.886	9.472	41.486	0.015	0.015	0.758	0.083
2,2,4 Trimethylpentane	16.168	4.042	17.704	0.006	0.006	0.323	0.035
Decanes Plus	0.017	0.004	0.019	0.000	0.000	0.000	0.000

Emissions Component	Uncontrolled VRT Stream			Controlled VRT Stream (Normal Operations)		Controlled VRT Stream (VRU Downtime - 100% Flared)	
	Max lb/hr	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
STREAM TOTAL	9190.75	2297.69	10063.87	3.68	3.62	183.82	20.13
VOC TOTAL	7039.89	1759.97	7708.68	2.82	2.78	140.80	15.42
HAP TOTAL	344.03	86.01	376.72	0.14	0.14	6.88	0.75

[1]Uncontrolled emissions and gas volume are based on Promax Results. VRT vapors are collected for sales by a VRU. 100% of vapors are flared during VRU downtime.

[2]Controlled Emissions Were Calculated by the Following: Uncontrolled Emissions * (1 - VRU Efficiency) * (1 - Flare Destruction Efficiency)

[3]Annual controlled rate (tpy) calculated by multiplying hourly emission rate by VRU downtime.

Normal Operations	VRU Collection Efficiency	**98%**
VRU Downtime	VRU Collection Efficiency	0%
VRU Downtime	Hours	876
Flare Destruction Efficiency		**98%**

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
LP FLARE - VAPOR RECOVERY TOWER - NORMAL OPERATIONS

VRT Emissions Routed to VRU/Flare Vent System

Daily VRT Gas Volume	1945295	SCF/Day (Based on Maximum Hourly)
Hourly VRT Gas Volume	81054	SCF/Hour (Based on Maximum Hourly)
Daily VRT Gas Volume	486324	SCF/Day (Based on Annual Average)
VRU Collection Efficiency	98	Percentage
Hourly VRT Gas Volume (Post-VRU)	1621	SCF/Hour (Based on Maximum Hourly)
Duration	7884	Hours/Year
Annual VRT Gas Volume (Post-VRU)	3195147	SCF/Year (Based on Annual Average)
Flared	Yes	(Yes/No)
Vented	No	(Yes/No)
Heat Content	2430.73	Btu/SCF

Component	Hourly Emission Rate (lb/hr)	Annualized Emission Rate (TPY)
CO[1]	1.09	1.07
NOx[1]	0.54	0.54
SO_2[2]	0.01	0.01
H_2S[2]	0.00	0.00
$PM_{10\ \&\ 2.5}$[3]	0.01	0.01

[1] The CO and NOx emission factors (0.2755lb and 0.138/MMBtu) are based on TCEQ document RG-109, Basis for Emission Calculation from Flare Systems.

[2] Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * H2S PPM * H2S MW. SO2 is calculated assuming MW ratio of 64.07:34.08.

[3] PM 10 & 2.5 emissions are based on AP-42, Section 1.4 (External Combustion). The value was reduced by 90% since AP-42 does not have PM factors for flares.

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
LP FLARE - VAPOR RECOVERY TOWER - VRU DOWNTIME

VRT Emissions Flared During VRU Downtime

Daily VRT Gas Volume	1945295	SCF/Day (Based on Maximum Hourly)
Hourly VRT Gas Volume	81054	SCF/Hour (Based on Maximum Hourly)
Daily VRT Gas Volume	486324	SCF/Day (Based on Annual Average)
VRU Collection Efficiency	0	Percentage
Hourly VRT Gas Volume	81054	SCF/Hour (Based on Maximum Hourly)
Duration	876	Hours/Year
Annual VRT Gas Volume	17750815	SCF/Year (Based on Annual Average)
Flared	Yes	(Yes/No)
Vented	No	(Yes/No)
Heating Volume	2430.73	Btu/SCF

Component	Hourly Emission Rate (lb/hr)	Annualized Emission Rate (TPY)
CO[1]	54.28	5.94
NOx[1]	27.19	2.98
SO_2[2]	0.38	0.04
H_2S[2]	0.00	0.00
$PM_{10 \& 2.5}$[3]	0.62	0.07

[1] The CO and NOx emission factors (0.2755lb and 0.138/MMBtu) are based on TCEQ document RG-109, Basis for Emission Calculation from Flare Systems.

[2] Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * H2S PPM * H2S MW. SO2 is calculated assuming MW ratio of 64.07:34.08.

[3] PM 10 & 2.5 emissions are based on AP-42, Section 1.4 (External Combustion). The value was reduced by 90% since AP-42 does not have PM factors for flares.

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

Calculation Methodology for Heater Treater, VRT, & Tank Emissions

Calculation Methodology

Storage Tank Emissions - VOC Emissions

The heater treater gas, VRT, and storage tank emissions were estimated using a representative pressurized liquid analysis that produces from the same formation as the wells that flow into the facility and Promax Simulation Software. The heater treater gases are routed to a booster compressor and routed to sales during normal operations. During booster compressor downtime the off gases are routed to the high pressure flare. The VRT and storage tanks emissions are controlled a VRU and a 98% collection efficiency is represented, which the remaining 2% of the gas constantly being routed to flare. During VRU downtime all the assoicated gas will be routed to the flare for combustion. All skim tank and water tank emissions are routed directly to the low pressure flare.

Working & Breathing Emissions: AP-42 Chapter 7.1.3.1

$L_T = L_S + L_W$ (Total losses, lb/yr: Equation 1-1)

$L_S = 365\ V_V W_V K_E K_S$ (Standing Storage Losses, lb/hr: Equation 1-2)

$L_W = 0.0010\ M_V P_{VA} Q K_N K_P$ (Working Storage Losses, lb/hr: Equation 1-29)

Promax Model GOR Check

Oil Throughput Minus Dead Oil **20000** **bbl/Day**

Sources	SCF/Day	SCF/bbl
Heater Treater	507470	25.37
Vapor Recovery Tower	486324	24.32
Oil Tank	39609	1.98

Total GOR	51.67
Flash Liberation of Sample GOR	47.90

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
VRU - COST BENEFIT ANALYSIS

VAPOR RECOVERY TOWER VRU

Unit Variable	Vapor Recovery Tower
Vapor Emission Rate (mscfd)	476.597
Heating Value (btu/scf)	2430.73
Value of gas sold ($/MMBtu)	$ 2.10
VRU Rental Rate ($/Month)	$ 5,400.00
VRU Count	1
Total Monthly Rental Rate ($/Month)	$ 5,400.00
Annual Rental Rate Cost ($/Year)	$ 64,800.00
Expectancy of VRU (years)	5
Annual Revenue Total ($/Year)	$ 799,178.47
Five Year Profit ($)	**$ 3,671,892.37**

Is the primary purpose of the equipment to control air pollution?

No, the primary purpose is to recover product for sale.

Where the equipment is recovering product, how do the cost savings from the product recovery compare to the cost of the equipment?

The VRU generates income for the site.

Would the equipment be installed if no air quality regulations are in place?

The equipment would be installed regardless of air quality regulations.

(1) Vapor emissions are obtained from Promax Modeling.
(2) Value of gas sold based on 3-month average from http://www.eia.gov/dnav/ng/ng_pri_fut_s1_d.htm
(3) Heating vales of vapors are based on Promax results.
(4) Rental estimate includes installation, operation, and maintenance of VRU.

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

OIL STORAGE TANK EMISSIONS SUMMARY

TOTAL EMISSIONS SUMMARY

FIN	Unit Description	Tank Controlled (Yes/No)	Control Type	Material Throughput (bbls/day)	Material Type (Oil/Produced Water)	Total VOC Emissions	
						lb/hour	TPY
OT1	**Oil Storage Tank**	Yes	Flare	8333.3	OIL	6.75	5.83
OT2	**Oil Storage Tank**	Yes	Flare	8333.3	OIL	6.75	5.83
OT3	**Oil Storage Tank**	Yes	Flare	8333.3	OIL	6.75	5.83
Oil Tank Emissions						20.26	17.50

'* Emissions are represented at LPF. The VOC rate includes emissions during operation of the VRU and during VRU downtime.

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
OIL TANK VAPOR ANALYSIS - PROMAX RESULTS

Gas Composition

Component	Mole %	Weight %
Carbon Dioxide	0.1270	0.1182
Nitrogen	0.0025	0.0015
Methane	2.1295	0.7228
Ethane	28.6828	18.2471
Propane	35.5850	33.1982
Isobutane	5.3172	6.5385
n-Butane	14.7813	18.1764
Isopentane	3.6521	5.5747
n-Pentane	3.8887	5.9359
n-Hexane	0.7873	1.4354
Cyclohexane	0.1232	0.2194
i-C6	1.4627	2.6668
i-C7	1.7955	3.8063
Methylcyclohexane	0.0397	0.0826
Octane	0.4351	1.0515
Nonane	0.0564	0.1531
Benzene	0.6426	1.0620
Toluene	0.3409	0.6645
Ethylbenzene	0.0290	0.0651
o-Xylene	0.0422	0.0949
H2S	0.0028	0.0020
Water	0.0008	0.0003
2,2,4 Trimethylpentane	0.0756	0.1828
Decanes Plus	0.0000	0.0001
Total	100.00	100.0000

MOLECULAR WEIGHT	47.27
SATURATED BTU	2672.79
NMHC	99.16
VOCs (NMNEHC)	80.91
HAPs	3.50
H2S Mole Percentage	0.00

[1]Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

OIL STORAGE TANK - EMISSIONS SUMMARY

Oil Storage Tank VOC Emissions Routed to Flare & VRU2

Emission Component	Uncontrolled Oil Tank W&B Stream		Uncontrolled Oil Tank Flash Stream			Oil Tank Stream Controlled By Flare - VRU Downtime		Oil Tank Stream Controlled By VRU & Flare - Normal Operations	
	lb/hr	TPY	Max lb/hr	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Carbon Dioxide	0.560	2.455	1.199	0.300	1.313	0.035	0.027	0.001	0.001
Nitrogen	0.007	0.030	0.321	0.080	0.352	0.007	0.003	0.000	0.000
Methane	3.426	15.005	34.089	8.522	37.328	0.750	0.377	0.015	0.013
Ethane	86.490	378.827	126.461	31.615	138.475	4.259	3.725	0.085	0.132
Propane	157.358	689.227	238.077	59.519	260.694	7.909	6.839	0.158	0.243
Isobutane	30.992	135.746	50.000	12.500	54.750	1.620	1.372	0.032	0.049
n-Butane	86.155	377.359	140.183	35.046	153.500	4.527	3.822	0.091	0.136
Isopentane	26.424	115.736	42.000	10.500	45.990	1.368	1.164	0.027	0.041
n-Pentane	28.136	123.234	45.196	11.299	49.490	1.467	1.244	0.029	0.044
n-Hexane	6.804	29.801	10.620	2.655	11.629	0.348	0.298	0.007	0.011
Cyclohexane	1.040	4.556	1.699	0.425	1.860	0.055	0.046	0.001	0.002
i-C6	12.641	55.366	20.243	5.061	22.166	0.658	0.558	0.013	0.020
i-C7	18.042	79.022	31.022	7.755	33.969	0.981	0.814	0.020	0.029
Methylcyclohexane	0.391	1.714	0.635	0.159	0.695	0.021	0.017	0.000	0.001
Octane	4.984	21.829	8.960	2.240	9.811	0.279	0.228	0.006	0.008
Nonane	0.725	3.178	1.602	0.400	1.754	0.047	0.036	0.001	0.001
Benzene	5.034	22.047	10.230	2.557	11.202	0.305	0.239	0.006	0.009
Toluene	3.150	13.795	6.008	1.502	6.579	0.183	0.147	0.004	0.005
Ethylbenzene	0.309	1.352	0.563	0.141	0.617	0.017	0.014	0.000	0.001
o-Xylene	0.450	1.970	0.935	0.234	1.024	0.028	0.022	0.001	0.001
H2S	0.010	0.042	0.014	0.004	0.016	0.000	0.000	0.000	0.000
Water	0.001	0.006	2.494	0.624	2.731	0.050	0.020	0.001	0.001
2,2,4 Trimethylpentane	0.866	3.795	1.423	0.356	1.558	0.046	0.039	0.001	0.001
Decanes Plus	0.000	0.002	0.001	0.000	0.001	0.000	0.000	0.000	0.000

Emission Component	Uncontrolled Oil Tank W&B Stream		Uncontrolled Oil Tank Flash Stream			Oil Tank Stream Controlled By Flare - VRU Downtime		Oil Tank Stream Controlled By VRU & Flare - Normal Operations	
	lb/hr	TPY	Max lb/hr	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
STREAM TOTAL	473.99	2076.10	773.98	193.49	847.50	24.96	21.05	0.50	0.75
VOC TOTAL	383.50	1679.73	609.40	152.35	667.29	19.86	16.90	0.40	0.60
HAP TOTAL	16.61	72.76	29.78	7.45	32.61	0.93	0.76	0.02	0.03

[1]Uncontrolled emissions and gas volume are based on Promax Results. Tank vapors are controlled using LPF and VRU2.

[2]Controlled Emissions Were Calculated by the Following: Uncontrolled Emissions * (1 - VRU Efficiency) * (1 - Flare Destruction Efficiency)

Flare Destruction Efficiency 98%

[3]Annual controlled rate (tpy) calculated by multiplying hourly emission rate by 8760 hours minus VRU downtime hours for normal operation.

Normal Operations	VRU Efficiency	98%
VRU Downtime	VRU Efficiency	0%
VRU Downtime	Hours	3154

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
LP FLARE - OIL STORAGE TANKS

Flared Oil Storage Tank Emissions - VRU Normal Operations

Daily Oil Tank Gas Volume	249770	SCF/Hour (Based on Maximum Hourly)
Hourly Oil Tank Gas Volume	10407	SCF/Hour (Based on Maximum Hourly)
Daily Oil Tank Gas Volume	130943	SCF/Day (Based on Annual Average)
VRU Collection Efficiency	98	Percentage
Hourly Oil Tank Gas Volume (Post-VRU)	208	SCF/Hour (Based on Maximum Hourly)
Duration	5606	Hours/Year
Annual Oil Tank Gas Volume (Post-VRU)	611764	SCF/Year (Based on Annual Average)
Flared	Yes	(Yes/No)
Heating Volume	2672.79	Btu/scf

Component	Hourly Emission Rate (lb/hr)	Annualized Emission Rate (TPY)
CO[1]	0.15	0.23
NOx[1]	0.08	0.11
SO_2[2]	0.00	0.00
H_2S[2]	0.00	0.00
$PM_{10 \& 2.5}$[3]	0.00	0.00

[1] The CO and NOx emission factors (0.2755lb and 0.138/MMBtu) are based on TCEQ document RG-109, Basis for Emission Calculation from Flare Systems.

[2] Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * H2S PPM * H2S MW. SO2 is calculated assuming MW ratio of 64.07:34.08.

[3] PM 10 & 2.5 emissions are based on AP-42, Section 1.4 (External Combustion). The value was reduced by 90% since AP-42 does not have PM factors for flares.

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
LP FLARE - OIL STORAGE TANKS

Flared Oil Storage Tank Emissions - VRU Downtime

Daily Oil Tank Gas Volume	249770	SCF/Hour (Based on Maximum Hourly)
Hourly Oil Tank Gas Volume	10407	SCF/Hour (Based on Maximum Hourly)
Daily Oil Tank Gas Volume	130943	SCF/Day (Based on Annual Average)
VRU Collection Efficiency	0	Percentage
Hourly Oil Tank Gas Volume	10407	SCF/Hour (Based on Maximum Hourly)
Duration	3154	Hours/Year
Annual Oil Tank Gas Volume	17205864	SCF/Year (Based on Annual Average)
Flared	Yes	(Yes/No)
Heating Volume	2672.79	Btu/scf

Component	Hourly Emission Rate (lb/hr)	Annualized Emission Rate (TPY)
CO[1]	7.66	6.33
NOx[1]	3.84	3.17
SO_2[2]	0.05	0.04
H_2S[2]	0.00	0.00
$PM_{10 \& 2.5}$[3]	0.08	0.07

[1] The CO and NOx emission factors (0.2755lb and 0.138/MMBtu) are based on TCEQ document RG-109, Basis for Emission Calculation from Flare Systems.

[2] Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * H2S PPM * H2S MW. SO2 is calculated assuming MW ratio of 64.07:34.08.

[3] PM 10 & 2.5 emissions are based on AP-42, Section 1.4 (External Combustion). The value was reduced by 90% since AP-42 does not have PM factors for flares.

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
VRU - COST BENEFIT ANALYSIS

STORAGE TANK VRUs

Unit Variable	Oil Tanks
Vapor Emission Rate (mscfd)	128.324
Heating Value (btu/scf)	2673
Value of gas sold ($/MMBtu)	$ 2.10
VRU Rental Rate ($/Month)	$ 5,400.00
VRU Count	1
Total Monthly Rental Rate ($/Month)	$ 5,400.00
Annual Rental Rate Cost ($/Year)	$ 64,800.00
Expectancy of VRU (years)	5
Annual Revenue Total ($/Year)	$ 168,253.50
Five Year Profit ($)	**$ 517,267.48**

Is the primary purpose of the equipment to control air pollution?

No, the primary purpose is to recover product for sale.

Where the equipment is recovering product, how do the cost savings from the product recovery compare to the cost of the equipment?

The VRU generates income for the site.

Would the equipment be installed if no air quality regulations are in place?

The equipment would be installed regardless of air quality regulations.

(1) Vapor emissions are obtained from Promax Modeling.
(2) Value of gas sold based on 3-month average from http://www.eia.gov/dnav/ng/ng_pri_fut_s1_d.htm
(3) Heating vales of vapors are based on Promax results.
(4) Rental estimate includes installation, operation, and maintenance of VRU.

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

SKIM TANK EMISSIONS SUMMARY

TOTAL EMISSIONS SUMMARY

FIN	Unit Description	Tank Controlled (Yes/No)	Control Type	Material Throughput (bbls/day)	Material Type (Oil/Produced Water)	Total VOC Emissions	
						lb/hour	TPY
SKTK1	**Skim Tank**	Yes	Flare	30000	PRODUCED WATER	1.42	1.56
SKTK2	**Skim Tank**	Yes	Flare	30000	PRODUCED WATER	1.42	1.56
SKIM Tank Emissions						2.85	3.12

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
SKIM TANK VAPOR ANALYSIS - PROMAX RESULTS

Gas Composition

Component	Mole %	Weight %
Carbon Dioxide	1.4378	2.8691
Nitrogen	1.9635	2.4941
Methane	67.8591	49.3614
Ethane	14.8457	20.2409
Propane	5.3598	10.7164
Isobutane	0.4055	1.0688
n-Butane	1.4443	3.8063
Isopentane	0.2094	0.6850
n-Pentane	0.1023	0.3348
n-Hexane	0.0125	0.0490
Cyclohexane	0.0326	0.1244
i-C6	0.0471	0.1839
i-C7	0.0355	0.1614
Methylcyclohexane	0.0051	0.0229
Octane	0.0024	0.0122
Nonane	0.0003	0.0018
Benzene	0.5885	2.0843
Toluene	0.2758	1.1521
Ethylbenzene	0.0214	0.1030
o-Xylene	0.0368	0.1774
H2S	0.0065	0.0100
Water	5.3070	4.3351
2,2,4 Trimethylpentane	0.0011	0.0056
Decanes Plus	0.0000	0.0001
Total	100.00	100.0000

MOLECULAR WEIGHT	22.05
SATURATED BTU	1202.58
NMHC	40.93
VOCs (NMNEHC)	20.69
HAPs	3.57
H2S Mole Percentage	0.01

[1]Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

SKIM TANKS - EMISSIONS SUMMARY

Skim Tank VOC Emissions Routed to Flare Vent System

Emission Component	Uncontrolled Skim Tank W&B Stream		Uncontrolled Skim Tank Flash Stream			Skim Tank Stream Controlled by Flare	
	lb/hr	TPY	Max lb/hr	lb/hr	TPY	lb/hr	TPY
Carbon Dioxide	0.575	2.520	19.737	4.934	21.612	0.406	0.483
Nitrogen	0.006	0.026	17.157	4.289	18.787	0.343	0.376
Methane	0.330	1.446	339.560	84.890	371.818	6.798	7.465
Ethane	0.172	0.752	139.238	34.810	152.466	2.788	3.064
Propane	0.016	0.070	73.719	18.430	80.722	1.475	1.616
Isobutane	0.000	0.002	7.352	1.838	8.051	0.147	0.161
n-Butane	0.001	0.006	26.184	6.546	28.671	0.524	0.574
Isopentane	0.000	0.000	4.712	1.178	5.160	0.094	0.103
n-Pentane	0.000	0.000	2.303	0.576	2.522	0.046	0.050
n-Hexane	0.000	0.000	0.337	0.084	0.369	0.007	0.007
Cyclohexane	0.000	0.000	0.856	0.214	0.937	0.017	0.019
i-C6	0.000	0.000	1.265	0.316	1.385	0.025	0.028
i-C7	0.000	0.000	1.110	0.278	1.216	0.022	0.024
Methylcyclohexane	0.000	0.000	0.158	0.039	0.173	0.003	0.003
Octane	0.000	0.000	0.084	0.021	0.092	0.002	0.002
Nonane	0.000	0.000	0.012	0.003	0.014	0.000	0.000
Benzene	0.005	0.024	14.338	3.585	15.700	0.287	0.314
Toluene	0.001	0.003	7.926	1.981	8.679	0.159	0.174
Ethylbenzene	0.000	0.000	0.709	0.177	0.776	0.014	0.016
o-Xylene	0.000	0.000	1.220	0.305	1.336	0.024	0.027
H2S	0.002	0.009	0.069	0.017	0.075	0.001	0.002
Water	25.871	113.316	29.821	7.455	32.654	1.114	2.919
2,2,4 Trimethylpentane	0.000	0.000	0.038	0.010	0.042	0.001	0.001
Decanes Plus	0.000	0.000	0.001	0.000	0.001	0.000	0.000

Emission Component	Uncontrolled Skim Tank W&B Stream		Uncontrolled Skim Tank Flash Stream			Skim Tank Stream Controlled by Flare	
	lb/hr	TPY	Max lb/hr	lb/hr	TPY	lb/hr	TPY
STREAM TOTAL	26.98	118.18	687.90	171.98	753.26	14.30	17.43
VOC TOTAL	0.02	0.11	142.32	35.58	155.84	2.85	3.12
HAP TOTAL	0.01	0.03	24.57	6.14	26.90	0.49	0.54

[1] Uncontrolled emissions and gas volume are based on Promax Results. Tank vapors are controlled using a flare.

[2] Controlled Emissions Were Calculated by the Following: Uncontrolled Emissions * (1 - Flare Destruction Efficiency)

Flare Destruction Efficiency 98%

[3] Annual controlled rate (tpy) calculated by multiplying hourly emission rate by 8760 hours for normal operation.

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
LP FLARE - SKIM AND WATER TANKS

Flared Skim and Water Tank Emissions

Daily Water Tank Gas Volume	316578	SCF/Hour (Based on Maximum Hourly)
Hourly Water Tank Gas Volume	13191	SCF/Hour (Based on Maximum Hourly)
Daily Water Tank Gas Volume	99169	SCF/Day (Based on Annual Average)
VRU Collection Efficiency	0	Percentage
Hourly Water Tank Gas Volume	13191	SCF/Hour (Based on Maximum Hourly)
Duration	8760	Hours/Year
Annual Water Tank Gas Volume	36196662	SCF/Year (Based on Annual Average)
Flared	Yes	(Yes/No)
Vented	No	(Yes/No)
Heating Volume	1202.58	Btu/scf

Component	Hourly Emission Rate (lb/hr)	Annualized Emission Rate (TPY)
CO[1]	4.37	6.00
NOx[1]	2.19	3.00
SO_2[2]	0.14	0.19
H_2S[2]	0.00	0.00
$PM_{10 \& 2.5}$[3]	0.10	0.14

[1] The CO and NOx emission factors (0.2755lb and 0.138/MMBtu) are based on TCEQ document RG-109, Basis for Emission Calculation from Flare Systems.

[2] Emissions are based on the following example calculation: SCF/day * 14.7 / 10.73 / 528 * H2S PPM * H2S MW. SO2 is calculated assuming MW ratio of 64.07:34.08.

[3] PM 10 & 2.5 emissions are based on AP-42, Section 1.4 (External Combustion). The value was reduced by 90% since AP-42 does not have PM factors for flares.

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

PRODUCED WATER STORAGE TANK EMISSIONS SUMMARY

TOTAL EMISSIONS SUMMARY

FIN	Unit Description	Tank Controlled (Yes/No)	Control Type	Material Throughput (bbls/day)	Material Type (Oil/Produced Water)	Total VOC Emissions	
						lb/hour	TPY
WT1	**Produced Water Tank**	Yes	Flare	10000	PRODUCED WATER	0.01	0.01
WT2	**Produced Water Tank**	Yes	Flare	10000	PRODUCED WATER	0.01	0.01
WT3	**Produced Water Tank**	Yes	Flare	10000	PRODUCED WATER	0.01	0.01
WT4	**Produced Water Tank**	Yes	Flare	10000	PRODUCED WATER	0.01	0.01
WT5	**Produced Water Tank**	Yes	Flare	10000	PRODUCED WATER	0.01	0.01
WT6	**Produced Water Tank**	Yes	Flare	10000	PRODUCED WATER	0.01	0.01
Water Tank Emissions						0.06	0.07

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
PRODUCED WATER TANK VAPOR ANALYSIS - PROMAX RESULTS

Conversion of Mole Percent to Weight Percent

Component	Mole %	Weight %
Carbon Dioxide	0.9202	2.2145
Nitrogen	0.0140	0.0214
Methane	1.4134	1.2399
Ethane	0.4037	0.6637
Propane	0.0254	0.0613
Isobutane	0.0004	0.0014
n-Butane	0.0016	0.0050
Isopentane	0.0001	0.0002
n-Pentane	0.0000	0.0000
n-Hexane	0.0000	0.0000
Cyclohexane	0.0000	0.0000
i-C6	0.0000	0.0000
i-C7	0.0000	0.0000
Methylcyclohexane	0.0000	0.0000
Octane	0.0000	0.0000
Nonane	0.0000	0.0000
Benzene	0.0048	0.0206
Toluene	0.0005	0.0026
Ethylbenzene	0.0000	0.0001
o-Xylene	0.0000	0.0001
H2S	0.0040	0.0074
Water	97.2119	95.7618
2,2,4 Trimethylpentane	0.0000	0.0000
Decanes Plus	0.0000	0.0000
Total	100.00	100.0000

MOLECULAR WEIGHT	18.29
SATURATED BTU	71
NMHC	0.75
VOCs (NMNEHC)	0.09
HAPs	0.02
H2S Mole Percentage	0.00

[1]**Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2**

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

PRODUCED WATER TANKS - EMISSIONS SUMMARY

Produced Water Tank VOC Emissions - Routed to Flare Vent System

Emission Component	Uncontrolled PW W&B Stream		Uncontrolled PW Flash Stream			PW Tank Stream Controlled By Flare	
	lb/hr	TPY	Max lb/hr	lb/hr	TPY	lb/hr	TPY
Carbon Dioxide	0.589	2.582	0.403	0.101	0.441	0.020	0.060
Nitrogen	0.006	0.025	0.350	0.088	0.383	0.007	0.008
Methane	0.330	1.445	6.930	1.732	7.588	0.145	0.181
Ethane	0.177	0.774	2.842	0.710	3.112	0.060	0.078
Propane	0.016	0.071	1.504	0.376	1.647	0.030	0.034
Isobutane	0.000	0.002	0.150	0.038	0.164	0.003	0.003
n-Butane	0.001	0.006	0.534	0.134	0.585	0.011	0.012
Isopentane	0.000	0.000	0.096	0.024	0.105	0.002	0.002
n-Pentane	0.000	0.000	0.047	0.012	0.051	0.001	0.001
n-Hexane	0.000	0.000	0.007	0.002	0.008	0.000	0.000
Cyclohexane	0.000	0.000	0.017	0.004	0.019	0.000	0.000
i-C6	0.000	0.000	0.026	0.006	0.028	0.001	0.001
i-C7	0.000	0.000	0.023	0.006	0.025	0.000	0.000
Methylcyclohexane	0.000	0.000	0.003	0.001	0.004	0.000	0.000
Octane	0.000	0.000	0.002	0.000	0.002	0.000	0.000
Nonane	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Benzene	0.005	0.024	0.293	0.073	0.320	0.006	0.007
Toluene	0.001	0.003	0.162	0.040	0.177	0.003	0.004
Ethylbenzene	0.000	0.000	0.014	0.004	0.016	0.000	0.000
o-Xylene	0.000	0.000	0.025	0.006	0.027	0.000	0.001
H2S	0.002	0.009	0.001	0.000	0.002	0.000	0.000
Water	25.488	111.636	0.609	0.152	0.666	0.522	2.246
2,2,4 Trimethylpentane	0.000	0.000	0.001	0.000	0.001	0.000	0.000
Decanes Plus	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Emission Component	Uncontrolled PW W&B Stream		Uncontrolled PW Flash Stream			PW Tank Stream Controlled by Flare	
	lb/hr	TPY	Max lb/hr	lb/hr	TPY	lb/hr	TPY
STREAM TOTAL	26.62	116.58	14.04	3.51	15.37	0.81	2.64
VOC TOTAL	0.02	0.11	2.90	0.73	3.18	0.06	0.07
HAP TOTAL	0.01	0.03	0.50	0.13	0.55	0.01	0.01

[1]Uncontrolled emissions and gas volume are based on Promax Results. Tank vapors are controlled using a flare.

[2]Controlled Emissions Were Calculated by the Following: Uncontrolled Emissions * (1 - Flare Destruction Efficiency)

Flare Destruction Efficiency **98%**

[3]Annual controlled rate (tpy) calculated by multiplying hourly emission rate by 8760 hours for normal operation .

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
OIL TRUCK LOADING EMISSIONS

Truck Loading Losses Calculations - VOCs

Oil Loading	5000	bbls / Day
Operating Schedule	365	Day / Year
Total Production	1825000	bbls / Year

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

Saturation Factor (S) =	0.6
Average True Vapor Pressure of liquid loaded (P) =	9.69
Maximum True Vapor Pressure of liquid loaded (P) =	11.32
Average Temperature of bulk liquid loaded in Rankin (T)[1] =	548.6
Maximum Temperature of bulk liquid loaded in Rankin (T)[1] =	560.5
Molecular Weight (M)[1] =	47.27
Collection Efficiency (EFF)[2]=	98.70
Hourly LL (lb Total HC / bbl Throughput) =	0.0039
Hourly LL (lb VOC / bbl Throughput) =	**0.0032**
Annual LL (lb Total HC / bbl Throughput) =	0.0034
Annual LL (lb VOC / bbl Throughput) =	**0.0028**
Estimated Throughput (bbls/Year) =	1825000
Truck Loading Rate (bbls/hour) =	210
Estimated # of Loads (Approximately 1 hr/Load) =	8690

COMPONENT	lb/hr	TPY
VOCs	0.66	2.52
HAPs	0.03	0.11
Benzene	0.01	0.03
n-Hexane	0.01	0.04

[1]Based on PROMAX Results
[2]Based on DOT Oil Trucks at a collection efficiency of 98.7%. Controlled emissions at 98% flare efficiency are shown on the LP Flare Truck Loading page. Emissions here include only those emitted as a result of incomplete collection.

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
WATER TRUCK LOADING EMISSIONS

Truck Loading Losses Calculations - VOCs

Water Loading	**5000**	**bbls / Day**
Operating Schedule	**365**	**Day / Year**
Total Production	**1825000**	**bbls / Year**

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

Saturation Factor (S) =	0.6
Average True Vapor Pressure of liquid loaded (P) =	0.59
Maximum True Vapor Pressure of liquid loaded (P) =	0.85
Average Temperature of bulk liquid loaded in Rankin (T)[1] =	543.8
Maximum Temperature of bulk liquid loaded in Rankin (T)[1] =	555.7
Molecular Weight (M)[1] =	18.29
Collection Efficiency (EFF) =	0.00
Hourly LL (lb Total HC / bbl Throughput) =	0.0088
Hourly LL (lb VOC / bbl Throughput) =	**0.0000**
Annual LL (lb Total HC / bbl Throughput) =	0.0062
Annual LL (lb VOC / bbl Throughput) =	**0.0000**
Estimated Throughput (bbls/Year) =	1825000
Truck Loading Rate (bbls/hour) =	210
Estimated # of Loads (Approximately 1 hr/Load) =	8690

COMPONENT	lb/hr	TPY
VOCs	0.00	0.01
HAPs	0.00	0.00
Benzene	0.00	0.00
n-Hexane	0.00	0.00

[1]Based on PROMAX Results

[2]Based on DOT Oil Trucks at a collection efficiency of 98.7%. Controlled emissions at 98% flare efficiency are shown on the LP Flare Truck Loading page. Emissions here include only those emitted as a result of incomplete collection.

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
LP FLARE - CONTROLLED TRUCK LOADING EMISSIONS

LP Flare - Truck Loading of Oil

	Oil Loading (Captured Vapors)[1]			LP Flare	
Component	Mole %	Weight %	lb/hr	lb/hr	TPY
Carbon Dioxide	0.134	0.126	0.056	0.056	0.247
Nitrogen	0.002	0.001	0.001	0.001	0.002
Methane	2.199	0.753	0.338	0.007	0.030
Ethane	29.568	18.962	8.512	0.170	0.746
Propane	35.469	33.356	14.973	0.299	1.312
Isobutane	5.227	6.479	2.909	0.058	0.255
n-Butane	14.479	17.948	8.057	0.161	0.706
Isopentane	3.550	5.462	2.452	0.049	0.215
n-Pentane	3.771	5.802	2.605	0.052	0.228
n-Hexane	0.758	1.393	0.625	0.013	0.055
Cyclohexane	0.118	0.213	0.095	0.002	0.008
i-C6	1.411	2.594	1.164	0.023	0.102
i-C7	1.722	3.679	1.651	0.033	0.145
Methylcyclohexane	0.038	0.080	0.036	0.001	0.003
Octane	0.413	1.006	0.452	0.009	0.040
Nonane	0.054	0.146	0.066	0.001	0.006
Benzene	0.617	1.028	0.461	0.009	0.040
Toluene	0.326	0.640	0.287	0.006	0.025
Ethylbenzene	0.028	0.062	0.028	0.001	0.002
o-Xylene	0.040	0.091	0.041	0.001	0.004
H2S	0.003	0.002	0.001	0.000	0.000
Water	0.001	0.000	0.000	0.000	0.001
2,2,4 Trimethylpentane	0.072	0.177	0.079	0.002	0.007
Decanes Plus	0.000	0.000	0.000	0.000	0.000

Stream Total	44.89	0.95	4.18
VOC Total	35.98	0.72	3.15
HAP Total	1.52	0.03	0.13

Annual Hours (hrs)	8690	Molecular Weight	47
Heating Value of Vapor (Btu/scf)	2653	Volumetric Flow (scf/hr)	368.09
Vapor Balance Loading Capture	98.7%	Heat Released (MMBtu/hr)	0.976
Destruction Efficiency of Flare	98%		

Criteria Pollutant Emissions from Flare [2]				
Component	**Emission Rate (lb/hr)**	**Emission Rate (TPY)**	**Emission Factor**	**Emission Factor Units**
NO_X	0.13	0.59	0.138	lb/MMBtu
CO	0.27	1.17	0.2755	lb/MMBtu
SO_2	0.00	0.00	--	--
PM_{10}	0.00	0.01	7.60	lb/MMscf
$PM_{2.5}$	0.00	0.01	7.60	lb/MMscf
H_2S	0.00	0.00	--	--

[1] Oil Loading vapors properties determined from ProMax

[2] Flare CO and NOx emission factors from TCEQ Air Permit Techincal Guidance for Chemical Sources. PM and PM2.5 emission factors from AP-42, Table 1.4-1 and 1.4-2, July 1998. SO2 emissions assume 100% conversion of H2S to SO2.

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
ROAD EMISSIONS

PM_{10} Emissions $E = k(s/12)^a(W/3)^b$	
a	0.9
b	0.45
k	1.5
Silt %	4.8
Vehicle Weight (tons)	28
E-Hourly (lbs/VMT)	1.80
Rain Days	70
E-Annual (lbs/VMT)	1.45
Truckloads per year	17381
Driving Distance Per Load (ft)	700
Annual Distance (miles)	2304
Control Efficiency - 15 MPH Limit	
Emissions (lbs/hr)	0.48
Emissions (tpy)	1.67

$PM_{2.5}$ Emissions $E = k(s/12)^a(W/3)^b$	
a	0.9
b	0.45
k	0.15
Silt %	4.8
Vehicle Weight (tons)	28
E-Hourly (lbs/VMT)	0.18
Rain Days	70
E-Annual (lbs/VMT)	0.15
Truckloads per year	17381
Driving Distance Per Load (ft)	700
Annual Distance (miles)	2304
Control Efficiency - 15 MPH Limit	
Emissions (lbs/hr)	0.05
Emissions (tpy)	0.17

Emissions (lbs/hr) = Driving Distance (ft)/ 5280 * E (lbs/VMT) *2 trucks per hour (One for oil and one for water)
Emissions (tpy) = Annual Distance * E / 2000

References:
EPA. "Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources," Section 13.2.2

AP-42, Ofice of Air Quality Planning and Standards, Research Triangle Park, NC. 5th edition (11/2006).

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

Calculation Methodology for Fugitive & Road Emissions

Calculation Methodology

Fugitives (Equipment Leaks) - VOC Emissions

Fugitives were calculated using AP-42 factors based on the type of fitting, valve, line, etc. and based on how the line is used (i.e. gas, light liquid service, etc.). Since these emission factors are for estimating total hydrocarbon emissions, the calculated emissions are multiplied by the VOC or HAP Weight Percentage of the service type. Fugitive Emissions are divided into sections of the facility to more accurately account for compositional analysis and counts.

Road Emissions - PM Emissions

The PM Emissions were calculated using AP-42 Factors from section 13.2.2 "Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources."

XTO ENERGY INC.

BEU DI 38 TANK BATTERY

FUGITIVE EMISSIONS - TOTAL EMISSION SUMMARY

EQUIPMENT LEAK EMISSION SUMMARY TABLE

Stream Source	Total VOCs		Total HAPs		Benzene		Hexane		CH4	CO2	CO2e
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	TPY	TPY	TPY
Inlet & Sales Section	0.81	3.53	0.05	0.22	0.01	0.04	0.01	0.04	4.31	6.09	113.87
Heater Treater Section	0.72	3.17	0.04	0.19	0.01	0.04	0.01	0.04	3.06	4.60	81.11
Storage Tank Section	0.77	3.38	0.05	0.22	0.02	0.07	0.02	0.07	4.43	6.17	117.04
Total Emissions	**2.30**	**10.08**	**0.14**	**0.63**	**0.04**	**0.16**	**0.04**	**0.15**	**11.81**	**16.86**	**312.03**

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
FACILITY INLET GAS ANALYSIS - PROMAX

Gas Composition

Component	Mole %	Weight %
Carbon Dioxide	0.2485	0.4839
Nitrogen	3.9530	4.8998
Methane	71.9867	51.0980
Ethane	12.1822	16.2078
Propane	6.2561	12.2062
Isobutane	0.7554	1.9427
n-Butane	1.9671	5.0588
Isopentane	0.4612	1.4723
n-Pentane	0.4851	1.5485
n-Hexane	0.1213	0.4624
Cyclohexane	0.1451	0.5404
i-C6	0.2395	0.9134
i-C7	0.2197	0.9739
Methylcyclohexane	0.0905	0.3930
Octane	0.0596	0.3014
Nonane	0.0278	0.1579
Benzene	0.1143	0.3951
Toluene	0.0586	0.2391
Ethylbenzene	0.0010	0.0047
o-Xylene	0.0099	0.0467
H2S	0.0010	0.0015
Water	0.6014	0.4794
2,2,4 Trimethylpentane	0.0000	0.0000
Decanes Plus	0.0149	0.1732
Total	100.00	100.0000

MOLECULAR WEIGHT	22.60
SATURATED BTU	1282
NMHC	43.037
VOCs (NMNEHC)	26.83
HAPs	1.15
H2S Mole Percentage	0.00

[1]Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
FACILITY INLET FLUID ANALYSIS - PROMAX

Fluid Composition

Component	Mole %	Weight %
Carbon Dioxide	0.0072	0.0020
Nitrogen	0.0280	0.0049
Methane	2.4296	0.2421
Ethane	2.2551	0.4212
Propane	3.7081	1.0157
Isobutane	0.9704	0.3504
n-Butane	3.6679	1.3243
Isopentane	2.0109	0.9012
n-Pentane	2.8437	1.2745
n-Hexane	1.7749	0.9501
Cyclohexane	0.0000	0.0000
i-C6	2.3095	1.2363
i-C7	9.6125	5.9832
Methylcyclohexane	0.0000	0.0000
Octane	11.1070	7.8812
Nonane	5.3068	4.2279
Benzene	2.3644	1.1473
Toluene	4.0805	2.3354
Ethylbenzene	1.0199	0.6726
o-Xylene	2.0730	1.3671
H2S	0.0000	0.0000
Water	0.0000	0.0000
2,2,4 Trimethylpentane	0.5700	0.4045
Decanes Plus	41.8607	68.2583
Total	100.00	100.0000

MOLECULAR WEIGHT	160.98
NMHC	99.75
VOCs (NMNEHC)	99.33
HAPs	6.88
H2S Mole Percentage	0.00

[1]**Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2**

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
INLET & SALES SECTION - FUGITIVE EMISSION VOCs

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total VOC Weight %	Emissions lb/hour	Emissions lb/year	Emissions tons/year	Total CH4 Weight %	Total CO2 Weight %	CH4 Emissions ton/year	CO2 Emissions ton/year	CO2e Emissions ton/year
Valves	Gas/Vapor	50	8760	0.00992000	26.83	0.13	1165.73	0.58	51.10	0.48	1.06	2.16	28.72
	Light Oil	50	8760	0.00550000	99.33	0.27	2392.86	1.20	0.24	0.00	1.20	1.20	31.24
	Heavy Oil	0	8760	0.00001900	99.33	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00021600	99.33	0.01	93.97	0.05	0.24	0.00	0.05	0.05	1.23
Pump Seals	Gas/Vapor	0	8760	0.00529000	26.83	0.00	0.00	0.00	51.10	0.48	0.00	0.00	0.00
	Light Oil	0	8760	0.02866000	99.33	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00113000	99.33	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Water/Light Oil	10	8760	0.00005300	99.33	0.00	4.61	0.00	0.24	0.00	0.00	0.00	0.06
Connectors	Gas/Vapor	200	8760	0.00044000	26.83	0.02	206.82	0.10	51.10	0.48	0.19	0.38	5.10
	Light Oil	200	8760	0.00046300	99.33	0.09	805.74	0.40	0.24	0.00	0.40	0.41	10.52
	Heavy Oil	0	8760	0.00001700	99.33	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00024300	99.33	0.01	105.72	0.05	0.24	0.00	0.05	0.05	1.38
Flanges	Gas/Vapor	200	8760	0.00086000	26.83	0.05	404.25	0.20	51.10	0.48	0.37	0.75	9.96
	Light Oil	200	8760	0.00024300	99.33	0.05	422.88	0.21	0.24	0.00	0.21	0.21	5.52
	Heavy Oil	0	8760	0.00000086	99.33	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00000620	99.33	0.00	2.70	0.00	0.24	0.00	0.00	0.00	0.04
Open-ended Lines	Gas/Vapor	10	8760	0.00441000	26.83	0.01	103.65	0.05	51.10	0.48	0.09	0.19	2.55
	Light Oil	0	8760	0.00309000	99.33	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	99.33	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	99.33	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
Other:	Gas/Vapor	0	8760	0.01940000	26.83	0.00	0.00	0.00	51.10	0.48	0.00	0.00	0.00
	Light Oil	0	8760	0.01650000	99.33	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	99.33	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Water/Light Oil	5	8760	0.03090000	99.33	0.15	1344.35	0.67	0.24	0.00	0.68	0.68	17.55

Emission Component	lb/hr	lb/year	TPY
Total VOC	0.81	7053.28	3.53

CH4 Emissions	CO2 Emissions	CO2e Emissions
4.31	6.09	113.87

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
INLET & SALES SECTION - FUGITIVE EMISSION HAPs

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total HAPs Weight %	Emissions		
						lb/hour	lb/year	tons/year
Valves	Gas/Vapor	50	8760	0.00992000	1.15	0.01	49.88	0.02
	Light Oil	50	8760	0.00550000	6.88	0.02	165.67	0.08
	Heavy Oil	0	8760	0.00001900	6.88	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00021600	6.88	0.00	6.51	0.00
Pump Seals	Gas/Vapor	0	8760	0.00529000	1.15	0.00	0.00	0.00
	Light Oil	0	8760	0.02866000	6.88	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00113000	6.88	0.00	0.00	0.00
	Water/Light Oil	10	8760	0.00005200	6.88	0.00	0.31	0.00
Connectors	Gas/Vapor	200	8760	0.00044000	1.15	0.00	8.85	0.00
	Light Oil	200	8760	0.00046300	6.88	0.01	55.78	0.03
	Heavy Oil	0	8760	0.00001700	6.88	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00024300	6.88	0.00	7.32	0.00
Flanges	Gas/Vapor	200	8760	0.00086000	1.15	0.00	17.30	0.01
	Light Oil	200	8760	0.00024300	6.88	0.00	29.28	0.01
	Heavy Oil	0	8760	0.00000086	6.88	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00000620	6.88	0.00	0.19	0.00
Open-ended Lines	Gas/Vapor	10	8760	0.00441000	1.15	0.00	4.43	0.00
	Light Oil	0	8760	0.00309000	6.88	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	6.88	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	6.88	0.00	0.00	0.00
Other:	Gas/Vapor	0	8760	0.01940000	1.15	0.00	0.00	0.00
	Light Oil	0	8760	0.01650000	6.88	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	6.88	0.00	0.00	0.00
	Water/Light Oil	5	8760	0.03090000	6.88	0.01	93.07	0.05

Emission Component	lb/hr	lb/year	TPY
Total HAPs	0.05	438.58	0.22

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
INLET & SALES SECTION - FUGITIVE EMISSION BENZENE

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total Benzene Weight %	Emissions		
						lb/hour	lb/year	tons/year
Valves	Gas/Vapor	50	8760	0.00992000	0.40	0.00	17.17	0.01
	Light Oil	50	8760	0.00550000	1.15	0.00	27.64	0.01
	Heavy Oil	0	8760	0.00001900	1.15	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00021600	1.15	0.00	1.09	0.00
Pump Seals	Gas/Vapor	0	8760	0.00529000	0.40	0.00	0.00	0.00
	Light Oil	0	8760	0.02866000	1.15	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00113000	1.15	0.00	0.00	0.00
	Water/Light Oil	10	8760	0.00005300	1.15	0.00	0.05	0.00
Connectors	Gas/Vapor	200	8760	0.00044000	0.40	0.00	3.05	0.00
	Light Oil	200	8760	0.00046300	1.15	0.00	9.31	0.00
	Heavy Oil	0	8760	0.00001700	1.15	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00024300	1.15	0.00	1.22	0.00
Flanges	Gas/Vapor	200	8760	0.00086000	0.40	0.00	5.95	0.00
	Light Oil	200	8760	0.00024300	1.15	0.00	4.88	0.00
	Heavy Oil	0	8760	0.00000086	1.15	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00000620	1.15	0.00	0.03	0.00
Open-ended Lines	Gas/Vapor	10	8760	0.00441000	0.40	0.00	1.53	0.00
	Light Oil	0	8760	0.00309000	1.15	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	1.15	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	1.15	0.00	0.00	0.00
Other:	Gas/Vapor	0	8760	0.01940000	0.40	0.00	0.00	0.00
	Light Oil	0	8760	0.01650000	1.15	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	1.15	0.00	0.00	0.00
	Water/Light Oil	5	8760	0.03090000	1.15	0.00	15.53	0.01

Emission Component	lb/hr	lb/year	TPY
Total Benzene	0.010	87.44	0.044

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
INLET & SALES SECTION - FUGITIVE EMISSIONS HEXANE

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total Hexane Weight %	Emissions		
						lb/hour	lb/year	tons/year
Valves	Gas/Vapor	50	8760	0.00992000	0.46	0.00	20.09	0.01
	Light Oil	50	8760	0.00550000	0.95	0.00	22.89	0.01
	Heavy Oil	0	8760	0.00001900	0.95	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00021600	0.95	0.00	0.90	0.00
Pump Seals	Gas/Vapor	0	8760	0.00529000	0.46	0.00	0.00	0.00
	Light Oil	0	8760	0.02866000	0.95	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00113000	0.95	0.00	0.00	0.00
	Water/Light Oil	10	8760	0.00005300	0.95	0.00	0.04	0.00
Connectors	Gas/Vapor	200	8760	0.00044000	0.46	0.00	3.56	0.00
	Light Oil	200	8760	0.00046300	0.95	0.00	7.71	0.00
	Heavy Oil	0	8760	0.00001700	0.95	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00024300	0.95	0.00	1.01	0.00
Flanges	Gas/Vapor	200	8760	0.00086000	0.46	0.00	6.97	0.00
	Light Oil	200	8760	0.00024300	0.95	0.00	4.04	0.00
	Heavy Oil	0	8760	0.00000086	0.95	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00000620	0.95	0.00	0.03	0.00
Open-ended Lines	Gas/Vapor	10	8760	0.00441000	0.46	0.00	1.79	0.00
	Light Oil	0	8760	0.00309000	0.95	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	0.95	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	0.95	0.00	0.00	0.00
Other:	Gas/Vapor	0	8760	0.01940000	0.46	0.00	0.00	0.00
	Light Oil	0	8760	0.01650000	0.95	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	0.95	0.00	0.00	0.00
	Water/Light Oil	5	8760	0.03090000	0.95	0.00	12.86	0.01

Emission Component	lb/hr	lb/year	TPY
Total Hexane	0.009	81.89	0.041

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
TREATER GAS ANALYSIS - FUGITIVE EMISSIONS

Conversion of Mole Percent to Weight Percent

Component	Mole %	Weight %
Carbon Dioxide	0.2903	0.4153
Nitrogen	1.0619	0.9669
Methane	46.8801	24.4459
Ethane	21.4011	20.9172
Propane	15.8500	22.7180
Isobutane	2.1539	4.0693
n-Butane	5.8244	11.0037
Isopentane	1.3867	3.2519
n-Pentane	1.5008	3.5197
n-Hexane	0.3164	0.8862
Cyclohexane	0.0638	0.1747
i-C6	0.5889	1.6496
i-C7	0.8153	2.6556
Methylcyclohexane	0.0217	0.0692
Octane	0.2341	0.8692
Nonane	0.0410	0.1710
Benzene	0.3290	0.8352
Toluene	0.1782	0.5337
Ethylbenzene	0.0158	0.0545
o-Xylene	0.0266	0.0919
H2S	0.0019	0.0021
Water	0.9851	0.5769
2,2,4 Trimethylpentane	0.0329	0.1222
Decanes Plus	0.0000	0.0003
Total	100.00	100.0000

MOLECULAR WEIGHT	22.41
SATURATED BTU	1273.64
NMHC	73.59
VOCs (NMNEHC)	52.68
HAPs	2.52
H2S Mole Percentage	0.00

[1]Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
TREATER LIQUID ANALYSIS - FUGITIVE EMISSIONS

Conversion of Mole Percent to Weight Percent

Component	Mole %	Weight %
Carbon Dioxide	0.0091	0.0024
Nitrogen	0.0052	0.0009
Methane	0.6311	0.0620
Ethane	1.4161	0.2607
Propane	3.2936	0.8890
Isobutane	1.0350	0.3682
n-Butane	3.9168	1.3936
Isopentane	2.2152	0.9784
n-Pentane	3.0711	1.3564
n-Hexane	1.9547	1.0311
Cyclohexane	0.5752	0.2963
i-C6	2.6733	1.4102
i-C7	9.7251	5.9652
Methylcyclohexane	0.3812	0.2291
Octane	11.1985	7.8305
Nonane	5.4226	4.2573
Benzene	2.4571	1.1749
Toluene	4.1571	2.3447
Ethylbenzene	1.0131	0.6584
o-Xylene	2.0998	1.3647
H2S	0.0002	0.0000
Water	0.0537	0.0059
2,2,4 Trimethylpentane	0.5363	0.3750
Decanes Plus	42.1590	67.7449
Total	100.00	100.0000

MOLECULAR WEIGHT	163.36
NMHC	99.93
VOCs (NMNEHC)	99.67
HAPs	6.95
H2S Mole Percentage	0.00

[1]**Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2**

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
TREATER SECTION - FUGITIVE EMISSION VOCs

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total VOC Weight %	Emissions			Total CH4 Weight %	Total CO2 Weight %	CH4 Emissions	CO2 Emissions	CO2e Emissions
						lb/hour	lb/year	tons/year			ton/year	ton/year	ton/year
Valves	Gas/Vapor	40	8760	0.00992000	52.68	0.21	1830.99	0.92	51.10	0.48	0.85	1.73	22.98
	Light Oil	40	8760	0.00550000	99.67	0.22	1920.80	0.96	0.24	0.00	0.96	0.96	25.00
	Heavy Oil	0	8760	0.00001900	99.67	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00021600	99.67	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
Pump Seals	Gas/Vapor	0	8760	0.00529000	52.68	0.00	0.00	0.00	51.10	0.48	0.00	0.00	0.00
	Light Oil	0	8760	0.02866000	99.67	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00113000	99.67	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00005300	99.67	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
Connectors	Gas/Vapor	200	8760	0.00044000	52.68	0.05	406.07	0.20	51.10	0.48	0.19	0.38	5.10
	Light Oil	200	8760	0.00046300	99.67	0.09	808.48	0.40	0.24	0.00	0.40	0.41	10.52
	Heavy Oil	0	8760	0.00001700	99.67	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00024300	99.67	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
Flanges	Gas/Vapor	200	8760	0.00086000	52.68	0.09	793.68	0.40	51.10	0.48	0.37	0.75	9.96
	Light Oil	200	8760	0.00024300	99.67	0.05	424.32	0.21	0.24	0.00	0.21	0.21	5.52
	Heavy Oil	0	8760	0.00000086	99.67	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00000620	99.67	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
Open-ended Lines	Gas/Vapor	8	8760	0.00441000	52.68	0.02	162.80	0.08	51.10	0.48	0.08	0.15	2.04
	Light Oil	0	8760	0.00309000	99.67	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	99.67	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	99.67	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
Other:	Gas/Vapor	0	8760	0.01940000	52.68	0.00	0.00	0.00	51.10	0.48	0.00	0.00	0.00
	Light Oil	0	8760	0.01650000	99.67	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	99.67	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.03090000	99.67	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00

Emission Component	lb/hr	lb/year	TPY
Total VOC	0.72	6347.14	3.17

CH4 Emissions	CO2 Emissions	CO2e Emissions
3.06	4.60	81.11

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
TREATER SECTION - FUGITIVE EMISSION HAPs

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total HAPs Weight %	Emissions		
						lb/hour	lb/year	tons/year
Valves	Gas/Vapor	40	8760	0.00992000	2.52	0.01	87.72	0.04
	Light Oil	40	8760	0.00550000	6.95	0.02	133.92	0.07
	Heavy Oil	0	8760	0.00001900	6.95	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00021600	6.95	0.00	0.00	0.00
Pump Seals	Gas/Vapor	0	8760	0.00529000	2.52	0.00	0.00	0.00
	Light Oil	0	8760	0.02866000	6.95	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00113000	6.95	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00005300	6.95	0.00	0.00	0.00
Connectors	Gas/Vapor	200	8760	0.00044000	2.52	0.00	19.45	0.01
	Light Oil	200	8760	0.00046300	6.95	0.01	56.37	0.03
	Heavy Oil	0	8760	0.00001700	6.95	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00024300	6.95	0.00	0.00	0.00
Flanges	Gas/Vapor	200	8760	0.00086000	2.52	0.00	38.02	0.02
	Light Oil	200	8760	0.00024300	6.95	0.00	29.58	0.01
	Heavy Oil	0	8760	0.00000086	6.95	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00000620	6.95	0.00	0.00	0.00
Open-ended Lines	Gas/Vapor	8	8760	0.00441000	2.52	0.00	7.80	0.00
	Light Oil	0	8760	0.00309000	6.95	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	6.95	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	6.95	0.00	0.00	0.00
Other:	Gas/Vapor	0	8760	0.01940000	2.52	0.00	0.00	0.00
	Light Oil	0	8760	0.01650000	6.95	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	6.95	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.03090000	6.95	0.00	0.00	0.00

Emission Component	lb/hr	lb/year	TPY
Total HAPs	0.04	372.87	0.19

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
TREATER SECTION - FUGITIVE EMISSION BENZENE

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total Benzene Weight %	Emissions		
						lb/hour	lb/year	tons/year
Valves	Gas/Vapor	40	8760	0.00992000	0.84	0.00	29.03	0.01
	Light Oil	40	8760	0.00550000	1.17	0.00	22.64	0.01
	Heavy Oil	0	8760	0.00001900	1.17	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00021600	1.17	0.00	0.00	0.00
Pump Seals	Gas/Vapor	0	8760	0.00529000	0.84	0.00	0.00	0.00
	Light Oil	0	8760	0.02866000	1.17	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00113000	1.17	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00005300	1.17	0.00	0.00	0.00
Connectors	Gas/Vapor	200	8760	0.00044000	0.84	0.00	6.44	0.00
	Light Oil	200	8760	0.00046300	1.17	0.00	9.53	0.00
	Heavy Oil	0	8760	0.00001700	1.17	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00024300	1.17	0.00	0.00	0.00
Flanges	Gas/Vapor	200	8760	0.00086000	0.84	0.00	12.58	0.01
	Light Oil	200	8760	0.00024300	1.17	0.00	5.00	0.00
	Heavy Oil	0	8760	0.00000086	1.17	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00000620	1.17	0.00	0.00	0.00
Open-ended Lines	Gas/Vapor	8	8760	0.00441000	0.84	0.00	2.58	0.00
	Light Oil	0	8760	0.00309000	1.17	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	1.17	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	1.17	0.00	0.00	0.00
Other:	Gas/Vapor	0	8760	0.01940000	0.84	0.00	0.00	0.00
	Light Oil	0	8760	0.01650000	1.17	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	1.17	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.03090000	1.17	0.00	0.00	0.00

Emission Component	lb/hr	lb/year	TPY
Total Benzene	0.010	87.81	0.044

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
TREATER SECTION - FUGITIVE EMISSION HEXANE

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total Hexane Weight %	Emissions		
						lb/hour	lb/year	tons/year
Valves	Gas/Vapor	40	8760	0.00992000	0.89	0.00	30.80	0.02
	Light Oil	40	8760	0.00550000	1.03	0.00	19.87	0.01
	Heavy Oil	0	8760	0.00001900	1.03	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00021600	1.03	0.00	0.00	0.00
Pump Seals	Gas/Vapor	0	8760	0.00529000	0.89	0.00	0.00	0.00
	Light Oil	0	8760	0.02866000	1.03	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00113000	1.03	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00005300	1.03	0.00	0.00	0.00
Connectors	Gas/Vapor	200	8760	0.00044000	0.89	0.00	6.83	0.00
	Light Oil	200	8760	0.00046300	1.03	0.00	8.36	0.00
	Heavy Oil	0	8760	0.00001700	1.03	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00024300	1.03	0.00	0.00	0.00
Flanges	Gas/Vapor	200	8760	0.00086000	0.89	0.00	13.35	0.01
	Light Oil	200	8760	0.00024300	1.03	0.00	4.39	0.00
	Heavy Oil	0	8760	0.00000086	1.03	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00000620	1.03	0.00	0.00	0.00
Open-ended Lines	Gas/Vapor	8	8760	0.00441000	0.89	0.00	2.74	0.00
	Light Oil	0	8760	0.00309000	1.03	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	1.03	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	1.03	0.00	0.00	0.00
Other:	Gas/Vapor	0	8760	0.01940000	0.89	0.00	0.00	0.00
	Light Oil	0	8760	0.01650000	1.03	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	1.03	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.03090000	1.03	0.00	0.00	0.00

Emission Component	lb/hr	lb/year	TPY
Total Hexane	0.010	86.35	0.043

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
OIL TANK SECTION GAS ANALYSIS - FUGITIVE EMISSIONS

Gas Composition

Component	Mole %	Weight %
Carbon Dioxide	0.1270	0.1182
Nitrogen	0.0025	0.0015
Methane	2.1295	0.7228
Ethane	28.6828	18.2471
Propane	35.5850	33.1982
Isobutane	5.3172	6.5385
n-Butane	14.7813	18.1764
Isopentane	3.6521	5.5747
n-Pentane	3.8887	5.9359
n-Hexane	0.7873	1.4354
Cyclohexane	0.1232	0.2194
i-C6	1.4627	2.6668
i-C7	1.7955	3.8063
Methylcyclohexane	0.0397	0.0826
Octane	0.4351	1.0515
Nonane	0.0564	0.1531
Benzene	0.6426	1.0620
Toluene	0.3409	0.6645
Ethylbenzene	0.0290	0.0651
o-Xylene	0.0422	0.0949
H2S	0.0028	0.0020
Water	0.0008	0.0003
2,2,4 Trimethylpentane	0.0756	0.1828
Decanes Plus	0.0000	0.0001
Total	100.00	100.0000

MOLECULAR WEIGHT	47.27
SATURATED BTU	2672.79
NMHC	99.16
VOCs (NMNEHC)	80.91
HAPs	3.50
H2S Mole Percentage	0.00

[1]Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
WATER TANK LIQUID ANALYSIS - FUGITIVE EMISSIONS

Water Composition

Component	Mole %	Weight %
Carbon Dioxide	0.0005	0.0013
Nitrogen	0.0000	0.0000
Methane	0.0013	0.0012
Ethane	0.0004	0.0007
Propane	0.0001	0.0003
Isobutane	0.0000	0.0000
n-Butane	0.0000	0.0001
Isopentane	0.0000	0.0000
n-Pentane	0.0000	0.0000
n-Hexane	0.0000	0.0000
Cyclohexane	0.0000	0.0000
i-C6	0.0000	0.0000
i-C7	0.0000	0.0000
Methylcyclohexane	0.0000	0.0000
Octane	0.0000	0.0000
Nonane	0.0000	0.0000
Benzene	0.0013	0.0056
Toluene	0.0005	0.0024
Ethylbenzene	0.0000	0.0002
o-Xylene	0.0001	0.0005
H2S	0.0000	0.0000
Water	99.9957	99.9877
2,2,4 Trimethylpentane	0.0000	0.0000
Decanes Plus	0.0000	0.0000
Total	100.00	100.0000

MOLECULAR WEIGHT	18.02
NMHC	0.01
VOCs (NMNEHC)	0.01
HAPs	0.01
H2S Mole Percentage	0.00

[1]**Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2**

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
OIL TANK CONDENSATE ANALYSIS - FUGITIVE EMISSIONS

Conversion of Mole Percent to Weight Percent

Component	Mole %	Weight %
Carbon Dioxide	0.0014	0.0004
Nitrogen	0.0001	0.0000
Methane	0.0442	0.0042
Ethane	0.4844	0.0862
Propane	2.1549	0.5624
Isobutane	0.8556	0.2943
n-Butane	3.4487	1.1863
Isopentane	2.1350	0.9116
n-Pentane	3.0171	1.2883
n-Hexane	1.9829	1.0113
Cyclohexane	0.4762	0.2372
i-C6	2.6701	1.3618
i-C7	10.1100	5.9954
Methylcyclohexane	0.3171	0.1843
Octane	11.7213	7.9239
Nonane	5.6669	4.3014
Benzene	2.5271	1.1683
Toluene	4.3327	2.3626
Ethylbenzene	1.0641	0.6686
o-Xylene	2.1973	1.3806
H2S	0.0001	0.0000
Water	0.0130	0.0014
2,2,4 Trimethylpentane	0.5672	0.3835
Decanes Plus	44.2126	68.6861
Total	100.00	100.0000

MOLECULAR WEIGHT	168.97
NMHC	31.222
VOCs (NMNEHC)	30.659
HAPs	5.032
H2S Mole Percentage	0.01300

[1]Values from GPSA Engineering Data Book, Volume II, 13th Edition, Figure 23-2

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
STORAGE TANK SECTION - FUGITIVE EMISSIONS VOCs

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total VOC Weight %	Emissions lb/hour	Emissions lb/year	Emissions tons/year	Total CH4 Weight %	Total CO2 Weight %	CH4 Emissions ton/year	CO2 Emissions ton/year	CO2e Emissions ton/year
Valves	Gas/Vapor	50	8760	0.00992000	80.91	0.40	3515.42	1.76	51.10	0.48	1.06	2.16	28.72
	Light Oil	50	8760	0.00550000	30.66	0.08	738.58	0.37	0.24	0.00	1.20	1.20	31.24
	Heavy Oil	0	8760	0.00001900	30.66	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00021600	0.01	0.00	0.01	0.00	0.24	0.00	0.05	0.05	1.23
Pump Seals	Gas/Vapor	5	8760	0.00529000	80.91	0.02	187.47	0.09	51.10	0.48	0.06	0.12	1.53
	Light Oil	5	8760	0.02866000	30.66	0.04	384.87	0.19	0.24	0.00	0.63	0.63	16.28
	Heavy Oil	0	8760	0.00113000	30.66	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Water/Light Oil	10	8760	0.00005300	0.01	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.06
Connectors	Gas/Vapor	50	8760	0.00044000	80.91	0.02	155.93	0.08	51.10	0.48	0.05	0.10	1.27
	Light Oil	50	8760	0.00046300	30.66	0.01	62.18	0.03	0.24	0.00	0.10	0.10	2.63
	Heavy Oil	0	8760	0.00001700	30.66	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00024300	0.01	0.00	0.01	0.00	0.24	0.00	0.05	0.05	1.38
Flanges	Gas/Vapor	50	8760	0.00086000	80.91	0.03	304.76	0.15	51.10	0.48	0.09	0.19	2.49
	Light Oil	50	8760	0.00024300	30.66	0.00	32.63	0.02	0.24	0.00	0.05	0.05	1.38
	Heavy Oil	0	8760	0.00000086	30.66	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00000620	0.01	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.04
Open-ended Lines	Gas/Vapor	0	8760	0.00441000	80.91	0.00	0.00	0.00	51.10	0.48	0.00	0.00	0.00
	Light Oil	0	8760	0.00309000	30.66	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	30.66	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	0.01	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
Other:	Gas/Vapor	10	8760	0.01940000	80.91	0.16	1374.98	0.69	51.10	0.48	0.42	0.85	11.23
	Light Oil	0	8760	0.01650000	30.66	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	30.66	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
	Water/Light Oil	5	8760	0.03090000	0.01	0.00	0.12	0.00	0.24	0.00	0.68	0.68	17.55

Emission Component	lb/hr	lb/year	TPY
Total VOC	0.77	6756.97	3.38

CH4 Emissions	CO2 Emissions	CO2e Emissions
4.43	6.17	117.04

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
STORAGE TANK SECTION - FUGITIVE EMISSIONS HAPs

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total HAPs Weight %	Emissions		
						lb/hour	lb/year	tons/year
Valves	Gas/Vapor	50	8760	0.00992000	3.50	0.02	152.27	0.08
	Light Oil	50	8760	0.00550000	5.03	0.01	121.23	0.06
	Heavy Oil	0	8760	0.00001900	5.03	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00021600	0.01	0.00	0.01	0.00
Pump Seals	Gas/Vapor	5	8760	0.00529000	3.50	0.00	8.12	0.00
	Light Oil	5	8760	0.02866000	5.03	0.01	63.17	0.03
	Heavy Oil	0	8760	0.00113000	5.03	0.00	0.00	0.00
	Water/Light Oil	10	8760	0.00005300	0.01	0.00	0.00	0.00
Connectors	Gas/Vapor	50	8760	0.00044000	3.50	0.00	6.75	0.00
	Light Oil	50	8760	0.00046300	5.03	0.00	10.21	0.01
	Heavy Oil	0	8760	0.00001700	5.03	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00024300	0.01	0.00	0.01	0.00
Flanges	Gas/Vapor	50	8760	0.00086000	3.50	0.00	13.20	0.01
	Light Oil	50	8760	0.00024300	5.03	0.00	5.36	0.00
	Heavy Oil	0	8760	0.00000086	5.03	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00000620	0.01	0.00	0.00	0.00
Open-ended Lines	Gas/Vapor	0	8760	0.00441000	3.50	0.00	0.00	0.00
	Light Oil	0	8760	0.00309000	5.03	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	5.03	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	0.01	0.00	0.00	0.00
Other:	Gas/Vapor	10	8760	0.01940000	3.50	0.01	59.56	0.03
	Light Oil	0	8760	0.01650000	5.03	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	5.03	0.00	0.00	0.00
	Water/Light Oil	5	8760	0.03090000	0.01	0.00	0.12	0.00

Emission Component	lb/hr	lb/year	TPY
Total HAPs	0.05	440.01	0.22

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
STORAGE TANK SECTION - FUGITIVE EMISSIONS BENZENE

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total Benzene Weight %	Emissions		
						lb/hour	lb/year	tons/year
Valves	Gas/Vapor	50	8760	0.00992000	0.66	0.00	28.87	0.01
	Light Oil	50	8760	0.00550000	2.36	0.01	56.92	0.03
	Heavy Oil	0	8760	0.00001900	2.36	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00021600	0.00	0.00	0.00	0.00
Pump Seals	Gas/Vapor	5	8760	0.00529000	0.66	0.00	1.54	0.00
	Light Oil	5	8760	0.02866000	2.36	0.00	29.66	0.01
	Heavy Oil	0	8760	0.00113000	2.36	0.00	0.00	0.00
	Water/Light Oil	10	8760	0.00005300	0.00	0.00	0.00	0.00
Connectors	Gas/Vapor	50	8760	0.00044000	0.66	0.00	1.28	0.00
	Light Oil	50	8760	0.00046300	2.36	0.00	4.79	0.00
	Heavy Oil	0	8760	0.00001700	2.36	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00024300	0.00	0.00	0.00	0.00
Flanges	Gas/Vapor	50	8760	0.00086000	0.66	0.00	2.50	0.00
	Light Oil	50	8760	0.00024300	2.36	0.00	2.51	0.00
	Heavy Oil	0	8760	0.00000086	2.36	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00000620	0.00	0.00	0.00	0.00
Open-ended Lines	Gas/Vapor	0	8760	0.00441000	0.66	0.00	0.00	0.00
	Light Oil	0	8760	0.00309000	2.36	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	2.36	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	0.00	0.00	0.00	0.00
Other:	Gas/Vapor	10	8760	0.01940000	0.66	0.00	11.29	0.01
	Light Oil	0	8760	0.01650000	2.36	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	2.36	0.00	0.00	0.00
	Water/Light Oil	5	8760	0.03090000	0.00	0.00	0.03	0.00

Emission Component	lb/hr	lb/year	TPY
Total Benzene	0.016	139.40	0.070

XTO ENERGY INC.
BEU DI 38 TANK BATTERY
STORAGE TANK SECTION - FUGITIVE EMISSIONS HEXANE

Fugitive Emission Calculations

Component Type	Service	Estimated Components Count	Hours	Factors	Total Hexane Weight %	Emissions		
						lb/hour	lb/year	tons/year
Valves	Gas/Vapor	50	8760	0.00992000	1.44	0.01	62.37	0.03
	Light Oil	50	8760	0.00550000	1.01	0.00	24.36	0.01
	Heavy Oil	0	8760	0.00001900	1.01	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00021600	0.00	0.00	0.00	0.00
Pump Seals	Gas/Vapor	5	8760	0.00529000	1.44	0.00	3.33	0.00
	Light Oil	5	8760	0.02866000	1.01	0.00	12.70	0.01
	Heavy Oil	0	8760	0.00113000	1.01	0.00	0.00	0.00
	Water/Light Oil	10	8760	0.00005300	0.00	0.00	0.00	0.00
Connectors	Gas/Vapor	50	8760	0.00044000	1.44	0.00	2.77	0.00
	Light Oil	50	8760	0.00046300	1.01	0.00	2.05	0.00
	Heavy Oil	0	8760	0.00001700	1.01	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00024300	0.00	0.00	0.00	0.00
Flanges	Gas/Vapor	50	8760	0.00086000	1.44	0.00	5.41	0.00
	Light Oil	50	8760	0.00024300	1.01	0.00	1.08	0.00
	Heavy Oil	0	8760	0.00000086	1.01	0.00	0.00	0.00
	Water/Light Oil	50	8760	0.00000620	0.00	0.00	0.00	0.00
Open-ended Lines	Gas/Vapor	0	8760	0.00441000	1.44	0.00	0.00	0.00
	Light Oil	0	8760	0.00309000	1.01	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00030900	1.01	0.00	0.00	0.00
	Water/Light Oil	0	8760	0.00055000	0.00	0.00	0.00	0.00
Other:	Gas/Vapor	10	8760	0.01940000	1.44	0.00	24.39	0.01
	Light Oil	0	8760	0.01650000	1.01	0.00	0.00	0.00
	Heavy Oil	0	8760	0.00006800	1.01	0.00	0.00	0.00
	Water/Light Oil	5	8760	0.03090000	0.00	0.00	0.03	0.00

Emission Component	lb/hr	lb/year	TPY
Total Hexane	0.016	138.48	0.069

AIR EMISSIONS CALCULATION TOOL

Instructions for Completing the Equipment Calculation Forms

1. Click the **Start Button** below to reset the form to begin data entry.

2. The ***Air Emissions Calculation Tool*** initially loads with the **Core Data Information Form.** Once all information is entered on this form, the necessary equipment calculation pages will be created based on the information entered on the Core Data Information Form. The customized ***Air Emissions Calculation Tool*** should now be saved to your computer before entering any other information on the equipment calculation pages. **Warning,** every time you click on the **Start Button b**elow, the ***Air Emissions Calculation Tool*** will reset and all data entered will be lost.

3. Green/Blue colored information boxes require users to enter the required information for the subject facility. Default values may be changed if not appropriate for the facility.

4. Yellow colored boxes represent calculated values based on user information entered and may not be changed.

5. Yellow boxes with green/blue cross-hatching represent calculated values based on user information entered, however users may input data in these boxes, if necessary.

Start

Core Data Information

Mandatory - All appropriate Data Must Be Entered For All Boxes Below. This Data Will Automatically Create All Required Equipment Forms And Populate This Data In All Emissions Calculation Forms.

Date Field	Feb 18, 2020			Permit/NOI/NPR Number	
Company Name:	XTO Energy Inc.			Select Application Type	GCP-O&G
Facility Name:	BEU DI 38 Battery			AI# if Known	
Max. Facility Gas Production	60,598.41 (Mscf/d)	2,524.93 (Mscf/h)		Elevation (ft.)	3,076
Max. Facility Oil Production	25,000 (BOPD)	1,041.67 (BOPH)		Sour Gas Streams at This Site?	NO
Max. Facility Produced Water	60,000 (BWPD)	2,500 (BWPH)			

Enter The Quantity Of All Air Emissions Sources Located At The Facility
(Leave Blank For Each Equipment Type That Is Not Present)

Equipment	Quantity	Equipment	Quantity
Amine Unit(s)		Compressor Engine (s)	
Dehydrator(s)		Enclosed Combustion Device(s) (ECD)	
Equipment Fugitives	✓	Flare(s)	2
Flash Tower/Ultra-Low Pressure Separator(s)^	1	Generator Engine (s)	
Gunbarrel Separator(s)/Tank(s)		Heater(s), Heater Treaters	2
Number of Paved Haul Roads Segments		Number of Unpaved Haul Road Segments	1
Low Pressure Compressor(s)* & Compressor(s)*	2	Oil/Condensate Storage Tank(s)	3
Oil/Condensate Truck Loading	✓	Produced Water Storage Tank(s)	6
Produced Water Truck Loading	✓	Pumpjack Engine(s)	
Reboilers(s) (Amine Units)		Placeholder for Future Use	
Reboilers(s) (Glycol, others)		Startup, Shutdown & Maintenance and Malfunction	✓
Skim Oil or Slop Oil Tank(s)	2	Thermal Oxidizer(s) (TO)	
Vapor Combustion Device(s) (VCU)		Vapor Recovery Unit(s) (VRU)^	2

Click Here to Generate Required Forms & Save to Your Computer

Complete all required forms that follow, for the equipment at the subject facility, based on the selections made above. Items with an * indicate an air emissions calculation form currently not required at this time and those with ^ indicate forms under construction at this time.

Date: Feb 18, 2020
Company Name: XTO Energy Inc.
Facility Name: BEU DI 38 Battery
Permit Number:
AI# if Known:
Elevation (ft.): 3,076

Heaters, Heated Separators & Heater Treaters (Only for units rated <100 MMBTU/Hr)

Enter appropriate information in green boxes below changing default values as appropriate and adding additional rows for each heater unit.

Enter the Sulfur Content of Gas or use default value (grains/10^6 scf). 2,000

SO_2 emissions based on AP-42 EF and assumes 100% conversion of fuel sulfur to SO2 and assumes sulfur content in natural gas of 2,000 grains/1000000 scf. Change default value of 2000 as needed based on gas analysis submitted with application.

Enter the Site Fuel Heat Value of Gas or use default value (Btu/scf). 1,273.6

Emissions From All Heaters, Heated Separators & Heater Treaters

Add/Remove Rows	Unit ID	Heat Input	NO_x		CO		VOC		SO_2		$PM/PM_{10}/PM_{2.5}$	
		MMBtu/hr	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy
+ -	HT1	4	0.49	2.146	0.411	1.8	0.027	0.118	0	0	0.037	0.162
+ -	HT2	4	0.49	2.146	0.411	1.8	0.027	0.118	0	0	0.037	0.162
	Totals		0.98	4.292	0.822	3.6	0.054	0.236	0	0	0.074	0.324

Calculation Tool for Heaters, Heated Separators & Heater Treater Emissions (Uncontrolled) for Oil & Gas Production Sites (Only for units rated <100 MMBTU/Hr)

All emission factors based on AP-42, Table 1.4-1, Table 1.4-2 and Table 1.4-3 (July 1998)

https://www3.epa.gov/ttn/chief/ap42/ch01/final/c01s04.pdf

Emission factors for natural gas combustion in boilers and furnaces are presented in AP42, Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4. The Tables present emission factors on a volume basis (lb/10^6 scf). To convert to an energy basis (lb/MMBtu), divide by a heating value of 1,020 MMBtu/10^6 scf. The emission factors may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value.

NOx Sample Calculation

pph = AP 42 NOx Emission Factor (EF) * site fuel heat value Btu/scf/1020 Btu/scf * Maximum Heat Input (MMBtu/hr) * 1/site fuel heat Value Btu/scf * 1000000/1Btu/MMBtu
= 100 lb/1000000 scf * 2000 Btu/scf/1020 Btu/scf * 0.5 MMBtu/hr * 1/2000 Btu/scf * 1000000/1Btu/MMBtu
=0.096 lb/hr

tpy = AP 42 NOx Emission Factor (EF) * site fuel heat value Btu/scf/1020 Btu/scf * Maximum Heat Input (MMBtu/hr) * 1/site fuel heat value Btu/scf * 1000000/1 Btu/MMBtu * 8760 hrs/yr * 1ton/2000 lbs
= 100 lb/1000000 scf * 2000 Btu/scf/1020 Btu/scf * 0.5 MMBtu/hr * 1/2000 Btu/scf * 1000000/1 Btu/MMBtu * 8760 hrs/yr * 1ton/2000lbs
= 0.42 tpy

SO_2 emissions based on 100% conversion of fuel sulfur to SO_2 and assumes sulfur content in natural gas of 2,000 grains/10^6 scf. The SO_2 emission factor is converted to other natural gas sulfur contents by multiplying the SO_2 emission factor by the ratio of the site-specific sulfur content (grains/10^6 scf) to 2,000 grains/10^6 scf.

Technical Disclaimer
This document is intended to help you accurately determine heaters, heated separators & heater treaters emissions. It does not supersede or replace any state or federal law, rule, or regulation. This guidance reflects the current understanding of how these combustion units work and how they generate emissions, how they are monitored or tested, and what data are available for emissions determination, may change over time as the AQB continue scientific studies and as new information becomes available. The AQB welcome any data, information, or feedback that may improve our understanding of heaters, heated separators & heater treaters emissions and thereby further improve determinations within the emissions inventory. The calculation methods represented are intended as an emissions calculation aid; alternate calculation methods may be equally acceptable if they are based upon, and adequately demonstrate, sound engineering assumptions or data. If you have a question regarding the acceptability of a given emissions determination method, contact the Permitting Section at 505-476-4300.

Date:	Feb 18, 2020	**Permit Number:**	GCP-O&G-
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	BEU DI 38 Battery	**Elevation (ft.):**	3,076

Flash Tower/Ultra-low Pressure Separators Air Emissions Calculations Form

Under Development

Please submit all required calculations and supporting documentation for all Flash Tower/Ultra-low Pressure Separators emissions in the application.

Date:	Feb 18, 2020	**Permit Number:**	GCP-O&G-
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	BEU DI 38 Battery	**Elevation (ft.):**	3,076

Vertical Fixed Roof (VFR) Oil/Condensate VOC Flash Emissions Calculations Form

Select Tanks Flash Emission Calculation Method

GOR	E & P Tanks	ProMax
Vasquez-Beggs	HYSYS	VMGSim

ProMax Oil Tanks Emission Calculations

Please attach the ProMAX printout with all input data provided along with the calculated emissions. Enter the uncontrolled VOC emissions below. If the tank vapors are routed to a flare, enclosed combustion device, vapor combustion unit, vapor recovery unit or thermal oxidizer select the appropriate VOC destruction method below along with selected VOC destruction efficiency supported by manufacturer specifications submitted with the application.

Tanks VOC Control Method			
Capture Efficiency	100	Represent Uncaptured/Uncollected VOC's at Tanks	NO
VOC Control Method[1]	VRU & Flare	Represent VRU/ULPC Downtime Emissions at Tanks	NO
VOC Destruction Efficiency[2]	99.96	Represent VOC Controlled Emissions at Tanks*	NO
Notes	Both the VRU and flare have control efficiencies of 98%. The AECT is not correctly calculating VOC emissions after control nor does it calculate emissions during VRU downtime.		

Total VOC Flash Emissions From Oil/Condensate Storage Tanks Calculated with ProMax

Add/Remove Rows	Tank ID	VOC Uncontrolled Emissions		VOC Emissions after Control		VOC Emissions at the Tanks	
Up To 10 Units		pph	tpy	pph*	tpy*	pph	tpy
+ -	OT1	203.13	222.43	0	0	0	0
+ -	OT2	203.13	222.43	0	0	0	0
+ -	OT3	203.13	222.43	0	0	0	0
	Totals	609.39	667.29	0	0	0	0

Notes 1 & 2 See next page; * Emissions only represented at tanks if "Yes" is selected to represent emissions at tanks.

Calculation Tool for Tanks Flashing & Working & Standing Emissions for Oil & Gas Production Sites

All flash emissions based on flash calculation methodology selected;

1) The appropriate ECD, flare, TO, VCU or VRU form must also be completed.
2) Manufacturer documentation required to support % control selected. If using a VRU/LPC, calculations assume VRU/ULPC with a 100% control efficiency, but with 5% downtime;
3) Information included in calculation tool must be based on representative oil and gas analysis which must be submitted with application;
4) GOR and Vasquez-Beggs sample calculations outlined below; E & P Tanks, ProMax, HYSYS & VMG Sim flash emissions require submittal of computer simulation model emissions calculations print-outs;
5) Working & Standing emissions based on AP-42 Chpt. 7, tanks 4.09d computer simulation or ProMax, or VMG computer simulation models.

Sample Calculations

GOR Methodology

VOC pph = GOR (scf/bbl) * Facility Oil Throughput (BOPD) * 1/24 (Hours/Day * 1/Universal Gas Constant 385 scf/lb-mole @ 70^{O}F, 1 atm) * Molecular Weight of Tank Vapors (lb/lb-mol)
= 40 (scf/bbl) * 1000 (BOPD)*1/24 (hrs/day) *1/385 scf/lb-mol * 50 lb/lb-mol
= 216.45 lbs/hr

VOC tpy = GOR (scf/bbl) * Facility Oil Throughput (BOPD) * 1/24 (Hours/Day * 1/Universal Gas Constant 385 scf/lb-mole @ 70^{O}F, 1 atm) * Molecular Weight of Tank Vapors (lb/lb-mol) * 8760 hr/yr * 1/2000 lbs/ton
= 40 (scf/bbl) * 1000 (BOPD)*1/24 (hrs/day) *1/385 scf/lb-mol * 50 lb/lb-mol * 8760 hr/yr * 1/2000 lbs/ton
= 948.05 tpy

Vasquez-Beggs Methodology

INPUTS			Constraints			
API Gravity		API	16	<API>	58	^{0}API
Separator Pressure (psig)		P	50	<P+Patm>	5250	psia
Separator Temp. (^{0}F)		Ti	70	<Ti>	295	^{0}F
Separator Gas Gravity at Initial Condition		SGi	0.56	<SGi>	1.18	MW/28.97
Barrels of Oil/Day (BOPD)	8,333.33	Q	None	<Q>	None	BOPD
Tank Gas MW		MW	18	<MW>	125	lb/lb-mole
VOC Fraction of Tank Gas		VOC	0.5	<VOC>	1.00	Fraction
Atmospheric Pressure (psia)		Patm	20	<Rs>	2070	scf/bbl

Constants			
	^{0}API Gravity		
^{0}APTI	<30	≥30	Given^{0}API
C1	0.0362	0.0178	
C2	1.0937	1.187	
C3	25.724	23.931	

SGx = Dissolved gas gravity at Separator pressure = SGi [1.0+0.00005912*API*Ti*Log(Pi/114.7)]

Rs = (C1 * SGx * Pi^C2) exp ((C3 * API) / (Ti + 460)) for P + Patm

THC = Rs * Q * MW * 1/385 scf/lb-mole * 365 D/Yr * 1 ton/2000 lbs

VOC =THC * Frac. of C3+ in the Stock Tank Vapor

Technical Disclaimer
This document is intended to help you accurately determine oil/condensate storage tank flash, working and standing emissions. It does not supersede or replace any state or federal law, rule, or regulation. This guidance reflects the current understanding of how these units work and how they generate emissions, how they are monitored or tested, and what data are available for emissions determination, may change over time as the AQB continue scientific studies and as new information becomes available. The AQB welcome any data, information, or feedback that may improve our understanding of oil/condensate storage tank flash, working and standing emissions and thereby further improve determinations within the emissions inventory. The calculation methods represented are intended as an emissions calculation aid; alternate calculation methods may be equally acceptable if they are based upon, and adequately demonstrate, sound engineering assumptions or data. If you have a question regarding the acceptability of a given emissions determination method, contact the Permitting Section at 505-476-4300.

Date:	Feb 18, 2020	**Permit Number:**	GCP-O&G-
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	BEU DI 38 Battery	**Elevation (ft.):**	3,076

Vertical Fixed Roof (VFR) Oil/Condensate VOC Working & Standing Emissions Calculations Form

Select Tanks W & S Emission Calculation Method

AP-42 Chpt. 7 | EPA Tanks 4.09d | ProMax | E & P Tanks

ProMax Oil Tanks W & S Emission Calculations

Please attach the ProMAX printout with all input data provided along with the calculated emissions. Enter the uncontrolled VOC emissions below. If the tank vapors are routed to a flare, enclosed combustion device, vapor combustion unit, vapor recovery unit or thermal oxidizer select the appropriate VOC destruction method below along with selected VOC destruction efficiency supported by manufacturer specifications submitted with the application.

Tanks VOC Control Method			
Capture Efficiency	100	Represent Uncaptured and/or Controlled VOC's at Tanks	NO
VOC Control Method	VRU & Flare	Represent VRU/ULPC Downtime Emissions at Tanks	NO
VOC Destruction Efficiency	99.96	Represent VOC Controlled Emissions at Tanks*	NO
Notes	Both the VRU and flare have control efficiencies of 98%. The AECT does not calculate emissions during VRU downtime.		

Total VOC W & S Emissions From Oil/Condensate Storage Tanks Calculated with ProMax							
Add/Remove Rows Up To 10 Units	Tank ID	VOC Uncontrolled Emissions		VOC Emissions after Control		VOC Emissions at the Tanks	
		pph	tpy	pph*	tpy*	pph	tpy
+ -	OT1	127.83	559.91	0.05	0.24	0	0
+ -	OT2	127.83	559.91	0.05	0.24	0	0
+ -	OT3	127.83	559.91	0.05	0.24	0	0
	Totals	383.49	1,679.73	0.15	0.72	0	0

Notes 1 & 2 See next page; * Emissions only represented at tanks if "Yes" is selected to represent emissions at tanks.

Date:	Feb 18, 2020	**Permit Number:**	GCP-O&G-
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	BEU DI 38 Battery	**Elevation (ft.):**	3,076

Emissions From Loading Petroleum Liquid

Select Appropriate AP-42 Petroleum Liquid Loading Methodology & Enter appropriate information in the green boxes below changing default values as appropriate.

Emission Unit ID: TL-O

Facility Oil Throughput (gal/yr)	76,650,000
Max. Hourly Loading Rate (gal/hr)	8,820

*Select Appropriate AP-42 Petroleum Liquid Loading Methodology Below**

(●) AP-42, 5.2-4 Equation 1

( ) AP-42, Table 5.2-5

S - Saturation Factor (From AP-42 Table 5.2-1)	0.6
M - Molecular Weight of Vapors (lb/lb-mole)	47.27
P_{annual} - Avg. Annual True Vapor Pressure of Liquid Loaded (psia)	9.69
P_{hourly} - Max Hourly True Vapor Pressure of Liquid Loaded (psia)	11.32
T_{annual} - Average Annual Temperature ^oF of Bulk Liquid Loaded	88.6
T_{hourly} - Maximum Hourly Temperature ^oF of Bulk Liquid Loaded	100.5

Select Emission Source - From AP-42 Table 5.2-5

(●) Submerged Loading Dedicated Normal Service

( ) Submerged Loading Vapor Balance Service

( ) Splash Loading Dedicated Normal Service

( ) Splash Loading Vapor Balance Service

Truck Loading VOC Control Method			
Capture Efficiency	98.7	Represent Uncaptured/Uncollected VOC's at Loading Rack	YES
VOC Control Method[1]	Flare (FL)	Represent VRU/ULPC Downtime Emissions at Loading Rack	NA
VOC Destruction Efficiency[2]	98	Represent VOC Controlled Emissions at Loading Rack	NO
Notes	The VOC wt% in the gas stream is 80.9% The rates calculated using the AP-42 equation above are for total hydrocarbons and therefore artificially inflated. The values in the Excel workbook are correct.		

Total VOC Emissions From Loading Petroleum Liquids

Pollutant	VOC Uncontrolled Emissions		VOC Emissions after Control		VOC Emissions at the Loading Rack	
	pph*	tpy*	pph*	tpy*	pph*	tpy*
VOC	62.95	239.22	2.06	8.63	0.82	3.11

Footnote: * All emission factors based on AP-42, 5.2-4 Equation 1 or AP-42 Table 5.2-5 (July 2008); See next page for calculation notes. You may elect to represent the controlled emissions at the loading rack or at the control device or tanks by selecting the appropriate drop-down options under *Truck Loading VOC Control Method*.

Calculation Tool for Emissions From Loading Petroleum Liquid

Emissions based on AP-42, 5.2-4 Equation 1 (July 2008) or AP-42, Table 5.2-5

https://www3.epa.gov/ttn/chief/ap42/ch05/final/c05s02.pdf

AP-42 5.2-4 Equation 1

Emissions from loading petroleum liquid can be estimated (with a probable error of ±30 percent)[4] using the following expression:

Equation 1 $\quad L_L = 12.46 * SPM/T$

where:

L_L = loading loss, pounds per 1000 gallons (lb/10^3 gal) of liquid loaded;

S = a saturation factor (see Table 5.2-1 reproduced below))

P = true vapor pressure of liquid loaded, pounds per square inch absolute (psia) (see Section 7.1, "Organic Liquid Storage Tanks")

M = molecular weight of vapors, pounds per pound-mole (lb/lb-mole) (see Section 7.1, "Organic Liquid Storage Tanks")

T = temperature of bulk liquid loaded, °R (°F + 460)

VOC pph = (12.46*0.6*7.0 (psia)*50 (lb/lb-mole)/550°R)/1000 (gal) * 8400 (gal/hr)
= 39.96 lb/hr

VOC tpy = (12.46*0.6*4.5 (psia)*50 (lb/lb-mole)/525°R)/1000 * 1533000 (gal/yr) * 1/2000 (ton/lbs)
= 2.46 tpy

Table 5.2-1. SATURATION (S) FACTORS FOR CALCULATING PETROLEUM LIQUID LOADING LOSSES

Cargo Carrier	Mode of Operation	S Factor
Tank trucks and rail tank cars	Submerged loading of a clean cargo tank	0.5
	Submerged loading: dedicated normal service	0.6
	Submerged loading: dedicated vapor balance service	1.0
	Splash loading of a clean cargo tank	1.45
	Splash loading: dedicated normal service	1.45
	Splash loading: dedicated vapor balance service	1.0
Marine vessels[a]	Submerged loading: ships	0.2
	Submerged loading: barges	0.5

[a] For products other than gasoline and crude oil. For marine loading of gasoline, use factors from Table 5.2-2. For marine Loading of crude oil, use Equations 2 and 3 and Table 5.2-3.

AP-42 Table 5.2-5

VOC pph = (2lb/1000 (gal) * ((100-15)/100) * 8400 (gal/hr) = 16.8 pph

VOC tpy = (2lb/1000 (gal) * ((100-15)/100) * 100 (BOPD) * 42 (gal/bbl) * 365 (days/yr) * 1/2000 (ton/lb) = 1.53 tpy

Table 5.2-5 TOTAL UNCONTROLLED ORGANIC EMISSION FACTORS FOR PETROLEUM LIQUID RAIL TANK CARS AND TANK TRUCKS

Emission Source	Mode of Operation	Crude Oil (lb/1000 gal transferred)[b]
Loading Operations[c]		
	Submerged loading: dedicated normal service	2
	Submerged loading: dedicated vapor balance service	3
	Splash loading: dedicated normal service	5
	Splash loading: dedicated vapor balance service	3

a Reference 2. ……VOC factors for crude oil can be assumed to be 15% lower than the total organic factors, to account for the methane and ethane content of crude oil evaporative emissions. All other products should be assumed to have VOC factors equal to total organics; b The example crude oil has an RVP of 34 kPa (5 psia); c Loading emission factors are calculated using Equation 1 for a dispensed product temperature of 16°C (60°F). In the absence of specific inputs for Equations 1 , the typical evaporative emission factors presented in Tables 5.2-5 should be used. It should be noted that, although the crude oil used to calculate the emission values presented in this tables has an RVP of 5, the RVP of crude oils can range from less than 1 up to 10. In areas where loading and transportation sources are major factors affecting air quality, it is advisable to obtain the necessary parameters and to calculate emission estimates using Equations 1.

1) The appropriate ECD, flare, TO, VCU or VRU form must also be completed.
2) Manufacturer documentation required to support % control selected. If using a VRU/LPC, calculations assume VRU/ULPC with a 100% control efficiency, but with 5% downtime;
3) Information included in calculation tool must be based on representative oil and gas analysis which must be submitted with application;
^) Vapor balancing emissions to tanks must be represented at the tanks;

Technical Disclaimer

This document is intended to help you accurately determine truck loading petroleum emissions. It does not supersede or replace any state or federal law, rule, or regulation. This guidance reflects the current understanding of how truck loading operations work and how it generates emissions, how it is monitored or tested, and what data are available for emissions determination, may change over time as the AQB continue scientific studies and as new information becomes available. The AQB welcome any data, information, or feedback that may improve our understanding of truck loading petroleum emissions and thereby further improve determinations within the emissions inventory. The calculation methods represented are intended as an emissions calculation aid; alternate calculation methods may be equally acceptable if they are based upon, and adequately demonstrate, sound engineering assumptions or data. If you have a question regarding the acceptability of a given emissions determination method, contact the Permitting Section at 505-476-4300.

Date:	Feb 18, 2020	**Permit Number:**	GCP-O&G-
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	BEU DI 38 Battery	**Elevation (ft.):**	3,076

Slop Oil or Skim Oil Tanks VOC Flash Emissions Calculations Form

Select Flash Emission Calculation Method

GOR	E & P Tanks	ProMax
Vasquez-Beggs	HYSYS	VMGSim

ProMax Slop Oil or Skim Oil Tanks Emission Calculations

Please attach the ProMAX printout with all input data provided along with the calculated emissions. Enter the uncontrolled VOC emissions below. If the tank vapors are routed to a flare, enclosed combustion device, vapor combustion unit, vapor recovery unit or thermal oxidizer select the appropriate VOC destruction method below along with selected VOC destruction efficiency supported by manufacturer specifications submitted with the application.

Slop Oil or Skim Oil Tanks VOC Control Method

Capture Efficiency	100	Represent Uncaptured/Uncollected VOC's at Tanks	NO
VOC Control Method[1]	Flare (FL)	Represent VRU/ULPC Downtime Emissions at Tanks	NO
VOC Destruction Efficiency[2]	98	Represent VOC Controlled Emissions at Tanks*	NO
Notes			

Total VOC Flash Emissions From Slop Oil or Skim Oil Tanks Calculated with ProMax

Add/Remove Rows Up To 10 Units	Tank ID	VOC Uncontrolled Emissions		VOC Emissions after Control		VOC Emissions at the Tanks	
		pph	tpy	pph*	tpy*	pph	tpy
+ -	STK-1	71.16	77.92	1.42	1.56	0	0
+ -	STK-2	71.16	77.96	1.42	1.56	0	0
	Totals	142.32	155.88	2.84	3.12	0	0

Notes 1 & 2 See next page; * Emissions only represented at tanks if "Yes" is selected to represent emissions at tanks.

Calculation Tool for Tanks Flashing & Working & Standing Emissions for Oil & Gas Production Sites

All flash emissions based on flash calculation methodology selected;

1) The appropriate ECD, flare, TO, VCU or VRU form must also be completed.
2) Manufacturer documentation required to support % control selected. Assumes VRU/ULPC with a 100% control efficieny, but with 5% downtime;
3) Information included in calculation tool must be based on representative oil and gas analysis which must be submitted with application;
4) GOR and Vasquez-Beggs sample calculations outlined below; E & P Tanks, ProMax, HYSYS & VMG Sim flash emissions require submittal of computer simulation model emissions calculations print-outs;
5) Working & Standing emissions based on AP-42 Chpt. 7, tanks 4.09d computer simulation or ProMax, or VMG computer simulation models.

<u>Sample Calculations</u>

GOR Methodology

VOC pph = GOR (scf/bbl) * Facility Oil Throughput (BOPD) * 1/24 (Hours/Day * 1/Universal Gas Constant 385 scf/lb-mole @ 70^{O}F, 1 atm) * Molecular Weight of Tank Vapors (lb/lb-mol)
= 40 (scf/bbl) * 1000 (BOPD)*1/24 (hrs/day) *1/385 scf/lb-mol * 50 lb/lb-mol
= 216.45 lbs/hr

VOC tpy = GOR (scf/bbl) * Facility Oil Throughput (BOPD) * 1/24 (Hours/Day * 1/Universal Gas Constant 385 scf/lb-mole @ 70^{O}F, 1 atm) * Molecular Weight of Tank Vapors (lb/lb-mol) * 8760 hr/yr * 1/2000 lbs/ton
= 40 (scf/bbl) * 1000 (BOPD)*1/24 (hrs/day) *1/385 scf/lb-mol * 50 lb/lb-mol * 8760 hr/yr * 1/2000 lbs/ton
= 948.05 tpy

Vasquez-Beggs Methodology

INPUTS			Constraints			
API Gravity		API	16	<API>	58	^{0}API
Separator Pressure (psig)		P	50	<P+Patm>	5250	psia
Separator Temp. (^{0}F)		Ti	70	<Ti>	295	^{0}F
Separator Gas Gravity at Initial Condition		SGi	0.56	<SGi>	1.18	MW/28.97
Barrels of Oil/Day (BOPD)		Q	None	<Q>	None	BOPD
Tank Gas MW		MW	18	<MW>	125	lb/lb-mole
VOC Fraction of Tank Gas		VOC	0.5	<VOC>	1.00	Fraction
Atmospheric Pressure (psia)		Patm	20	<Rs>	2070	scf/bbl

Constants			
	^{0}API Gravity		
^{0}APTI	<30	≥30	Given^{0}API
C1	0.0362	0.0178	
C2	1.0937	1.187	
C3	25.724	23.931	

SGx = Dissolved gas gravity at Separator pressure = SGi [1.0+0.00005912*API*Ti*Log(Pi/114.7)]

Rs = (C1 * SGx * Pi^C2) exp ((C3 * API) / (Ti + 460)) for P + Patm

THC = Rs * Q * MW * 1/385 scf/lb-mole * 365 D/Yr * 1 ton/2000 lbs

VOC =THC * Frac. of C3+ in the Stock Tank Vapor

Technical Disclaimer
This document is intended to help you accurately determine oil/condensate storage tank flash, working and standing emissions. It does not supersede or replace any state or federal law, rule, or regulation. This guidance reflects the current understanding of how these units work and how they generate emissions, how they are monitored or tested, and what data are available for emissions determination, may change over time as the AQB continue scientific studies and as new information becomes available. The AQB welcome any data, information, or feedback that may improve our understanding of oil/condensate storage tank flash, working and standing emissions and thereby further improve determinations within the emissions inventory. The calculation methods represented are intended as an emissions calculation aid; alternate calculation methods may be equally acceptable if they are based upon, and adequately demonstrate, sound engineering assumptions or data. If you have a question regarding the acceptability of a given emissions determination method, contact the Permitting Section at 505-476-4300.

Date:	Feb 18, 2020	**Permit Number:**	GCP-O&G-
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	BEU DI 38 Battery	**Elevation (ft.):**	3,076

Vertical Fixed Roof (VFR) Slop Oil or Skim Oil VOC Working & Standing Emissions Calculations Form

Select Tanks W & S Emission Calculation Method

AP-42 Chpt. 7 | EPA Tanks 4.09d | ProMax | E & P Tanks

ProMax Slop Oil or Skim Oil Tanks W & S Emission Calculations

Please attach the ProMAX printout with all input data provided along with the calculated emissions. Enter the uncontrolled VOC emissions below. If the tank vapors are routed to a flare, enclosed combustion device, vapor combustion unit, vapor recovery unit or thermal oxidizer select the appropriate VOC destruction method below along with selected VOC destruction efficiency supported by manufacturer specifications submitted with the application.

Slop Oil or Skim Oil Tanks VOC Control Method

Capture Efficiency	100	Represent Uncaptured and/or Controlled VOC's at Tanks	NO
VOC Control Method	Flare (FL)	Represent VRU/ULPC Downtime Emissions at Tanks	NO
VOC Destruction Efficiency	98	Represent VOC Controlled Emissions at Tanks*	NO
Notes			

Total VOC W & S Emissions From Slop Oil or Skim Oil Tanks Calculated with ProMax

Add/Remove Rows Up To 10 Units	Tank ID	VOC Uncontrolled Emissions		VOC Emissions after Control		VOC Emissions at the Tanks	
		pph	tpy	pph*	tpy*	pph	tpy
+ -	STK-1	0.01	0.05	0	0	0	0
+ -	STK-2	0.01	0.05	0	0	0	0
	Totals	0.02	0.1	0	0	0	0

Notes 1 & 2 See next page; * Emissions only represented at tanks if "Yes" is selected to represent emissions at tanks.

New Mexico Environment Department Air Quality Bureau Equipment Emissions Calculation Form

Date:	Feb 18, 2020	**Permit Number:**	GCP-O&G-
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	BEU DI 38 Battery	**Elevation (ft.):**	3,076

Startup, Shutdown & Maintenance and Malfunction

- ◯ No SSM emissions are expected from routine operations.
- ◯ Request up to 10 tpy of VOC SSM emissions.
- ◯ Request site specific VOC & H2S SSM and enter information below.
- ◯ Request site specific VOC & H2S SSM plus 10 tpy VOC and enter information below.
- ◉ Request site specific combustion SSM and those emissions are included in Section 4 (attach calculations.)
- ◯ Request 10 tpy VOC Malfunction emissions for GCP-O&G, GCP-6 or NSR permitting actions only.

	Blowdowns			Engine Startups		
Unit Numbers						
Quantity of Like-kind Blowdown Units or Engines	1					
Total Volume of Each Blowdown or Engine Startup Vent (acf)						
Duration of Event (Minutes)						
Maximum Blowdowns or Startups/hr	1					
Frequency of Blowdowns or Engine Startups (Events/yr)						
Total Actual Volume of Gas Vented (acf/yr)	0					
Pressure of Gas Inside Unit Before Venting (psig)						
Final Pressure (psia)	14.7					
Gas Temperature Prior to Venting (°F)						
Vented Gas Molecular Weight (lb/lb-mol						
Vented Gas VOC wt %						
Vented Total HAP wt %						
Vented Gas Benzene wt %						
Vented Gas H_2S wt %						

Startup, Shutdown and Maintenance Emissions (SSM) and Malfunction Emissions

SSM	VOC		Total HAP		Benzene		H_2S	
	PPH	TPY	PPH	TPY	PPH	TPY	PPH	TPY
SSM Blowdowns								
SSM Startups								
SSM Other (Attach Calculations)								
SSM Totals								
Malfunction Total								

Notes

*SSM emissions are illustrated at the high and low pressure flares.

Planned SSM Emissions

The venting emissions calculations herein should only be used when only gas (no liquids) is present in the unit. The calculation of the vented gas is based on the volume of the unit and assumes the unit is saturated with vapor at the pressure and temperature of the unit before venting occurs. If liquids are also present in the gas, please enter the calculated amounts in the SSM Other row only and submit separate calculations, since the calculations on this form do not account for the evaporation of liquids that may be present in the unit.

Calculations are based on the Ideal gas law: P(V) = n(R)(T)

VOC result = (((Pressure of Gas Inside the Unit Before Venting) * (Actual Volume of the Vented Unit)) / (Frequency of events) * (Molecular Weight) * VOC wt%)/(Ideal Gas Constant) * (Temperature of Gas Inside the Unit Before Venting)

Where the Ideal Gas Constant = 10.73159 (ft^3*psia)/R*lb-mol

For SSM combustion emissions, attach separate calculations.

Date:	Feb 18, 2020	**Permit Number:**	GCP-O&G-
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	BEU DI 38 Battery	**Elevation (ft.):**	3,076

Vertical Fixed Roof (VFR) Produced Water VOC Flash Emissions Calculations Form

Select Tanks Flash Emission Calculation Method

GWR	E & P Tanks	ProMax
Vasquez-Beggs	HYSIS	VMGSim

ProMax Produced Water Tanks Emission Calculations

Please attach the ProMAX printout with all input data provided along with the calculated emissions. Enter the uncontrolled VOC emissions below. If the tank vapors are routed to a flare, enclosed combustion device, vapor combustion unit, vapor recovery unit or thermal oxidizer select the appropriate VOC destruction method below along with selected VOC destruction efficiency supported by manufacturer specifications submitted with the application.

Tanks VOC Control Method

Select % Oil in Water	1	VOC Uncontrolled emissions entered includes this percentage.	
Capture Efficiency	100	Represent Uncaptured and/or Controlled VOC's at Tanks	NO
VOC Control Method	Flare (FL)	Represent VRU/ULPC Downtime Emissions at Tanks	NO
VOC Destruction Efficiency	98	Represent VOC Controlled Emissions at Tanks*	NO
Notes			

Total VOC Emissions From Produced Water Storage Tanks Calculated with ProMax

Add/Remove Rows Up To 10 Units	Tank ID	VOC Uncontrolled Emissions		VOC Emissions after Control		VOC Emissions at the Tanks	
		pph	tpy	pph*	tpy*	pph	tpy
+ -	WT 1	0.48	0.53	0.01	0.01	0	0
+ -	WT 2	0.48	0.53	0.01	0.01	0	0
+ -	WT 3	0.48	0.53	0.01	0.01	0	0
+ -	WT 4	0.48	0.53	0.01	0.01	0	0
+ -	WT 5	0.48	0.53	0.01	0.01	0	0
+ -	WT 6	0.48	0.53	0.01	0.01	0	0
	Totals	2.88	3.18	0.06	0.06	0	0

Notes 1 & 2 See next page; * Emissions only represented at tanks if "Yes" is selected to represent emissions at tanks.

Calculation Tool for Tanks Flashing & Working & Standing Emissions for Oil & Gas Production Sites

All flash emissions based on flash calculation methodology selected ;

1) The appropriate ECD, flare, TO, VCU or VRU form must also be completed.
2) Manufacturer documentation required to support % control selected. Assumes VRU/ULPC with a 100% control efficieny, but with 5% downtime;
3) Information included in calculation tool must be based on representative oil and gas analysis which must be submitted with application;
4) GOR and Vasquez-Beggs sample calculations outlined below; E & P Tanks, ProMax, HYSYS & VMG Sim flash emissions require submittal of computer simulation model emissions calculations print-outs;
5) Working & Standing emissions based on AP-42 Chpt. 7, tanks 4.09d computer simulation or ProMax, or VMG computer simulation models.

Sample Calculations

GWR Methodology

VOC pph = GWR (scf/bbl) * Facility Water Throughput (BOPD) * 1/24 (Hours/Day * 1/Universal Gas Constant 385 scf/lb-mole @ 70^{O}F, 1 atm) * Molecular Weight of Tank Vapors (lb/lb-mol) * Percent Oil in Water
= 40 (scf/bbl) * 1000 (BOPD)*1/24 (hrs/day) *1/385 scf/lb-mol * 50 lb/lb-mol * 1/100
= 2.16 lbs/hr

VOC tpy = GWR (scf/bbl) * Facility Water Throughput (BOPD) * 1/24 (Hours/Day * 1/Universal Gas Constant 385 scf/lb-mole @ 70^{O}F, 1 atm) * Molecular Weight of Tank Vapors (lb/lb-mol) * 8760 hr/yr * 1/2000 lbs/ton * Percent Oil in Water
= 40 (scf/bbl) * 1000 (BOPD)*1/24 (hrs/day) *1/385 scf/lb-mol * 50 lb/lb-mol * 8760 hr/yr * 1/2000 lbs/ton * 1/100
= 9.48 tpy

Vasquez-Beggs Methodology

INPUTS			Constraints			
API Gravity		API	16	<API>	58	^{0}API
Separator Pressure (psig)		P	50	<P+Patm>	5250	psia
Separator Temp. (^{0}F)		Ti	70	<Ti>	295	^{0}F
Separator Gas Gravity at Initial Condition		SGi	0.56	<SGi>	1.18	MW/28.97
Barrels of Water/Day (BOPD)	10,000	Q	None	<Q>	None	BOPD
Tank Gas MW		MW	18	<MW>	125	lb/lb-mole
VOC Fraction of Tank Gas		VOC	0.5	<VOC>	1.00	Fraction
Atmospheric Pressure (psia)		Patm	20	<Rs>	2070	scf/bbl

Constants			
	^{0}API Gravity		
^{0}APTI	<30	≥30	Given^{0}API
C1	0.0362	0.0178	
C2	1.0937	1.187	
C3	25.724	23.931	

SGx = Dissolved gas gravity at Separator pressure = SGi [1.0+0.00005912*API*Ti*Log(Pi/114.7)]

Rs = (C1 * SGx * Pi^C2) exp ((C3 * API) / (Ti + 460)) for P + Patm

THC = Rs * Q * MW * 1/385 scf/lb-mole * 365 D/Yr * 1 ton/2000 lbs

VOC =THC * Frac. of C3+ in the Stock Tank Vapor

Technical Disclaimer
This document is intended to help you accurately determine produced water storage tank flash, working and standing emissions. It does not supersede or replace any state or federal law, rule, or regulation. This guidance reflects the current understanding of how these units work and how they generate emissions, how they are monitored or tested, and what data are available for emissions determination, may change over time as the AQB continue scientific studies and as new information becomes available. The AQB welcome any data, information, or feedback that may improve our understanding of produced water storage tank flash, working and standing emissions and thereby further improve determinations within the emissions inventory. The calculation methods represented are intended as an emissions calculation aid; alternate calculation methods may be equally acceptable if they are based upon, and adequately demonstrate, sound engineering assumptions or data. If you have a question regarding the acceptability of a given emissions determination method, contact the Permitting Section at 505-476-4300.

Date:	Feb 18, 2020	**Permit Number:**	GCP-O&G-
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	BEU DI 38 Battery	**Elevation (ft.):**	3,076

Vertical Fixed Roof (VFR) Water Tanks VOC Working & Standing Emissions Calculations Form

Select Tanks W & S Emission Calculation Method

AP-42 Chpt. 7 | EPA Tanks 4.09d | ProMax | E & P Tanks

ProMax Produced Water Tanks W & S Emission Calculations

(Assumes W & S emissions are 1% of the emissions calculated based on oil properties and entered as uncontrolled emissions)

Please attach the ProMAX printout with all input data provided along with the calculated emissions. Enter the uncontrolled VOC emissions below. If the tank vapors are routed to a flare, enclosed combustion device, vapor combustion unit, vapor recovery unit or thermal oxidizer select the appropriate VOC destruction method below along with selected VOC destruction efficiency supported by manufacturer specifications submitted with the application.

Tanks VOC Control Method			
Capture Efficiency	100	Represent Uncaptured and/or Controlled VOC's at Tanks	NO
VOC Control Method	Flare (FL)	Represent VRU/ULPC Downtime Emissions at Tanks	NO
VOC Destruction Efficiency	98	Represent VOC Controlled Emissions at Tanks*	NO
Notes			

Total VOC W & S Emissions From Produced Water Storage Tanks Calculated with ProMax

Add/Remove Rows Up To 10 Units	Tank ID	VOC Uncontrolled Emissions		VOC Emissions after Control		VOC Emissions at the Tanks	
		pph	tpy	pph*	tpy*	pph	tpy
+ -	WT1	0	0.02	0	0	0	0
+ -	WT2	0	0.02	0	0	0	0
+ -	WT3	0	0.02	0	0	0	0
+ -	WT4	0	0.02	0	0	0	0
+ -	WT5	0	0.02	0	0	0	0
+ -	WT6	0	0.02	0	0	0	0
	Totals	0	0.12	0	0	0	0

Notes 1 & 2 See next page; * Emissions only represented at tanks if "Yes" is selected to represent emissions at tanks.

Date:	Feb 18, 2020	**Permit Number:**	GCP-O&G-
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	BEU DI 38 Battery	**Elevation (ft.):**	3,076

Emissions From Loading Produced Water Liquids

Select Appropriate AP-42 Petroleum Liquid Loading Methodology & Enter appropriate information in the green boxes below changing default values as appropriate.

Emission Unit ID: TL-W

Facility Produced Water Throughput (gal/yr)	1,825,000	Max. Hourly Loading Rate (gal/hr)	8,820	**% Oil in Water**	1

*Select Appropriate AP-42 Petroleum Liquid Loading Methodology Below**

- (●) AP-42, 5.2-4 Equation 1
- ( ) AP-42, Table 5.2-5

S - Saturation Factor (From AP-42 Table 5.2-1)	0.6	**M** - Molecular Weight of Vapors (lb/lb-mole)	18.29
P_{annual} - Avg. Annual True Vapor Pressure of Liquid Loaded (psia)	0.59	**P_{hourly}** - Max Hourly True Vapor Pressure of Liquid Loaded (psia)	0.85
T_{annual} - Average Annual Temperature ^{O}F of Bulk Liquid Loaded	83.8	**T_{hourly}** - Maximum Hourly Temperature ^{O}F of Bulk Liquid Loaded	95.7

Select Emission Source - From AP-42 Table 5.2-5

- (●) Submerged Loading Dedicated Normal Service
- ( ) Submerged Loading Vapor Balance Service
- ( ) Splash Loading Dedicated Normal Service
- ( ) Splash Loading Vapor Balance Service

Notes:The value below represents THC, not VOC. See the Excel workbook for VOC calculations since it uses the composition of the water rather than 1% of the oil.

Total VOC Emissions From Loading Produced Water Liquids Based On % Oil in Water Selected Above		
Pollutant	Uncontrolled Emissions (pph)	Uncontrolled Emissions (tpy)
VOC	0.02	0

Footnote: * All emission factors based on AP-42, 5.2-4 Equation 1 or AP-42 Table 5.2-5 (July 2008); See reverse side for calculation notes

Calculation Tool for Emissions From Loading Produced Water Liquids

Emissions based on AP-42, 5.2-4 Equation 1 (July 2008) or AP-42, Table 5.2-5

https://www3.epa.gov/ttn/chief/ap42/ch05/final/c05s02.pdf

AP-42 5.2-4 Equation 1

Emissions from loading produced water liquids can be estimated (with a probable error of ±30 percent)[4] using the following expression:

Equation 1 $L_L = 12.46 * SPM/T$

where:

L_L = loading loss, pounds per 1000 gallons (lb/10^3 gal) of liquid loaded (assumes 1% oil in water)

S = a saturation factor (see Table 5.2-1 reproduced below))

P = true vapor pressure of liquid loaded, pounds per square inch absolute (psia) (see Section 7.1, "Organic Liquid Storage Tanks")

M = molecular weight of vapors, pounds per pound-mole (lb/lb-mole) (see Section 7.1, "Organic Liquid Storage Tanks")

T = temperature of bulk liquid loaded, °R (°F + 460)

VOC pph = (12.46*0.6*7.0 (psia)*50 (lb/lb-mole)/550°R)/1000 (gal) * 8400 (gal/hr) * 0.01 (1% oil in water)
= 39.96 lb/hr

VOC tpy = (12.46*0.6*4.5 (psia)*50 (lb/lb-mole)/525°R)/1000 * 1533000 (gal/hr) * 1/2000 (ton/lbs) * 0.01 (1% oil in water)
= 2.46 tpy

Table 5.2-1. SATURATION (S) FACTORS FOR CALCULATING PETROLEUM LIQUID LOADING LOSSES		
Cargo Carrier	Mode of Operation	S Factor
Tank trucks and rail tank cars	Submerged loading of a clean cargo tank	0.5
	Submerged loading: dedicated normal service	0.6
	Submerged loading: dedicated vapor balance service	1.0
	Splash loading of a clean cargo tank	1.45
	Splash loading: dedicated normal service	1.45
	Splash loading: dedicated vapor balance service	1.0
Marine vessels[a]	Submerged loading: ships	0.2
	Submerged loading: barges	0.5

a For products other than gasoline and crude oil. For marine loading of gasoline, use factors from Table 5.2-2. For marine Loading of crude oil, use Equations 2 and 3 and Table 5.2-3.

AP-42 Table 5.2-5 (assumes 1% oil in water)

VOC pph= (2lb/1000 (gal) * ((100-15)/100) * 8400 (gal/hr) * 0.01 (1% oil in water) = 0.168 pph

VOC tpy = (2lb/1000 (gal) * ((100-15)/100) * 100 (BOPD) * 42 (gal/bbl) * 365 (days/yr) * 1/2000 (ton/lb) * 0.01 (1% oil in water) = 0.0153 tpy

Table 5.2-5 TOTAL UNCONTROLLED ORGANIC EMISSION FACTORS FOR PETROLEUM LIQUID RAIL TANK CARS AND TANK TRUCKS		
Emission Source	Mode of Operation	Crude Oil (lb/1000 gal transferred)[b]
Loading Operations[c]		
	Submerged loading: dedicated normal service	2
	Submerged loading: dedicated vapor balance service	3
	Splash loading: dedicated normal service	5
	Splash loading: dedicated vapor balance service	3

a Reference 2. ……VOC factors for crude oil can be assumed to be 15% lower than the total organic factors, to account for the methane and ethane content of crude oil evaporative emissions. All other products should be assumed to have VOC factors equal to total organics; b The example crude oil has an RVP of 34 kPa (5 psia); c Loading emission factors are calculated using Equation 1 for a dispensed product temperature of 16°C (60°F). In the absence of specific inputs for Equations 1 , the typical evaporative emission factors presented in Tables 5.2-5 should be used. It should be noted that, although the crude oil used to calculate the emission values presented in this tables has an RVP of 5, the RVP of crude oils can range from less than 1 up to 10. In areas where loading and transportation sources are major factors affecting air quality, it is advisable to obtain the necessary parameters and to calculate emission estimates using Equations 1.

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Facility Name:	BEU DI 38 Battery	**Elevation (ft.):**	3,076

Flare

Enter information in green boxes below changing default values as appropriate.

	Gas Stream 1	Gas Stream 2	Gas Stream 3		Gas Stream 1	Gas Stream 2	Gas Stream 3
Emission Unit ID	FL-1	FL-1b	FL-1c	Hourly Gas Routed to Flare (MMBtu/hr)	148.916485	3,215.85694	0
Hourly Gas Stream to Flare (Mscf/hr)	84.578	2,524.934		Annual Gas Routed to Flare (MMBtu/yr)	32,613.4461	306,394.480	0
Annual Gas Stream to Flare (MMscf/yr)	18.523	240.566		Pilot Gas Routed to Flare (MMBtu/hr)	0.509456	0	0
Max. Heat Value of Gas (Btu/scf)	1,760.7	1,273.64	1,200	Gas MW (lb/lbmol)	30.76	22.41	
Field Gas Mol Fraction (lbmol H2S/lb-mol)	0	0		Gas Pressure (psia)	14.7	14.7	14.7
Field Gas Sulfur Content (S grains/100 scf)	5	5	5	Gas Temperature (°F)	70	70	70
Pilot Gas to Flare (Mscf/hr)	0.4			Field Gas H2S Wt.% to Flare (%)	0	0	
Max. Heat Value Pilot Gas (Btu/scf)	1,273.64	1,020	1,020	Flare Control Efficiency	98	98	95
Pilot Gas Sulfur Content (S grains/100 scf)	0.25	0.25	0.25	Total VOC wt.% to Flare (%)[1]	52.68	26.02	100
Source of Flare Emission Factors	TCEQ Air or	TCEQ Air or		Safety Factor Applied to Total Emissions (%)			
Use Highest NOx & CO Emission Factors From AP-42 or TCEQ	NO	NO					

Total Emissions to Flare

Pollutant	NOx			CO			VOC			SO2			H2S		
Gas Streams to Flare	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Uncontrolled (pph)	0	0	0	0	0	0	3,542.34	38,054.0		0	0	0	0	0	0
Uncontrolled (tpy)	0	0	0	0	0	0	387.9	1,812.82		0	0	0	0	0	0
Field Gas (pph)	20.5505	443.7883		41.0265	885.9686		70.85	761.08		0	0		0	0	
Field Gas (tpy)	2.2503	21.1412	0	4.4925	42.2058	0	7.76	36.26		0	0	0	0	0	0
Pilot Gas (pph)	0.0703			0.1404			0	0	0	0.0003	0	0	0	0	0
Pilot Gas (tpy)	0.3079			0.6148			0	0	0	0.0012	0	0	0	0	0
Subtotal Flare (pph)	20.6208	443.7883	0	41.1669	885.9686	0	70.85	761.08	0	0.0003	0	0	0	0	0
Subtotal Flare (tpy)	2.5582	21.1412	0	5.1073	42.2058	0	7.76	36.26	0	0.0012	0	0	0	0	0
Total Flare (pph)	464.41			927.14			831.93			0.0003			0		
Total Flare (tpy)	23.7			47.31			44.02			0.0012			0		

See reverse side for calculation notes.

1) Based on representative gas analysis which must be submitted with application; 2) Assumes pilot gas has a negligible amount of VOC & 0.25 grains H2S/100scf; *) Emission factors for NOx, CO & VOC based on AP-42, Table 13.5-1, (Dec. 2015) or TCEQ RG-360A/11 (February 2012); #) Assumes H_2S is converted to SO_2 at selected control efficiency; SO2 emissions based on mass balance; +) Assumes H_2S Destruction Efficiency equals flare destruction efficiency;

Calculation Tool for Flare Emissions for Oil & Gas Production Sites

All emission factors based on AP-42, Emission factors for NOx, CO & VOC, Table 13.5-1, (December 2016); https://www3.epa.gov/ttn/chief/ap42/ch13/final/C13S05_12-13-16.pdf or https://www.tceq.texas.gov/assets/public/comm_exec/pubs/rg/rg360/rg36011/rg-360a.pdf

1) Information included in calculation tool must be based on representative gas analysis which must be submitted with application;
2) Assumes pilot gas used has a negligible amount of VOC's and 0.25 grains H2S/100 scf;
3) SO_2 calculations assumes H_2S is converted to SO_2 at selected control efficiency; SO_2 emissions based on mass balance;
4) H_2S calculations assume H_2S Destruction Efficiency equals flare destruction efficiency;

Sample Calculations

NOx pph = hourly gas routed to flare (MMBtu/hr) * NOx Emission factor (lbs/MMBtu)
= 1(MMBtu/hr) * 0.068 (lbs/MMBtu)
= 0.068 lbs/hr

NOx tpy = annual gas routed to flare (MMBtu/yr) * NOx Emission factor (lbs/MMBtu) * 1/lbs/ton)
= 1000 (MMBtu/yr) * 0.068 (lb/MMBtu) * 1/2000 (lbs/ton)
= 0.034 tpy

SO_2 pph= Hourly Gas Stream to flare (MMScf/hr) * 1000000/1 (scf/MMScf) * Field Gas mol Fraction of H_2S (mol H_2S/lb-mol)/100 * 1/Universal Gas Constant 385 scf/lb-mole @ 60^{o}F, 1 atm * Conversion Rate of H_2S to SO_2 lb-mol SO_2/lb-mol H_2S * Molecular Weight of Sulfur Dioxide (64 lb SO_2/lb-mol SO_2)
= 1 MMScf/hr * 1000000/1 (Scf/MMScf) * 0.1 mol H_2S* 1/385 scf/lb-mole * 0.95 lb-mol SO_2/lb-mol H_2S * 64 lb/lb-mol

Residual
H_2S pph= Hourly Gas Stream to flare (MMScf/hr) * 1000000/1 (scf/MMScf) * Field Gas mol Fraction of H_2S (mol H_2S/lb-mol)/100 * 1/Universal Gas Constant 385 scf/lb-mole @ 60^{O}F, 1 atm * (100-(Flare Control Efficiency))/100) * Molecular Weight of Hydrogen Sulfide (34 lb H_2S/lb-mol H_2S)
= 1 MMScf/hr * 1000000/1 (Scf/MMScf) * 0.1 mol H_2S* 1/385 scf/lb-mole * (100-95%/100) * 34 lb/lb-mol

Flare, Vapor Combustion Devices & Enclosed Combustion Devices Emission Factors				
Contaminant	Assist Type	Waste Gas Stream Heat Value (Btu/scf)	AP-42 Emission Factor (lb/MMBtu)	TCEQ Emission Factor (lb/MMBtu)
NOx	Steam	≥1000	0.068	0.0485
	Steam	<1000	0.068	0.068
	Air or Unassisted	≥1000	0.068	0.138
	Air or Unassisted	<1000	0.068	0.0641
CO	Steam	≥1000	0.31	0.3503
	Steam	<1000	0.31	0.3465
	Air or Unassisted	≥1000	0.31	0.2755
	Air or Unassisted	<1000	0.31	0.5496
VOC	Air & Steam Assist	≥300	0.66	

Technical Disclaimer
This document is intended to help you accurately determine flares, enclosed combustion devices and vapor combustion units emissions. It does not supersede or replace any state or federal law, rule, or regulation. This guidance reflects the current understanding of how these combustion units work and how they generate emissions, how they are monitored or tested, and what data are available for emissions determination, may change over time as the AQB continue scientific studies and as new information becomes available. The AQB welcome any data, information, or feedback that may improve our understanding of flares, enclosed combustion devices and vapor combustion units emissions and thereby further improve determinations within the emissions inventory. The calculation methods represented are intended as an emissions calculation aid; alternate calculation methods may be equally acceptable if they are based upon, and adequately demonstrate, sound engineering assumptions or data. If you have a question regarding the acceptability of a given emissions determination method, contact the Permitting Section at 505-476-4300.

New Mexico Environment Department Air Quality Bureau Equipment Emissions Calculation Form

Date:	Feb 18, 2020	**Permit Number:**	GCP-O&G-
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	BEU DI 38 Battery	**Elevation (ft.):**	3,076

Emission Unit ID: FUG **Fill all green/blue boxes changing default values as appropriate.**

Fugitive Volatile Organic Compounds (VOC), Total HAPs (HAP), Benzene (CH6) & Hydrogen Sulfide (H_2S) Emissions

					Uncontrolled Total								Controlled Total							
					VOC		Total HAP		CH_6		H_2S		VOC		Total HAP		CH_6		H_2S	
Service	%VOC	%HAP	%CH_6	%H_2S	PPH	TPY	PPH	TPY	PPH	TPY	PPH	TPY	PPH	TPY	PPH	TPY	PPH	TPY	PPH	TPY
Gas	26.63%	1.15			0.61	2.65	0.03	0.11	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Oil					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Light Oil	99.75%	6.88			1.23	5.38	0.08	0.37	0	0	0	0	0	0	0	0	0	0	0	0
Water/Oil	0.99%	0.0069			0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals					1.84	8.04	0.11	0.48	0	0	0	0	0	0	0	0	0	0	0	0

				Uncontrolled VOC, HAP & CH_6 Emissions							Controlled VOC, HAP & CH_6 Emissions					
Equipment Type	Service[a]	EF[b] PPH/Source	No. of Sources	VOC PPH	VOC TPY	HAP PPH	HAP TPY	CH_6 PPH	CH_6 TPY	Control Efficiency	VOC PPH	VOC TPY	HAP PPH	HAP TPY	CH_6 PPH	CH_6 TPY
Valves	Gas	0.0099207	140	0.3699	1.6202	0.016	0.0701	0	0	0%	0	0	0	0	0	0
	Heavy Oil	0.00001852	0	0	0	0	0	0	0	0%	0	0	0	0	0	0
	Light Oil	0.0055115	140	0.7697	3.3713	0.0531	0.2326	0	0	0%	0	0	0	0	0	0
	Water/Oil	0.00021605	50	0.0001	0.0004	0	0	0	0	0%	0	0	0	0	0	0
Subtotals				1.1397	4.9919	0.0691	0.3027	0	0		0	0	0	0	0	0
Pump Seals	Gas	0.00529104	5	0.007	0.0307	0.0003	0.0013	0	0	0%	0	0	0	0		0
	Heavy Oil	0.0286598	0	0	0	0	0	0	0	0%	0	0	0	0	0	0
	Light Oil	0.0286598	5	0.1429	0.6259	0.0099	0.0434	0	0	0%	0	0	0	0	0	0
	Water/Oil	0.00005291	10	0	0	0	0	0	0	0%	0	0	0	0	0	0
Subtotals				0.1499	0.6566	0.0102	0.0447	0	0		0	0	0	0	0	0
Connectors	Gas	0.00044092	450	0.0528	0.2313	0.0023	0.0101	0	0	0%	0	0	0	0	0	0
	Heavy Oil	0.00001653	0	0	0	0	0	0	0	0%	0	0	0	0	0	0
	Light Oil	0.00046297	450	0.2078	0.9102	0.0143	0.0626	0	0	0%	0	0	0	0	0	0
	Water/Oil	0.00024251	50	0.0001	0.0004	0	0	0	0	0%	0	0	0	0	0	0
Subtotals				0.2607	1.1419	0.0166	0.0727	0	0		0	0	0	0	0	0
Flanges	Gas	0.00085979	450	0.103	0.4511	0.0044	0.0193	0	0	0%	0	0	0	0	0	0
	Heavy Oil	0.00000086	0	0	0	0	0	0	0	0%	0	0	0	0	0	0
	Light Oil	0.00024251	450	0.1089	0.477	0.0075	0.0328	0	0	0%	0	0	0	0	0	0
	Water/Oil	0.00000639	50	0	0	0	0	0	0	0%	0	0	0	0	0	0
Subtotals				0.2119	0.9281	0.0119	0.0521	0	0		0	0	0	0	0	0
Open Ends	Gas	0.0044092	18	0.0211	0.0924	0.0009	0.0039	0	0	0%	0	0	0	0	0	0
	Heavy Oil	0.00030864	0	0	0	0	0	0	0	0%	0	0	0	0	0	0
	Light Oil	0.00308644	0	0	0	0	0	0	0	0%	0	0	0	0	0	0
	Water/Oil	0.00055115	0	0	0	0	0	0	0	0%	0	0	0	0	0	0
Subtotals				0.0211	0.0924	0.0009	0.0039	0	0		0	0	0	0	0	0
Other[c]	Gas	0.01940048	10	0.0517	0.2264	0.0022	0.0096	0	0	0%	0	0	0	0	0	0
	Heavy Oil	0.00007055	0	0	0	0	0	0	0	0%	0	0	0	0	0	0
	Light Oil	0.0165345	0	0	0	0	0	0	0	0%	0	0	0	0	0	0
	Water/Oil	0.0308644	5	0.0015	0.0066	0	0	0	0	0%	0	0	0	0	0	0
Subtotals				0.0532	0.233	0.0022	0.0096	0	0		0	0	0	0	0	0

Based on: *1995 Protocol for Equipment Leak Emission Estimates*, Table 2.4 Version Date: 6/23/16; See next page for calculation notes.

Calculation Tool for Fugitive Emissions Oil & Gas Production

Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017), Table 2-4;
available at the EPA Web site at https://www3.epa.gov/ttn/chief/efdocs/equiplks.pdf

a) Service categories are defined as follows:

1) Gas/vapor - material in a gaseous state at operating conditions;
2) Light liquid - material in a liquid state in which the sum of the concentration of individual constituents with a vapor pressure over 0.3 kilopascals (kPa) at 200C is greater than or equal to 20 weight percent;
3) Heavy liquid - not in gas/vapor service or light liquid service.
4) Water/Oil emission factors apply to water streams in oil service with a water content greater than 50%, from the point of origin to the point where the water content reaches 99%. For water streams with a water content greater than 99%, the emission rate is considered negligible.

b) These factors are for total organic compound emission rates (including non-VOC's such as methane and ethane) and apply to light crude, heavy crude, gas plant, gas production, and off shore facilities. "NA" indicates that not enough data were available to develop the indicated emission factor.

c) The "other" equipment type was derived from compressors, diaphragms, drains, dump arms, hatches, instruments, meters, pressure relief valves, polished rods, relief valves, and vents. This "other" equipment type should be applied for any equipment type other than connectors, flanges, open-ended lines, pumps, or valves.

d) Note that the average factors generally determine total hydrocarbon emissions. Therefore, you may need to multiply the calculated emission rates by the stream's weight percentage of VOC compounds to determine total VOC emissions. Please attach a copy of the appropriate gas and oil analysis with the stream's weight percentage of VOC compounds identified.

VOC Sample Calculation
For 10 Valves in Gas Service with a gas stream weight percentage of 25% VOC

Emission Factor (EF) lb/hr=0.0045 kg/hr * 2.2046 lbs/kg
Gas Valves Uncontrolled Emissions

pph	EF (Valves in Gas Service) * Number of Valves in Gas Service & VOC wt%
	0.0099207 lb/hr * 10 valves = 0.099207 lb/hr * 25%/100
tpy	EF (Valves in Gas Service) * Number of Valves in Gas Service * 8760 hrs/yr * 1ton/2000 lbs
	0.0099207 lb/hr * 10 valves * 8760 hrs/yr * 1/2000 ton/lbs = 0.4345 tons/yr * 25%/100

Total Uncontrolled Fugitive Emissions for all Service types in Gas Service

pph	(Uncontrolled pph Emissions for Valves + Pump Seals + Connectors + Flanges + Open Ends + Other) * VOC wt%/100
tpy	(Uncontrolled tpy Emissions for Valves + Pump Seals + Connectors + Flanges + Open Ends + Other) * VOC wt%/100

Technical Disclaimer
This document is intended to help you accurately determine equipment leak fugitive emissions. It does not supersede or replace any state or federal law, rule, or regulation. This guidance reflects the current understanding of how piping components work and how they generate emissions, how they are monitored or tested, and what data are available for emissions determination, may change over time as we continue our scientific studies and as new information becomes available. We welcome any data, information, or feedback that may improve our understanding of equipment leak fugitive emissions and thereby further improve determinations within the emissions inventory. The calculation methods represented are intended as an emissions calculation aid; alternate calculation methods may be equally acceptable if they are based upon, and adequately demonstrate, sound engineering assumptions or data. If you have a question regarding the acceptability of a given emissions determination method, contact the Permitting Section at 505-476-4300.

Date:	Feb 18, 2020	**Permit Number:**	GCP-O&G-
Company Name:	XTO Energy Inc.	**AI# if Known:**	
Facility Name:	BEU DI 38 Battery	**Elevation (ft.):**	3,076

Unpaved Haul Roads

Enter Information in all green boxes.

Haul Road Fugitive Emission Unit ID: ROAD

% Silt	4.8	**Haul Road Distance-Round-trip in Miles (Only enter round-trip distance within facility boundaries)**	0.13
Mean Vehicle Weight (tons)	28		
Rain Days	70	**Number of Haul Road Round-trips/hour**	2
User % Control	0	**Number of Haul Road Round-trips/yr**	17,381
		Vehicle Miles Traveled/hr (VMT/hr)	0.26
		Vehicle Miles Traveled/yr (VMT/yr)	2,259.53

Notes:* The values here a slightly different from the Excel workbook due to rounding. The actual distance per load is 0.133 miles.

Hourly lbs/VMT			Annually lbs/VMT		
TSP	**PM10**	**PM2.5**	**TSP**	**PM10**	**PM2.5**
7.05	1.8	0.18	5.7	1.45	0.15

TSP/PM10/PM2.5 Emission Rates

Control	TSP		PM10		PM2.5	
	lb/hr	**tons/yr**	**lb/hr**	**tons/yr**	**lb/hr**	**tons/yr**
Continuous	1.83	6.49	0.47	1.65	0.05	0.17
0% Control	1.83	6.44	0.47	1.64	0.05	0.17
User % Control	1.83	6.44	0.47	1.64	0.05	0.17

Footnote: All emissions based on AP-42, 13.2.2-4 (November 2006); See reverse side for calculation notes.

NMED-AQB Unpaved Haul Road Calculation Tool

All emission factors based on AP-42, AP-42 13.2.2-4; November 2006
https://www3.epa.gov/ttn/chief/ap42/ch13/final/c13s0202.pdf

Emissions from vehicles traveling on unpaved surfaces at industrial sites (based on 8760 Hours/year) can be estimated using the following expression:

AP-42 13.2.2-4; Equation 1a: $$E = k\,(s/12)^a(W/3)^b$$

where k, a, b, c and d are empirical constants (Reference 6) given below and

E = size-specific emission factor (lb/VMT)

s = surface material silt content (%)

W = mean vehicle weight (tons)

M = surface material moisture content (%)

Table 13.2.2-2. CONSTANTS FOR EQUATION 1a

Constant	Industrial Roads (Equation 1a)		
	PM-2.5	PM-10	PM-30*
k (lb/VMT)	0.15	1.5	4.9
a	0.9	0.9	0.7
b	0.45	0.45	0.45
Quality Rating	B	B	B

*Assumed equivalent to total suspended particulate matter (TSP)

Technical Disclaimer

This document is intended to help you accurately determine unpaved haul road emissions. It does not supersede or replace any state or federal law, rule, or regulation. This guidance reflects the current understanding of how unpaved haul roads work and how they generate emissions, how they are monitored or tested, and what data are available for emissions determination, may change over time as we continue our scientific studies and as new information becomes available. We welcome any data, information, or feedback that may improve our understanding of unpaved haul road emissions and thereby further improve determinations within the emissions inventory. The calculation methods represented are intended as an emissions calculation aid; alternate calculation methods may be equally acceptable if they are based upon, and adequately demonstrate, sound engineering assumptions or data. If you have a question regarding the acceptability of a given emissions determination method, contact the Permitting Section at 505-476-4300.

New Mexico Environment Department Air Quality Bureau Emissions Calculation Forms

Date: Feb 18, 2020
Company Name: XTO Energy Inc.
Facility Name: BEU DI 38 Battery

Permit Number:
AI# if Known:
Elevation (ft.): 3,076

Total Requested Emissions For All Regulated Facility Equipment (GCP-O&G Request)

Emission	NO_X		CO		VOC		SO_X		TSP		PM_{10}		$PM_{2.5}$		H_2S		Total HAP	
Unit	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
Engines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0
Heaters	0.98	4.29	0.82	3.6	0.05	0.24	0	0	0.07	0.32	0.07	0.32	0.07	0.32	-	-		
Oil Tanks Flash	-	-	-	-	0	0	-	-	-	-	-	-	-	-				
Oil Tanks W & S	-	-	-	-	0	0	-	-	-	-	-	-	-	-				
Water Tks Flash	-	-	-	-	0	0	-	-	-	-	-	-	-	-				
Water Tks W & S	-	-	-	-	0	0	-	-	-	-	-	-	-	-				
Skim or Slop Tank	-	-	-	-	0	0	-	-	-	-	-	-	-	-				
GBS	-	-	-	-			-	-	-	-	-	-	-	-				
ECD	0	0	0	0	0	0	0	0										
VCU	0	0	0	0	0	0	0	0										
TO	0	0	0	0	0	0	0	0										
Flares	464.41	23.7	927.14	47.31	831.93	44.02	0	0										
Fugitives	-	-	-	-	1.84	8.04									0	0	0.11	0.48
SSM																		
Malf.	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Unpaved Haul Rds.	-	-	-	-	-	-	-	-	1.83	6.44	0.47	1.64	0.05	0.17	-	-	-	-
Paved Haul Rds.	-	-	-	-	-	-	-	-	0	0	0	0	0	0	-	-	0	0
Oil Load	-	-	-	-	0.82	3.11	-	-	-	-	-	-	-	-				
Water Loading	-	-	-	-	0.02	0	-	-	-	-	-	-	-	-				
Amine Unt	-	-	-	-	0	0	-	-	-	-	-	-	-	-	0	0	0	0
Amine Reb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-		
Dehy Unit	-	-	-	-			-	-	-	-	-	-	-	-				
Dehy Reb.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-		
Totals	**465.39**	**27.99**	**927.96**	**50.91**	**834.66**	**55.41**	**0**	**0**	**1.9**	**6.76**	**0.54**	**1.96**	**0.12**	**0.49**	**0**	**0**	**0.11**	**0.48**

A red-outlined cell indicates that the facility exceeds the allowable emission limits for that pollutant for the requested permitting action and the application cannot be approved as proposed.

Section 6
Information Used to Determine Emissions

Section 6

Information Used to Determine Emissions

Check the box for each type of information submitted. This documentation is required. If applicable to the facility.

Failure to include applicable supporting documentation may result in application denial.

☒ Specifications for control equipment, including control efficiency specifications and sufficient engineering data for verification of control equipment operation, including design drawings, test reports, and design parameters that affect normal operation.

- ☐ Engine or Generator Manufacturer specifications
- ☐ Catalyst Manufacturer specifications (If a catalyst is being utilized to reduce emissions, the catalyst manufacturer emission factors must be used in all emission calculations. A 25% safety factor may be applied to each pollutant.
- ☐ NSPS JJJJ emission factors **may not** be utilized in lieu of catalyst manufacture specifications when a catalyst is installed, and the catalysts manufacturer achieves higher control efficiency.
- ☒ Flare Manufacturer specifications
- ☒ Oil/Liquid Analysis: This data is required to match the inputs in all applicable emission calculations. For facilities that have not been constructed and a representative analysis is used it cannot be older than 1 year. For existing facilities, the gas analyses required by Condition A201.A (must be 1 year old or less).
- ☐ Gas Analysis (must be 1 year old or less) This data is required to match the inputs in all applicable emission calculations.
- ☒ Extended Gas Analysis (must be 1 year old or less) This data is required to match the inputs in all applicable emission calculations.
- ☒ If requesting to use a representative gas sample, include a discussion of why the sample is representative for this facility and an explanation of how it is representative (e.g., same reservoir, same similar API gravity, similar composition).

☐ If test data are used, to support emissions calculations or to establish allowable emission limits, include a copy of the complete test report. If the test data are for an emissions unit other than the one being permitted, the emission units must be identical. Test data may not be used if any difference in operating conditions of the unit being permitted and the unit represented in the test report significantly effect emission rates.

☐ Fuel specifications sheet.

☒ If computer models are used to estimate emissions, include an input summary and a detailed report, and a disk containing the input file used to run the model.

☒ For tank-flashing emissions, include a discussion of the method used to estimate tank-flashing emissions, accuracy of the model, the **input and output** summary from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis.

Representative Gas Analysis Justification: * The analysis came from the Big Eddy Unit 4, which produces from the same reservoir and has similar characteristics.

Heaters (HT1-HT2)

Emission rates for NOx, CO, VOC, PM, and HAP were calculated using AP-42 factors for external natural gas combustion sources, Table 1.4-1 and 1.4-2. PM_{10} and $PM_{2.5}$ emissions are set equal to PM emissions as a conservative measure. Emissions were increase assuming a burner efficiency of 70%. The AECT calculated emissions are lower than the Excel workbook.

Vapor Recovery Tower (VRT)

Flashing, working and breathing losses were estimated using Promax. A VRU is used to capture 98% of the vapors when operating. During VRU downtime (876 hours), VRT vapors are routed from to the low pressure flare (LFP) with a control efficiency of 98%. The hourly VRT emissions and gas volumes were based upon the daily production rate then divided by 24. The maximum hourly VRT emissions and gas volumes were calculated by multiplying the normal hourly rate by 4.

Oil Storage Tanks (OT1-OT3)
Flashing, working and breathing losses were estimated using Promax. A VRU is used to capture 98% of the tank vapors when operating (LPF-OT). During VRU downtime (3,154 hours), tank vapors are routed from the storage tanks to the low pressure flare (LFP) with a control efficiency of 98% (LPF-OT SSM). Oil is normally piped offsite but up to 5000 BOPD can be trucked offsite. Truck loading is controlled by LPF. The hourly tank emissions and gas volumes were based upon the daily production rate then divided by 24. The maximum hourly tank emissions and gas volumes were calculated by multiplying the normal hourly rate by 4.

Water Skim Tanks (SKTK1-SKTK2)
Flashing, working and breathing losses were estimated using Promax, assuming a maximum throughput of 60000 BWPD. Tank vapors are routed to LPF, which has a control efficiency of 98% (LPF-WT). Water is normally piped offsite but up to 5000 BOPD can be trucked offsite. The hourly tank emissions and gas volumes were based upon the daily production rate then divided by 24. The maximum hourly tank emissions and gas volumes were calculated by multiplying the normal hourly rate by 4.

Water Tanks (WT1-WT6)
Working and breathing losses were estimated using Promax, assuming a maximum throughput of 60000 BWPD. Tank vapors are routed to LPF, which has a control efficiency of 98% (LPF-WT). Water is normally piped offsite but can be trucked offsite as well. The hourly tank emissions and gas volumes were based upon the daily production rate then divided by 24. The maximum hourly tank emissions and gas volumes were calculated by multiplying the normal hourly rate by 4.

High Pressure Flare (HPF)
The flare uses a continuously lit pilot. Heater treater gas is routed to the flare during booster compressor (BC1/BC2) downtime (HPF-HT SSM) and inlet gas is routed to the flare during sales line downtime or during unplanned maintenance activities (HPF-SALES SSM. Heater treater gas volumes were estimated using Promax. Inlet volumes are based on production estimates. Emission rates for NO_x and CO are calculated using factors from TNRCC. H_2S, SO_2 and VOC emissions were calculated based on the gas analysis. A VOC control efficiency of 98% was used. On the AECT, FL-1 is the treater gas stream during booster downtime and FL-1b is the inlet gas stream.

Low Pressure Flare (LPF)
The flare uses a continuously lit pilot. LPF collects 2% of all VRT and oil tanks gas during normal VRU operation and 100% of all tank gas during VRU downtime. All skim tank, water tank, and oil truck loading emissions are routed to the flare. The gas volumes are calculated using Promax. Emission rates for NO_x and CO are calculated using factors from TNRCC. H_2S, SO_2 and VOC emissions were calculated based on the gas analysis. A VOC control efficiency of 98% was used. The AECT does not work for the LPF since there are too many streams.

Fugitives (FUG)
Fugitives for the facility were calculated using factors in Table 2-4 of EPA-453/R-95-017, 1995 Protocol for Equipment Leak Emission Estimates.

Haul Road (ROAD)
Haul road emissions were calculated using Equation 1a in AP-42, Section 13.2.2.

September 09, 2019

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

For: XTO Energy, Inc.
22777 Springwoods Village Pkwy.
Spring, Texas 77389

Sample: BEU DI 4 Tank Battery
First Stage Separator
Spot Gas Sample @ 103 psig & 89 °F

Date Sampled: 08/20/2019

Job Number: 192969.001

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286

COMPONENT	MOL%	GPM
Hydrogen Sulfide*	< 0.001	
Nitrogen	3.977	
Carbon Dioxide	0.250	
Methane	72.423	
Ethane	12.256	3.356
Propane	6.294	1.776
Isobutane	0.760	0.255
n-Butane	1.976	0.638
2-2 Dimethylpropane	0.003	0.001
Isopentane	0.464	0.174
n-Pentane	0.488	0.181
Hexanes	0.363	0.154
Heptanes Plus	0.746	0.290
Totals	100.000	6.825

Computed Real Characteristics Of Heptanes Plus:

Specific Gravity ---------------------------	3.242	(Air=1)
Molecular Weight -------------------------	93.52	
Gross Heating Value --------------------	4848	BTU/CF

Computed Real Characteristics Of Total Sample:

Specific Gravity ---------------------------	0.783	(Air=1)
Compressibility (Z) -----------------------	0.9959	
Molecular Weight -------------------------	22.58	
Gross Heating Value		
Dry Basis --------------------------------	1321	BTU/CF
Saturated Basis ------------------------	1299	BTU/CF

*Hydrogen Sulfide tested on location by: Stain Tube Method (GPA 2377)
Results: <0.013 Gr/100 CF, <0.2 PPMV or <0.001 Mol %

Base Conditions: 15.025 PSI & 60 Deg F

Sampled By: (16) D. Field
Analyst: NG
Processor: RG
Cylinder ID: T-5241

Certified: FESCO, Ltd. - Alice, Texas

____
David Dannhaus 361-661-7015

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286
TOTAL REPORT

COMPONENT	MOL %	GPM	WT %
Hydrogen Sulfide*	< 0.001		< 0.001
Nitrogen	3.977		4.934
Carbon Dioxide	0.250		0.487
Methane	72.423		51.450
Ethane	12.256	3.356	16.320
Propane	6.294	1.776	12.290
Isobutane	0.760	0.255	1.956
n-Butane	1.976	0.638	5.086
2,2 Dimethylpropane	0.003	0.001	0.010
Isopentane	0.464	0.174	1.482
n-Pentane	0.488	0.181	1.559
2,2 Dimethylbutane	0.003	0.001	0.011
Cyclopentane	0.071	0.030	0.221
2,3 Dimethylbutane	0.000	0.000	0.000
2 Methylpentane	0.108	0.046	0.412
3 Methylpentane	0.059	0.025	0.225
n-Hexane	0.122	0.051	0.466
Methylcyclopentane	0.094	0.033	0.350
Benzene	0.115	0.033	0.398
Cyclohexane	0.146	0.051	0.544
2-Methylhexane	0.015	0.007	0.067
3-Methylhexane	0.020	0.009	0.089
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.060	0.027	0.264
n-Heptane	0.032	0.015	0.142
Methylcyclohexane	0.091	0.037	0.396
Toluene	0.059	0.020	0.241
Other C8's	0.048	0.023	0.234
n-Octane	0.012	0.006	0.061
Ethylbenzene	0.001	0.000	0.005
M & P Xylenes	0.008	0.003	0.038
O-Xylene	0.002	0.001	0.009
Other C9's	0.025	0.013	0.140
n-Nonane	0.003	0.002	0.017
Other C10's	0.008	0.005	0.050
n-Decane	0.001	0.001	0.006
Undecanes (11)	0.006	0.004	0.040
Totals	100.000	6.825	100.000

Computed Real Characteristics of Total Sample

Specific Gravity -----------------------------------	0.783	(Air=1)
Compressibility (Z) -------------------------------	0.9959	
Molecular Weight ---------------------------------	22.58	
Gross Heating Value		
Dry Basis ---------------------------------------	1321	BTU/CF
Saturated Basis --------------------------------	1299	BTU/CF

September 09, 2019

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

Sample: BEU DI 4 Tank Battery
First Stage Separator
Spot Gas Sample @ 103 psig & 89 °F

Date Sampled: 08/20/2019

Job Number: 192969.001

GLYCALC FORMAT

COMPONENT	MOL%	GPM	Wt %
Carbon Dioxide	0.250		0.487
Hydrogen Sulfide	< 0.001		< 0.001
Nitrogen	3.977		4.934
Methane	72.423		51.450
Ethane	12.256	3.356	16.320
Propane	6.294	1.776	12.290
Isobutane	0.760	0.255	1.956
n-Butane	1.979	0.639	5.096
Isopentane	0.464	0.174	1.482
n-Pentane	0.488	0.181	1.559
Cyclopentane	0.071	0.030	0.221
n-Hexane	0.122	0.051	0.466
Cyclohexane	0.146	0.051	0.544
Other C6's	0.170	0.072	0.648
Heptanes	0.221	0.092	0.912
Methylcyclohexane	0.091	0.037	0.396
2,2,4 Trimethylpentane	0.000	0.000	0.000
Benzene	0.115	0.033	0.398
Toluene	0.059	0.020	0.241
Ethylbenzene	0.001	0.000	0.005
Xylenes	0.010	0.004	0.047
Octanes Plus	0.103	0.053	0.548
Totals	100.000	6.825	100.000

Real Characteristics Of Octanes Plus:

Specific Gravity -----------------------	4.169	(Air=1)
Molecular Weight -----------------------	120.24	
Gross Heating Value -----------------	6364	BTU/CF

Real Characteristics Of Total Sample:

Specific Gravity --------------------------	0.783	(Air=1)
Compressibility (Z) ----------------------	0.9959	
Molecular Weight ------------------------	22.58	
Gross Heating Value		
Dry Basis --------------------------------	1321	BTU/CF
Saturated Basis -----------------------	1299	BTU/CF

September 20, 2019

FESCO, Ltd.
1100 FESCO Avenue - Alice, Texas 78332

For: XTO Energy, Inc.
22777 Springwoods Village Pkwy.
Spring, Texas 77389

Sample: BEU DI 4 Tank Battery
First Stage Separator Hydrocarbon Liquid
Sampled @ 103 psig & 89 °F

Date Sampled: 08/20/19

Job Number: 192969.002

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2186-M

COMPONENT	MOL %	LIQ VOL %	WT %
Nitrogen	0.028	0.005	0.005
Carbon Dioxide	0.007	0.002	0.002
Methane	2.430	0.669	0.245
Ethane	2.255	0.980	0.426
Propane	3.708	1.660	1.028
Isobutane	0.970	0.516	0.355
n-Butane	3.623	1.856	1.324
2,2 Dimethylpropane	0.045	0.028	0.020
Isopentane	2.011	1.195	0.912
n-Pentane	2.844	1.675	1.290
2,2 Dimethylbutane	0.018	0.012	0.010
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.476	0.317	0.258
2 Methylpentane	1.118	0.754	0.606
3 Methylpentane	0.697	0.463	0.378
n-Hexane	1.775	1.186	0.962
Heptanes Plus	77.995	88.683	92.177
Totals:	100.000	100.000	100.000

Characteristics of Heptanes Plus:

Specific Gravity ---------------------------------	0.8510	(Water=1)
°API Gravity --------------------------------------	34.78	@ 60°F
Molecular Weight ------------------------------	187.9	
Vapor Volume ----------------------------------	14.01	CF/Gal
Weight --	7.09	Lbs/Gal

Characteristics of Total Sample:

Specific Gravity ---------------------------------	0.8187	(Water=1)
°API Gravity --------------------------------------	41.33	@ 60°F
Molecular Weight-------------------------------	159.0	
Vapor Volume ----------------------------------	15.93	CF/Gal
Weight --	6.82	Lbs/Gal

Base Conditions: 15.025 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas

Sampled By: (14) Perez
Analyst: RR
Processor: ANBdjv
Cylinder ID: W-0939

David Dannhaus 361-661-7015

TANKS DATA INPUT REPORT - GPA 2186-M

COMPONENT	Mol %	LiqVol %	Wt %
Carbon Dioxide	0.007	0.002	0.002
Nitrogen	0.028	0.005	0.005
Methane	2.430	0.669	0.245
Ethane	2.255	0.980	0.426
Propane	3.708	1.660	1.028
Isobutane	0.970	0.516	0.355
n-Butane	3.668	1.884	1.345
Isopentane	2.011	1.195	0.912
n-Pentane	2.844	1.675	1.290
Other C-6's	2.310	1.546	1.252
Heptanes	9.613	6.067	5.477
Octanes	11.107	7.935	7.362
Nonanes	5.307	4.498	4.228
Decanes Plus	41.861	64.467	69.109
Benzene	2.364	1.075	1.162
Toluene	4.080	2.220	2.365
E-Benzene	1.020	0.640	0.681
Xylenes	2.073	1.299	1.384
n-Hexane	1.775	1.186	0.962
2,2,4 Trimethylpentane	0.570	0.481	0.409
Totals:	100.000	100.000	100.000

Characteristics of Total Sample:

Specific Gravity --	0.8187	(Water=1)
°API Gravity --	41.33	@ 60°F
Molecular Weight--------------------------------------	159.0	
Vapor Volume ---	15.93	CF/Gal
Weight ---	6.82	Lbs/Gal

Characteristics of Decanes (C10) Plus:

Specific Gravity --	0.8777	(Water=1)
Molecular Weight--------------------------------------	262.5	

Characteristics of Atmospheric Sample:

°API Gravity --	39.33	@ 60°F
Reid Vapor Pressure Equivalent (D-6377)---------	8.60	psi

QUALITY CONTROL CHECK			
	Sampling Conditions	Test Samples	
Cylinder Number	------	W-0939*	------
Pressure, PSIG	103	99	------
Temperature, °F	89	89	------

* Sample used for analysis

TOTAL EXTENDED REPORT - GPA 2186-M

COMPONENT	Mol %	LiqVol %	Wt %
Nitrogen	0.028	0.005	0.005
Carbon Dioxide	0.007	0.002	0.002
Methane	2.430	0.669	0.245
Ethane	2.255	0.980	0.426
Propane	3.708	1.660	1.028
Isobutane	0.970	0.516	0.355
n-Butane	3.623	1.856	1.324
2,2 Dimethylpropane	0.045	0.028	0.020
Isopentane	2.011	1.195	0.912
n-Pentane	2.844	1.675	1.290
2,2 Dimethylbutane	0.018	0.012	0.010
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.476	0.317	0.258
2 Methylpentane	1.118	0.754	0.606
3 Methylpentane	0.697	0.463	0.378
n-Hexane	1.775	1.186	0.962
Methylcyclopentane	1.861	1.070	0.985
Benzene	2.364	1.075	1.162
Cyclohexane	3.826	2.116	2.025
2-Methylhexane	0.703	0.531	0.443
3-Methylhexane	0.657	0.490	0.414
2,2,4 Trimethylpentane	0.570	0.481	0.409
Other C-7's	1.072	0.740	0.669
n-Heptane	1.494	1.120	0.942
Methylcyclohexane	4.913	3.209	3.034
Toluene	4.080	2.220	2.365
Other C-8's	4.807	3.571	3.332
n-Octane	1.388	1.155	0.997
E-Benzene	1.020	0.640	0.681
M & P Xylenes	1.472	0.928	0.983
O-Xylene	0.601	0.371	0.401
Other C-9's	4.187	3.474	3.324
n-Nonane	1.120	1.024	0.903
Other C-10's	4.889	4.459	4.344
n-decane	0.761	0.759	0.681
Undecanes(11)	4.502	4.212	4.162
Dodecanes(12)	3.234	3.268	3.274
Tridecanes(13)	3.370	3.652	3.709
Tetradecanes(14)	3.037	3.525	3.629
Pentadecanes(15)	2.551	3.172	3.305
Hexadecanes(16)	1.956	2.599	2.731
Heptadecanes(17)	1.691	2.376	2.520
Octadecanes(18)	1.623	2.401	2.561
Nonadecanes(19)	1.449	2.233	2.397
Eicosanes(20)	1.084	1.737	1.875
Heneicosanes(21)	0.980	1.651	1.793
Docosanes(22)	0.869	1.526	1.667
Tricosanes(23)	0.744	1.355	1.488
Tetracosanes(24)	0.665	1.255	1.385
Pentacosanes(25)	0.610	1.194	1.323
Hexacosanes(26)	0.547	1.110	1.236
Heptacosanes(27)	0.513	1.079	1.207
Octacosanes(28)	0.475	1.033	1.159
Nonacosanes(29)	0.435	0.977	1.100
Triacontanes(30)	0.377	0.873	0.986
Hentriacontanes Plus(31+)	5.499	18.021	20.576
Total	100.000	100.000	100.000

September 20, 2019

FESCO, Ltd.
1100 Fesco Avenue - Alice, Texas 78332

For: XTO Energy, Inc.
22777 Springwoods Village Pkwy.
Spring, Texas 77389

Date Sampled: 08/20/19

Date Analyzed: 09/11/19

Sample: BEU DI 4 Tank Battery

Job Number: J192969

FLASH LIBERATION OF HYDROCARBON LIQUID		
	Separator HC Liquid	**Stock Tank**
Pressure, psig	103	0
Temperature, °F	89	70
Density of Separator HC Liquid (g/cc)	0.8039	------
Gas Oil Ratio (1)	------	47.9
Gas Specific Gravity (2)	------	1.226

STOCK TANK FLUID PROPERTIES	
Shrinkage Recovery Factor (3)	0.9605
Density of Stock Tank HC Liquid (g/cc @ 60 °F)	0.8275
Oil API Gravity at 60 °F	39.33

Quality Control Check			
	Sampling Conditions	**Test Samples**	
Cylinder No.	------	W-0939*	------
Pressure, psig	103	99	------
Temperature, °F	89	89	------

(1) - Scf of flashed vapor per barrel of stock tank oil
(2) - Air = 1.000
(3) - Fraction of first stage separator liquid

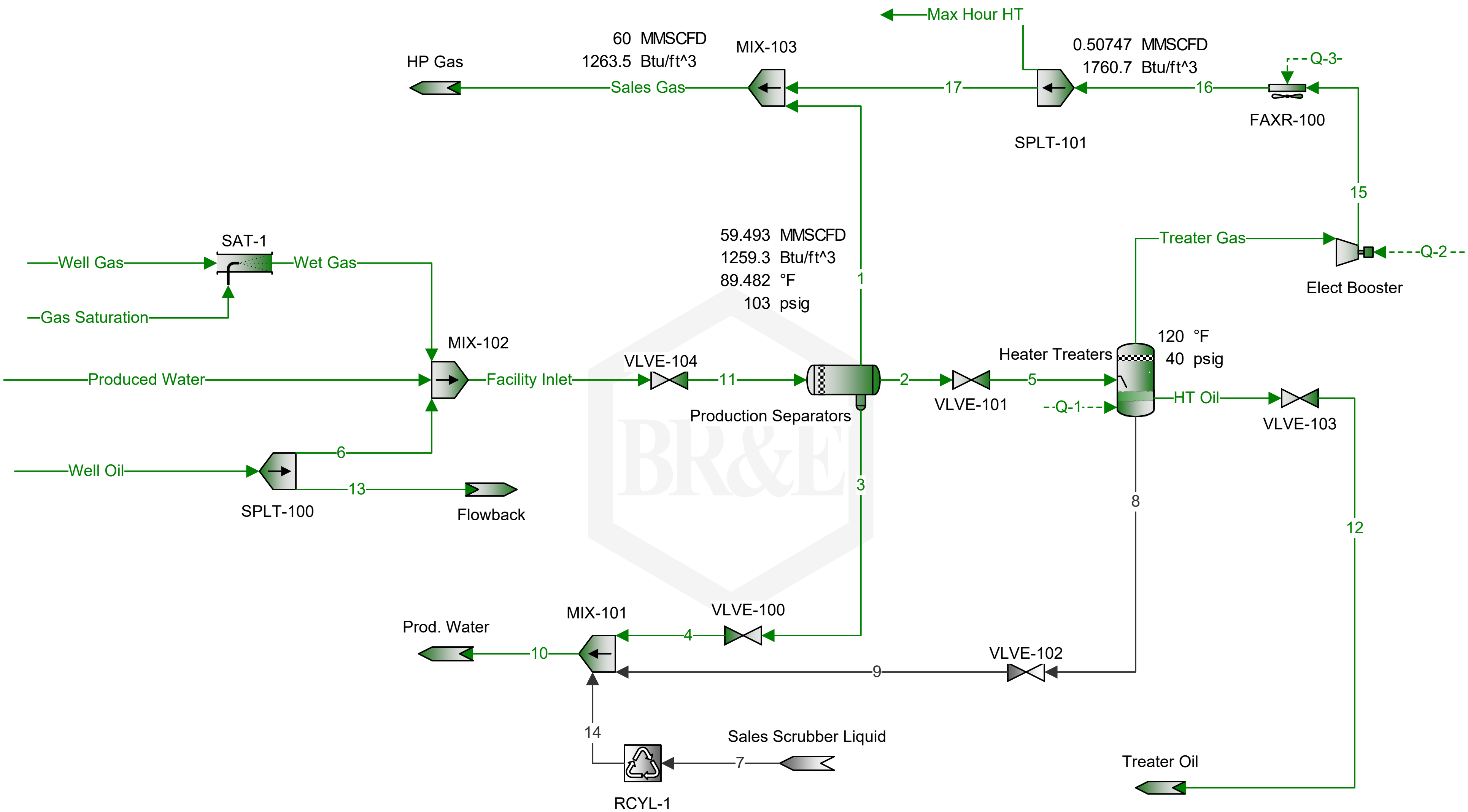
Analyst: R.E.

Base Conditions: 15.025 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas

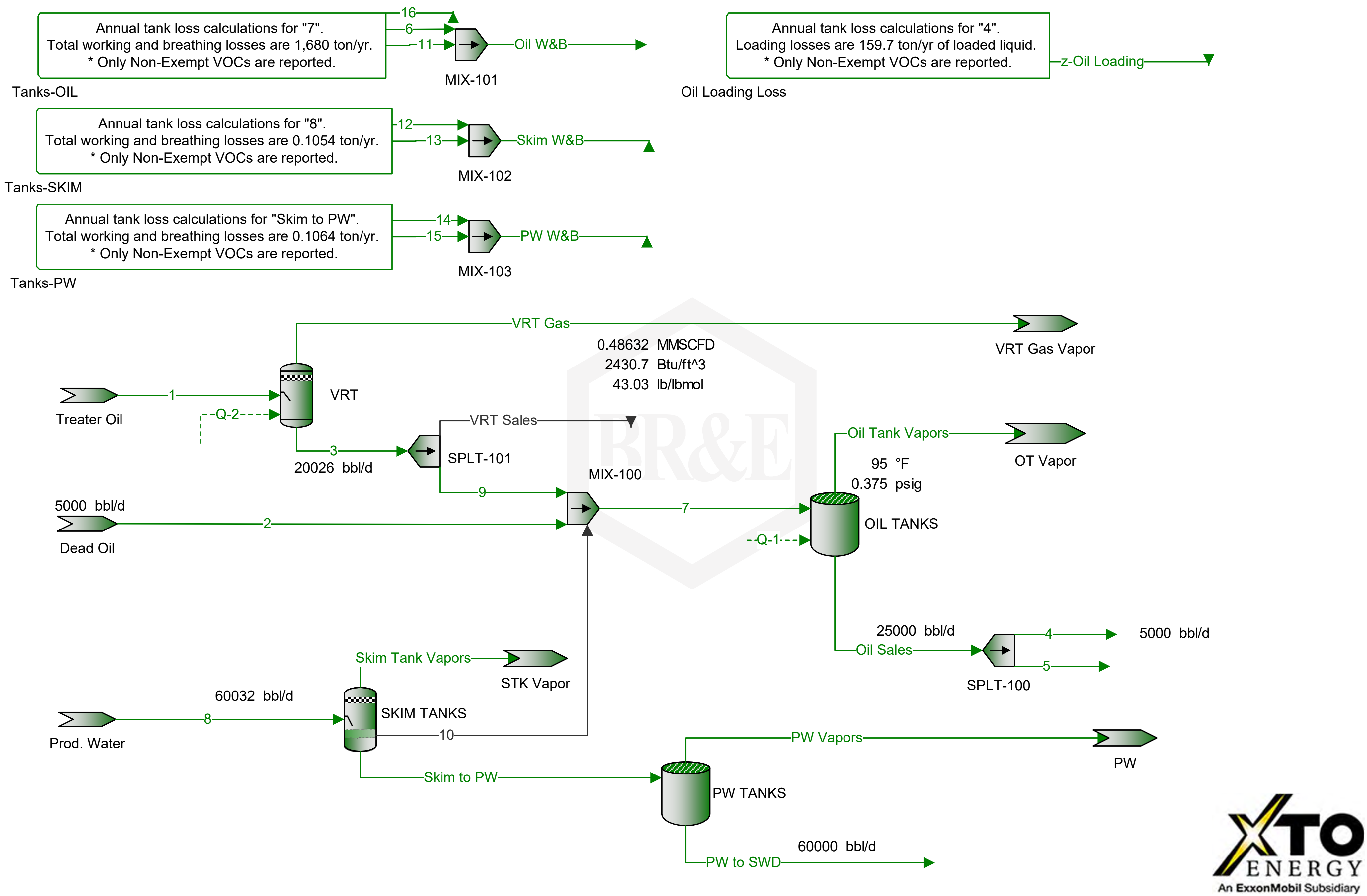
David Dannhaus 361-661-7015

BEU DI 38 TANK BATTERY

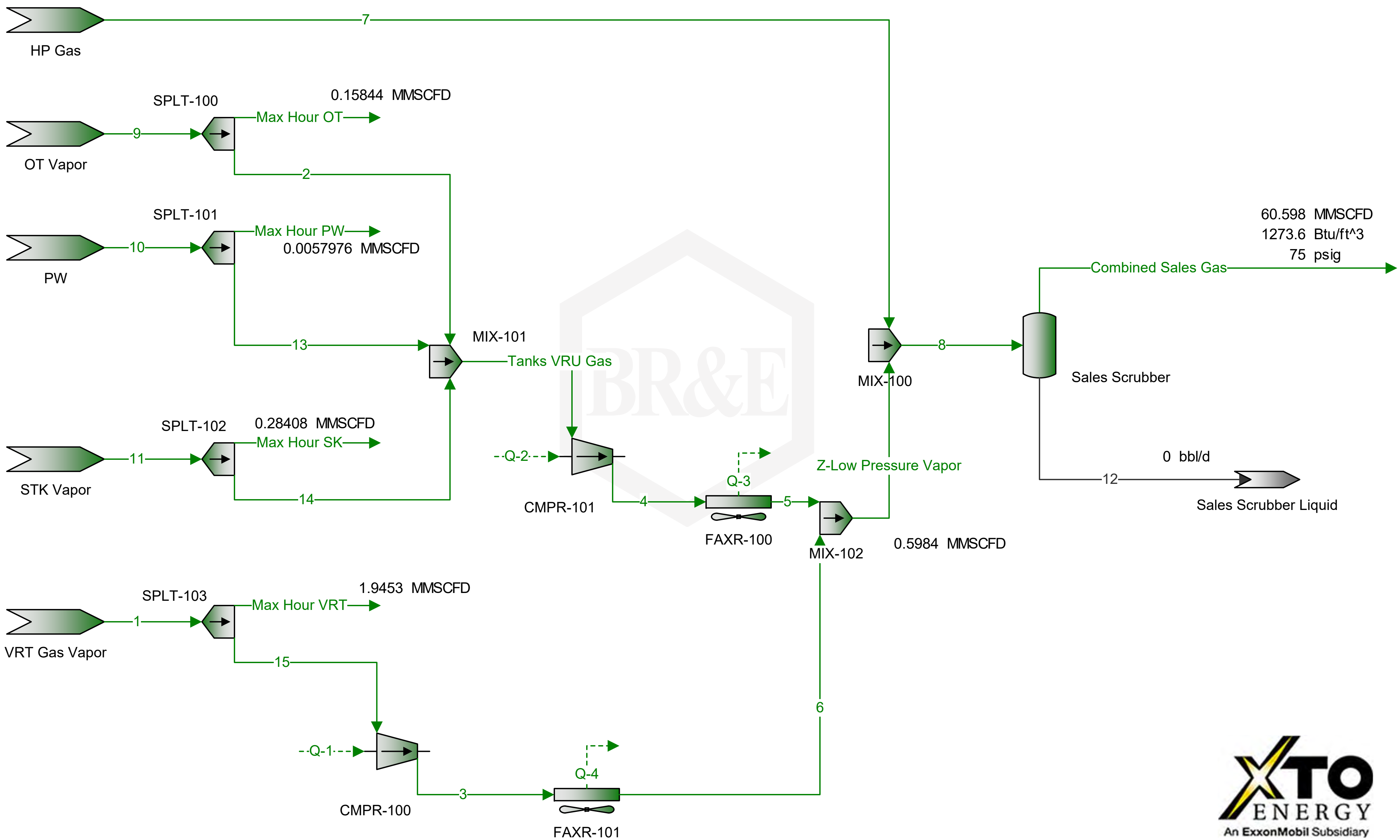


XTO ENERGY
An ExxonMobil Subsidiary

BEU DI 38 TANK BATTERY

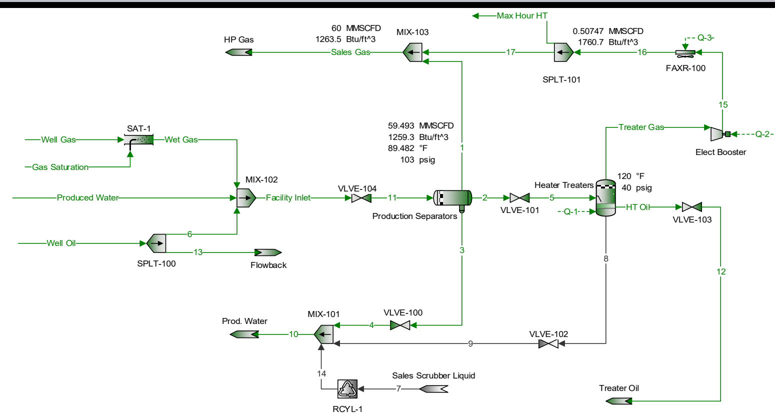


BEU DI 38 TANK BATTERY



Inlet
Plant Schematic

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Inlet	



Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Inlet	

Connections

	Facility Inlet	Gas Saturation	HT Oil	Max Hour HT	Produced Water
From Block	MIX-102	--	Heater Treaters	SPLT-101	--
To Block	VLVE-104	SAT-1	VLVE-103	--	MIX-102

Stream Composition

Mole Fraction	Facility Inlet %	Gas Saturation %	HT Oil %	Max Hour HT %	Produced Water %
Carbon Dioxide	0.0290843	0 *	0.00906046	0.290335	0 *
Nitrogen	0.460409	0 *	0.00518636	1.06189	0 *
Methane	8.43439	0 *	0.63114	46.8801	0 *
Ethane	1.47546	0 *	1.41613	21.4011	0 *
Propane	0.824266	0 *	3.29362	15.85	0 *
Isobutane	0.113171	0 *	1.03496	2.15393	0 *
n-Butane	0.324472	0 *	3.91681	5.82437	0 *
Isopentane	0.106113	0 *	2.21522	1.38665	0 *
n-Pentane	0.130623	0 *	3.0711	1.50082	0 *
n-Hexane	0.0604242	0 *	1.95465	0.31638	0 *
Cyclohexane	0.0168753	0 *	0.575178	0.0638496	0 *
i-C6	0.0881321	0 *	2.67329	0.588899	0 *
i-C7	0.276424	0 *	9.7251	0.815331	0 *
Methylcyclohexane	0.0105182	0 *	0.381244	0.0216849	0 *
Octane	0.296819	0 *	11.1985	0.234111	0 *
Nonane	0.141739	0 *	5.42256	0.041007	0 *
Benzene	0.0750016	0 *	2.45712	0.328954	0 *
Toluene	0.113316	0 *	4.15705	0.178209	0 *
Ethylbenzene	0.0267349	0 *	1.0131	0.0157928	0 *
o-Xylene	0.0552599	0 *	2.09985	0.0266254	0 *
H2S	0.000115584	0 *	0.000212422	0.00188322	0 *
Water	85.8315	100 *	0.0536626	0.985119	100 *
2,2,4-Trimethylpentane	0.0148765	0 *	0.536268	0.032899	0 *
Decanes Plus	1.09427	0 *	42.159	3.38094E-05	0 *

Mass Fraction	Facility Inlet %	Gas Saturation %	HT Oil %	Max Hour HT %	Produced Water %
Carbon Dioxide	0.0574504	0 *	0.00244092	0.415328	0 *
Nitrogen	0.578893	0 *	0.000889377	0.966926	0 *
Methane	6.07313	0 *	0.0619803	24.4459	0 *
Ethane	1.99129	0 *	0.260663	20.9172	0 *
Propane	1.63137	0 *	0.889049	22.718	0 *
Isobutane	0.295233	0 *	0.368233	4.06929	0 *
n-Butane	0.846461	0 *	1.39358	11.0037	0 *
Isopentane	0.343626	0 *	0.97837	3.25194	0 *
n-Pentane	0.422996	0 *	1.35637	3.51968	0 *
n-Hexane	0.233713	0 *	1.03112	0.886214	0 *
Cyclohexane	0.0637446	0 *	0.296321	0.174666	0 *
i-C6	0.340883	0 *	1.41022	1.64957	0 *
i-C7	1.2432	0 *	5.96523	2.65556	0 *
Methylcyclohexane	0.0463531	0 *	0.229145	0.0692075	0 *
Octane	1.52179	0 *	7.83055	0.869245	0 *
Nonane	0.815928	0 *	4.25732	0.170954	0 *
Benzene	0.262951	0 *	1.1749	0.835216	0 *
Toluene	0.468621	0 *	2.34468	0.533723	0 *
Ethylbenzene	0.127394	0 *	0.6584	0.0544987	0 *
o-Xylene	0.263318	0 *	1.36467	0.0918807	0 *
H2S	0.000176807	0 *	4.43168E-05	0.00208621	0 *
Water	69.4026	100 *	0.00591793	0.576868	100 *
2,2,4-Trimethylpentane	0.0762718	0 *	0.374985	0.122153	0 *

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Inlet	

Mass Fraction	Facility Inlet %	Gas Saturation %	HT Oil %	Max Hour HT %	Produced Water %
Decanes Plus	12.8926	0 *	67.7449	0.000288478	0 *

Mass Flow	Facility Inlet lb/h	Gas Saturation lb/h	HT Oil lb/h	Max Hour HT lb/h	Produced Water lb/h
Carbon Dioxide	725.137	0 *	5.86334	28.4781	0 *
Nitrogen	7306.77	0 *	2.13637	66.2998	0 *
Methane	76654.9	0 *	148.883	1676.2	0 *
Ethane	25134	0 *	626.137	1434.24	0 *
Propane	20591	0 *	2135.58	1557.72	0 *
Isobutane	3726.42	0 *	884.531	279.022	0 *
n-Butane	10684	0 *	3347.52	754.495	0 *
Isopentane	4337.23	0 *	2350.14	222.978	0 *
n-Pentane	5339.05	0 *	3258.14	241.336	0 *
n-Hexane	2949.91	0 *	2476.85	60.7656	0 *
Cyclohexane	804.583	0 *	711.792	11.9764	0 *
i-C6	4302.62	0 *	3387.49	113.107	0 *
i-C7	15691.6	0 *	14329.1	182.086	0 *
Methylcyclohexane	585.068	0 *	550.429	4.74539	0 *
Octane	19208	0 *	18809.7	59.6021	0 *
Nonane	10298.6	0 *	10226.5	11.7219	0 *
Benzene	3318.97	0 *	2822.22	57.2688	0 *
Toluene	5914.92	0 *	5632.15	36.5962	0 *
Ethylbenzene	1607.96	0 *	1581.54	3.73685	0 *
o-Xylene	3323.59	0 *	3278.06	6.30004	0 *
H2S	2.23165	0 *	0.106453	0.143046	0 *
Water	875998	713.713 *	14.2155	39.5545	875284 *
2,2,4-Trimethylpentane	962.701	0 *	900.751	8.37574	0 *
Decanes Plus	162730	0 *	162730	0.0197803	0 *

Stream Properties

Property	Units	Facility Inlet	Gas Saturation	HT Oil	Max Hour HT	Produced Water
Temperature	°F	89.4822	338.652	120	90	89 *
Pressure	psig	103	103	40	80	103 *
Molecular Weight	lb/lbmol	22.2798	18.0153	163.359	30.7648	18.0153
Mass Flow	lb/h	1.2622E+06	713.713	240210	6856.76	875284
Std Vapor Volumetric Flow	MMSCFD	515.965	0.360817	13.3922	2.02988	442.5
Std Liquid Volumetric Flow	sgpm	3144.8	1.42676	593.381	32.2894	1749.76 *
Gross Ideal Gas Heating Value	Btu/ft^3	411.44	50.31	8518.71	1760.7	50.31

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Inlet	

Connections

	Sales Gas	Treater Gas	Well Gas	Well Oil	Wet Gas
From Block	MIX-103	Heater Treaters	--	--	SAT-1
To Block	HP Gas	Elect Booster	SAT-1	SPLT-100	MIX-102

Stream Composition

Mole Fraction	Sales Gas %	Treater Gas %	Well Gas %	Well Oil %	Wet Gas %
Carbon Dioxide	0.242392	0.290335	0.249998 *	0.00720998 *	0.248494
Nitrogen	3.95558	1.06189	3.97696 *	0.0279699 *	3.95304
Methane	72.298	46.8801	72.4223 *	2.42962 *	71.9867
Ethane	12.351	21.4011	12.2559 *	2.25508 *	12.1822
Propane	6.34582	15.85	6.29394 *	3.70807 *	6.25609
Isobutane	0.741669	2.15393	0.759992 *	0.970398 *	0.755422
n-Butane	1.91408	5.82437	1.97898 *	3.66792 *	1.96708
Isopentane	0.417792	1.38665	0.463995 *	2.01085 *	0.461205
n-Pentane	0.437673	1.50082	0.487995 *	2.84367 *	0.48506
n-Hexane	0.0833116	0.31638	0.121999 *	1.77488 *	0.121265
Cyclohexane	0.016682	0.0638496	0.145999 *	0 *	0.145121
i-C6	0.161137	0.588899	0.240998 *	2.3095 *	0.239548
i-C7	0.20636	0.815331	0.220998 *	9.61253 *	0.219669
Methylcyclohexane	0.00534792	0.0216849	0.0909991 *	0 *	0.0904518
Octane	0.0529148	0.234111	0.0599994 *	11.107 *	0.0596386
Nonane	0.00853473	0.041007	0.0279997 *	5.30677 *	0.0278313
Benzene	0.0862301	0.328954	0.114999 *	2.36441 *	0.114307
Toluene	0.0428365	0.178209	0.0589994 *	4.08046 *	0.0586446
Ethylbenzene	0.00352623	0.0157928	0.00099999 *	1.01993 *	0.000993976
o-Xylene	0.00588202	0.0266254	0.0099999 *	2.07301 *	0.00993976
H2S	0.000884547	0.00188322	0.00099999 *	0 *	0.000993976
Water	0.614079	0.985119	0 *	0 *	0.601373
2,2,4-Trimethylpentane	0.00823092	0.032899	0 *	0.569999 *	0
Decanes Plus	3.66373E-06	3.38094E-05	0.0149999 *	41.8607 *	0.0149096

Mass Fraction	Sales Gas %	Treater Gas %	Well Gas %	Well Oil %	Wet Gas %
Carbon Dioxide	0.479845	0.415328	0.486217 *	0.00197106 *	0.483886
Nitrogen	4.98439	0.966926	4.9234 *	0.00486717 *	4.8998
Methane	52.1715	24.4459	51.3442 *	0.242119 *	51.098
Ethane	16.7055	20.9172	16.2859 *	0.421213 *	16.2078
Propane	12.5869	22.718	12.265 *	1.01569 *	12.2062
Isobutane	1.93904	4.06929	1.95209 *	0.350357 *	1.94273
n-Butane	5.00425	11.0037	5.08313 *	1.32428 *	5.05877
Isopentane	1.35589	3.25194	1.47942 *	0.901216 *	1.47233
n-Pentane	1.42041	3.51968	1.55594 *	1.27447 *	1.54848
n-Hexane	0.322942	0.886214	0.464608 *	0.950102 *	0.462381
Cyclohexane	0.0631518	0.174666	0.543 *	0 *	0.540397
i-C6	0.624616	1.64957	0.917791 *	1.23629 *	0.913392
i-C7	0.930116	2.65556	0.978615 *	5.98319 *	0.973924
Methylcyclohexane	0.0236195	0.0692075	0.394853 *	0 *	0.39296
Octane	0.271887	0.869245	0.302879 *	7.88116 *	0.301427
Nonane	0.049238	0.170954	0.1587 *	4.22789 *	0.157939
Benzene	0.302978	0.835216	0.396971 *	1.14725 *	0.395068
Toluene	0.177538	0.533723	0.240235 *	2.33544 *	0.239083
Ethylbenzene	0.0168394	0.0544987	0.00469164 *	0.67262 *	0.00466915
o-Xylene	0.0280895	0.0918807	0.0469164 *	1.36711 *	0.0466915
H2S	0.00135602	0.00208621	0.0015061 *	0 *	0.00149888
Water	0.497624	0.576868	0 *	0 *	0.479364
2,2,4-Trimethylpentane	0.042292	0.122153	0 *	0.404453 *	0
Decanes Plus	4.32602E-05	0.000288478	0.174006 *	68.2583 *	0.173172

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Inlet	

Mass Flow	Sales Gas lb/h	Treater Gas lb/h	Well Gas lb/h	Well Oil lb/h	Wet Gas lb/h
Carbon Dioxide	702.767	7.11952	720.446 *	6.72201 *	720.446
Nitrogen	7300	16.575	7295.18 *	16.5988 *	7295.18
Methane	76408.9	419.049	76078.6 *	825.712 *	76078.6
Ethane	24466.3	358.56	24131.4 *	1436.48 *	24131.4
Propane	18434.4	389.43	18173.4 *	3463.87 *	18173.4
Isobutane	2839.87	69.7555	2892.48 *	1194.84 *	2892.48
n-Butane	7329.08	188.624	7531.87 *	4516.28 *	7531.87
Isopentane	1985.8	55.7445	2192.11 *	3073.46 *	2192.11
n-Pentane	2080.29	60.334	2305.49 *	4346.37 *	2305.49
n-Hexane	472.972	15.1914	688.427 *	3240.18 *	688.427
Cyclohexane	92.4904	2.9941	804.583 *	0 *	804.583
i-C6	914.796	28.2768	1359.93 *	4216.19 *	1359.93
i-C7	1362.22	45.5214	1450.05 *	20404.8 *	1450.05
Methylcyclohexane	34.5924	1.18635	585.068 *	0 *	585.068
Octane	398.197	14.9005	448.787 *	26877.5 *	448.787
Nonane	72.1126	2.93048	235.151 *	14418.6 *	235.151
Benzene	443.733	14.3172	588.206 *	3912.54 *	588.206
Toluene	260.017	9.14904	355.965 *	7964.68 *	355.965
Ethylbenzene	24.6626	0.934212	6.95178 *	2293.87 *	6.95178
o-Xylene	41.139	1.57501	69.5178 *	4662.32 *	69.5178
H2S	1.986	0.0357616	2.23165 *	0 *	2.23165
Water	728.806	9.88861	0 *	0 *	713.713
2,2,4-Trimethylpentane	61.9397	2.09393	0 *	1379.33 *	0
Decanes Plus	0.0633577	0.00494506	257.831 *	232785 *	257.831

Stream Properties

Property	Units	Sales Gas	Treater Gas	Well Gas	Well Oil	Wet Gas
Temperature	°F	87.3831	120 *	89 *	89 *	89
Pressure	psig	80	40	103 *	103 *	103
Molecular Weight	lb/lbmol	22.2313	30.7648	22.6283	160.983	22.6006
Mass Flow	lb/h	146457	1714.19	148174	341035	148887
Std Vapor Volumetric Flow	MMSCFD	60	0.50747	59.6381 *	19.294	59.9989
Std Liquid Volumetric Flow	sgpm	800.475	8.07236	803.264	845.833 *	804.691
Gross Ideal Gas Heating Value	Btu/ft^3	1263.52	1760.7	1289.95	8397.12	1282.5

Remarks

Well Gas:
BEU DI 4 SAMPLE
Sample Data: 8/20/19

Well Oil:
BEU DI 3 SAMPLE
Sample Data: 8/20/19

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Inlet	

Connections

	1	2	3	4	5
From Block	Production Separators	Production Separators	Production Separators	VLVE-100	VLVE-101
To Block	MIX-103	VLVE-101	VLVE-100	MIX-101	Heater Treaters

Stream Composition

Mole Fraction	1 %	2 %	3 %	4 %	5 %
Carbon Dioxide	0.241983	0.0193296	0.000771852	0.000771852	0.0193296
Nitrogen	3.98026	0.0437662	0.000340441	0.000340441	0.0437662
Methane	72.5148	2.31966	0.0124545	0.0124545	2.31966
Ethane	12.2738	2.14577	0.00284353	0.00284353	2.14577
Propane	6.26475	3.75204	0.000981846	0.000981846	3.75204
Isobutane	0.729622	1.07581	7.14772E-05	7.14772E-05	1.07581
n-Butane	1.88073	3.98645	0.000262376	0.000262376	3.98645
Isopentane	0.409528	2.18497	3.67934E-05	3.67934E-05	2.18497
n-Pentane	0.428604	3.01377	1.7307E-05	1.7307E-05	3.01377
n-Hexane	0.0813235	1.89484	2.0969E-06	2.0969E-06	1.89484
Cyclohexane	0.0162796	0.55651	7.33668E-06	7.33668E-06	0.55651
i-C6	0.157488	2.59719	8.03248E-06	8.03248E-06	2.59719
i-C7	0.201165	9.3998	5.96512E-06	5.96512E-06	9.3998
Methylcyclohexane	0.00520857	0.368117	9.77866E-07	9.77866E-07	0.368117
Octane	0.0513692	10.7982	3.88198E-07	3.88198E-07	10.7982
Nonane	0.00825774	5.22608	5.12034E-08	5.12034E-08	5.22608
Benzene	0.0841596	2.37942	0.00139658	0.00139658	2.37942
Toluene	0.0416818	4.01179	0.000508127	0.000508127	4.01179
Ethylbenzene	0.0034216	0.976686	3.40463E-05	3.40463E-05	0.976686
o-Xylene	0.00570507	2.02416	8.49704E-05	8.49704E-05	2.02416
H2S	0.000876028	0.000273422	8.40515E-06	8.40515E-06	0.000273422
Water	0.610914	0.0876695	99.9802	99.9802	0.0876695
2,2,4-Trimethylpentane	0.0080205	0.517891	1.80325E-07	1.80325E-07	0.517891
Decanes Plus	3.40659E-06	40.6198	5.22775E-09	5.22775E-09	40.6198

Mass Fraction	1 %	2 %	3 %	4 %	5 %
Carbon Dioxide	0.480609	0.0053665	0.00188534	0.00188534	0.0053665
Nitrogen	5.03197	0.00773438	0.000529317	0.000529317	0.00773438
Methane	52.4998	0.234756	0.0110894	0.0110894	0.234756
Ethane	16.6556	0.407028	0.00474555	0.00474555	0.407028
Propane	12.4669	1.04372	0.00240296	0.00240296	1.04372
Isobutane	1.91382	0.394457	0.000230578	0.000230578	0.394457
n-Butane	4.93319	1.46167	0.000846397	0.000846397	1.46167
Isopentane	1.33344	0.99448	0.000147335	0.000147335	0.99448
n-Pentane	1.39555	1.3717	6.93043E-05	6.93043E-05	1.3717
n-Hexane	0.316271	1.03009	1.00293E-05	1.00293E-05	1.03009
Cyclohexane	0.0618312	0.295459	3.42698E-05	3.42698E-05	0.295459
i-C6	0.612478	1.41192	3.84186E-05	3.84186E-05	1.41192
i-C7	0.909681	5.94178	3.31744E-05	3.31744E-05	5.94178
Methylcyclohexane	0.0230796	0.228012	5.3289E-06	5.3289E-06	0.228012
Octane	0.264812	7.78122	2.46114E-06	2.46114E-06	7.78122
Nonane	0.0477965	4.22837	3.64487E-07	3.64487E-07	4.22837
Benzene	0.296675	1.17249	0.0060547	0.0060547	1.17249
Toluene	0.173319	2.33185	0.00259849	0.00259849	2.33185
Ethylbenzene	0.0163934	0.654121	0.000200613	0.000200613	0.654121
o-Xylene	0.027334	1.35565	0.000500677	0.000500677	1.35565
H2S	0.00134738	5.87849E-05	1.58988E-05	1.58988E-05	5.87849E-05
Water	0.496686	0.00996349	99.9686	99.9686	0.00996349
2,2,4-Trimethylpentane	0.0413462	0.373194	1.14325E-06	1.14325E-06	0.373194
Decanes Plus	4.03561E-05	67.2649	7.61645E-08	7.61645E-08	67.2649

* User Specified Values
? Extrapolated or Approximate Values

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Inlet	

Mass Flow	1 lb/h	2 lb/h	3 lb/h	4 lb/h	5 lb/h
Carbon Dioxide	695.648	12.9829	16.5067	16.5067	12.9829
Nitrogen	7283.42	18.7113	4.63433	4.63433	18.7113
Methane	75989.8	567.932	97.0907	97.0907	567.932
Ethane	24107.8	984.697	41.5487	41.5487	984.697
Propane	18045	2525.01	21.0387	21.0387	2525.01
Isobutane	2770.12	954.287	2.01878	2.01878	954.287
n-Butane	7140.45	3536.14	7.41046	7.41046	3536.14
Isopentane	1930.06	2405.89	1.28997	1.28997	2405.89
n-Pentane	2019.96	3318.48	0.60678	0.60678	3318.48
n-Hexane	457.78	2492.05	0.0878093	0.0878093	2492.05
Cyclohexane	89.4963	714.786	0.300042	0.300042	714.786
i-C6	886.519	3415.76	0.336366	0.336366	3415.76
i-C7	1316.7	14374.6	0.290452	0.290452	14374.6
Methylcyclohexane	33.4061	551.615	0.0466562	0.0466562	551.615
Octane	383.297	18824.6	0.021548	0.021548	18824.6
Nonane	69.1821	10229.4	0.00319119	0.00319119	10229.4
Benzene	429.416	2836.54	53.0108	53.0108	2836.54
Toluene	250.868	5641.3	22.7506	22.7506	5641.3
Ethylbenzene	23.7284	1582.48	1.75643	1.75643	1582.48
o-Xylene	39.564	3279.64	4.38358	4.38358	3279.64
H2S	1.95023	0.142215	0.139199	0.139199	0.142215
Water	718.918	24.1041	875255	875255	24.1041
2,2,4-Trimethylpentane	59.8458	902.845	0.0100095	0.0100095	902.845
Decanes Plus	0.0584127	162730	0.000666844	0.000666844	162730

Stream Properties

Property	Units	1	2	3	4	5
Temperature	°F	89.4822	89.4822	89.4822	89.7294	88.5753
Pressure	psig	103	103	103	0.375 *	40 *
Molecular Weight	lb/lbmol	22.1585	158.518	18.0174	18.0174	158.518
Mass Flow	lb/h	144743	241924	875530	875530	241924
Std Vapor Volumetric Flow	MMSCFD	59.4925	13.8997	442.573	442.573	13.8997
Std Liquid Volumetric Flow	sgpm	792.402	601.454	1750.94	1750.94	601.454
Gross Ideal Gas Heating Value	Btu/ft^3	1259.28	8271.98	50.5964	50.5964	8271.98

Remarks

* User Specified Values
? Extrapolated or Approximate Values

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Inlet	

Connections

	6	7	8	9	10
From Block	SPLT-100	Sales Scrubber Liquid	Heater Treaters	VLVE-102	MIX-101
To Block	MIX-102	RCYL-1	VLVE-102	MIX-101	Prod. Water

Stream Composition

Mole Fraction	6 %	7 %	8 %	9 %	10 %
Carbon Dioxide	0.00720998				0.000771852
Nitrogen	0.0279699				0.000340441
Methane	2.42962				0.0124545
Ethane	2.25508				0.00284353
Propane	3.70807				0.000981846
Isobutane	0.970398				7.14772E-05
n-Butane	3.66792				0.000262376
Isopentane	2.01085				3.67934E-05
n-Pentane	2.84367				1.7307E-05
n-Hexane	1.77488				2.0969E-06
Cyclohexane	0				7.33668E-06
i-C6	2.3095				8.03248E-06
i-C7	9.61253				5.96512E-06
Methylcyclohexane	0				9.77866E-07
Octane	11.107				3.88198E-07
Nonane	5.30677				5.12034E-08
Benzene	2.36441				0.00139658
Toluene	4.08046				0.000508127
Ethylbenzene	1.01993				3.40463E-05
o-Xylene	2.07301				8.49704E-05
H2S	0				8.40515E-06
Water	0				99.9802
2,2,4-Trimethylpentane	0.569999				1.80325E-07
Decanes Plus	41.8607				5.22775E-09

Mass Fraction	6 %	7 %	8 %	9 %	10 %
Carbon Dioxide	0.00197106				0.00188534
Nitrogen	0.00486717				0.000529317
Methane	0.242119				0.0110894
Ethane	0.421213				0.00474555
Propane	1.01569				0.00240296
Isobutane	0.350357				0.000230578
n-Butane	1.32428				0.000846397
Isopentane	0.901216				0.000147335
n-Pentane	1.27447				6.93043E-05
n-Hexane	0.950102				1.00293E-05
Cyclohexane	0				3.42698E-05
i-C6	1.23629				3.84186E-05
i-C7	5.98319				3.31744E-05
Methylcyclohexane	0				5.3289E-06
Octane	7.88116				2.46114E-06
Nonane	4.22789				3.64487E-07
Benzene	1.14725				0.0060547
Toluene	2.33544				0.00259849
Ethylbenzene	0.67262				0.000200613
o-Xylene	1.36711				0.000500677
H2S	0				1.58988E-05
Water	0				99.9686
2,2,4-Trimethylpentane	0.404453				1.14325E-06
Decanes Plus	68.2583				7.61645E-08

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Inlet	

Mass Flow	6 lb/h	7 lb/h	8 lb/h	9 lb/h	10 lb/h
Carbon Dioxide	4.69163				16.5067
Nitrogen	11.5851				4.63433
Methane	576.306				97.0907
Ethane	1002.59				41.5487
Propane	2417.61				21.0387
Isobutane	833.94				2.01878
n-Butane	3152.14				7.41046
Isopentane	2145.13				1.28997
n-Pentane	3033.55				0.60678
n-Hexane	2261.49				0.0878093
Cyclohexane	0				0.300042
i-C6	2942.69				0.336366
i-C7	14241.5				0.290452
Methylcyclohexane	0				0.0466562
Octane	18759.2				0.021548
Nonane	10063.5				0.00319119
Benzene	2730.76				53.0108
Toluene	5558.95				22.7506
Ethylbenzene	1601.01				1.75643
o-Xylene	3254.07				4.38358
H2S	0				0.139199
Water	0				875255
2,2,4-Trimethylpentane	962.701				0.0100095
Decanes Plus	162472				0.000666844

Stream Properties

Property	Units	6	7	8	9	10
Temperature	°F	89		120		89.7294
Pressure	psig	103	75	40	0.375 *	0.375
Molecular Weight	lb/lbmol	160.983				18.0174
Mass Flow	lb/h	238026	0	0	0	875530
Std Vapor Volumetric Flow	MMSCFD	13.4663	0	0	0	442.573
Std Liquid Volumetric Flow	sgpm	590.35 *	0	0	0	1750.94
Gross Ideal Gas Heating Value	Btu/ft^3	8397.12				50.5964

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Inlet	

Connections

	11	12	13	14	15
From Block	VLVE-104	VLVE-103	SPLT-100	RCYL-1	Elect Booster
To Block	Production Separators	Treater Oil	Flowback	MIX-101	FAXR-100

Stream Composition

Mole Fraction	11 %	12 %	13 %	14 %	15 %
Carbon Dioxide	0.0290843	0.00906046	0.00720998	0 *	0.290335
Nitrogen	0.460409	0.00518636	0.0279699	0 *	1.06189
Methane	8.43439	0.63114	2.42962	19 *	46.8801
Ethane	1.47546	1.41613	2.25508	0 *	21.4011
Propane	0.824266	3.29362	3.70807	0 *	15.85
Isobutane	0.113171	1.03496	0.970398	0 *	2.15393
n-Butane	0.324472	3.91681	3.66792	0 *	5.82437
Isopentane	0.106113	2.21522	2.01085	0 *	1.38665
n-Pentane	0.130623	3.0711	2.84367	0 *	1.50082
n-Hexane	0.0604242	1.95465	1.77488	0 *	0.31638
Cyclohexane	0.0168753	0.575178	0	0 *	0.0638496
i-C6	0.0881321	2.67329	2.3095	0 *	0.588899
i-C7	0.276424	9.7251	9.61253	0 *	0.815331
Methylcyclohexane	0.0105182	0.381244	0	0 *	0.0216849
Octane	0.296819	11.1985	11.107	0 *	0.234111
Nonane	0.141739	5.42256	5.30677	0 *	0.041007
Benzene	0.0750016	2.45712	2.36441	0 *	0.328954
Toluene	0.113316	4.15705	4.08046	0 *	0.178209
Ethylbenzene	0.0267349	1.0131	1.01993	0 *	0.0157928
o-Xylene	0.0552599	2.09985	2.07301	0 *	0.0266254
H2S	0.000115584	0.000212422	0	0 *	0.00188322
Water	85.8315	0.0536626	0	80 *	0.985119
2,2,4-Trimethylpentane	0.0148765	0.536268	0.569999	0 *	0.032899
Decanes Plus	1.09427	42.159	41.8607	1 *	3.38094E-05

Mass Fraction	11 %	12 %	13 %	14 %	15 %
Carbon Dioxide	0.0574504	0.00244092	0.00197106	0 *	0.415328
Nitrogen	0.578893	0.000889377	0.00486717	0 *	0.966926
Methane	6.07313	0.0619803	0.242119	15.1756 *	24.4459
Ethane	1.99129	0.260663	0.421213	0 *	20.9172
Propane	1.63137	0.889049	1.01569	0 *	22.718
Isobutane	0.295233	0.368233	0.350357	0 *	4.06929
n-Butane	0.846461	1.39358	1.32428	0 *	11.0037
Isopentane	0.343626	0.97837	0.901216	0 *	3.25194
n-Pentane	0.422996	1.35637	1.27447	0 *	3.51968
n-Hexane	0.233713	1.03112	0.950102	0 *	0.886214
Cyclohexane	0.0637446	0.296321	0	0 *	0.174666
i-C6	0.340883	1.41022	1.23629	0 *	1.64957
i-C7	1.2432	5.96523	5.98319	0 *	2.65556
Methylcyclohexane	0.0463531	0.229145	0	0 *	0.0692075
Octane	1.52179	7.83055	7.88116	0 *	0.869245
Nonane	0.815928	4.25732	4.22789	0 *	0.170954
Benzene	0.262951	1.1749	1.14725	0 *	0.835216
Toluene	0.468621	2.34468	2.33544	0 *	0.533723
Ethylbenzene	0.127394	0.6584	0.67262	0 *	0.0544987
o-Xylene	0.263318	1.36467	1.36711	0 *	0.0918807
H2S	0.000176807	4.43168E-05	0	0 *	0.00208621
Water	69.4026	0.00591793	0	71.7551 *	0.576868
2,2,4-Trimethylpentane	0.0762718	0.374985	0.404453	0 *	0.122153
Decanes Plus	12.8926	67.7449	68.2583	13.0693 *	0.000288478

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Inlet	

Mass Flow	11 lb/h	12 lb/h	13 lb/h	14 lb/h	15 lb/h
Carbon Dioxide	725.137	5.86334	1.19886	0 *	7.11952
Nitrogen	7306.77	2.13637	2.96036	0 *	16.575
Methane	76654.9	148.883	147.264	0 *	419.049
Ethane	25134	626.137	256.194	0 *	358.56
Propane	20591	2135.58	617.775	0 *	389.43
Isobutane	3726.42	884.531	213.098	0 *	69.7555
n-Butane	10684	3347.52	805.469	0 *	188.624
Isopentane	4337.23	2350.14	548.146	0 *	55.7445
n-Pentane	5339.05	3258.14	775.167	0 *	60.334
n-Hexane	2949.91	2476.85	577.88	0 *	15.1914
Cyclohexane	804.583	711.792	0	0 *	2.9941
i-C6	4302.62	3387.49	751.949	0 *	28.2768
i-C7	15691.6	14329.1	3639.15	0 *	45.5214
Methylcyclohexane	585.068	550.429	0	0 *	1.18635
Octane	19208	18809.7	4793.55	0 *	14.9005
Nonane	10298.6	10226.5	2571.53	0 *	2.93048
Benzene	3318.97	2822.22	697.794	0 *	14.3172
Toluene	5914.92	5632.15	1420.48	0 *	9.14904
Ethylbenzene	1607.96	1581.54	409.107	0 *	0.934212
o-Xylene	3323.59	3278.06	831.516	0 *	1.57501
H2S	2.23165	0.106453	0	0 *	0.0357616
Water	875998	14.2155	0	0 *	9.88861
2,2,4-Trimethylpentane	962.701	900.751	246	0 *	2.09393
Decanes Plus	162730	162730	41516.7	0 *	0.00494506

Stream Properties

Property	Units	11	12	13	14	15
Temperature	°F	89.4822	115.973	89	75 *	224.312
Pressure	psig	103 *	3 *	103	80 *	85 *
Molecular Weight	lb/lbmol	22.2798	163.359	160.983	20.0853	30.7648
Mass Flow	lb/h	1.2622E+06	240210	60822.9	0	1714.19
Std Vapor Volumetric Flow	MMSCFD	515.965	13.3922	3.44105	0	0.50747
Std Liquid Volumetric Flow	sgpm	3144.8	593.381	150.853	0	8.07236
Gross Ideal Gas Heating Value	Btu/ft^3	411.44	8518.71	8397.12	366.945	1760.7

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Inlet	

Connections

	16	17			
From Block	FAXR-100	SPLT-101			
To Block	SPLT-101	MIX-103			

Stream Composition

Mole Fraction	16 %	17 %			
Carbon Dioxide	0.290335	0.290335			
Nitrogen	1.06189	1.06189			
Methane	46.8801	46.8801			
Ethane	21.4011	21.4011			
Propane	15.85	15.85			
Isobutane	2.15393	2.15393			
n-Butane	5.82437	5.82437			
Isopentane	1.38665	1.38665			
n-Pentane	1.50082	1.50082			
n-Hexane	0.31638	0.31638			
Cyclohexane	0.0638496	0.0638496			
i-C6	0.588899	0.588899			
i-C7	0.815331	0.815331			
Methylcyclohexane	0.0216849	0.0216849			
Octane	0.234111	0.234111			
Nonane	0.041007	0.041007			
Benzene	0.328954	0.328954			
Toluene	0.178209	0.178209			
Ethylbenzene	0.0157928	0.0157928			
o-Xylene	0.0266254	0.0266254			
H2S	0.00188322	0.00188322			
Water	0.985119	0.985119			
2,2,4-Trimethylpentane	0.032899	0.032899			
Decanes Plus	3.38094E-05	3.38094E-05			

Mass Fraction	16 %	17 %			
Carbon Dioxide	0.415328	0.415328			
Nitrogen	0.966926	0.966926			
Methane	24.4459	24.4459			
Ethane	20.9172	20.9172			
Propane	22.718	22.718			
Isobutane	4.06929	4.06929			
n-Butane	11.0037	11.0037			
Isopentane	3.25194	3.25194			
n-Pentane	3.51968	3.51968			
n-Hexane	0.886214	0.886214			
Cyclohexane	0.174666	0.174666			
i-C6	1.64957	1.64957			
i-C7	2.65556	2.65556			
Methylcyclohexane	0.0692075	0.0692075			
Octane	0.869245	0.869245			
Nonane	0.170954	0.170954			
Benzene	0.835216	0.835216			
Toluene	0.533723	0.533723			
Ethylbenzene	0.0544987	0.0544987			
o-Xylene	0.0918807	0.0918807			
H2S	0.00208621	0.00208621			
Water	0.576868	0.576868			
2,2,4-Trimethylpentane	0.122153	0.122153			
Decanes Plus	0.000288478	0.000288478			

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Inlet	

Mass Flow	16 lb/h	17 lb/h			
Carbon Dioxide	7.11952	7.11952			
Nitrogen	16.575	16.575			
Methane	419.049	419.049			
Ethane	358.56	358.56			
Propane	389.43	389.43			
Isobutane	69.7555	69.7555			
n-Butane	188.624	188.624			
Isopentane	55.7445	55.7445			
n-Pentane	60.334	60.334			
n-Hexane	15.1914	15.1914			
Cyclohexane	2.9941	2.9941			
i-C6	28.2768	28.2768			
i-C7	45.5214	45.5214			
Methylcyclohexane	1.18635	1.18635			
Octane	14.9005	14.9005			
Nonane	2.93048	2.93048			
Benzene	14.3172	14.3172			
Toluene	9.14904	9.14904			
Ethylbenzene	0.934212	0.934212			
o-Xylene	1.57501	1.57501			
H2S	0.0357616	0.0357616			
Water	9.88861	9.88861			
2,2,4-Trimethylpentane	2.09393	2.09393			
Decanes Plus	0.00494506	0.00494506			

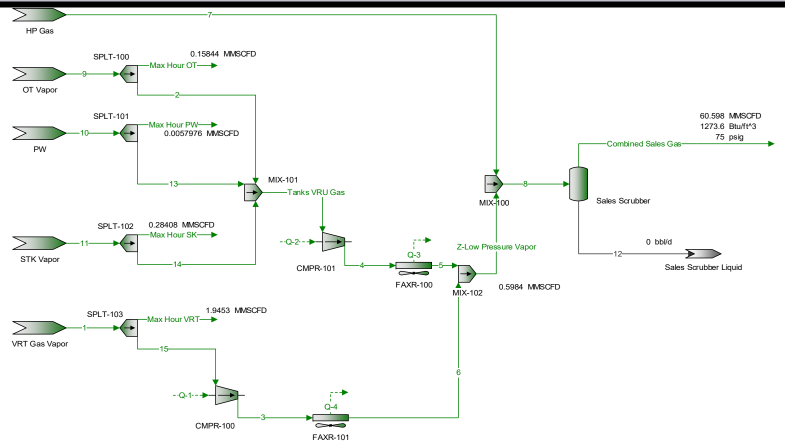
Stream Properties

Property	Units	16	17			
Temperature	°F	90 *	90			
Pressure	psig	80 *	80			
Molecular Weight	lb/lbmol	30.7648	30.7648			
Mass Flow	lb/h	1714.19	1714.19			
Std Vapor Volumetric Flow	MMSCFD	0.50747	0.50747			
Std Liquid Volumetric Flow	sgpm	8.07236	8.07236			
Gross Ideal Gas Heating Value	Btu/ft^3	1760.7	1760.7			

Remarks

Sales
Plant Schematic

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Sales	



Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Sales	

Connections

	Combined Sales Gas	Max Hour OT	Max Hour PW	Max Hour SK	Max Hour VRT
From Block	Sales Scrubber	SPLT-100	SPLT-101	SPLT-102	SPLT-103
To Block	--	--	--	--	--

Stream Composition

Mole Fraction	Combined Sales Gas %	Max Hour OT %	Max Hour PW %	Max Hour SK %	Max Hour VRT %
Carbon Dioxide	0.243385	0.156581	1.43779	1.43779	0.195016
Nitrogen	3.92001	0.06597	1.96351	1.96351	0.137442
Methane	71.7985	12.215	67.8591	67.8591	15.6098
Ethane	12.4565	24.1762	14.8457	14.8457	24.1551
Propane	6.5455	31.0363	5.35976	5.35976	29.3639
Isobutane	0.775369	4.9451	0.405538	0.405538	4.64866
n-Butane	2.00977	13.8644	1.44427	1.44427	12.9343
Isopentane	0.441142	3.34633	0.209402	0.209402	3.11989
n-Pentane	0.462716	3.60098	0.102329	0.102329	3.35052
n-Hexane	0.0883393	0.708445	0.0125335	0.0125335	0.669419
Cyclohexane	0.0177159	0.116038	0.0325926	0.0325926	0.135052
i-C6	0.170752	1.35035	0.0470561	0.0470561	1.2794
i-C7	0.218903	1.77968	0.0355227	0.0355227	1.66658
Methylcyclohexane	0.00567674	0.0371632	0.00514732	0.00514732	0.0437589
Octane	0.0561587	0.450911	0.00235467	0.00235467	0.43224
Nonane	0.00906151	0.071795	0.000310895	0.000310895	0.0702479
Benzene	0.0922135	0.752836	0.588494	0.588494	0.702659
Toluene	0.0458326	0.374854	0.275774	0.275774	0.354421
Ethylbenzene	0.00377116	0.0305049	0.0214009	0.0214009	0.0291848
o-Xylene	0.0062923	0.0506374	0.0368469	0.0368469	0.0487458
H2S	0.000907656	0.0024209	0.0064534	0.0064534	0.00280906
Water	0.622784	0.795818	5.307	5.307	0.984602
2,2,4-Trimethylpentane	0.00872956	0.071617	0.0010801	0.0010801	0.0662678
Decanes Plus	3.90091E-06	2.65796E-05	1.10495E-05	1.10495E-05	3.025E-05

Mass Fraction	Combined Sales Gas %	Max Hour OT %	Max Hour PW %	Max Hour SK %	Max Hour VRT %
Carbon Dioxide	0.477915	0.154885	2.86913	2.86913	0.199455
Nitrogen	4.89963	0.041537	2.49406	2.49406	0.0894775
Methane	51.392	4.4044	49.3614	49.3614	5.81968
Ethane	16.7118	16.3392	20.2409	20.2409	16.8794
Propane	12.878	30.7602	10.7164	10.7164	30.0911
Isobutane	2.01076	6.46011	1.06877	1.06877	6.27913
n-Butane	5.21193	18.112	3.80627	3.80627	17.4709
Isopentane	1.42009	5.42651	0.685045	0.685045	5.23115
n-Pentane	1.48954	5.83946	0.334761	0.334761	5.61785
n-Hexane	0.339662	1.37218	0.0489738	0.0489738	1.34064
Cyclohexane	0.0665236	0.219495	0.124374	0.124374	0.264141
i-C6	0.656536	2.61549	0.183869	0.183869	2.56223
i-C7	0.97867	4.00813	0.161395	0.161395	3.88089
Methylcyclohexane	0.024869	0.0820136	0.0229161	0.0229161	0.0998495
Octane	0.286221	1.15768	0.0121959	0.0121959	1.14744
Nonane	0.0518543	0.206962	0.001808	0.001808	0.209381
Benzene	0.321381	1.32172	2.08433	2.08433	1.27553
Toluene	0.188419	0.776293	1.15213	1.15213	0.75891
Ethylbenzene	0.0178635	0.0727904	0.10302	0.10302	0.072006
o-Xylene	0.0298057	0.12083	0.177374	0.177374	0.120268
H2S	0.0013802	0.00185443	0.0099726	0.0099726	0.00222485
Water	0.500597	0.322239	4.3351	4.3351	0.412222
2,2,4-Trimethylpentane	0.0444914	0.183871	0.00559434	0.00559434	0.175917
Decanes Plus	4.56882E-05	0.00015682	0.000131517	0.000131517	0.000184537

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Sales	

Mass Flow	Combined Sales Gas lb/h	Max Hour OT lb/h	Max Hour PW lb/h	Max Hour SK lb/h	Max Hour VRT lb/h
Carbon Dioxide	712.685	1.19877	0.402794	19.7369	18.3314
Nitrogen	7306.51	0.321487	0.350138	17.1568	8.22366
Methane	76637.8	34.089	6.92979	339.56	534.872
Ethane	24921.3	126.461	2.84159	139.238	1551.35
Propane	19204.1	238.077	1.50446	73.7187	2765.6
Isobutane	2998.52	49.9997	0.150043	7.35209	577.099
n-Butane	7772.23	140.183	0.534358	26.1835	1605.7
Isopentane	2117.7	41.9999	0.0961725	4.71245	480.782
n-Pentane	2221.26	45.1961	0.0469967	2.30284	516.323
n-Hexane	506.516	10.6204	0.00687537	0.336893	123.215
Cyclohexane	99.2025	1.69884	0.0174608	0.855577	24.2765
i-C6	979.051	20.2433	0.0258131	1.26484	235.488
i-C7	1459.43	31.022	0.022658	1.11024	356.683
Methylcyclohexane	37.0856	0.634766	0.00321716	0.157641	9.17692
Octane	426.823	8.96017	0.00171216	0.083896	105.458
Nonane	77.3271	1.60184	0.000253822	0.0124373	19.2437
Benzene	479.256	10.2298	0.292617	14.3382	117.231
Toluene	280.978	6.00833	0.161747	7.92558	69.7495
Ethylbenzene	26.6387	0.56338	0.0144629	0.708681	6.61789
o-Xylene	44.4475	0.935199	0.0249013	1.22017	11.0535
H2S	2.0582	0.0143529	0.00140004	0.068602	0.204481
Water	746.509	2.49405	0.608599	29.8214	37.8863
2,2,4-Trimethylpentane	66.3474	1.42312	0.000785383	0.0384837	16.1681
Decanes Plus	0.068132	0.00121375	1.84635E-05	0.000904711	0.0169604

Stream Properties

Property	Units	Combined Sales Gas	Max Hour OT	Max Hour PW	Max Hour SK	Max Hour VRT
Temperature	°F	86.0789	95	89.7294	89.7294	100
Pressure	psig	75	0.375	0.375	0.375	3
Molecular Weight	lb/lbmol	22.4125	44.4915	22.0542	22.0542	43.0299
Mass Flow	lb/h	149124	773.977	14.0389	687.905	9190.75
Std Vapor Volumetric Flow	MMSCFD	60.5984	0.158437	0.00579757	0.284081	1.94529
Std Liquid Volumetric Flow	sgpm	811.464	3.08319	0.0753111	3.69024	37.1094
Gross Ideal Gas Heating Value	Btu/ft^3	1273.64	2512.65	1202.58	1202.58	2430.73

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Sales	

Connections

	Tanks VRU Gas	Z-Low Pressure Vapor	1	2	3
From Block	MIX-101	MIX-102	VRT Gas Vapor	SPLT-100	CMPR-100
To Block	CMPR-101	MIX-100	SPLT-103	MIX-101	FAXR-101

Stream Composition

Mole Fraction	Tanks VRU Gas %	Z-Low Pressure Vapor %	1 %	2 %	3 %
Carbon Dioxide	0.985005	0.342978	0.195016	0.156581	0.195016
Nitrogen	1.29291	0.353857	0.137442	0.06597	0.137442
Methane	48.1942	21.7128	15.6098	12.215	15.6098
Ethane	18.1431	23.0291	24.1551	24.1762	24.1551
Propane	14.434	26.5676	29.3639	31.0363	29.3639
Isobutane	2.00984	4.15442	4.64866	4.9451	4.64866
n-Butane	5.83362	11.6044	12.9343	13.8644	12.9343
Isopentane	1.31801	2.7824	3.11989	3.34633	3.11989
n-Pentane	1.33877	2.97372	3.35052	3.60098	3.35052
n-Hexane	0.258472	0.59245	0.669419	0.708445	0.669419
Cyclohexane	0.0620824	0.121385	0.135052	0.116038	0.135052
i-C6	0.507647	1.13485	1.2794	1.35035	1.2794
i-C7	0.651917	1.47654	1.66658	1.77968	1.66658
Methylcyclohexane	0.0164619	0.0386462	0.0437589	0.0371632	0.0437589
Octane	0.160877	0.381415	0.43224	0.450911	0.43224
Nonane	0.0255737	0.0618806	0.0702479	0.071795	0.0702479
Benzene	0.646573	0.692155	0.702659	0.752836	0.702659
Toluene	0.310789	0.346249	0.354421	0.374854	0.354421
Ethylbenzene	0.0246183	0.0283296	0.0291848	0.0305049	0.0291848
o-Xylene	0.0417205	0.04743	0.0487458	0.0506374	0.0487458
H2S	0.0050283	0.00322472	0.00280906	0.0024209	0.00280906
Water	3.71273	1.49557	0.984602	0.795818	0.984602
2,2,4-Trimethylpentane	0.0260082	0.0587273	0.0662678	0.071617	0.0662678
Decanes Plus	1.65379E-05	2.76818E-05	3.025E-05	2.65796E-05	3.025E-05

Mass Fraction	Tanks VRU Gas %	Z-Low Pressure Vapor %	1 %	2 %	3 %
Carbon Dioxide	1.44577	0.371905	0.199455	0.154885	0.199455
Nitrogen	1.20795	0.244238	0.0894775	0.041537	0.0894775
Methane	25.7858	8.58234	5.81968	4.4044	5.81968
Ethane	18.1948	17.0614	16.8794	16.3392	16.8794
Propane	21.2274	28.8647	30.0911	30.7602	30.0911
Isobutane	3.896	5.94938	6.27913	6.46011	6.27913
n-Butane	11.3083	16.6182	17.4709	18.112	17.4709
Isopentane	3.17148	4.94616	5.23115	5.42651	5.23115
n-Pentane	3.22144	5.28627	5.61785	5.83946	5.61785
n-Hexane	0.742869	1.25793	1.34064	1.37218	1.34064
Cyclohexane	0.174256	0.251703	0.264141	0.219495	0.264141
i-C6	1.45902	2.40958	2.56223	2.61549	2.56223
i-C7	2.17863	3.64536	3.88089	4.00813	3.88089
Methylcyclohexane	0.053907	0.0934925	0.0998495	0.0820136	0.0998495
Octane	0.61289	1.07347	1.14744	1.15768	1.14744
Nonane	0.109392	0.195546	0.209381	0.206962	0.209381
Benzene	1.68442	1.33211	1.27553	1.32172	1.27553
Toluene	0.955042	0.786048	0.75891	0.776293	0.75891
Ethylbenzene	0.0871676	0.0741039	0.072006	0.0727904	0.072006
o-Xylene	0.147722	0.124066	0.120268	0.12083	0.120268

* User Specified Values
? Extrapolated or Approximate Values

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Sales	

Mass Fraction	Tanks VRU Gas %	Z-Low Pressure Vapor %	1 %	2 %	3 %
H2S	0.00571541	0.00270783	0.00222485	0.00185443	0.00222485
Water	2.23074	0.663847	0.412222	0.322239	0.412222
2,2,4-Trimethylpentane	0.0990833	0.165285	0.175917	0.183871	0.175917
Decanes Plus	0.000144786	0.000179037	0.000184537	0.00015682	0.000184537

Mass Flow	Tanks VRU Gas lb/h	Z-Low Pressure Vapor lb/h	1 lb/h	2 lb/h	3 lb/h
Carbon Dioxide	5.33462	9.91748	4.58286	0.299694	4.58286
Nitrogen	4.4571	6.51301	2.05591	0.0803717	2.05591
Methane	95.1446	228.863	133.718	8.52226	133.718
Ethane	67.1353	454.972	387.837	31.6153	387.837
Propane	78.325	769.725	691.4	59.5192	691.4
Isobutane	14.3755	158.65	144.275	12.4999	144.275
n-Butane	41.7252	443.151	401.426	35.0457	401.426
Isopentane	11.7021	131.898	120.196	10.5	120.196
n-Pentane	11.8865	140.967	129.081	11.299	129.081
n-Hexane	2.74104	33.5447	30.8036	2.6551	30.8036
Cyclohexane	0.642969	6.71209	6.06913	0.42471	6.06913
i-C6	5.38348	64.2555	58.8721	5.06082	58.8721
i-C7	8.03873	97.2096	89.1708	7.7555	89.1708
Methylcyclohexane	0.198906	2.49314	2.29423	0.158692	2.29423
Octane	2.26144	28.626	26.3645	2.24004	26.3645
Nonane	0.403633	5.21456	4.81093	0.40046	4.81093
Benzene	6.21517	35.5229	29.3077	2.55746	29.3077
Toluene	3.52391	20.9613	17.4374	1.50208	17.4374
Ethylbenzene	0.321631	1.9761	1.65447	0.140845	1.65447
o-Xylene	0.545067	3.30844	2.76337	0.2338	2.76337
H2S	0.0210887	0.0722089	0.0511202	0.00358822	0.0511202
Water	8.231	17.7026	9.47158	0.623513	9.47158
2,2,4-Trimethylpentane	0.365597	4.40761	4.04202	0.35578	4.04202
Decanes Plus	0.000534231	0.00477432	0.00424009	0.000303437	0.00424009

Stream Properties

Property	Units	Tanks VRU Gas	Z-Low Pressure Vapor	1	2	3
Temperature	°F	92.1824	97.8929	100	95	350 *
Pressure	psig	0.375	80	3	0.375	85 *
Molecular Weight	lb/lbmol	29.9836	40.5864	43.0299	44.4915	43.0299
Mass Flow	lb/h	368.98	2666.67	2297.69	193.494	2297.69
Std Vapor Volumetric Flow	MMSCFD	0.112079	0.598402	0.486324	0.0396091	0.486324
Std Liquid Volumetric Flow	sgpm	1.71219	10.9895	9.27736	0.770797	9.27736
Gross Ideal Gas Heating Value	Btu/ft^3	1665.57	2287.42	2430.73	2512.65	2430.73

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Sales	

Connections

	4	5	6	7	8
From Block	CMPR-101	FAXR-100	FAXR-101	HP Gas	MIX-100
To Block	FAXR-100	MIX-102	MIX-102	MIX-100	Sales Scrubber

Stream Composition

Mole Fraction	4 %	5 %	6 %	7 %	8 %
Carbon Dioxide	0.985005	0.985005	0.195016	0.242392	0.243385
Nitrogen	1.29291	1.29291	0.137442	3.95558	3.92001
Methane	48.1942	48.1942	15.6098	72.298	71.7985
Ethane	18.1431	18.1431	24.1551	12.351	12.4565
Propane	14.434	14.434	29.3639	6.34582	6.5455
Isobutane	2.00984	2.00984	4.64866	0.741669	0.775369
n-Butane	5.83362	5.83362	12.9343	1.91408	2.00977
Isopentane	1.31801	1.31801	3.11989	0.417792	0.441142
n-Pentane	1.33877	1.33877	3.35052	0.437673	0.462716
n-Hexane	0.258472	0.258472	0.669419	0.0833116	0.0883393
Cyclohexane	0.0620824	0.0620824	0.135052	0.016682	0.0177159
i-C6	0.507647	0.507647	1.2794	0.161137	0.170752
i-C7	0.651917	0.651917	1.66658	0.20636	0.218903
Methylcyclohexane	0.0164619	0.0164619	0.0437589	0.00534792	0.00567674
Octane	0.160877	0.160877	0.43224	0.0529148	0.0561587
Nonane	0.0255737	0.0255737	0.0702479	0.00853473	0.00906151
Benzene	0.646573	0.646573	0.702659	0.0862301	0.0922135
Toluene	0.310789	0.310789	0.354421	0.0428365	0.0458326
Ethylbenzene	0.0246183	0.0246183	0.0291848	0.00352623	0.00377116
o-Xylene	0.0417205	0.0417205	0.0487458	0.00588202	0.0062923
H2S	0.0050283	0.0050283	0.00280906	0.000884547	0.000907656
Water	3.71273	3.71273	0.984602	0.614079	0.622784
2,2,4-Trimethylpentane	0.0260082	0.0260082	0.0662678	0.00823092	0.00872956
Decanes Plus	1.65379E-05	1.65379E-05	3.025E-05	3.66373E-06	3.90091E-06

Mass Fraction	4 %	5 %	6 %	7 %	8 %
Carbon Dioxide	1.44577	1.44577	0.199455	0.479845	0.477915
Nitrogen	1.20795	1.20795	0.0894775	4.98439	4.89963
Methane	25.7858	25.7858	5.81968	52.1715	51.392
Ethane	18.1948	18.1948	16.8794	16.7055	16.7118
Propane	21.2274	21.2274	30.0911	12.5869	12.878
Isobutane	3.896	3.896	6.27913	1.93904	2.01076
n-Butane	11.3083	11.3083	17.4709	5.00425	5.21193
Isopentane	3.17148	3.17148	5.23115	1.35589	1.42009
n-Pentane	3.22144	3.22144	5.61785	1.42041	1.48954
n-Hexane	0.742869	0.742869	1.34064	0.322942	0.339662
Cyclohexane	0.174256	0.174256	0.264141	0.0631518	0.0665236
i-C6	1.45902	1.45902	2.56223	0.624616	0.656536
i-C7	2.17863	2.17863	3.88089	0.930116	0.97867
Methylcyclohexane	0.053907	0.053907	0.0998495	0.0236195	0.024869
Octane	0.61289	0.61289	1.14744	0.271887	0.286221
Nonane	0.109392	0.109392	0.209381	0.049238	0.0518543
Benzene	1.68442	1.68442	1.27553	0.302978	0.321381
Toluene	0.955042	0.955042	0.75891	0.177538	0.188419
Ethylbenzene	0.0871676	0.0871676	0.072006	0.0168394	0.0178635
o-Xylene	0.147722	0.147722	0.120268	0.0280895	0.0298057
H2S	0.00571541	0.00571541	0.00222485	0.00135602	0.0013802
Water	2.23074	2.23074	0.412222	0.497624	0.500597
2,2,4-Trimethylpentane	0.0990833	0.0990833	0.175917	0.042292	0.0444914
Decanes Plus	0.000144786	0.000144786	0.000184537	4.32602E-05	4.56882E-05

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Sales	

Mass Flow	4 lb/h	5 lb/h	6 lb/h	7 lb/h	8 lb/h
Carbon Dioxide	5.33462	5.33462	4.58286	702.767	712.685
Nitrogen	4.4571	4.4571	2.05591	7300	7306.51
Methane	95.1446	95.1446	133.718	76408.9	76637.8
Ethane	67.1353	67.1353	387.837	24466.3	24921.3
Propane	78.325	78.325	691.4	18434.4	19204.1
Isobutane	14.3755	14.3755	144.275	2839.87	2998.52
n-Butane	41.7252	41.7252	401.426	7329.08	7772.23
Isopentane	11.7021	11.7021	120.196	1985.8	2117.7
n-Pentane	11.8865	11.8865	129.081	2080.29	2221.26
n-Hexane	2.74104	2.74104	30.8036	472.972	506.516
Cyclohexane	0.642969	0.642969	6.06913	92.4904	99.2025
i-C6	5.38348	5.38348	58.8721	914.796	979.051
i-C7	8.03873	8.03873	89.1708	1362.22	1459.43
Methylcyclohexane	0.198906	0.198906	2.29423	34.5924	37.0856
Octane	2.26144	2.26144	26.3645	398.197	426.823
Nonane	0.403633	0.403633	4.81093	72.1126	77.3271
Benzene	6.21517	6.21517	29.3077	443.733	479.256
Toluene	3.52391	3.52391	17.4374	260.017	280.978
Ethylbenzene	0.321631	0.321631	1.65447	24.6626	26.6387
o-Xylene	0.545067	0.545067	2.76337	41.139	44.4475
H2S	0.0210887	0.0210887	0.0511202	1.986	2.0582
Water	8.231	8.231	9.47158	728.806	746.509
2,2,4-Trimethylpentane	0.365597	0.365597	4.04202	61.9397	66.3474
Decanes Plus	0.000534231	0.000534231	0.00424009	0.0633577	0.068132

Stream Properties

Property	Units	4	5	6	7	8
Temperature	°F	350 *	100 *	100 *	87.3831	86.5048
Pressure	psig	80 *	80 *	80 *	80	80
Molecular Weight	lb/lbmol	29.9836	29.9836	43.0299	22.2313	22.4125
Mass Flow	lb/h	368.98	368.98	2297.69	146457	149124
Std Vapor Volumetric Flow	MMSCFD	0.112079	0.112079	0.486324	60	60.5984
Std Liquid Volumetric Flow	sgpm	1.71219	1.71219	9.27736	800.475	811.464
Gross Ideal Gas Heating Value	Btu/ft^3	1665.57	1665.57	2430.73	1263.52	1273.64

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Sales	

Connections

	9	10	11	12	13
From Block	OT Vapor	PW	STK Vapor	Sales Scrubber	SPLT-101
To Block	SPLT-100	SPLT-101	SPLT-102	Sales Scrubber Liquid	MIX-101

Stream Composition

Mole Fraction	9 %	10 %	11 %	12 %	13 %
Carbon Dioxide	0.156581	1.43779	1.43779		1.43779
Nitrogen	0.06597	1.96351	1.96351		1.96351
Methane	12.215	67.8591	67.8591		67.8591
Ethane	24.1762	14.8457	14.8457		14.8457
Propane	31.0363	5.35976	5.35976		5.35976
Isobutane	4.9451	0.405538	0.405538		0.405538
n-Butane	13.8644	1.44427	1.44427		1.44427
Isopentane	3.34633	0.209402	0.209402		0.209402
n-Pentane	3.60098	0.102329	0.102329		0.102329
n-Hexane	0.708445	0.0125335	0.0125335		0.0125335
Cyclohexane	0.116038	0.0325926	0.0325926		0.0325926
i-C6	1.35035	0.0470561	0.0470561		0.0470561
i-C7	1.77968	0.0355227	0.0355227		0.0355227
Methylcyclohexane	0.0371632	0.00514732	0.00514732		0.00514732
Octane	0.450911	0.00235467	0.00235467		0.00235467
Nonane	0.071795	0.000310895	0.000310895		0.000310895
Benzene	0.752836	0.588494	0.588494		0.588494
Toluene	0.374854	0.275774	0.275774		0.275774
Ethylbenzene	0.0305049	0.0214009	0.0214009		0.0214009
o-Xylene	0.0506374	0.0368469	0.0368469		0.0368469
H2S	0.0024209	0.0064534	0.0064534		0.0064534
Water	0.795818	5.307	5.307		5.307
2,2,4-Trimethylpentane	0.071617	0.0010801	0.0010801		0.0010801
Decanes Plus	2.65796E-05	1.10495E-05	1.10495E-05		1.10495E-05

Mass Fraction	9 %	10 %	11 %	12 %	13 %
Carbon Dioxide	0.154885	2.86913	2.86913		2.86913
Nitrogen	0.041537	2.49406	2.49406		2.49406
Methane	4.4044	49.3614	49.3614		49.3614
Ethane	16.3392	20.2409	20.2409		20.2409
Propane	30.7602	10.7164	10.7164		10.7164
Isobutane	6.46011	1.06877	1.06877		1.06877
n-Butane	18.112	3.80627	3.80627		3.80627
Isopentane	5.42651	0.685045	0.685045		0.685045
n-Pentane	5.83946	0.334761	0.334761		0.334761
n-Hexane	1.37218	0.0489738	0.0489738		0.0489738
Cyclohexane	0.219495	0.124374	0.124374		0.124374
i-C6	2.61549	0.183869	0.183869		0.183869
i-C7	4.00813	0.161395	0.161395		0.161395
Methylcyclohexane	0.0820136	0.0229161	0.0229161		0.0229161
Octane	1.15768	0.0121959	0.0121959		0.0121959
Nonane	0.206962	0.001808	0.001808		0.001808
Benzene	1.32172	2.08433	2.08433		2.08433
Toluene	0.776293	1.15213	1.15213		1.15213
Ethylbenzene	0.0727904	0.10302	0.10302		0.10302
o-Xylene	0.12083	0.177374	0.177374		0.177374
H2S	0.00185443	0.0099726	0.0099726		0.0099726
Water	0.322239	4.3351	4.3351		4.3351
2,2,4-Trimethylpentane	0.183871	0.00559434	0.00559434		0.00559434
Decanes Plus	0.00015682	0.000131517	0.000131517		0.000131517

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Sales	

Mass Flow	9 lb/h	10 lb/h	11 lb/h	12 lb/h	13 lb/h
Carbon Dioxide	0.299694	0.100699	4.93423		0.100699
Nitrogen	0.0803717	0.0875345	4.28919		0.0875345
Methane	8.52226	1.73245	84.8899		1.73245
Ethane	31.6153	0.710399	34.8095		0.710399
Propane	59.5192	0.376116	18.4297		0.376116
Isobutane	12.4999	0.0375107	1.83802		0.0375107
n-Butane	35.0457	0.133589	6.54588		0.133589
Isopentane	10.5	0.0240431	1.17811		0.0240431
n-Pentane	11.299	0.0117492	0.575709		0.0117492
n-Hexane	2.6551	0.00171884	0.0842233		0.00171884
Cyclohexane	0.42471	0.00436519	0.213894		0.00436519
i-C6	5.06082	0.00645327	0.31621		0.00645327
i-C7	7.7555	0.00566451	0.277561		0.00566451
Methylcyclohexane	0.158692	0.000804289	0.0394102		0.000804289
Octane	2.24004	0.000428041	0.020974		0.000428041
Nonane	0.40046	6.34556E-05	0.00310932		6.34556E-05
Benzene	2.55746	0.0731543	3.58456		0.0731543
Toluene	1.50208	0.0404366	1.9814		0.0404366
Ethylbenzene	0.140845	0.00361572	0.17717		0.00361572
o-Xylene	0.2338	0.00622534	0.305042		0.00622534
H2S	0.00358822	0.00035001	0.0171505		0.00035001
Water	0.623513	0.15215	7.45534		0.15215
2,2,4-Trimethylpentane	0.35578	0.000196346	0.00962094		0.000196346
Decanes Plus	0.000303437	4.61587E-06	0.000226178		4.61587E-06

Stream Properties

Property	Units	9	10	11	12	13
Temperature	°F	95	89.7294	89.7294		89.7294
Pressure	psig	0.375	0.375	0.375	75	0.375
Molecular Weight	lb/lbmol	44.4915	22.0542	22.0542		22.0542
Mass Flow	lb/h	193.494	3.50972	171.976	0	3.50972
Std Vapor Volumetric Flow	MMSCFD	0.0396091	0.00144939	0.0710202	0	0.00144939
Std Liquid Volumetric Flow	sgpm	0.770797	0.0188278	0.922561	0	0.0188278
Gross Ideal Gas Heating Value	Btu/ft^3	2512.65	1202.58	1202.58		1202.58

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Sales	

Connections

	14	15			
From Block	SPLT-102	SPLT-103			
To Block	MIX-101	CMPR-100			

Stream Composition

Mole Fraction	14 %	15 %			
Carbon Dioxide	1.43779	0.195016			
Nitrogen	1.96351	0.137442			
Methane	67.8591	15.6098			
Ethane	14.8457	24.1551			
Propane	5.35976	29.3639			
Isobutane	0.405538	4.64866			
n-Butane	1.44427	12.9343			
Isopentane	0.209402	3.11989			
n-Pentane	0.102329	3.35052			
n-Hexane	0.0125335	0.669419			
Cyclohexane	0.0325926	0.135052			
i-C6	0.0470561	1.2794			
i-C7	0.0355227	1.66658			
Methylcyclohexane	0.00514732	0.0437589			
Octane	0.00235467	0.43224			
Nonane	0.000310895	0.0702479			
Benzene	0.588494	0.702659			
Toluene	0.275774	0.354421			
Ethylbenzene	0.0214009	0.0291848			
o-Xylene	0.0368469	0.0487458			
H2S	0.0064534	0.00280906			
Water	5.307	0.984602			
2,2,4-Trimethylpentane	0.0010801	0.0662678			
Decanes Plus	1.10495E-05	3.025E-05			

Mass Fraction	14 %	15 %			
Carbon Dioxide	2.86913	0.199455			
Nitrogen	2.49406	0.0894775			
Methane	49.3614	5.81968			
Ethane	20.2409	16.8794			
Propane	10.7164	30.0911			
Isobutane	1.06877	6.27913			
n-Butane	3.80627	17.4709			
Isopentane	0.685045	5.23115			
n-Pentane	0.334761	5.61785			
n-Hexane	0.0489738	1.34064			
Cyclohexane	0.124374	0.264141			
i-C6	0.183869	2.56223			
i-C7	0.161395	3.88089			
Methylcyclohexane	0.0229161	0.0998495			
Octane	0.0121959	1.14744			
Nonane	0.001808	0.209381			
Benzene	2.08433	1.27553			
Toluene	1.15213	0.75891			
Ethylbenzene	0.10302	0.072006			
o-Xylene	0.177374	0.120268			
H2S	0.0099726	0.00222485			
Water	4.3351	0.412222			
2,2,4-Trimethylpentane	0.00559434	0.175917			
Decanes Plus	0.000131517	0.000184537			

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Sales	

Mass Flow	14 lb/h	15 lb/h			
Carbon Dioxide	4.93423	4.58286			
Nitrogen	4.28919	2.05591			
Methane	84.8899	133.718			
Ethane	34.8095	387.837			
Propane	18.4297	691.4			
Isobutane	1.83802	144.275			
n-Butane	6.54588	401.426			
Isopentane	1.17811	120.196			
n-Pentane	0.575709	129.081			
n-Hexane	0.0842233	30.8036			
Cyclohexane	0.213894	6.06913			
i-C6	0.31621	58.8721			
i-C7	0.277561	89.1708			
Methylcyclohexane	0.0394102	2.29423			
Octane	0.020974	26.3645			
Nonane	0.00310932	4.81093			
Benzene	3.58456	29.3077			
Toluene	1.9814	17.4374			
Ethylbenzene	0.17717	1.65447			
o-Xylene	0.305042	2.76337			
H2S	0.0171505	0.0511202			
Water	7.45534	9.47158			
2,2,4-Trimethylpentane	0.00962094	4.04202			
Decanes Plus	0.000226178	0.00424009			

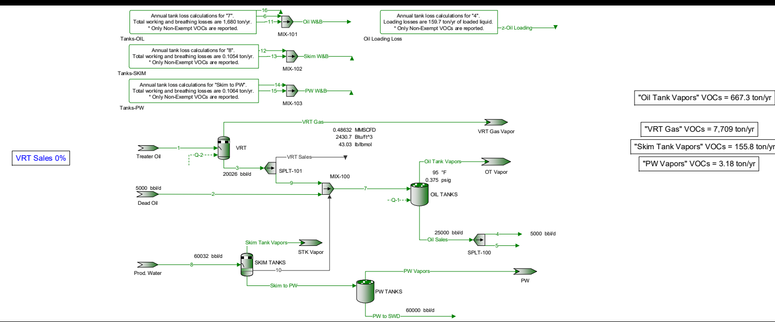
Stream Properties

Property	Units	14	15			
Temperature	°F	89.7294	100			
Pressure	psig	0.375	3			
Molecular Weight	lb/lbmol	22.0542	43.0299			
Mass Flow	lb/h	171.976	2297.69			
Std Vapor Volumetric Flow	MMSCFD	0.0710202	0.486324			
Std Liquid Volumetric Flow	sgpm	0.922561	9.27736			
Gross Ideal Gas Heating Value	Btu/ft^3	1202.58	2430.73			

Remarks

Tankage
Plant Schematic

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Tankage	



* User Specified Values
? Extrapolated or Approximate Values

ProMax 5.0.19050.0

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Tankage	

Connections

	Oil Sales	Oil Tank Vapors	Oil W&B	PW to SWD	PW Vapors
From Block	OIL TANKS	OIL TANKS	MIX-101	PW TANKS	PW TANKS
To Block	SPLT-100	OT Vapor	--	--	PW

Stream Composition

Mole Fraction	Oil Sales %	Oil Tank Vapors %	Oil W&B %	PW to SWD %	PW Vapors %
Carbon Dioxide	0.00141543	0.156581	0.126987	0.000536507	1.43779
Nitrogen	8.13742E-05	0.06597	0.00245419	1.89273E-05	1.96351
Methane	0.044157	12.215	2.12949	0.00134307	67.8591
Ethane	0.484404	24.1762	28.6828	0.000412667	14.8457
Propane	2.15487	31.0363	35.585	0.000104223	5.35976
Isobutane	0.855583	4.9451	5.31725	5.0727E-06	0.405538
n-Butane	3.44866	13.8644	14.7813	2.58857E-05	1.44427
Isopentane	2.13496	3.34633	3.65208	2.505E-06	0.209402
n-Pentane	3.01713	3.60098	3.88869	5.51206E-07	0.102329
n-Hexane	1.98293	0.708445	0.787319	4.45939E-08	0.0125335
Cyclohexane	0.476202	0.116038	0.12324	2.0001E-06	0.0325926
i-C6	2.67015	1.35035	1.46272	3.27281E-07	0.0470561
i-C7	10.11	1.77968	1.79545	1.48443E-07	0.0355227
Methylcyclohexane	0.317126	0.0371632	0.039741	1.35034E-07	0.00514732
Octane	11.7213	0.450911	0.435078	2.62999E-09	0.00235467
Nonane	5.66688	0.071795	0.0564064	2.95507E-10	0.000310895
Benzene	2.52714	0.752836	0.642595	0.00130043	0.588494
Toluene	4.33272	0.374854	0.340864	0.000463046	0.275774
Ethylbenzene	1.06409	0.0305049	0.0289833	3.0547E-05	0.0214009
o-Xylene	2.19731	0.0506374	0.0422356	7.89498E-05	0.0368469
H2S	8.62734E-05	0.0024209	0.00283812	7.34963E-06	0.0064534
Water	0.0129961	0.795818	0.000784711	99.9957	5.307
2,2,4-Trimethylpentane	0.567223	0.071617	0.0756394	3.4627E-09	0.0010801
Decanes Plus	44.2126	2.65796E-05	1.76107E-05	3.41899E-09	1.10495E-05

Mass Fraction	Oil Sales %	Oil Tank Vapors %	Oil W&B %	PW to SWD %	PW Vapors %
Carbon Dioxide	0.000368663	0.154885	0.118238	0.00131053	2.86913
Nitrogen	1.3491E-05	0.041537	0.00145454	2.94292E-05	2.49406
Methane	0.0041924	4.4044	0.722768	0.0011959	49.3614
Ethane	0.0862027	16.3392	18.2471	0.000688722	20.2409
Propane	0.562354	30.7602	33.1982	0.000255085	10.7164
Isobutane	0.294305	6.46011	6.53855	1.63646E-05	1.06877
n-Butane	1.18628	18.112	18.1764	8.35076E-05	3.80627
Isopentane	0.911614	5.42651	5.5747	1.00314E-05	0.685045
n-Pentane	1.2883	5.83946	5.93587	2.20733E-06	0.334761
n-Hexane	1.01131	1.37218	1.43544	2.13296E-07	0.0489738
Cyclohexane	0.237185	0.219495	0.219436	9.34283E-06	0.124374
i-C6	1.36179	2.61549	2.66685	1.56541E-06	0.183869
i-C7	5.99542	4.00813	3.8063	8.25581E-07	0.161395
Methylcyclohexane	0.184279	0.0820136	0.0825546	7.35898E-07	0.0229161
Octane	7.92395	1.15768	1.05146	1.66745E-08	0.0121959
Nonane	4.30142	0.206962	0.153058	2.10361E-09	0.001808
Benzene	1.16826	1.32172	1.06196	0.00563806	2.08433
Toluene	2.36262	0.776293	0.664468	0.00236804	1.15213
Ethylbenzene	0.668579	0.0727904	0.0651	0.000180001	0.10302
o-Xylene	1.38059	0.12083	0.0948663	0.000465218	0.177374
H2S	1.74013E-05	0.00185443	0.00204641	1.39028E-05	0.0099726
Water	0.00138563	0.322239	0.000299091	99.9877	4.3351
2,2,4-Trimethylpentane	0.383461	0.183871	0.1828	2.1954E-08	0.00559434
Decanes Plus	68.6861	0.00015682	9.78045E-05	4.98141E-08	0.000131517

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Tankage	

Mass Flow	Oil Sales lb/h	Oil Tank Vapors lb/h	Oil W&B lb/h	PW to SWD lb/h	PW Vapors lb/h
Carbon Dioxide	1.09626	0.299694	0.560444	11.4718	0.100699
Nitrogen	0.0401173	0.0803717	0.00689446	0.25761	0.0875345
Methane	12.4666	8.52226	3.42588	10.4683	1.73245
Ethane	256.334	31.6153	86.4902	6.02876	0.710399
Propane	1672.23	59.5192	157.358	2.2329	0.376116
Isobutane	875.152	12.4999	30.9923	0.143248	0.0375107
n-Butane	3527.54	35.0457	86.155	0.730987	0.133589
Isopentane	2710.8	10.5	26.4238	0.0878102	0.0240431
n-Pentane	3830.92	11.299	28.1357	0.019322	0.0117492
n-Hexane	3007.25	2.6551	6.80392	0.0018671	0.00171884
Cyclohexane	705.298	0.42471	1.04011	0.0817829	0.00436519
i-C6	4049.46	5.06082	12.6407	0.0137029	0.00645327
i-C7	17828.1	7.7555	18.0416	0.00722676	0.00566451
Methylcyclohexane	547.976	0.158692	0.391304	0.00644172	0.000804289
Octane	23562.8	2.24004	4.98387	0.000145961	0.000428041
Nonane	12790.8	0.40046	0.725486	1.84141E-05	6.34556E-05
Benzene	3473.97	2.55746	5.03361	49.353	0.0731543
Toluene	7025.55	1.50208	3.14954	20.7287	0.0404366
Ethylbenzene	1988.1	0.140845	0.30857	1.57564	0.00361572
o-Xylene	4105.36	0.2338	0.449661	4.07231	0.00622534
H2S	0.0517448	0.00358822	0.00969989	0.121698	0.00035001
Water	4.12036	0.623513	0.00141767	875247	0.15215
2,2,4-Trimethylpentane	1140.27	0.35578	0.866459	0.000192175	0.000196346
Decanes Plus	204247	0.000303437	0.000463588	0.00043605	4.61587E-06

Stream Properties

Property	Units	Oil Sales	Oil Tank Vapors	Oil W&B	PW to SWD	PW Vapors
Temperature	°F	95	95 *	100.493	89.7294	89.7294
Pressure	psig	0.375	0.375 *	6.89604	0.375	0.375 *
Molecular Weight	lb/lbmol	168.969	44.4915	47.2659	18.0167	22.0542
Mass Flow	lb/h	297362	193.494	473.994	875355	3.50972
Std Vapor Volumetric Flow	MMSCFD	16.0282	0.0396091	0.0913335	442.5	0.00144939
Std Liquid Volumetric Flow	sgpm	729.167	0.770797	1.8626	1750	0.0188278
Gross Ideal Gas Heating Value	Btu/ft^3	8802.26	2512.65	2672.79	50.4077	1202.58

Remarks

* User Specified Values
? Extrapolated or Approximate Values

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Tankage	

Connections

	PW W&B	Skim Tank Vapors	Skim to PW	Skim W&B	VRT Gas
From Block	MIX-103	SKIM TANKS	SKIM TANKS	MIX-102	VRT
To Block	--	STK Vapor	PW TANKS	--	VRT Gas Vapor

Stream Composition

Mole Fraction	PW W&B %	Skim Tank Vapors %	Skim to PW %	Skim W&B %	VRT Gas %
Carbon Dioxide	0.920228	1.43779	0.000541215	0.885776	0.195016
Nitrogen	0.0139742	1.96351	2.53586E-05	0.014494	0.137442
Methane	1.41345	67.8591	0.00156533	1.3944	15.6098
Ethane	0.403658	14.8457	0.000461292	0.386762	24.1551
Propane	0.0254037	5.35976	0.000121778	0.0247178	29.3639
Isobutane	0.000431909	0.405538	6.40101E-06	0.000423145	4.64866
n-Butane	0.00156448	1.44427	3.06162E-05	0.00153392	12.9343
Isopentane	5.70819E-05	0.209402	3.19088E-06	5.66593E-05	3.11989
n-Pentane	8.86622E-06	0.102329	8.86376E-07	9.79449E-06	3.35052
n-Hexane	2.0616E-07	0.0125335	8.56466E-08	2.36515E-07	0.669419
Cyclohexane	7.33083E-06	0.0325926	2.10684E-06	6.76934E-06	0.135052
i-C6	2.24207E-06	0.0470561	4.8141E-07	2.37935E-06	1.2794
i-C7	2.97826E-07	0.0355227	2.64795E-07	3.25239E-07	1.66658
Methylcyclohexane	2.29449E-07	0.00514732	1.51893E-07	2.15999E-07	0.0437589
Octane	9.8184E-10	0.00235467	1.03426E-08	1.25933E-09	0.43224
Nonane	2.74284E-11	0.000310895	1.31383E-09	3.49612E-11	0.0702479
Benzene	0.00481357	0.588494	0.00130236	0.00474495	0.702659
Toluene	0.000522271	0.275774	0.000463947	0.000514153	0.354421
Ethylbenzene	1.17392E-05	0.0214009	3.0617E-05	1.15205E-05	0.0291848
o-Xylene	2.13276E-05	0.0368469	7.90702E-05	2.10687E-05	0.0487458
H2S	0.00398437	0.0064534	7.37075E-06	0.00390062	0.00280906
Water	97.2119	5.307	99.9954	97.2826	0.984602
2,2,4-Trimethylpentane	4.91944E-09	0.0010801	7.00051E-09	5.45403E-09	0.0662678
Decanes Plus	1.62374E-14	1.10495E-05	3.45518E-09	1.48925E-14	3.025E-05

Mass Fraction	PW W&B %	Skim Tank Vapors %	Skim to PW %	Skim W&B %	VRT Gas %
Carbon Dioxide	2.21449	2.86913	0.00132203	2.13284	0.199455
Nitrogen	0.0214055	2.49406	3.94289E-05	0.0222149	0.0894775
Methane	1.23989	49.3614	0.00139381	1.22391	5.81968
Ethane	0.663689	20.2409	0.000769875	0.636287	16.8794
Propane	0.0612527	10.7164	0.000298051	0.0596341	30.0911
Isobutane	0.00137267	1.06877	2.06497E-05	0.00134561	6.27913
n-Butane	0.00497213	3.80627	9.87683E-05	0.00487792	17.4709
Isopentane	0.000225195	0.685045	1.2778E-05	0.000223661	5.23115
n-Pentane	3.49784E-05	0.334761	3.54953E-06	3.86634E-05	5.61785
n-Hexane	9.71447E-07	0.0489738	4.09654E-07	1.11514E-06	1.34064
Cyclohexane	3.37356E-05	0.124374	9.84146E-06	3.11701E-05	0.264141
i-C6	1.05649E-05	0.183869	2.30262E-06	1.12184E-05	2.56223
i-C7	1.63182E-06	0.161395	1.47269E-06	1.78307E-06	3.88089
Methylcyclohexane	1.23188E-06	0.0229161	8.27777E-07	1.16035E-06	0.0998495
Octane	6.13264E-09	0.0121959	6.55734E-08	7.8705E-09	1.14744
Nonane	1.92357E-10	0.001808	9.3527E-09	2.4533E-10	0.209381
Benzene	0.0205597	2.08433	0.0056464	0.0202786	1.27553
Toluene	0.00263129	1.15213	0.00237265	0.00259192	0.75891
Ethylbenzene	6.81479E-05	0.10302	0.000180413	6.6918E-05	0.072006
o-Xylene	0.00012381	0.177374	0.000465928	0.000122379	0.120268
H2S	0.00742511	0.0099726	1.39427E-05	0.00727334	0.00222485
Water	95.7618	4.3351	99.9873	95.8882	0.412222
2,2,4-Trimethylpentane	3.07271E-08	0.00559434	4.43842E-08	3.40864E-08	0.175917

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Tankage	

Mass Fraction	PW W&B %	Skim Tank Vapors %	Skim to PW %	Skim W&B %	VRT Gas %
Decanes Plus	2.33065E-13	0.000131517	5.03412E-08	2.13887E-13	0.000184537

Mass Flow	PW W&B lb/h	Skim Tank Vapors lb/h	Skim to PW lb/h	Skim W&B lb/h	VRT Gas lb/h
Carbon Dioxide	0.589401	4.93423	11.5725	0.575456	4.58286
Nitrogen	0.0056972	4.28919	0.345144	0.00599374	2.05591
Methane	0.330004	84.8899	12.2008	0.330219	133.718
Ethane	0.176645	34.8095	6.73916	0.171675	387.837
Propane	0.0163028	18.4297	2.60901	0.0160897	691.4
Isobutane	0.000365344	1.83802	0.180759	0.000363056	144.275
n-Butane	0.00132336	6.54588	0.864577	0.0013161	401.426
Isopentane	5.99371E-05	1.17811	0.111853	6.03452E-05	120.196
n-Pentane	9.30971E-06	0.575709	0.0310711	1.04317E-05	129.081
n-Hexane	2.58557E-07	0.0842233	0.00358594	3.00873E-07	30.8036
Cyclohexane	8.97894E-06	0.213894	0.0861481	8.40991E-06	6.06913
i-C6	2.81191E-06	0.31621	0.0201562	3.02679E-06	58.8721
i-C7	4.34318E-07	0.277561	0.0128913	4.81084E-07	89.1708
Methylcyclohexane	3.27873E-07	0.0394102	0.00724601	3.13071E-07	2.29423
Octane	1.63224E-09	0.020974	0.000574002	2.12352E-09	26.3645
Nonane	5.11969E-11	0.00310932	8.18697E-05	6.61917E-11	4.81093
Benzene	0.00547208	3.58456	49.4262	0.00547131	29.3077
Toluene	0.000700334	1.9814	20.7692	0.000699319	17.4374
Ethylbenzene	1.8138E-05	0.17717	1.57926	1.8055E-05	1.65447
o-Xylene	3.29528E-05	0.305042	4.07854	3.30187E-05	2.76337
H2S	0.00197624	0.0171505	0.122048	0.0019624	0.0511202
Water	25.4876	7.45534	875248	25.8713	9.47158
2,2,4-Trimethylpentane	8.17821E-09	0.00962094	0.000388521	9.19676E-09	4.04202
Decanes Plus	6.20318E-14	0.000226178	0.000440666	5.77083E-14	0.00424009

Stream Properties

Property	Units	PW W&B	Skim Tank Vapors	Skim to PW	Skim W&B	VRT Gas
Temperature	°F	95.6934	89.7294	89.7294	96.2401	100 *
Pressure	psig	-11.8723	0.375	0.375	-11.8585	3
Molecular Weight	lb/lbmol	18.2881	22.0542	18.0167	18.2773	43.0299
Mass Flow	lb/h	26.6156	171.976	875358	26.9807	2297.69
Std Vapor Volumetric Flow	MMSCFD	0.0132548	0.0710202	442.501	0.0134446	0.486324
Std Liquid Volumetric Flow	sgpm	0.0556881	0.922561	1750.02	0.0563944	9.27736
Gross Ideal Gas Heating Value	Btu/ft^3	71.2646	1202.58	50.4115	70.7868	2430.73

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Tankage	

Connections

	VRT Sales	z-Oil Loading	1	2	3
From Block	SPLT-101	--	Treater Oil	Dead Oil	VRT
To Block	--	--	VRT	MIX-100	SPLT-101

Stream Composition

Mole Fraction	VRT Sales %	z-Oil Loading %	1 %	2 %	3 %
Carbon Dioxide	0.00205325	0.133973	0.00906046	0.000755824	0.00205325
Nitrogen	0.00020268	0.00195391	0.00518636	0.000411633	0.00020268
Methane	0.066709	2.19943	0.63114	0.104571	0.066709
Ethane	0.559271	29.5682	1.41613	0.47561	0.559271
Propane	2.31123	35.469	3.29362	1.87847	2.31123
Isobutane	0.898786	5.22714	1.03496	0.730468	0.898786
n-Butane	3.57701	14.4794	3.91681	3.05525	3.57701
Isopentane	2.18113	3.54955	2.21522	1.96166	2.18113
n-Pentane	3.06057	3.77088	3.0711	2.84717	3.06057
n-Hexane	2.00308	0.75808	1.95465	1.88471	2.00308
Cyclohexane	0.591763	0.11845	0.575178	0	0.591763
i-C6	2.72582	1.41143	2.67329	2.42639	2.72582
i-C7	10.0288	1.72157	9.7251	10.3371	10.0288
Methylcyclohexane	0.393961	0.0380792	0.381244	0	0.393961
Octane	11.6042	0.41302	11.1985	12.0578	11.6042
Nonane	5.62425	0.0535178	5.42256	5.77082	5.62425
Benzene	2.52323	0.617079	2.45712	2.52089	2.52323
Toluene	4.30034	0.32551	4.15705	4.41529	4.30034
Ethylbenzene	1.05017	0.0275188	1.0131	1.10795	1.05017
o-Xylene	2.17714	0.0400363	2.09985	2.25274	2.17714
H2S	0.000114575	0.00286725	0.000212422	0	0.000114575
Water	0.0185827	0.000783292	0.0536626	0	0.0185827
2,2,4-Trimethylpentane	0.553979	0.0724935	0.536268	0.615071	0.553979
Decanes Plus	43.7476	1.57643E-05	42.159	45.5568	43.7476

Mass Fraction	VRT Sales %	z-Oil Loading %	1 %	2 %	3 %
Carbon Dioxide	0.000538215	0.125747	0.00244092	0.000193616	0.000538215
Nitrogen	3.38176E-05	0.00116735	0.000889377	6.71199E-05	3.38176E-05
Methane	0.00637415	0.75251	0.0619803	0.00976467	0.00637415
Ethane	0.100163	18.9616	0.260663	0.0832426	0.100163
Propane	0.607024	33.3562	0.889049	0.482141	0.607024
Isobutane	0.311147	6.47944	0.368233	0.247126	0.311147
n-Butane	1.23831	17.9483	1.39358	1.03363	1.23831
Isopentane	0.937298	5.46177	0.97837	0.82381	0.937298
n-Pentane	1.31522	5.80234	1.35637	1.19568	1.31522
n-Hexane	1.02813	1.39325	1.03112	0.94537	1.02813
Cyclohexane	0.296632	0.212604	0.296321	0	0.296632
i-C6	1.39909	2.59403	1.41022	1.21708	1.39909
i-C7	5.98536	3.67902	5.96523	6.02908	5.98536
Methylcyclohexane	0.230394	0.0797387	0.229145	0	0.230394
Octane	7.89509	1.00618	7.83055	8.01712	7.89509
Nonane	4.29641	0.146388	4.25732	4.30811	4.29641
Benzene	1.17393	1.02799	1.1749	1.14616	1.17393
Toluene	2.35999	0.639642	2.34468	2.36796	2.35999
Ethylbenzene	0.664063	0.0623078	0.6584	0.684661	0.664063
o-Xylene	1.37669	0.0906499	1.36467	1.39209	1.37669
H2S	2.32577E-05	0.00208405	4.43168E-05	0	2.32577E-05
Water	0.00199396	0.000300951	0.00591793	0	0.00199396
2,2,4-Trimethylpentane	0.376908	0.176606	0.374985	0.408954	0.376908
Decanes Plus	68.3992	8.82542E-05	67.7449	69.6078	68.3992

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Tankage	

Mass Flow	VRT Sales lb/h	z-Oil Loading lb/h	1 lb/h	2 lb/h	3 lb/h
Carbon Dioxide	0	0.0571904	5.86334	0.11548	1.28048
Nitrogen	0	0.00053092	2.13637	0.0400328	0.0804562
Methane	0	0.342246	148.883	5.82402	15.1649
Ethane	0	8.62387	626.137	49.649	238.301
Propane	0	15.1706	2135.58	287.567	1444.18
Isobutane	0	2.94689	884.531	147.395	740.256
n-Butane	0	8.16301	3347.52	616.495	2946.09
Isopentane	0	2.48405	2350.14	491.351	2229.95
n-Pentane	0	2.63894	3258.14	713.151	3129.06
n-Hexane	0	0.63366	2476.85	563.854	2446.05
Cyclohexane	0	0.0966935	711.792	0	705.723
i-C6	0	1.17978	3387.49	725.911	3328.61
i-C7	0	1.67324	14329.1	3595.97	14239.9
Methylcyclohexane	0	0.0362657	550.429	0	548.134
Octane	0	0.457619	18809.7	4781.71	18783.4
Nonane	0	0.066578	10226.5	2569.52	10221.7
Benzene	0	0.467537	2822.22	683.614	2792.91
Toluene	0	0.290913	5632.15	1412.34	5614.71
Ethylbenzene	0	0.028338	1581.54	408.357	1579.89
o-Xylene	0	0.0412281	3278.06	830.296	3275.3
H2S	0	0.000947839	0.106453	0	0.055333
Water	0	0.000136874	14.2155	0	4.74387
2,2,4-Trimethylpentane	0	0.0803214	900.751	243.916	896.709
Decanes Plus	0	4.01386E-05	162730	41516.7	162730

Stream Properties

Property	Units	VRT Sales	z-Oil Loading	1	2	3
Temperature	°F	100	98.726	115.973	90.161	100
Pressure	psig	3	6.90877	3	25	3
Molecular Weight	lb/lbmol	167.893	46.8887	163.359	171.801	167.893
Mass Flow	lb/h	0	45.4806	240210	59643.8	237912
Std Vapor Volumetric Flow	MMSCFD	0	0.00883411	13.3922	3.16187	12.9059
Std Liquid Volumetric Flow	sgpm	0	0.179636	593.381	145.833	584.104
Gross Ideal Gas Heating Value	Btu/ft^3	8748.12	2652.88	8518.71	8944.46	8748.12

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Tankage	

Connections

	4	5	6	7	8
From Block	SPLT-100	SPLT-100	--	MIX-100	Prod. Water
To Block	--	--	MIX-101	OIL TANKS	SKIM TANKS

Stream Composition

Mole Fraction	4 %	5 %	6 %	7 %	8 %
Carbon Dioxide	0.00141543	0.00141543	0.126987	0.00179794	0.000771852
Nitrogen	8.13742E-05	8.13742E-05	0.00245419	0.000243798	0.000340441
Methane	0.044157	0.044157	2.12949	0.0741596	0.0124545
Ethane	0.484404	0.484404	28.6828	0.542808	0.00284353
Propane	2.15487	2.15487	35.585	2.22607	0.000981846
Isobutane	0.855583	0.855583	5.31725	0.865664	7.14772E-05
n-Butane	3.44866	3.44866	14.7813	3.47434	0.000262376
Isopentane	2.13496	2.13496	3.65208	2.13794	3.67934E-05
n-Pentane	3.01713	3.01713	3.88869	3.01857	1.7307E-05
n-Hexane	1.98293	1.98293	0.787319	1.97979	2.0969E-06
Cyclohexane	0.476202	0.476202	0.12324	0.475314	7.33668E-06
i-C6	2.67015	2.67015	1.46272	2.66689	8.03248E-06
i-C7	10.11	10.11	1.79545	10.0894	5.96512E-06
Methylcyclohexane	0.317126	0.317126	0.039741	0.316436	9.77866E-07
Octane	11.7213	11.7213	0.435078	11.6935	3.88198E-07
Nonane	5.66688	5.66688	0.0564064	5.65309	5.12034E-08
Benzene	2.52714	2.52714	0.642595	2.52277	0.00139658
Toluene	4.33272	4.33272	0.340864	4.32296	0.000508127
Ethylbenzene	1.06409	1.06409	0.0289833	1.06154	3.40463E-05
o-Xylene	2.19731	2.19731	0.0422356	2.19202	8.49704E-05
H2S	8.62734E-05	8.62734E-05	0.00283812	9.20285E-05	8.40515E-06
Water	0.0129961	0.0129961	0.000784711	0.0149259	99.9802
2,2,4-Trimethylpentane	0.567223	0.567223	0.0756394	0.566001	1.80325E-07
Decanes Plus	44.2126	44.2126	1.76107E-05	44.1037	5.22775E-09

Mass Fraction	4 %	5 %	6 %	7 %	8 %
Carbon Dioxide	0.000368663	0.000368663	0.118238	0.000469142	0.00188534
Nitrogen	1.3491E-05	1.3491E-05	0.00145454	4.04929E-05	0.000529317
Methane	0.0041924	0.0041924	0.722768	0.00705377	0.0110894
Ethane	0.0862027	0.0862027	18.2471	0.0967716	0.00474555
Propane	0.562354	0.562354	33.1982	0.581991	0.00240296
Isobutane	0.294305	0.294305	6.53855	0.298314	0.000230578
n-Butane	1.18628	1.18628	18.1764	1.19728	0.000846397
Isopentane	0.911614	0.911614	5.5747	0.91455	0.000147335
n-Pentane	1.2883	1.2883	5.93587	1.29126	6.93043E-05
n-Hexane	1.01131	1.01131	1.43544	1.01154	1.00293E-05
Cyclohexane	0.237185	0.237185	0.219436	0.237173	3.42698E-05
i-C6	1.36179	1.36179	2.66685	1.36261	3.84186E-05
i-C7	5.99542	5.99542	3.8063	5.99412	3.31744E-05
Methylcyclohexane	0.184279	0.184279	0.0825546	0.184212	5.3289E-06
Octane	7.92395	7.92395	1.05146	7.91955	2.46114E-06
Nonane	4.30142	4.30142	0.153058	4.29876	3.64487E-07
Benzene	1.16826	1.16826	1.06196	1.16836	0.0060547
Toluene	2.36262	2.36262	0.664468	2.36159	0.00259849
Ethylbenzene	0.668579	0.668579	0.0651	0.668192	0.000200613
o-Xylene	1.38059	1.38059	0.0948663	1.37977	0.000500677
H2S	1.74013E-05	1.74013E-05	0.00204641	1.85958E-05	1.58988E-05
Water	0.00138563	0.00138563	0.000299091	0.00159428	99.9686
2,2,4-Trimethylpentane	0.383461	0.383461	0.1828	0.383331	1.14325E-06
Decanes Plus	68.6861	68.6861	9.78045E-05	68.6414	7.61645E-08

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Tankage	

Mass Flow	**4** **lb/h**	**5** **lb/h**	**6** **lb/h**	**7** **lb/h**	**8** **lb/h**
Carbon Dioxide	0.219253	0.877012	0.556702	1.39596	16.5067
Nitrogen	0.00802346	0.0320938	0.00684843	0.120489	4.63433
Methane	2.49333	9.97331	3.40301	20.9889	97.0907
Ethane	51.2669	205.067	85.9128	287.95	41.5487
Propane	334.446	1337.78	156.307	1731.75	21.0387
Isobutane	175.03	700.121	30.7854	887.651	2.01878
n-Butane	705.508	2822.03	85.5798	3562.58	7.41046
Isopentane	542.16	2168.64	26.2474	2721.3	1.28997
n-Pentane	766.183	3064.73	27.9479	3842.21	0.60678
n-Hexane	601.45	2405.8	6.7585	3009.9	0.0878093
Cyclohexane	141.06	564.239	1.03317	705.723	0.300042
i-C6	809.893	3239.57	12.5563	4054.52	0.336366
i-C7	3565.62	14262.5	17.9212	17835.9	0.290452
Methylcyclohexane	109.595	438.38	0.388692	548.134	0.0466562
Octane	4712.57	18850.3	4.9506	23565.1	0.021548
Nonane	2558.16	10232.6	0.720642	12791.2	0.00319119
Benzene	694.794	2779.18	5.00001	3476.53	53.0108
Toluene	1405.11	5620.44	3.12851	7027.05	22.7506
Ethylbenzene	397.621	1590.48	0.30651	1988.24	1.75643
o-Xylene	821.073	3284.29	0.446659	4105.6	4.38358
H2S	0.010349	0.0413958	0.00963513	0.055333	0.139199
Water	0.824071	3.29629	0.00140821	4.74387	875255
2,2,4-Trimethylpentane	228.054	912.215	0.860675	1140.62	0.0100095
Decanes Plus	40849.3	163397	0.000460493	204247	0.000666844

Stream Properties

Property	**Units**	**4**	**5**	**6**	**7**	**8**
Temperature	°F	95	95	100.493	98.0712	89.7294
Pressure	psig	0.375	0.375	6.89604	3	0.375
Molecular Weight	lb/lbmol	168.969	168.969	47.2659	168.662	18.0174
Mass Flow	lb/h	59472.5	237890	470.83	297556	875530
Std Vapor Volumetric Flow	MMSCFD	3.20563	12.8225	0.0907238	16.0678	442.573
Std Liquid Volumetric Flow	sgpm	145.833 *	583.333	1.85016	729.937	1750.94
Gross Ideal Gas Heating Value	Btu/ft^3	8802.26	8802.26	2672.79	8786.76	50.5964

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Tankage	

Connections

	9	10	11	12	13
From Block	SPLT-101	SKIM TANKS	--	--	--
To Block	MIX-100	MIX-100	MIX-101	MIX-102	MIX-102

Stream Composition

Mole Fraction	9 %	10 %	11 %	12 %	13 %
Carbon Dioxide	0.00205325		0.126987	0.885776	0.885776
Nitrogen	0.00020268		0.00245419	0.014494	0.014494
Methane	0.066709		2.12949	1.3944	1.3944
Ethane	0.559271		28.6828	0.386762	0.386762
Propane	2.31123		35.585	0.0247178	0.0247178
Isobutane	0.898786		5.31725	0.000423145	0.000423145
n-Butane	3.57701		14.7813	0.00153392	0.00153392
Isopentane	2.18113		3.65208	5.66593E-05	5.66593E-05
n-Pentane	3.06057		3.88869	9.79449E-06	9.79449E-06
n-Hexane	2.00308		0.787319	2.36515E-07	2.36515E-07
Cyclohexane	0.591763		0.12324	6.76934E-06	6.76934E-06
i-C6	2.72582		1.46272	2.37935E-06	2.37935E-06
i-C7	10.0288		1.79545	3.25239E-07	3.25239E-07
Methylcyclohexane	0.393961		0.039741	2.15999E-07	2.15999E-07
Octane	11.6042		0.435078	1.25933E-09	1.25933E-09
Nonane	5.62425		0.0564064	3.49612E-11	3.49612E-11
Benzene	2.52323		0.642595	0.00474495	0.00474495
Toluene	4.30034		0.340864	0.000514153	0.000514153
Ethylbenzene	1.05017		0.0289833	1.15205E-05	1.15205E-05
o-Xylene	2.17714		0.0422356	2.10687E-05	2.10687E-05
H2S	0.000114575		0.00283812	0.00390062	0.00390062
Water	0.0185827		0.000784711	97.2826	97.2826
2,2,4-Trimethylpentane	0.553979		0.0756394	5.45403E-09	5.45403E-09
Decanes Plus	43.7476		1.76107E-05	1.48925E-14	1.48925E-14

Mass Fraction	9 %	10 %	11 %	12 %	13 %
Carbon Dioxide	0.000538215		0.118238	2.13284	2.13284
Nitrogen	3.38176E-05		0.00145454	0.0222149	0.0222149
Methane	0.00637415		0.722768	1.22391	1.22391
Ethane	0.100163		18.2471	0.636287	0.636287
Propane	0.607024		33.1982	0.0596341	0.0596341
Isobutane	0.311147		6.53855	0.00134561	0.00134561
n-Butane	1.23831		18.1764	0.00487792	0.00487792
Isopentane	0.937298		5.5747	0.000223661	0.000223661
n-Pentane	1.31522		5.93587	3.86634E-05	3.86634E-05
n-Hexane	1.02813		1.43544	1.11514E-06	1.11514E-06
Cyclohexane	0.296632		0.219436	3.11701E-05	3.11701E-05
i-C6	1.39909		2.66685	1.12184E-05	1.12184E-05
i-C7	5.98536		3.8063	1.78307E-06	1.78307E-06
Methylcyclohexane	0.230394		0.0825546	1.16035E-06	1.16035E-06
Octane	7.89509		1.05146	7.8705E-09	7.8705E-09
Nonane	4.29641		0.153058	2.4533E-10	2.4533E-10
Benzene	1.17393		1.06196	0.0202786	0.0202786
Toluene	2.35999		0.664468	0.00259192	0.00259192
Ethylbenzene	0.664063		0.0651	6.6918E-05	6.6918E-05
o-Xylene	1.37669		0.0948663	0.000122379	0.000122379
H2S	2.32577E-05		0.00204641	0.00727334	0.00727334
Water	0.00199396		0.000299091	95.8882	95.8882
2,2,4-Trimethylpentane	0.376908		0.1828	3.40864E-08	3.40864E-08
Decanes Plus	68.3992		9.78045E-05	2.13887E-13	2.13887E-13

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Tankage	

Mass Flow	9 lb/h	10 lb/h	11 lb/h	12 lb/h	13 lb/h
Carbon Dioxide	1.28048		0.00374139	0.573557	0.00189909
Nitrogen	0.0804562		4.60257E-05	0.00597396	1.97802E-05
Methane	15.1649		0.0228704	0.329129	0.00108977
Ethane	238.301		0.577388	0.171108	0.000566552
Propane	1444.18		1.05048	0.0160366	5.30985E-05
Isobutane	740.256		0.206897	0.000361858	1.19814E-06
n-Butane	2946.09		0.57515	0.00131175	4.34332E-06
Isopentane	2229.95		0.176399	6.01461E-05	1.99148E-07
n-Pentane	3129.06		0.187827	1.03972E-05	3.4426E-08
n-Hexane	2446.05		0.0454213	2.99881E-07	9.92928E-10
Cyclohexane	705.723		0.00694354	8.38216E-06	2.7754E-08
i-C6	3328.61		0.0843863	3.01681E-06	9.98888E-09
i-C7	14239.9		0.120442	4.79496E-07	1.58765E-09
Methylcyclohexane	548.134		0.00261225	3.12038E-07	1.03318E-09
Octane	18783.4		0.0332711	2.11651E-09	7.00793E-12
Nonane	10221.7		0.00484317	6.59733E-11	2.18443E-13
Benzene	2792.91		0.0336032	0.00545325	1.80561E-05
Toluene	5614.71		0.0210256	0.000697011	2.30786E-06
Ethylbenzene	1579.89		0.00205994	1.79954E-05	5.95841E-08
o-Xylene	3275.3		0.00300183	3.29098E-05	1.08967E-07
H2S	0.055333		6.47541E-05	0.00195592	6.47621E-06
Water	4.74387		9.46404E-06	25.7859	0.0853793
2,2,4-Trimethylpentane	896.709		0.00578427	9.16641E-09	3.03507E-11
Decanes Plus	162730		3.0948E-06	5.75178E-14	1.90446E-16

Stream Properties

Property	Units	9	10	11	12	13
Temperature	°F	100		100.493	96.2401	96.2401
Pressure	psig	3	0.375	6.89604	-11.8585	-11.8585
Molecular Weight	lb/lbmol	167.893		47.2659	18.2773	18.2773
Mass Flow	lb/h	237912	0	3.16427	26.8917	0.0890404
Std Vapor Volumetric Flow	MMSCFD	12.9059	0	0.00060972	0.0134002	4.43691E-05
Std Liquid Volumetric Flow	sgpm	584.104	0	0.0124342	0.0562083	0.00018611
Gross Ideal Gas Heating Value	Btu/ft^3	8748.12		2672.79	70.7868	70.7868

Remarks

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Tankage	

Connections

	14	15	16		
From Block	--	--	--		
To Block	MIX-103	MIX-103	--		

Stream Composition

Mole Fraction	14 %	15 %	16 %		
Carbon Dioxide	0.920228	0.920228	0.13367		
Nitrogen	0.0139742	0.0139742	0.0399892		
Methane	1.41345	1.41345	8.85879		
Ethane	0.403658	0.403658	22.8988		
Propane	0.0254037	0.0254037	32.35		
Isobutane	0.000431909	0.000431909	5.34777		
n-Butane	0.00156448	0.00156448	15.1488		
Isopentane	5.70819E-05	5.70819E-05	3.73515		
n-Pentane	8.86622E-06	8.86622E-06	4.04522		
n-Hexane	2.0616E-07	2.0616E-07	0.814245		
Cyclohexane	7.33083E-06	7.33083E-06	0.133502		
i-C6	2.24207E-06	2.24207E-06	1.53866		
i-C7	2.97826E-07	2.97826E-07	2.06554		
Methylcyclohexane	2.29449E-07	2.29449E-07	0.0433307		
Octane	9.8184E-10	9.8184E-10	0.537281		
Nonane	2.74284E-11	2.74284E-11	0.0872048		
Benzene	0.00481357	0.00481357	0.864047		
Toluene	0.000522271	0.000522271	0.438809		
Ethylbenzene	1.17392E-05	1.17392E-05	0.0363649		
o-Xylene	2.13276E-05	2.13276E-05	0.0605049		
H2S	0.00398437	0.00398437	0.00241736		
Water	97.2119	97.2119	0.736414		
2,2,4-Trimethylpentane	4.91944E-09	4.91944E-09	0.0834149		
Decanes Plus	1.62374E-14	1.62374E-14	3.774E-05		

Mass Fraction	14 %	15 %	16 %		
Carbon Dioxide	2.21449	2.21449	0.126356		
Nitrogen	0.0214055	0.0214055	0.0240616		
Methane	1.23989	1.23989	3.05254		
Ethane	0.663689	0.663689	14.7893		
Propane	0.0612527	0.0612527	30.6398		
Isobutane	0.00137267	0.00137267	6.67622		
n-Butane	0.00497213	0.00497213	18.912		
Isopentane	0.000225195	0.000225195	5.78833		
n-Pentane	3.49784E-05	3.49784E-05	6.26885		
n-Hexane	9.71447E-07	9.71447E-07	1.50714		
Cyclohexane	3.37356E-05	3.37356E-05	0.241327		
i-C6	1.05649E-05	1.05649E-05	2.84801		
i-C7	1.63182E-06	1.63182E-06	4.44555		
Methylcyclohexane	1.23188E-06	1.23188E-06	0.0913822		
Octane	6.13264E-09	6.13264E-09	1.31823		
Nonane	1.92357E-10	1.92357E-10	0.240232		
Benzene	0.0205597	0.0205597	1.44968		
Toluene	0.00263129	0.00263129	0.868425		
Ethylbenzene	6.81479E-05	6.81479E-05	0.082924		
o-Xylene	0.00012381	0.00012381	0.137971		
H2S	0.00742511	0.00742511	0.00176957		
Water	95.7618	95.7618	0.284957		
2,2,4-Trimethylpentane	3.07271E-08	3.07271E-08	0.204661		
Decanes Plus	2.33065E-13	2.33065E-13	0.000212788		

Process Streams Report
All Streams
Tabulated by Total Phase

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	
Flowsheet:	Tankage	

Mass Flow	14 lb/h	15 lb/h	16 lb/h		
Carbon Dioxide	0.587331	0.00207017	0.508196		
Nitrogen	0.00567719	2.00105E-05	0.0967742		
Methane	0.328845	0.00115909	12.2771		
Ethane	0.176024	0.000620436	59.4817		
Propane	0.0162455	5.72608E-05	123.231		
Isobutane	0.000364061	1.28321E-06	26.8513		
n-Butane	0.00131872	4.6481E-06	76.0628		
Isopentane	5.97266E-05	2.10519E-07	23.2803		
n-Pentane	9.27701E-06	3.26988E-08	25.2129		
n-Hexane	2.57648E-07	9.08137E-10	6.06164		
Cyclohexane	8.9474E-06	3.1537E-08	0.970601		
i-C6	2.80203E-06	9.87637E-09	11.4545		
i-C7	4.32793E-07	1.52547E-09	17.8797		
Methylcyclohexane	3.26721E-07	1.1516E-09	0.367533		
Octane	1.62651E-09	5.73297E-12	5.30185		
Nonane	5.10171E-11	1.79821E-13	0.966199		
Benzene	0.00545286	1.92198E-05	5.8305		
Toluene	0.000697874	2.45981E-06	3.49275		
Ethylbenzene	1.80743E-05	6.37067E-08	0.333515		
o-Xylene	3.28371E-05	1.15741E-07	0.554911		
H2S	0.0019693	6.94121E-06	0.0071171		
Water	25.3981	0.089521	1.14608		
2,2,4-Trimethylpentane	8.14949E-09	2.87246E-11	0.823133		
Decanes Plus	6.18139E-14	2.17876E-16	0.00085582		

Stream Properties

Property	Units	14	15	16		
Temperature	°F	95.6934	95.6934	100.493		
Pressure	psig	-11.8723	-11.8723	0.15		
Molecular Weight	lb/lbmol	18.2881	18.2881	46.5569		
Mass Flow	lb/h	26.5221	0.0934829	402.194		
Std Vapor Volumetric Flow	MMSCFD	0.0132082	4.65553E-05	0.0786785		
Std Liquid Volumetric Flow	sgpm	0.0554925	0.000195595	1.56715		
Gross Ideal Gas Heating Value	Btu/ft^3	71.2646	71.2646	2623.24		

Remarks

User Value Sets Report

Client Name:	XTO ENERGY INC	Job: DELAWARE DEVELOPMENT
Location:	BEU DI 38 TB	

Tanks-OIL

User Value [TVP]

* Parameter	9.68913	psia	Upper Bound		psia
Lower Bound		psia	* Enforce Bounds	False	

User Value [MaxVP]

* Parameter	11.3158	psia	Upper Bound		psia
Lower Bound		psia	* Enforce Bounds	False	

User Value [AvgLiqSurfaceT]

* Parameter	88.5666	°F	Upper Bound		°F
Lower Bound		°F	* Enforce Bounds	False	

User Value [MaxLiqSurfaceT]

* Parameter	100.493	°F	Upper Bound		°F
Lower Bound		°F	* Enforce Bounds	False	

Remarks
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Tanks-PW

User Value [TVP]

* Parameter	0.589984	psia	Upper Bound		psia
Lower Bound		psia	* Enforce Bounds	False	

User Value [MaxVP]

* Parameter	0.851284	psia	Upper Bound		psia
Lower Bound		psia	* Enforce Bounds	False	

User Value [AvgLiqSurfaceT]

* Parameter	83.7669	°F	Upper Bound		°F
Lower Bound		°F	* Enforce Bounds	False	

User Value [MaxLiqSurfaceT]

* Parameter	95.6934	°F	Upper Bound		°F
Lower Bound		°F	* Enforce Bounds	False	

Remarks
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June 27, 2019

XTO Energy Inc.
#700, 1 Riverway Drive
Houston, TX 77056

Attention: To Whom It May Concern

Subject: Compliance with 40 CFR 60.18 Flare Requirements and Destruction Removal Efficiency Confirmation

The Tornado Combustion Technologies Inc. (TCTI) designed a dual air assisted flare system for XTO Energy Inc. Battery Facilities (TCTI Design Reference No.: TOR0817B Rev. 0).

The flare has a 24-inch outer diameter air tip, 8-inch outer diameter annular low pressure air assisted waste gas tip for continuous flaring operations, and 6-inch outer diameter high pressure waste gas tip for facility emergency relieving cases. The tip as previously described is mounted on a riser and guy wire supporting structure so that the overall flare height is 40-feet tall. To date TCTI has provided twenty-four (24) flares of this design to XTO Energy Midstream Operations Compressor Facilities, under the following job number:

- 13881/16123;
- 14010/16304;
- 14206/16513;
- 14207/16514;
- 14208/16515;
- 14209/16516;
- 14210/16517;
- 14211/16518;
- 14329/16627;
- 14472/16792;
- 14465/16786;
- 14491/16806;
- 14531/16848;
- 14552/16870;
- 14553/16871;
- 14573/16892;
- 14589/16931;
- 14590/16932;
- 14653/16991;
- 14565/17000;
- 14712/17047;
- 14713/17048;
- 14714/17049;
- 14744/17100.

This flare design is intended to operate such that:

i) The maximum high pressure emergency flow rates does not exceed a maximum flow rate of 3,000,000 SCFD, a maximum continuous flowrate of 2,000,000 SCFD which will operate without visible emissions (i.e. excessive soot formation) and, and a maximum net heat release of 255,421,950.00 BTU/h; and,

ii) The maximum low pressure emergency flow rate does not exceed a maximum flow rate of 1,500,000 SCFD, a maximum continuous flowrate of 800,000 SCFD which will operate without visible emissions (i.e. excessive soot formation) and a maximum net heat release of and 127,710,975.00 BTU/h.

For more detailed information please refer to the design datasheets.

Due to the volume of sales of this flare design to XTO Energy specifically TCTI has provided this flare with the following model designation moving forward:

- TOR0817BR0-40FT.

To meet the requirements of 40 CFR 60.18 and industry best practices Tornado has designed the flare to operate as follows:

- TCTI has been designed the flare so each riser of the dual flare system will operate independently. Thus the calculated 40 CFR 60.18 maximum exit velocity for the high pressure and low pressure air assisted flares is 205.70 ft/s, as per paragraphs (c)(3)(ii), (c)(4)(iii), (c)(5), and (f)(6). The actual exit velocities of the high pressure air assisted flare as determined by paragraph (f)(4) in 40 CFR 60.18, are 385.91 ft/s, and 122.44 ft/s, for the emergency and continuous operating cases respectfully, and for the low pressure air assisted flare are 128.87 ft/s, and 70.55 ft/s, for the emergency and continuous operating cases respectfully. As can be seen the actual exit velocity of the low pressure air assisted flare and the continuous operating case of the high pressure air assisted flare are within the requirements of 40 CFR 60.18. The exit velocity of the emergency case through the high pressure air assisted flare although greater than the requirements of 40 CFR 60.18, is exempt from compliance with the standard as per Section 40 CFR 60.11 paragraph (a), and 40 CFR 60.8 paragraph (c), as the case presented to TCTI for the high pressure air assisted flare have been presented as an emergency case, that is not representative of the flare's performance;

- The calculated lower heating value of the waste gas for both the high pressure air assisted flare and low pressure air assisted flare is 2,043.38 BTU/SCF. The lower heating value of the provided waste gas composition was calculated as per paragraph (f)(3) of 40 CFR 60.18. This complies with paragraphs (c)(3)(ii) of 40 CFR 60.18 for an air assisted flare, as the heating value of the waste gas is greater than 300 BTU/SCF;

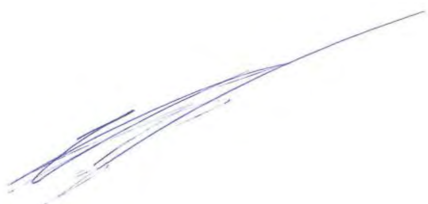
- Tornado has designed this flare to operate with a TSI #6 pilot and TPMR automatic relight and pilot monitoring system. If the flame failure contact is monitored by the client to the satisfaction of the local environmental authority having jurisdiction, then this complies with paragraph (f)(2) of 40 CFR 60.18;

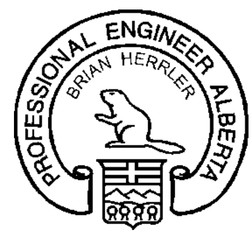
- Tornado has designed the flare to modulate the air flow based upon the waste gas flow rate to the flare for the cases presented which are not considered startup, shutdown, or malfunction as per 40 CFR 60.8(c). By doing this in conjunction with proper flare tuning, the flare's air blower cannot introduce too much air into the jet exit stream thus lowering the destruction efficiency of the flare by quenching mechanisms.

With both flares being designed to operate as described above the Tornado Combustion Technologies Inc. flare system has been designed to operate in compliance with 40 CFR 60.18. As per EPA studies EPA-600/2-83-052, EPA-600/2-86-080, and EPA-600/2-85-106 meeting the criteria of 40 CFR 60.18 will attain a minimum Destruction Removal Efficiency (DRE) of 98% for hydrocarbon compounds.

XTO Energy has advised that the site under consideration does not need to meet the requirements of 40 CFR 60 Subpart OOOO and only the general requirements must be adhered.

Regards,





Permit Number: P10806
Date: 2019-06-27

Brian Herrler, P.Eng
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Cc:(4) Gene Kazmir, General Manager USA, Tornado Combustion Technologies Inc;
Cliff Kazmir, General Manager USA, Tornado Combustion Technologies Inc;
Bryce Thomas, Flare Manager, Tornado Combustion Technologies Inc;
Ian Burge, Combustion Engineering, Tornado Combustion Technologies Inc.

June 27, 2019

XTO Energy Inc.
6401 N. Holiday Hill Rd.
Midland, TX 79707

Attention: To Whom It May Concern

Subject: Compliance with 40 CFR 60.18 Flare Requirements and Destruction Removal Efficiency Confirmation

The Tornado Combustion Technologies Inc. (TCTI) designed a high pressure gas assisted flare system for XTO Energy Inc. Facilities designed on February 20, 2018 (TCTI Design Reference No.: TOR1017D Rev. 2).

The flare has a 14-inch outer diameter tip, with a set of twelve (12) high pressure gas assisted injection nozzles for facility emergency relieving cases and heater treater off gas. The tip as previously described is mounted on a riser and guy wire supporting structure so that the overall flare height is 145-feet tall. To date TCTI has provided twenty-nine (29) flares of this design to XTO Energy Inc. Facilities, under the following job numbers:

- 14144/16470;
- 14184/16523;
- 14203/16519;
- 14204/16520;
- 14205/16521;
- 14330/16628;
- 14464/16785;
- 14490/16805;
- 14530/16847;
- 14532/16849;
- 14549/16867;
- 14550/16868;
- 14551/16869;
- 14555/16885;
- 14571/16890;
- 14572/16891;
- 14586/16928;
- 14587/16929;
- 14588/16930;
- 14634/16977;
- 14643/16987;
- 14652/16992;
- 14707/17042;
- 14708/17043;
- 14709/17044;
- 14710/17045;
- 14711/17046;
- 14743/17099;
- 14766/17129.

This flare design is intended to operate such that:

i) The maximum emergency flow rate does not exceed a maximum flow rate of 60,000,000 SCFD, and a maximum net heat release of 3,572,833,240.71 BTU/h; and,

ii) The maximum continuous flowrate from the heater treater of 2,000,000 SCFD which will operate without visible emissions (i.e. excessive soot formation) and a maximum net heat release of 219,758,943.81 BTU/h.

For more detailed information please refer to the design datasheets of the flare stack.

Due to the volume of sales of this flare design to XTO Energy specifically TCTI has provided this flare with the following model designation moving forward:

- TOR1017DR2-145FT.

Thus either the above provided TCTI job numbers or above model number can be used to relate back to this design and the intended operating parameters of the flare system design.

To meet the requirements of 40 CFR 60.18 and industry best practices Tornado has designed the flare to operate as follows:

- The calculated 40 CFR 60.18 maximum exit velocity for the flare is 400 ft/s, as per paragraphs (c)(3)(ii), (c)(4)(iii), (c)(5), and (f)(6). The actual exit velocities of the flare as determined by paragraph (f)(4) in 40 CFR 60.18, is cases respectfully 671.88 ft/s for the emergency relief case and 28.60 ft/s for the heater treater off gas case. Where the flare's exit velocity is greater than the requirements of 40 CFR 60.18, the flare is exempt from compliance with the standard as per Section 40 CFR 60.11 paragraph (a), and 40 CFR 60.8 paragraph (c), as this case has been presented as an emergency case that is not representative of the flare's performance. The remaining case is in compliance with the requirements defined in 40 CFR 60.18, which respect to the maximum exit velocity;

- The calculated lower heating value of the waste gas for the flare is 1,413.84 BTU/SCF and 1,986.95 BTU/SCF for the emergency relief and heater treater off gas cases respectfully. The lower heating value of the provided waste gas composition was calculated as per paragraph (f)(3) of 40 CFR 60.18. This complies with paragraphs (c)(3)(ii) of 40 CFR 60.18 for a non-assisted flare, as the heating value of the waste gas is greater than 200 BTU/SCF;

- Tornado has designed this flare to operate with a TSI #6 pilot and TPMR automatic relight and pilot monitoring system. If the flame failure contact is monitored by the client to the satisfaction of the local environmental authority having jurisdiction, then this complies with paragraph (f)(2) of 40 CFR 60.18;

With both flares being designed to operate as described above the Tornado Combustion Technologies Inc. flare system has been designed to operate in compliance with 40 CFR 60.18. As per EPA studies EPA-600/2-83-052, EPA-600/2-86-080, and EPA-600/2-85-106 meeting the criteria of 40 CFR 60.18 will attain a minimum Destruction Removal Efficiency (DRE) of 98% for hydrocarbon compounds.

XTO Energy has advised that the site under consideration does not need to meet the requirements of 40 CFR 60 Subpart OOOO and only the general requirements must be adhered.

Regards,

PROFESSIONAL ENGINEER
BRIAN HERRLER
ALBERTA

Permit Number: P10806
Date: 2019-06-27

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Cc:(4) Gene Kazmir, General Manager USA, Tornado Combustion Technologies Inc;
Cliff Kazmir, General Manager USA, Tornado Combustion Technologies Inc;
Bryce Thomas, Flare Manager, Tornado Combustion Technologies Inc;
Ian Burge, Combustion Engineering, Tornado Combustion Technologies Inc.

TABLE 2-4. OIL AND GAS PRODUCTION OPERATIONS AVERAGE EMISSION FACTORS (kg/hr/source)

Equipment Type	Service[a]	Emission Factor (kg/hr/source)[b]
Valves	Gas	4.5E-03
	Heavy Oil	8.4E-06
	Light Oil	2.5E-03
	Water/Oil	9.8E-05
Pump seals	Gas	2.4E-03
	Heavy Oil	NA
	Light Oil	1.3E-02
	Water/Oil	2.4E-05
Others[c]	Gas	8.8E-03
	Heavy Oil	3.2E-05
	Light Oil	7.5E-03
	Water/Oil	1.4E-02
Connectors	Gas	2.0E-04
	Heavy Oil	7.5E-06
	Light Oil	2.1E-04
	Water/Oil	1.1E-04
Flanges	Gas	3.9E-04
	Heavy Oil	3.9E-07
	Light Oil	1.1E-04
	Water/Oil	2.9E-06
Open-ended lines	Gas	2.0E-03
	Heavy Oil	1.4E-04
	Light Oil	1.4E-03
	Water/Oil	2.5E-04

[a] Water/Oil emission factors apply to water streams in oil service with a water content greater than 50%, from the point of origin to the point where the water content reaches 99%. For water streams with a water content greater than 99%, the emission rate is considered negligible.

[b] These factors are for total organic compound emission rates (including non-VOC's such as methane and ethane) and apply to light crude, heavy crude, gas plant, gas production, and off shore facilities. "NA" indicates that not enough data were available to develop the indicated emission factor.

[c] The "other" equipment type was derived from compressors, diaphrams, drains, dump arms, hatches, instruments, meters, pressure relief valves, polished rods, relief valves, and vents. This "other" equipment type should be applied for any equipment type other than connectors, flanges, open-ended lines, pumps, or valves.

For flares subject to Chapter 115, Subchapter H, relating to highly reactive volatile organic compounds, flow rate and composition data required by 30 TAC 115.725–26 should be used to determine emissions for any portions of 2009 that HRVOC monitors were installed and operational.

In the absence of monitoring data, selection of the most accurate method may sometimes require exercising scientific judgment. For example, when using the results of a one-time performance test, the test conditions should be compared to the flare's actual operating conditions during the inventory year to determine whether the test accurately represents the flare's performance. If test conditions do not accurately model flare operation, then engineering determinations based on detailed process evaluation may provide the best data.

NO_x and CO Emissions

To calculate NO_x and CO emissions, the net heating value of the flared gas must be known. Using the actual short-term flared gas composition and flow rate data for the inventory year, calculate the net heating value of the flared gas and the total heat release for each short time period. Use these total heat release data, in conjunction with the appropriate emission factors from TCEQ Air Permits guidance, to determine NO_x and CO emissions for each time segment. Since the calculated net heating value of the gas and the assist gas type will determine the appropriate emission factors, carefully select the correct factors for each flare from Table A-6.

Calculate emissions using the most accurate data for the gas flow rate and composition available. (See "Flared Gas Flow Rate and Composition" earlier in this supplement for more information on preferred data.)

Table A-6. TCEQ Air Permits Flare Emission Factors

Contaminant	Assist Type	Waste Gas Stream Net Heating Value[a,b]	Emission Factor
NO_x	Steam	High Btu	0.0485 lb/MMBtu
		Low Btu	0.068 lb/MMBtu
	Air or Unassisted	High Btu	0.138 lb/MMBtu
		Low Btu	0.0641 lb/MMBtu
CO	Steam	High Btu	0.3503 lb/MMBtu
		Low Btu	0.3465 lb/MMBtu
	Air or Unassisted	High Btu	0.2755 lb/MMBtu
		Low Btu	0.5496 lb/MMBtu

[a] High Btu: > 1000 Btu/scf

[b] Low Btu: 192–1000 Btu/scf

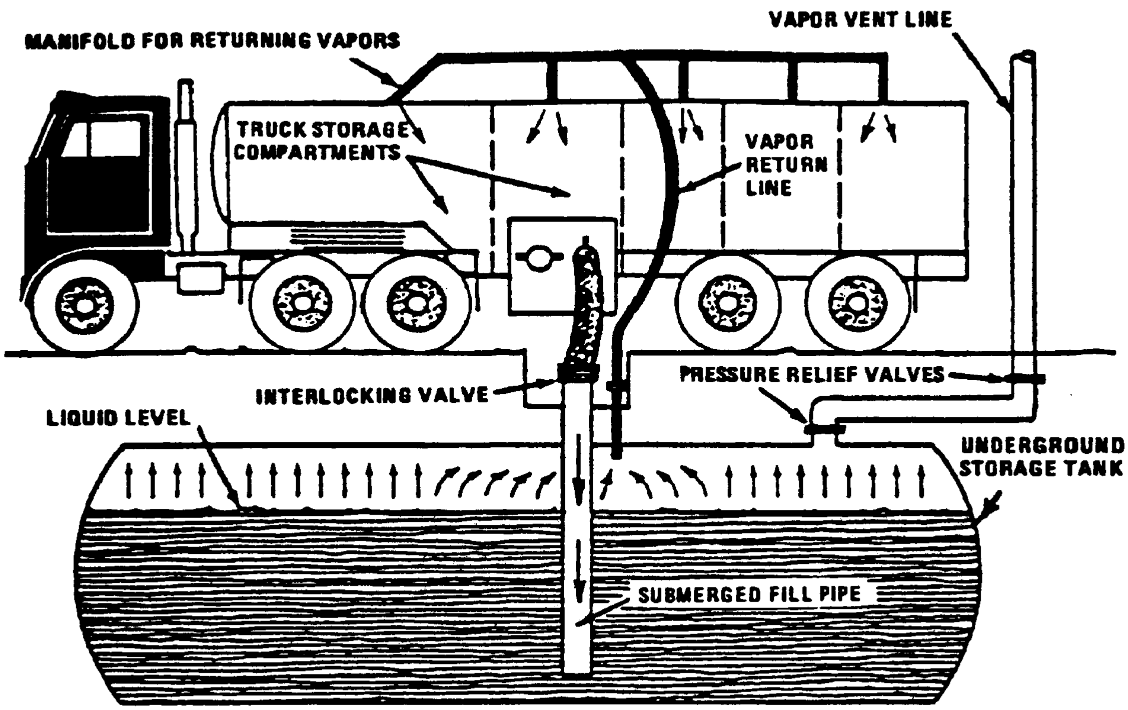


Figure 5.2-5. Tank truck unloading into a service station underground storage tank and practicing "vapor balance" form of emission control.

Table 5.2-1. SATURATION (S) FACTORS FOR CALCULATING PETROLEUM LIQUID LOADING LOSSES

Cargo Carrier	Mode Of Operation	S Factor
Tank trucks and rail tank cars	Submerged loading of a clean cargo tank	0.50
	Submerged loading: dedicated normal service	0.60
	Submerged loading: dedicated vapor balance service	1.00
	Splash loading of a clean cargo tank	1.45
	Splash loading: dedicated normal service	1.45
	Splash loading: dedicated vapor balance service	1.00
Marine vessels[a]	Submerged loading: ships	0.2
	Submerged loading: barges	0.5

[a] For products other than gasoline and crude oil. For marine loading of gasoline, use factors from Table 5.2-2. For marine loading of crude oil, use Equations 2 and 3 and Table 5.2-3.

The saturation factor, S, represents the expelled vapor's fractional approach to saturation, and it accounts for the variations observed in emission rates from the different unloading and loading methods. Table 5.2-1 lists suggested saturation factors.

Emissions from controlled loading operations can be calculated by multiplying the uncontrolled emission rate calculated in Equation 1 by an overall reduction efficiency term:

$$\left(1 - \frac{\mathrm{eff}}{100}\right)$$

The overall reduction efficiency should account for the capture efficiency of the collection system as well as both the control efficiency and any downtime of the control device. Measures to reduce loading emissions include selection of alternate loading methods and application of vapor recovery equipment. The latter captures organic vapors displaced during loading operations and recovers the vapors by the use of refrigeration, absorption, adsorption, and/or compression. The recovered product is piped back to storage. Vapors can also be controlled through combustion in a thermal oxidation unit, with no product recovery. Figure 5.2-6 demonstrates the recovery of gasoline vapors from tank trucks during loading operations at bulk terminals. Control efficiencies for the recovery units range from 90 to over 99 percent, depending on both the nature of the vapors and the type of control equipment used.[5-6] However, not all of the displaced vapors reach the control device, because of leakage from both the tank truck and collection system. The collection efficiency should be assumed to be 99.2 percent for tanker trucks passing the MACT-level annual leak test (not more than 1 inch water column pressure change in 5 minutes after pressurizing to 18 inches water followed by pulling a vacuum of 6 inches water).[7] A collection efficiency of 98.7 percent (a 1.3 percent leakage rate) should be assumed for trucks passing the NSPS-level annual test (3 inches pressure change) A collection efficiency of 70 percent should be assumed for trucks not passing one of these annual leak tests[6].

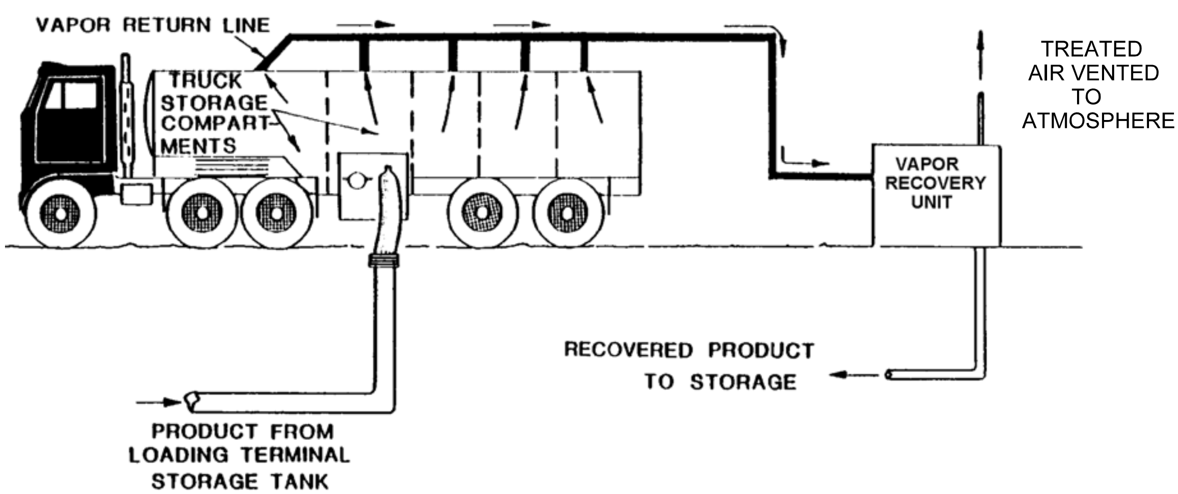


Figure 5.2-6. Tank truck loading with vapor recovery.

Sample Calculation -

Loading losses (L_L) from a gasoline tank truck in dedicated vapor balance service and practicing vapor recovery would be calculated as follows, using Equation 1:

Design basis -

Cargo tank volume is 8000 gal
Gasoline Reid vapor pressure (RVP) is 9 psia
Product temperature is 80°F
Vapor recovery efficiency is 95 percent
Vapor collection efficiency is 98.7 percent (NSPS-level annual leak test)

Loading loss equation -

$$L_L = 12.46 \frac{SPM}{T} \left(1 - \frac{eff}{100}\right)$$

where:

S = saturation factor (see Table 5.2-1) - 1.00
P = true vapor pressure of gasoline = 6.6 psia
M = molecular weight of gasoline vapors = 66
T = temperature of gasoline = 540°R
eff = overall reduction efficiency (95 percent control x 98.7 percent collection) = 94 percent

$$L_L = 12.46 \frac{(1.00)(6.6)(66)}{540} \left(1 - \frac{94}{100}\right)$$

$$= 0.60 \ \text{lb}/10^3 \text{gal}$$

Total loading losses are:

$$(0.60 \ \text{lb}/10^3 \ \text{gal})(8.0 \times 10^3 \ \text{gal}) = 4.8 \ \text{pounds (lb)}$$

Measurements of gasoline loading losses from ships and barges have led to the development of emission factors for these specific loading operations.[8] These factors are presented in Table 5.2-2 and should be used instead of Equation 1 for gasoline loading operations at marine terminals. Factors are expressed in units of milligrams per liter (mg/L) and pounds per 1000 gallons (lb/10^3 gal).

TABLE 1.4-2. EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM NATURAL GAS COMBUSTION[a]

Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
CO_2[b]	120,000	A
Lead	0.0005	D
N_2O (Uncontrolled)	2.2	E
N_2O (Controlled-low-NO_X burner)	0.64	E
PM (Total)[c]	7.6	D
PM (Condensable)[c]	5.7	D
PM (Filterable)[c]	1.9	B
SO_2[d]	0.6	A
TOC	11	B
Methane	2.3	B
VOC	5.5	C

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. To convert from $lb/10^6$ scf to 1b/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. TOC = Total Organic Compounds. VOC = Volatile Organic Compounds.

[b] Based on approximately 100% conversion of fuel carbon to CO_2. $CO_2[lb/10^6$ scf$]$ = (3.67) (CON) (C)(D), where CON = fractional conversion of fuel carbon to CO_2, C = carbon content of fuel by weight (0.76), and D = density of fuel, $4.2x10^4$ $lb/10^6$ scf.

[c] All PM (total, condensible, and filterable) is assumed to be less than 1.0 micrometer in diameter. Therefore, the PM emission factors presented here may be used to estimate PM_{10}, $PM_{2.5}$ or PM_1 emissions. Total PM is the sum of the filterable PM and condensible PM. Condensible PM is the particulate matter collected using EPA Method 202 (or equivalent). Filterable PM is the particulate matter collected on, or prior to, the filter of an EPA Method 5 (or equivalent) sampling train.

[d] Based on 100% conversion of fuel sulfur to SO_2.
Assumes sulfur content is natural gas of 2,000 grains/10^6 scf. The SO_2 emission factor in this table can be converted to other natural gas sulfur contents by multiplying the SO_2 emission factor by the ratio of the site-specific sulfur content (grains/10^6 scf) to 2,000 grains/10^6 scf.

TABLE 1.4-3. EMISSION FACTORS FOR SPECIATED ORGANIC COMPOUNDS FROM NATURAL GAS COMBUSTION[a]

CAS No.	Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
91-57-6	2-Methylnaphthalene[b, c]	2.4E-05	D
56-49-5	3-Methylchloranthrene[b, c]	<1.8E-06	E
	7,12-Dimethylbenz(a)anthracene[b,c]	<1.6E-05	E
83-32-9	Acenaphthene[b,c]	<1.8E-06	E
203-96-8	Acenaphthylene[b,c]	<1.8E-06	E
120-12-7	Anthracene[b,c]	<2.4E-06	E
56-55-3	Benz(a)anthracene[b,c]	<1.8E-06	E
71-43-2	Benzene[b]	2.1E-03	B
50-32-8	Benzo(a)pyrene[b,c]	<1.2E-06	E
205-99-2	Benzo(b)fluoranthene[b,c]	<1.8E-06	E
191-24-2	Benzo(g,h,i)perylene[b,c]	<1.2E-06	E
205-82-3	Benzo(k)fluoranthene[b,c]	<1.8E-06	E
106-97-8	Butane	2.1E+00	E
218-01-9	Chrysene[b,c]	<1.8E-06	E
53-70-3	Dibenzo(a,h)anthracene[b,c]	<1.2E-06	E
25321-22-6	Dichlorobenzene[b]	1.2E-03	E
74-84-0	Ethane	3.1E+00	E
206-44-0	Fluoranthene[b,c]	3.0E-06	E
86-73-7	Fluorene[b,c]	2.8E-06	E
50-00-0	Formaldehyde[b]	7.5E-02	B
110-54-3	Hexane[b]	1.8E+00	E
193-39-5	Indeno(1,2,3-cd)pyrene[b,c]	<1.8E-06	E
91-20-3	Naphthalene[b]	6.1E-04	E
109-66-0	Pentane	2.6E+00	E
85-01-8	Phenanathrene[b,c]	1.7E-05	D

TABLE 1.4-3. EMISSION FACTORS FOR SPECIATED ORGANIC COMPOUNDS FROM NATURAL GAS COMBUSTION (Continued)

CAS No.	Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
74-98-6	Propane	1.6E+00	E
129-00-0	Pyrene[b, c]	5.0E-06	E
108-88-3	Toluene[b]	3.4E-03	C

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. To convert from $1b/10^6$ scf to lb/MMBtu, divide by 1,020. Emission Factors preceeded with a less-than symbol are based on method detection limits.

[b] Hazardous Air Pollutant (HAP) as defined by Section 112(b) of the Clean Air Act.

[c] HAP because it is Polycyclic Organic Matter (POM). POM is a HAP as defined by Section 112(b) of the Clean Air Act.

[d] The sum of individual organic compounds may exceed the VOC and TOC emission factors due to differences in test methods and the availability of test data for each pollutant.

Section 7
Maps

Section 7

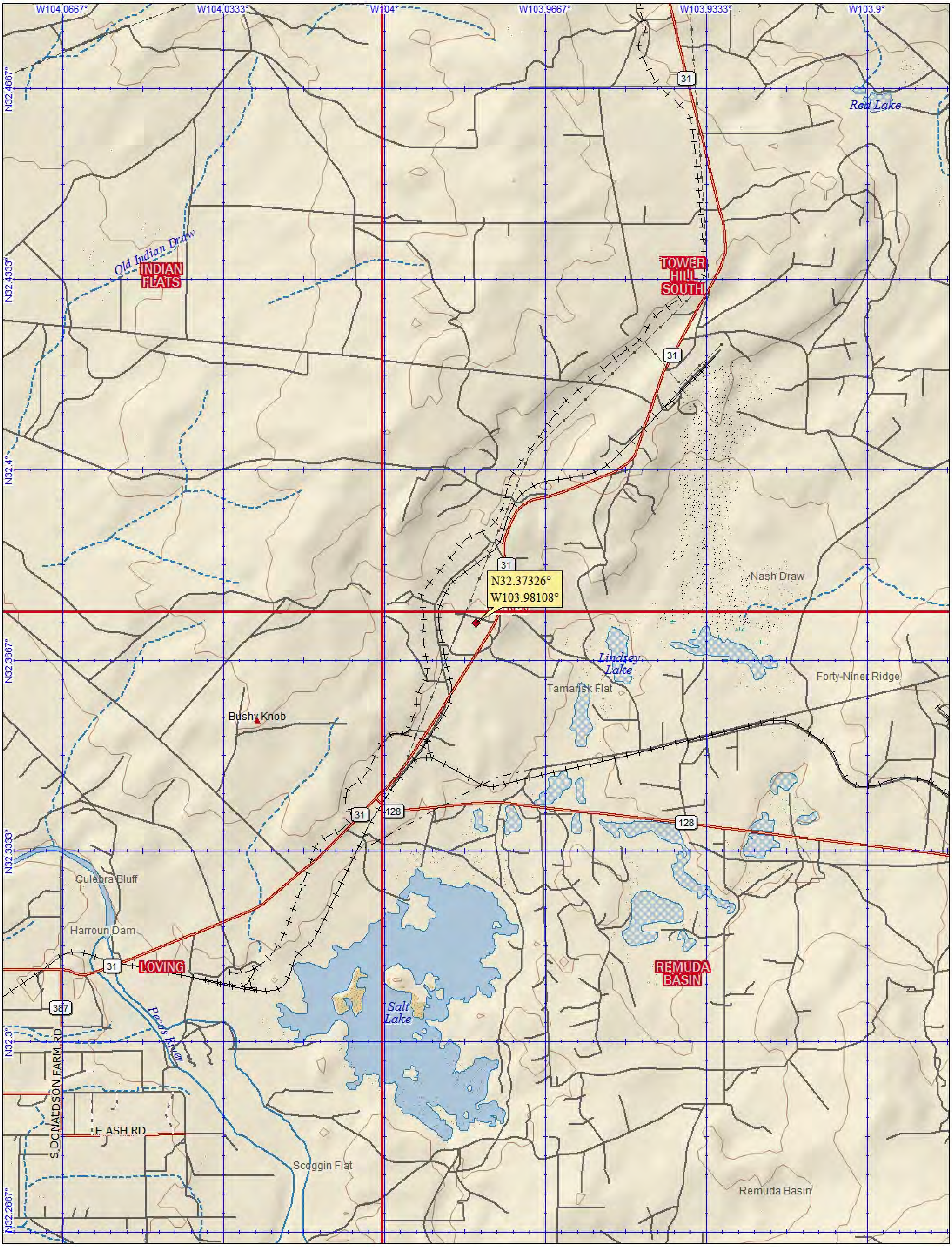
Map(s)

A map such as a 7.5 minute topographic quadrangle showing the exact location of the source. The map shall also include the following:

The UTM or Longitudinal coordinate system on both axes	An indicator showing which direction is north
A minimum radius around the plant of 0.8km (0.5 miles)	Access and haul roads
Topographic features of the area	Facility property boundaries
The name of the map	A graphical scale

A site location map and an aerial illustrating access roads and a 0.5 mile boundary are attached.

DeLorme Topo USA® 7.0



MN (7.5° E)

0 ½ 1 1½ 2 2½ mi

Data Zoom 11-0


Big Eddy Unit DI 38
Aerial with 0.5 Mile Boundary and Access Roads
Legend
BEU DI 38
BEU DI 38
31
Google Earth
Image Landsat / Copernicus
0431
N
1 mi

Section 8
Applicable State and Federal Regulations

Section 8A

Applicable State & Federal Regulations

Provide a discussion demonstrating compliance with each applicable state & federal regulation. All input cells should be filled in, even if the response is 'No' or 'N/A'.

In the "Justification" column, identify the criteria that are critical to the applicability determination, numbering each. For each unit listed in the "Applies to Unit No(s)" column, after each listed unit, include the lowest level citation of the applicable regulation. For each unit, list the information necessary to verify the applicability of the regulation, including date of manufacture, date of construction, size (hp), and combustion type. Doing so will provide the applicability criteria for each unit.

STATE REGU-LATIONS CITATION	Title	Federally Enforceable	Overview of Regulation	Unit(s) or Facility	Applies? (Yes or No)	JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m^3, 3. VOL)
20.2.1 NMAC	General Provisions	Yes	General Provisions apply to Notice of Intent, Construction, and Title V permit applications.	Facility	Yes	This applies to all sites.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	20.2.3 NMAC is a State Implementation Plan (SIP) approved regulation that limits the maximum allowable concentration of Sulfur Compounds, Carbon Monoxide, and Nitrogen Dioxide.	Facility	Yes	This applies to all sites.
20.2.7 NMAC	Excess Emissions	Yes	If your entire facility or individual pieces of equipment are subject to emissions limits in a permit or numerical emissions standards in a federal or state regulation, this applies.	Facility	Yes	This applies to all sites.
20.2.38 NMAC	Hydrocarbon Storage Facility	No	Use the regulation link (left) then cut & paste applicable sections.	OT1-OT3	Yes	The site is subject to 20.2.38.109 since the capacity is > 20,000 gallons. Liquids are pumped into the tanks below liquid level and a VRU/flare vent system is used to control tank emissions.
20.2.61.109 NMAC	Smoke & Visible Emissions	No	Engines and heaters are Stationary Combustion Equipment. Specify units subject to this regulation.	HPF, LPF, HT1-HT2	Yes	These units are fuel burning equipment.
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	NOI: 20.2.73.200 NMAC applies to all facilities emitting over 10 TPY of any regulated air contaminate. Thus, permitted facilities are also subject to this rule. This GCP-O&G registration also serves the purpose of meeting 20.2.73 the NMAC notification requirements.) Emissions Inventory: 20.2.73.300.A(1) NMAC applies to facilities registering under the GCP. Emission Inventory reporting is required upon request by the department per 20.2.73.300.B(4) NMAC.	Facility	Yes	Under 20.2.73.300.B(4) NMAC, the NMED is requesting emissions inventory reporting from minor sources for **calendar year 2020**.

STATE REGU-LATIONS CITATION	**Title**	**Federally Enforceable**	**Overview of Regulation**	**Unit(s) or Facility**	**Applies? (Yes or No)**	**JUSTIFICATION:** Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m^3, 3. VOL)
20.2.77 NMAC	New Source Performance	Yes	This is a stationary source which is subject to the requirements of 40 CFR Part 60, as amended on the date of certification.	FUG	Yes	See discussion in Federal regulations.
20.2.78 NMAC	Emission Standards for HAPS	Yes	This facility emits hazardous air pollutants which are subject to the requirements of 40 CFR Part 61, as amended on the date of certification.	N/A	No	The facility does not fit into any of the source categories.
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 63, as amended on the date of certification.	N/A	No	The facility does not fit into any of the source categories.

FEDERAL REGU-LATIONS CITATION	**Title**	**Overview of Regulation**	**Units(s) or Facility**	**Applies? (Yes or No)**	**JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m3, 3. VOL)**
40 CFR 50	NAAQS	Defined as applicable at 20.2.70.7.E.11, Any national ambient air quality standard	Facility	Yes	Compliance with the requirements of the GCP indicates compliance with NAAQS.
40 CFR 60, Subpart A	General Provisions	Applies if any other NSPS subpart applies.	FUG	Yes	See discussion below.
40 CFR 60, Subpart OOOO	Crude Oil and Natural Gas Production, Transmission and Distribution After August 23, 2011, and on or before September 18, 2015		N/A	No	This facility will be constructed after the applicability date of NSPS OOOO. See NSPS OOOOa.
40 CFR 60, Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015	If there is a standard or other requirement, then the facility is an "affected facility." Currently there are standards for: gas wells (60.5375a); centrifugal compressors (60.5380a); reciprocating compressors (60.5385a): controllers (60.5390a); storage vessels (60.5395a); fugitive emissions at well sites and compressor stations (60.5397a); equipment leaks at gas plants (60.5400a); sweetening units (60.5405a).	FUG	Yes	The oil and water storage tanks were constructed after the applicability date of the rule; however emissions are limited by permit to less than 6 tpy. The tanks are exempt per 60.5365a(e) The site does not use high bleed pneumatic controllers. Since the compressors on the VRU are servicing the well, they are exempt per 60.5365a(c)). Fugitive leaks will be subject to NSPS OOOOa per 60.5365a(i).
40 CFR 60, Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	See 40 CFR 60.4200(a) 1 through 4 to determine applicable category and state engine size, fuel type, and date of manufacture.	N/A	No	The facility does not operate any affected sources.
40 CFR 60, Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	See 40 CFR 60.4230(a), 1 through 5 to determine applicable category and state engine size, fuel type, and date of manufacture.	N/A	No	The facility does not operate any affected sources.

FEDERAL REGULATIONS CITATION	**Title**	**Overview of Regulation**	**Units(s) or Facility**	**Applies? (Yes or No)**	**JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m3, 3. VOL)**
40 CFR 63, Subpart A	General Provisions	Applies if any other subpart applies.	N/A	No	The facility does not operate any affected sources.
40 CFR 63, Subpart HH	NESHAP for Glycol Dehydrators	See 40 CFR 63, Subpart HH	N/A	No	The facility does not operate any affected sources.
40 CFR 63, Subpart ZZZZ	NESHAP for Stationary Reciprocating Internal Combustion Engines (**RICE MACT**)	Facilities are subject to this subpart if they own or operate a stationary RICE, except if the stationary RICE is being tested at a stationary RICE test cell/stand.	N/A	No	The facility does not operate any affected sources.

Section 8B
Compliance Test History

To evaluate the requirement for compliance tests, you must submit a compliance test history. The table below provides an example.

Since this is a proposed facility, no testing has been conducted.

Section 9
Proof of Public Notice

Section 9 Proof of Public Notice

General Posting of Notice

BGD D138

I, Brayden Hamlin, the undersigned, certify that on ____________ (DATE), I posted a true and correct copy of the attached Public Notice in a publicly accessible and conspicuous place, visible from the nearest public road, at the entrance of the property on which the facility is, or is proposed to be, located.

Signed this 23rd day of January, 2020.

Signature

1-23-2020
Date

Brayden Hamlin
Printed Name

Safety Environmental
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

Newspaper Publication of Notice

☐ An original or copy of the actual newspaper advertisement posted in a newspaper in general circulation in the applicable county is attached. The original or copy of the advertisement includes the header showing the date and newspaper or publication title.

OR

☒ An affidavit from the newspaper or publication in general circulation in the applicable county stating that the advertisement was published is attached. The affidavit includes the date of the advertisement's publication, and a legible photocopy of the entire ad.

Evan Tullos
Signature

2/18/20
Date

Evan Tullos - Vice President - Consultant for XTO Energy
Printed Name
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}


NOTICE

Religion

For whoever needs to hear this: Luke 12:32

Pastor's Corner

By Ty Houghtaling

I don't know exactly who needs to hear this. But, for those of you who do, this is for you.

Fear has no place in the Christ follower's world. Fear only brings discouragement, failure and anxiety.

I am talking about the kind of fear that paralyzes one from acting in good faith. I have often struggled to make some hard decisions or say some honest things to people out of fear. I don't want them to think I am self-righteous, or judgmental, or overly critical. I worry about their perception of me, and I lack the faith to actually step in when someone I know needs a compassionate hand and the truth of God's sovereignty.

As some of you know, this world is a broken place. Politicians lie and cheat to secure power. Nations war with each other over issues of race and religion. They don't just work through their differences with love and understanding, they kill each other and murder innocent bystanders. Sicknesses take the lives of our most precious, delicate little ones. The elderly are cheated and defrauded by scam artists who prey on the trust of senior adults.

This world is broken.

Marriages fail because men and women selfishly pursue relationships outside their covenant agreements. Children are abused by adults who have never discovered the hope found in a loving Heavenly Father. When there is no hope for ever finding anything but brokenness, people will surrender themselves over to their sin nature.

Let's be honest – we become self-absorbed, self-centered and self-destructive. We will let worry and fear consume us. We become callous to the needs of others. We spend gross amounts of time focusing on all the things we don't have while neglecting and destroying the things we do have. We want but we do not have, we fight but we ultimately lose because we don't fight the good fight.

Yet God, in His wisdom, still calls to us and speaks softly to our hearts. He invites us to call upon Him for all our needs. He calls us to trust Him, to have faith in Him, to join Him in the only effort that will touch eternity. He calls you and me.

You might be pretty special, but I am not. Yet, He calls me to join Him. And when I do join Him, I find great satisfaction. My eyes lift up. My heart finds peace. I experience real joy, not circumstantial happiness. When I join God, fear is driven from me.

In the Gospel of Luke, Jesus tells the listening crowds, "Do not be afraid, little flock, for your Father has been pleased to give you the kingdom" (Luke 12:32 NIV). I am so blessed by that promise. I know that no matter what happens in this broken world, I have been given the Kingdom of God. That makes me a little less worried and a whole lot more excited about what God is going to do through me and my church.

I don't know who needed to hear this; but listen, God loves you and His love drives out fear.

(EDITOR'S NOTE: Ty Houghtaling is the lead pastor at First Baptist Church. Contact him at ty@fbcartesia.org.)

Does your church have an upcoming event the public should know about? Email editor@artesianews.com

No retirement from serving God

Pastor's Corner

By Rick Smith

Years ago when I was working with Marvin Clack, BMA of Texas missionary, starting a church mission on Cedar Creek Lake in Gun Barrel City, Texas, we went to visit a family that had moved into the area that our mission church was located.

We were told about this family by their former pastor from the community they had left to move to the Cedar Creek Lake area. We had a real cordial visit until we began talking about them coming to help in the work at the mission. At that point the husband said, "Brother Clack, we were real active in the church we left, but we have retired and we aren't going get involved like that again."

I thought as we left, "Who told them that they could retire from serving God?" In the book of Joshua we have a man that may have had a reason to retire. He was eighty-five years old and had served God for more than forty-five years. Yet, he was not ready for retirement. His name was Caleb, and you will find his story in Joshua chapter fourteen (14:6-15).

Those that don't retire from serving God remember all the experiences of faith they have had in the past. Like Caleb they remember how faithfully they served God (Joshua 14:7-8). If you have not been serving the Lord in the past, your not retiring. You are just continuing your rebellion into your old age. But if you have been serving the Lord then you know what I mean.

You remember both your victories and defeats in serving the Lord. You remember all that you learned and experienced. They also remember God's promises (v. 9). They know the Lord keeps His promises and they look forward to receiving all that God has for them. The they remember God's blessings, both past and present, (v. 10). They have learned through experience that God can and will use them if they will only submit to obey Him. Don't just look back and remember when. What you did in the past you can do now. Put yourself in the path of faithful obedience and expect God to use you.

Unlike Caleb, your physical strength may have declined, but you now have more spiritual strength than when you started (v. 11). Within the physical limitations that you have there are things that you can do that younger believers don't have the experience to do. You know more scripture than they do. In fact, you know more scripture than you obey. Give your physical weaknesses to God and He will make you strong.

The Lord told Paul, "My grace is sufficient for thee: for my strength is made perfect in weakness (2 Corinthians 12:9)." God can use your weakness as an opening to share the gospel with those that are trying to help you. You can be a witness to the doctors and nurses that minister to you physical infirmities. God can use your weaknesses to bring others to Christ. Don't retire. Instead let God use you until He calls you home.

Like Caleb you need to ask for a mountain and get into the battle (v. 12). Don't sit around letting George, whoever George is, do it. Jesus said, "Follow Me...". He didn't say follow me until 60 or 70 or 85. Pick up your sword and fight until the battle is won or they carry you off the field dead on your shield. Paul said, "I have fought the good fight, I have finished the race, I have kept the faith (2 Timothy 4:7)." This is not the time to quit and retire, but to finish well for the Lord. "...who knoweth whether thou art come to the kingdom for such a time as this? (Esther 4:14)." God may have reserved you just for this time in your life for greater service. Gratefully and willingly call on God to use you for great things at this time in your life.

Don't make excuses. Give your life to be used by the Lord until the Father calls you home. As He has used you in the past, the Lord wants to use you now and in the future. Ask for the mountain and the Lord will give you the strength to win it. What is the mountain that God wants you to claim? Pray, trust God, and fight for it.

If you have any questions, we invite you to visit with us this Sunday. Bible study is at 9:45 a.m. and worship at 10:50 a.m. We are located at 711 W. Washington Ave. Visit online at www.facebook.com/calvarymissionarybaptistartesia.

(EDITOR'S NOTE: Rick Smith is the pastor at Calvary Missionary Baptist Church.)

Legal Notice

NOTICE

XTO Energy Inc. announces its intent to apply to the New Mexico Environment Department for an air quality General Construction Permit, (GCP-Oil and Gas) for the facilities listed below. The expected date of the submittal of our Registration for an air quality permit to the Air Quality Bureau is January 23, 2020. This notice is a requirement according to New Mexico air quality regulations. The names, county, exact initial location, direction and approximate mileage of nearby city for the facilities are listed below. The standard operating schedule of this facility will be continuous.

Facility	UTM Zone	UTM Easting	UTM Northing	County	Direction	Miles	City
Poker Lake Unit 17 Twin Wells Ranch West Tank Battery	13	612707	3563902	Eddy	E	16	Malaga
Poker Lake Unit 30 Big Sinks West Tank Battery	13	611218	3552581	Eddy	SE	17	Malaga
Big Eddy Unit DI 5 Tank Battery	13	607478	3601404	Eddy	NE	23	Carlsbad
Big Eddy Unit DI 38 Tank Battery	13	595853	3582266	Eddy	NE	9	Loving
Corral Canyon 23 Tank Battery	13	598284	3553224	Eddy	SE	10	Malaga
James Ranch Unit DI 7 Tank Battery	13	611463	3578497	Eddy	E	17	Loving
Poker Lake Unit Big Sinks 2-25-30 Tank Battery	13	608494	3558022	Eddy	SE	14	Malaga
Poker Lake Unit 423 Tank Battery	13	602371	3553461	Eddy	SE	12	Malaga
Poker Lake Unit 26 Brushy Draw West Tank Battery	13	607857	3552568	Eddy	SE	15	Malaga
Ross Draw 25 Central Tank Battery	13	599903	3543069	Eddy	S	16	Malaga

Air emissions of any regulated air contaminant will be less than or equal to:

		Tons per year (TPY)
1.	Nitrogen Oxides (NOx)	95
2.	Carbon Monoxide (CO)	95
3.	Volatile Organic Compounds (VOC) (stack)	95
4.	Particulate Matter (PM10)	25
5.	Particulate Matter (PM2.5)	25
6.	Sulfur Dioxide (SO2)	95
7.	Hydrogen Sulfide (H2S)	25
8.	Any one (1) Hazardous Air Pollutant (HAP)	<10
9.	Sum of all Hazardous Air Pollutants (HAPs)	< 25

The owner and/or operator of the Plant is:
XTO Energy Inc.; 22777 Springwoods Village Pkwy, W4.6B.344; Spring, TX 77389

If you have any questions or comments about construction or operation of above facility, and want your comments to be made as a part of the permit review process, you must submit your comments in writing to the address below:

New Mexico Environment Department
Air Quality Bureau Permit Section
525 Camino de los Marquez, Suite 1
Santa Fe, New Mexico, 87505
Phone (505) 476-4300
Fax (505) 476-4375

Other comments and questions may be submitted verbally.

Please refer to the company name and site name, as used in this notice or send a copy of this notice along with your comments, since the Department may not have received the permit Registration at the time of this notice.

Atención

Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-476-5557.

Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kristine Yurdin, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

Published in the Artesia Daily Press, Artesia, N.M., Jan. 23, 2020 Legal No. 25362.

0440

Section 10
Certification

Section 10
Certification

Company Name: PEI on behalf of XTO Energy Inc.

I, Evan Tullos, hereby certify that the information and data submitted in this Registration are true and as accurate as possible, to the best of my knowledge and professional expertise and experience.

Signed this 21st day of February, 2020, upon my oath or affirmation, before a notary of the State of Illinois.

Evan Tullos

*Signature

2/21/20

Date

Evan Tullos

Printed Name

Vice President

Title

Scribed and sworn before me on this 21st day of February, 2020.

My authorization as a notary of the State of Illinois expires on the 2nd day of August, 2020.

Notary's Signature

2/21/2020

Date

Mark Reed

Notary's Printed Name

MARK L. REED
OFFICIAL SEAL
Notary Public, State of Illinois
My Commission Expires
August 02, 2020

MergeMaster

Facility Name: XTO-Big Eddy Unit D1 38

Datum:	WGS84	UTM east (meters)	595879 m	Elevation:	3950 ft
Lattitude	32.37218	UTM north (meters)	3582147 m		1203.96 m
Longitude	-103.98081 degrees	Zone 13			

PSD Major source

Record created on: 1/8/2020

By: Save?

Surroundings | Application Info. | Calculator | Sources | Groups | Concentrations | Buildings | Receptors | View Map | Elevations

Retrieve surrounding sources | Evaluate Location Information | Print Location Information | Determine Bowen Ratio, albedo, and roughness

Last Neighboring Sources Update: 12/4/2019

Location Information

Heading	Distance (miles)	Distance (km)	Direction (The facility is...	Site	Company	AI ID	Emissions (T/yr)	Pollutant
City (First closest).	9.00	14.49	northeast of	Loving		0	0	
City (Second closest).	11.59	18.65	north-northeast of	Malaga		0	0	
Class I area (First closest).	26.11	42.02	east-northeast of	Carlsbad Caverns National Park		0	0	
Class I area (Fourth closest).	122.54	197.22	southeast of	White Mountain Wilderness Area		0	0	
Class I area (Second closest).	51.41	82.73	east-northeast of	Guadalupe Mountains National Park		0	0	
Class I area (Third closest).	85.42	137.47	south-southeast of	Salt Creek		0	0	
CO monitor (First closest).	150.96	242.95	east-northeast of	800 S San Marcial Street, El Paso, TX	481410044	0	0	CO
CO monitor (Second closest).	239.13	384.85	southeast of	201 PROSPERITY SE	350010029	0	0	CO
Facility emitting over 25 tons/year (first closest)	2.23	3.58	east of	XTO - Horned Frog Compressor	XTO Energy Inc	38803	159.81	NO2

Record: 1 of 25 No Filter Search


32.37218,-103.98081
Ruler
Line
Path
Polygon
Circle
3D path
3D polygon
Measure the circumference or area of a circle on the ground
Radius: 150.64 Meters
Area: 71,559.76 Square Meters
Circumference: 948.29 Meters
Mouse Navigation
Save
Clear
1997
Google Earth
Imagery Date: 12/21/2019 32°22'26.00" N 103°59'04.19" W elev 3083 ft eye alt 4827 ft

GCP Oil & Gas Stack Calculator

Program version: November 25, 2019

NOX Total emission rate: 1.12

Group 2 NOX emission rate:

SO2 total emission rate: 0

Equivalent Diameter (for facility): 1.414214

Set flare NOX emission rate to 0. Set SO2 emission rate to 0 for all equipment but flares and ECD's.

Calculate | Clear Facility | Export Facility | Import Facility

Equipment

ID	Equipment Name	Equipment Type	NOX Rate (lb/hr)	SO2 Rate (lb/hr)		Height (ft)	Diameter (ft)	Velocity (ft/s)	Temperature (deg. F)	Group	Comments
1	HTR-1	Heater	0.56	0	Actual	20	1	34.3	1000	3	Small heater, no minimum stack parameters.
					Minimum	0	0	0	0		
2	HTR-2	Heater	0.56	0	Actual	20	1	34.3	1000	3	Small heater, no minimum stack parameters.
					Minimum	0	0	0	0		
3	HPF	Flare	0	0	Actual	145	0	0	0	1	
					Minimum	6.6	0	0	0		
4	LPF	Flare	0	0	Actual	40	0	0	0	1	
					Minimum	6.6	0	0	0		
			0	0	Actual	0	0	0	0	0	
					Minimum	0	0	0	0		

March 11, 2020

BY ELECTRONIC MAIL

Olivia Yiu, Asheley Coriz,
Marvin Mascarenas, Joseph Kimbrell,
Joseph Mashburn, Arianna Espinoza,
Kathleen Primm, Vanessa Springer
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Re: Comments on Applications for General Construction Permits for Oil and Gas Facilities, Concerns Over Approval of General Permits in Southeast New Mexico

Dear New Mexico Air Quality Bureau Contacts:

WildEarth Guardians submits the following comments in response to several applications for general construction permits for oil and gas facilities in southeast New Mexico for which you have been identified as New Mexico Environment Department ("NMED") contacts.

In light of ongoing violations of the 8-hour ozone national ambient air quality standards ("NAAQS") in Eddy and Lea Counties, the New Mexico Environment Department ("NMED") is no longer permitted to allow oil and gas companies to obtain general permits for their operations. In light of this, NMED must reject the following registrations for general construction permits and must immediately halt the issuance of any further general construction permits for oil and gas facilities in Eddy and Lea Counties.

Our comments are specific to the following applications for general construction permits submitted for oil and gas facilities located in Eddy or Lea Counties:

Company	Facility(ies)	NSR Permit No.	Date Application Received
DCP Operating Company LP	West Turkey Track Compressor Station	2098M5	March 4, 2020
DCP Operating Company LP	Jackson Booster Station	2041M6	March 4, 2020
XTO Energy Inc.	James Ranch Unit DI 7	8746	March 4, 2020
OXY USA Inc.	NC Sand Dunes Compressor Station	8744	March 3, 2020
EOG Resources Inc.	Viper Localized Gas Lift Station	8739	March 2, 2020
EOG Resources Inc.	Date 14 CTB	8738	March 2, 2020
Lucid Energy Delaware LLC	Greyhound Compressor Station	8084M2	March 2, 2020
Matador Production Co.	Dr. Scrivner Facility	7825M3	March 2, 2020
ConocoPhillips Co.	Zeppo 5 Fed Com 25H Battery	8737	March 2, 2020
Ameredev II LLC	Pine Straw CTB	8217M2	February 27, 2020
Devon Production Co.	Blue Krait 23 CTB 2	8734	February 27, 2020
Kaiser-Francis Oil Co.	South Bell Lake Pad 11	7132M3	February 27, 2020
Kaiser-Francis Oil Co.	North Bell Lake Pad 0	8149M1	February 27, 2020
Spur Energy Partners LLC	Dorami 2H, 4H and 9H Federal Oil Tank Battery	8733	February 27, 2020
XTO Energy Inc.	Big Eddy Unit DI 38	8730	February 26, 2020
XTO Energy Inc.	Corral Canyon 23	8729	February 26, 2020

At issue is the fact that ozone monitors in southeast New Mexico are currently violating the ozone NAAQS. At this point, all three ozone monitors in both Eddy and Lea Counties are in nonattainment, with 2017-2019 design values all above the 2015 NAAQS of 0.070 parts per million. What's more, these monitoring sites have recorded regular exceedances of the 2015 8-hour ozone NAAQS since 2015. The tables below show the annual first, second, third, and fourth maximum 8-hour ozone readings at the three monitors in Lea and Eddy Counties between 2015 and 2019.

Hobbs, NM 8-Hour Ozone Readings (in ppm), 2015-2019

	2015	2016	2017	2018	2019
1st Max.	0.070	0.069	0.080	0.083	0.082
2nd Max.	0.069	0.066	0.074	0.078	0.075
3rd Max.	0.069	0.065	0.072	0.077	0.073
4th Max.	0.067	0.065	0.069	0.076	0.070
Number of Days Above NAAQS	0	0	3	6	3

Carlsbad, NM 8-Hour Ozone Readings (in ppm), 2015-2019

	2015	2016	2017	2018	2019
1st Max.	0.069	0.065	0.082	0.096	0.095
2nd Max.	0.068	0.064	0.078	0.095	0.092
3rd Max.	0.067	0.064	0.077	0.091	0.084
4th Max.	0.067	0.063	0.076	0.083	0.080
Number of Days Above NAAQS	0	0	10	18	19

Carlsbad Caverns National Park 8-Hour Ozone Readings, 2015-2019

	2015	2016	2017	2018	2019
1st Max.	0.068	0.070	0.069	0.099	0.082
2nd Max.	0.068	0.069	0.065	0.081	0.080
3rd Max.	0.065	0.069	0.065	0.080	0.078
4th Max.	0.065	0.069	0.065	0.080	0.074
Number of Days Above NAAQS	0	0	0	10	6

A violation of the 8-hour ozone NAAQS is triggered when the three-year average of the annual fourth highest daily reading exceeds the NAAQS. *See* 40 C.F.R. § 50.19(b). This three-year average value is commonly referred to as the "design value." Based on this monitoring data, all three ozone monitors are in violation of the NAAQS, with the design value at the Carlsbad monitor even violating the ozone NAAQS adopted in 2008, which limited 8-hour concentrations to no more than 0.075 parts per million. The table below shows that the design values at the Lea and Eddy County monitors have increased over the last five years and that currently, all three monitors are violating the ozone NAAQS.

8-Hour Ozone Design Values for Lea and Eddy County, New Mexico Monitoring Sites

Monitor	Monitor ID	2015-2017 Design Value	2016-2018 Design Value	2017-2019 Design Value
Hobbs	350250008	0.067	0.070	0.071
Carlsbad	350151005	0.068	0.074	0.079
Carlsbad Caverns	350150010	0.066	0.071	0.073

Under NMED's regulations, a general construction permit cannot be approved if it would "cause or contribute to air contaminant levels in excess of any national or New Mexico ambient air quality standard." 20.2.72.220(A)(2)(c) NMAC. To this end, a source may only register for an oil and gas general construction permit if it can demonstrate compliance with the NAAQS. Indeed, the registration forms for general construction permits for oil and gas facilities requires operators to demonstrate compliance with the NAAQS. Furthermore, NMED

can only approve a general construction permit if it determines that “all facilities registered [] will not cause or contribute to air contaminant levels in excess of any national [] ambient air quality standard.” *See e.g.* NMED, “Air Quality Bureau General Construction Permit for Oil and Gas Facilities, GCP-Oil and Gas” at Condition B100.

In light of current ozone levels in Eddy and Lea Counties, there is no possible way for NMED or sources to conclude that construction and operation of new oil and gas facilities would not cause or contribute to violations of the ozone NAAQS. Every general construction permit registration would authorize increases in nitrogen oxides (“NOx”) and volatile organic compounds (“VOCs”)—both gases that react with sunlight to form ozone. The general construction permit applications for each facility listed above anticipate increases of up to 95 tons/year for both VOCs and NOx for each source. This means that every source seeking general construction permits will cause or contribute to ozone violations in Eddy and Lea Counties by increasing overall ozone-forming pollution in the region at a time when ozone levels are in violation of the NAAQS.

Given this, there is currently no legal justification for oil and gas sources to qualify for registration for general permits in Eddy and Lea Counties. Accordingly, NMED cannot approve the aforementioned applications for general construction permits, as well as any additional general construction permits, unless and until the ozone NAAQS are attained in Eddy and Lea Counties.

If NMED continues to approve general construction permits for oil and gas facilities in southeast New Mexico, then it will indicate the state implementation plan (“SIP”) is inadequate to attain and maintain compliance with the NAAQS and will jeopardize the state’s ability to continue implementing its air quality regulatory program under the Clean Air Act.

Thank you for the opportunity to provide these comments.

Sincerely,

Jeremy Nichols
Climate and Energy Program Director
WildEarth Guardians
(303) 437-7663
jnichols@wildearthguardians.org

New Mexico
Environment Department

525 Camino de los Marquez, Suite 1
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GOVERNOR

HOWIE C. MORALES
LT. GOVERNOR

JAMES C. KENNEY
CABINET SECRETARY

JENNIFER J. PRUETT
DEPUTY SECRETARY

March 27, 2020

Return Receipt Requested

Raymond Tole
Engineer
XTO Energy Inc
22777 Springwood Village Parkway
W4.6B.344
Spring, TX 77389

Air Quality General Permit GCP-O&G 8730
Agency Interest No. 39443 - PRN20200001
Big Eddy Unit DI 38
AIRS No. 350152321

Dear Mr. Tole:

This letter is in response to your air quality General Construction Permit - Oil & Gas (GCP-O&G) application dated February 24, 2020 for an oil and gas facility in New Mexico. The application was received by the Department on February 26, 2020.

A review has been completed and the information provided is sufficient to issue your permit in accordance with 20.2.72.220 NMAC and the GCP-O&G conditions. Construction or modification may commence 9 mi NE of Loving in Eddy County at latitude and longitude decimal degrees: 32.37218, -103.98081, as represented in the application.

Attached is a copy of your permit registration and the GCP-O&G Permit. The GCP-O&G Permit includes the terms and conditions for operation as well as emission and compliance requirements.

Pursuant to 20.2.75.11 NMAC, the Department will assess an annual fee for this facility. This regulation set the fee amount at $1,500 through 2004 and requires it to be adjusted annually for the Consumer Price Index on January 1. The current fee amount is available by contacting the Department or can be found on the Department's website. The AQB will invoice the permittee for the annual fee amount at the beginning of each calendar year. This fee does not apply to sources which are assessed an annual fee in accordance with 20.2.71 NMAC. For sources that satisfy the definition of "small business" in subsection F of 20.2.75.7 NMAC, this annual fee will be divided by two.

All fees shall be remitted in the form of a corporate check, certified check, or money order made payable to the "NM Environment Department, AQB" mailed to the address shown on the invoice and shall be accompanied by the remittance slip attached to the invoice. If there is no invoice included, there is no fee balance due at this time.

If you have any questions, please contact me in Santa Fe at 505-476-4367**.**

Sincerely,

Arianna Espinoza Digitally signed by Arianna Espinoza Date: 2020.03.27 08:57:22 -06'00'

Arianna Espinoza
Air Permit Specialist
Permits Section
Air Quality Bureau

cc via email: Evan Tullos, PEI, etullos@pei-tx.com

Enclosure: Instructions to access the Industry/Consultant Feedback Questionnaire online.

Minor Source Emission Inventory in 2020

P.S. The NM Environment Department – Air Quality Bureau (Bureau) will conduct a Minor Source Emissions Inventory (per 20.2.73.300 NMAC) for calendar year 2020. This inventory will apply to all sources with air quality construction permits (20.2.72 NMAC), including General Construction Permits (GCPs). It will also apply to Notices of Intent (NOIs) sources (20.2.73 NMAC). Facility-wide emissions during the calendar year 2020 must be calculated and reported to the Bureau during the period of January 1 through April 1, 2021, using the online reporting tool specified by the Bureau.

We encourage you to sign up for the Minor Source Emissions Inventory bulletins at: https://public.govdelivery.com/accounts/NMED/subscriber/new to receive updates and guidance on the implementation of this requirement.

New Mexico
ENVIRONMENT DEPARTMENT

525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505-1816
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CABINET SECRETARY

JENNIFER J. PRUETT
DEPUTY SECRETARY

Statement of Basis/Data Base Summary
GCP- Oil & Gas (O&G) Permit

Size
SM>80

Permit Writer:	Arianna Espinoza
GCP No.	8730
Agency Interest No.	39443 - PRN20200001
AIRS ID No.	350152321
SIC Code:	1311: Crude petroleum and natural gas
Facility Type:	O&G-Tank Battery/Bulk Fuel Storage
Company:	XTO Energy Inc
Facility:	XTO- Big Eddy Unit DI 38
Type of Permit Action:	GCP - Oil and Gas
Registration Date:	February 24, 2020
Receive Date:	February 26, 2020
Co. Pub Notice Date/Paper:	January 23, 2020/The Artesia Daily Press
Public Hearing:	NA
Permit Due:	March 27, 2020
Permit Issued:	March 27, 2020
Facility Location:	Drive E on GR Howard Rd. for 1.6 miles to a L on Hwy 387. Drive 1.5 mi. to R on NM 31. Drive 7.1 mi. to L on lease road. Site is on L in 0.2 mi.
UTM Zone:	13
UTM Easting:	595850 meters
UTM Northing:	3582270 meters
Elevation:	3076 ft feet
County:	Eddy
Contact Name:	Raymond Tole **Phone:** 832-624-4426 **Email:** raymond_tole@xtoenergy.com
Contact Address: W4.6B.344	22777 Springwoods Village Parkway

Spring, TX 77389

Consultant Name: PEI
Phone: 865-850-2007
Email: etullos@pei-tx.com

Consultant Address: 5 Cardinal Court
Edwardsville, IL 62025

1.0 Registration Summary:

Registration Summary: This application requests a GCP-O&G permit for a proposed facility under 20.2.72 NMAC. The Big Eddy Unit (BEU) DI 38 is an oil and gas production battery, with an average well production of 20,000 BOPD, 60,000 BWPD, and 60.6 MMscfd. An additional 5,000 BOPD of dead oil may be transferred directly into the storage tanks from surrounding batteries. The site will consist of the following permitted equipment: WT1-WT6: Six (6) produced water tanks, OT1-OT3: Three (3) oil tanks, SKTK1-SKTK2: Two (2) water skim tanks, BC1-BC2: Two (2) electric booster compressors, FUG: Fugitive equipment leaks, HT1-HT2: Two (2) heater treaters, TL-O: Truck loading of oil, TL-W: Truck loading of water, ROAD: Haul road emissions, VRT: Vapor recovery tower, VRU1: Vapor recovery unit for VRT, VRU2: Vapor recovery unit for OT1-OT3, HPF: High pressure flare, and LPF: Low pressure flare.

2.0 Description of Modification:

NA

3.0 History (In descending chronological order)

Permit Number	Issue Date	Action Type	Description of Action (Changes)
8730	3/27/2020	GCP O&G – New etc.	New GCP O&G Registration

Public Response/Concerns: The Climate and Energy Program Director from WildEarth Guardians, Jeremy Nichols, submitted a comment about this facility. This was provided to upper management, and permit writer was instructed to process the application as usual.

4.0

5.0 Facility Specifications:

Total Pollutant Emissions from Entire Facility (for information only, not an enforceable condition):

Pollutant	Emissions (tons per year)	Emission Type	Other
Particulate Matter (2.5 microns or less)	**1.79**	**Allowable**	
Nitrogen Dioxide	**39.14**	**Allowable**	
Particulate Matter (10 microns or less)	**3.29**	**Allowable**	
Sulfur Dioxide	**.51**	**Allowable**	
Volatile Organic Compounds (VOC)	**100.01**	**Allowable**	
Carbon Monoxide	**72.5**	**Allowable**	

Total HAPS* and NM TAPS that exceed 1.0 ton per year (for information only, not an enforceable condition):

Pollutant	Emissions (tons per year)	Emission Type	Other
Benzene	1.87	Potential	
Total HAP	4.81	Potential	
Hexane	1.73	Potential	

*** HAP emissions are already included in VOC emissions**

Note: The Total HAPS may not match the sum of the individual HAPS in this table as it will include values from HAPS that are below 1.0 tpy.

Air Pollution Control Devices:

Subject Item ID, Type, ID, (Unit #)	SI Description	Primary	Secondary
OT1 (EQPT7)	Oil Storage Tank, 750 bbl	Flare	Vapor Recovery Unit
OT2 (EQPT8)	Oil Storage Tank, 750 bbl	Flare	Vapor Recovery Unit
OT3 (EQPT9)	Oil Storage Tank, 750 bbl	Flare	Vapor Recovery Unit
SWTK1 (EQPT10)	Skim Tank, 1000 bbl	Flare	
SWTK2 (EQPT11)	Skim Tank, 1000 bbl	Flare	
TL-O (EQPT3)	Truck Loading - Oil	Flare	
WT1 (EQPT12)	Produced Water Tank, 750 bbl	Flare	
WT2 (EQPT13)	Produced Water Tank, 750 bbl	Flare	
WT3 (EQPT14)	Produced Water Tank, 750 bbl	Flare	
WT4 (EQPT15)	Produced Water Tank, 750 bbl	Flare	
WT5 (EQPT16)	Produced Water Tank, 750 bbl	Flare	
WT6 (EQPT17)	Produced Water Tank, 750 bbl	Flare	

Equipment Specifications (Active):

Unit No.	Unit Type	Manufacturer	Model No.	Serial No.	Yr of Construction	Yr of Manufacture	Operating Rate Max/Site	Operating Capacity Max/Site	Subject Item Status	Subject Item Description
FUG RPNT1	Fugitives	NA	NA	NA			/	/	Active	Fugitives
HPF EQPT5	Process Flare	Tornado	TBD	TBD			/	60 MM SCF/d / 60 MM SCF/d	Active	High Pressure Flare

Unit No.	Unit Type	Manufacturer	Model No.	Serial No.	Yr of Construction	Yr of Manufacture	Operating Rate Max/Site	Operating Capacity Max/Site	Subject Item Status	Subject Item Description
HT-1 EQPT1	Heater Treater/Stack Pak	TBD	TBD	TBD			/	4 MM BTU/h / 4 MM BTU/h	Active	Heater Treater
HT-2 EQPT2	Heater Treater/Stack Pak	TBD	TBD	TBD			/	4 MM BTU/h / 4 MM BTU/h	Active	Heater Treater
LPF EQPT6	Process Flare	Tornado	TBD	TBD			/	2 MM SCF/d / 2 MM SCF/d	Active	Low Pressure Flare
OT1 EQPT7	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	750 bbl / 127749.99 M gal/y	Active	Oil Storage Tank, 750 bbl
OT2 EQPT8	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	750 bbl / 127749.99 M gal/y	Active	Oil Storage Tank, 750 bbl
OT3 EQPT9	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	750 bbl / 127749.99 M gal/y	Active	Oil Storage Tank, 750 bbl
ROAD AREA1	Unpaved roads	NA	NA	NA			/	/	Active	Road Emissions
SWTK1 EQPT10	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	1000 bbl / 459904.95 M gal/y	Active	Skim Tank, 1000 bbl
SWTK2 EQPT11	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	1000 bbl / 459904.95 M gal/y	Active	Skim Tank, 1000 bbl
TL-O EQPT3	Loading/Unloading Rack	NA	NA	NA			/	1825000 bbl/y / 1825000 bbl/y	Active	Truck Loading - Oil

Unit No.	Unit Type	Manufacturer	Model No.	Serial No.	Yr of Construction	Yr of Manufacture	Operating Rate Max/Site	Operating Capacity Max/Site	Subject Item Status	Subject Item Description
TL-W EQPT4	Loading/Unloading Rack	NA	NA	NA			/	1825000 bbl/y / 1825000 bbl/y	Active	Truck Loading - Water
WT1 EQPT12	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	750 bbl / 1533 M gal/y	Active	Produced Water Tank, 750 bbl
WT2 EQPT13	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	750 bbl / 1533 M gal/y	Active	Produced Water Tank, 750 bbl
WT3 EQPT14	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	750 bbl / 1533 M gal/y	Active	Produced Water Tank, 750 bbl
WT4 EQPT15	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	750 bbl / 1533 M gal/y	Active	Produced Water Tank, 750 bbl
WT5 EQPT16	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	750 bbl / 1533 M gal/y	Active	Produced Water Tank, 750 bbl
WT6 EQPT17	Tank - Above Ground	TBD	TBD	TBD		30-SEP-15	/	750 bbl / 1533 M gal/y	Active	Produced Water Tank, 750 bbl

Emissions: Pollutant **Permitted** (Allowable) Emissions per piece of equipment or Subject Item as represented by applicant.

Unit No.	NO_x (pph)	[1]NO_x (tpy)	CO (pph)	CO (tpy)	VOC (pph)	VOC (tpy)	SO_2 (pph)	SO_2 (tpy)	TSP (pph)	TSP (tpy)	PM_{10} (pph)	PM_{10} (tpy)	$PM_{2.5}$ (pph)	$PM_{2.5}$ (tpy)	H_2S (pph)	H_2S (tpy)
WT3 (EQPT14)																

Unit No.	NO_x (pph)	[1]NO_x (tpy)	CO (pph)	CO (tpy)	VOC (pph)	VOC (tpy)	SO_2 (pph)	SO_2 (tpy)	TSP (pph)	TSP (tpy)	PM_{10} (pph)	PM_{10} (tpy)	$PM_{2.5}$ (pph)	$PM_{2.5}$ (tpy)	H_2S (pph)	H_2S (tpy)
WT2 (EQPT13)																
FUG (RPNT1)					2.30	10.08										
HT-1 (EQPT1)	0.56	2.45	0.47	2.06	0.03	0.13		0.01			0.04	0.19	0.04	0.19		
TL-O (EQPT3)					0.66	2.52										
TL-W (EQPT4)						0.01										
SWTK2 (EQPT11)																
HPF (EQPT5)		23.70		47.33		44.84						0.93		0.93		
OT3 (EQPT9)																
WT4 (EQPT15)																
WT5 (EQPT16)																
ROAD (AREA1)											0.48	1.67	0.05	0.17		

Unit No.	NO_x (pph)	[1]NO_x (tpy)	CO (pph)	CO (tpy)	VOC (pph)	VOC (tpy)	SO_2 (pph)	SO_2 (tpy)	TSP (pph)	TSP (tpy)	PM_{10} (pph)	PM_{10} (tpy)	$PM_{2.5}$ (pph)	$PM_{2.5}$ (tpy)	H_2S (pph)	H_2S (tpy)
WT1 (EQPT12)																
WT6 (EQPT17)																
HT-2 (EQPT2)	0.56	2.45	0.47	2.06	0.03	0.13		0.01			0.04	0.19	0.04	0.19		
LPF (EQPT6)	2.98	10.54	5.95	21.05	6.91	42.30										
OT1 (EQPT7)																
OT2 (EQPT8)																
SWTK1 (EQPT10)																

[1] Nitrogen dioxide emissions include all oxides of nitrogen expressed as NO_2

6.0 Compliance Testing: That may apply.

Unit(s)	Compliance Test	Timeline
Engine(s) or Turbine(s) > 180 hp Exemption: Existing units that have been tested within the last five (5) years are not required to perform an initial compliance test.	Initial Compliance Test Testing requirements shall be conducted in accordance with Section B111 of the GCP- O&G Permit. A test may be waived by the Department if the test is not required under a NMAC, NSPS, NESHAP or MACT.	Compliance tests shall be conducted within sixty (60) days after the unit(s) achieve the maximum normal production rate. If the maximum normal production rate does not occur within one hundred twenty (120) days of source startup, then the tests must be conducted no later than one hundred eighty (180) days after initial startup of the source.
Engine(s) or Turbine(s) > 180 hp Facilities with a PER less than 80 tpy of each regulated air pollutant shall perform periodic testing every three (3) years.	Periodic Testing Testing requirements shall be conducted in accordance with Section B111 of the GCP- O&G Permit. A test may be waived by the Department if the test is not required under a NMAC, NSPS, NESHAP or MACT.	Every three (3) years.
Engine(s) or Turbine(s) > 180 hp Facilities with PER greater than the 80 tpy of any regulated air pollutant shall perform periodic testing once per calendar year for each engine or turbine > 180 hp.	Periodic Testing Testing requirements shall be conducted in accordance with Section B111 of the GCP- O&G Permit	Every calendar year.
Flares	N/A unless subject to compliance test under a NMAC, NSPS, NESHAP or MACT.	Test dates according to applicable regulation

Thermal Oxidizers	If the owner or operator does not provide manufacturer's data to establish the minimum operating temperature required to achieve 98% control efficiency, the owner/operator shall perform an initial compliance test to determine such operating temperature.	Within sixty (60) days of the start of operations, and the results shall be submitted to the Department within thirty (30) days of the test.
Storage Tanks	N/A unless subject to compliance test under a NMAC, NSPS, NESHAP or MACT.	Test dates according to applicable Regulation.

7.0 <u>Startup and Shutdown:</u>

Were emissions from startup, shutdown, and scheduled maintenance operations calculated and included in the emission tables? ☒ Yes
☐ No:

8.0 <u>State and Federal Regulatory Analysis (NMAC/AQCR): Refer to Section 8 of the GCP O&G Registration Form.</u>

9.0 <u>Permit Writer Comments: NA</u>

Administrative Record

Spur Energy Dorami

2H, 4H, &9H Federal Tank Battery

GCP No. 8733

Bates Numbers: 0462 - 0676

Adminstrative Record Index
Spur Energy Dorami 2H, 4H, & 9H Federal Tank Battery - GCP No. 8733

DATE	FROM	TO	FORMAT	SUBJECT
03/11/2020 - 03/23/2020	NMED/Spur Energy	NMED/Spur Energy	Emails	Email correspondence relating to Dorami 2H, 4H, &9H Federal Tank Battery Oil and Gas Permit Application
2/10/2020	Spur Energy / ERDI	NMED	Documents	Spur Energy Application for GCP-Oil and Gas
2/28/2020	Spur Energy	NMED	Documents	Permit Tracking Coversheet and Check
3/6/2020	Spur Energy	N/A	Documents / Photos	Location Verification
3/6/2020	Spur Energy	N/A	Documents	Oil and Gas Stack Verification
3/11/2020	Spur Energy	NMED	Documents	Revised Registration for GCP-Oil and Gas
3/11/2020	Spur Energy	NMED	Documents	Revised Section 2 - Table 2-A: Regulated Emission Sources
3/11/2020	Spur Energy	NMED	Signed Documents	Signed Section 9
3/11/2020	Spur Energy	N/A	Documents	Visio
3/11/2020	Jeremy Nichols (WEG)	NMED	Email	Comments on application for GCP-Oil and Gas
3/19/2020	Spur Energy	NMED	Documents	Final Registration
3/23/2020	NMED	Spur Energy	Documents	Approval letter for GCP-Oil and Gas
3/23/2020	NMED	N/A	Documents	Statement of Basis / Data Base Summary GCP-Oil and Gas (O&G) Permit
5/12/2020	NMED	Jeremy Nichols (WEG)	Email	Final Citizen Letter

From:	Springer, Vanessa, NMENV
To:	energyresourcedevelopmentinc@gmail.com
Subject:	FW: Missing electronic files for GCP Oil & Gas application: Spur Energy Partners, LLC – Dorami 2H, 4H, 9H Federal Oil Tank Battery
Date:	Wednesday, March 11, 2020 9:06:57 AM
Importance:	High

Link to our Industry/Consultant Feedback Questionnaire

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Vanessa Springer, M.S.
Environmental Scientist & Permit Specialist
New Mexico Environment Department
Air Quality Bureau
525 Camino de los Marquez, Suite 1, Santa Fe NM, 87505-1816
Direct: 505-476-4373 | AQB Main: 505-476-4300
Vanessa.Springer@state.nm.us
https://www.env.nm.gov/aqb/

From: Springer, Vanessa, NMENV
Sent: Friday, March 6, 2020 10:55 AM
To: 'jmcerdi@cox.net'
Cc: 'todd@spurepllc.com'
Subject: Missing electronic files for GCP Oil & Gas application: Spur Energy Partners, LLC – Dorami 2H, 4H, 9H Federal Oil Tank Battery
Importance: High

Good morning,

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From:	Springer, Vanessa, NMENV
To:	energyresourcedevelopmentinc@gmail.com
Subject:	FW: Spur Energy Partners, LLC – Dorami 2H, 4H, 9H Federal Oil Tank Battery (8733)
Date:	Wednesday, March 11, 2020 9:07:17 AM

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From: Springer, Vanessa, NMENV
Sent: Friday, March 6, 2020 3:21 PM
To: 'jmcerdi@cox.net'
Cc: 'todd@spurepllc.com'
Subject: Spur Energy Partners, LLC – Dorami 2H, 4H, 9H Federal Oil Tank Battery (8733)

Good afternoon,

I have completed my initial review of the GCP O7G Permit application for Spur Energy Partners, LLC – Dorami 2H, 4H, 9H Federal Oil Tank Battery (Permit No. 8733) and I have the following questions/requests for updates.

Please provide the original application files electronically. **These need to be the original files, without any of the revisions described below.** Please use the Accellion request link that I sent this morning, or if there are any issues with that you can send the files via email. The electronic files are required with the application submittal. If I do not receive them within two business days this application may be denied.

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11. Section 8, 20.2.38 NMAC :Please address whether the tanks are subject to 20.2.38.112
12. Section A, 40 CFR 60 Subpart OOOOa: Please add the lower level citations for applicability of each emissions source listed.

Please respond to these requests as soon as possible, but no later than close of business Tuesday, March 10, 2020 so that this application can be reviewed in a timely manner.

Thank you,

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From:	Springer, Vanessa, NMENV
To:	jmcerdi@cox.net
Cc:	todd@spurepllc.com
Subject:	Missing electronic files for GCP Oil & Gas application: Spur Energy Partners, LLC – Dorami 2H, 4H, 9H Federal Oil Tank Battery
Date:	Friday, March 6, 2020 10:55:08 AM
Importance:	High

Good morning,

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From:	Springer, Vanessa, NMENV
To:	ERDI
Cc:	jmcerdi@cox.net; todd@spurepllc.com
Subject:	RE: [EXT] Re: FW: Spur Energy Partners, LLC – Dorami 2H, 4H, 9H Federal Oil Tank Battery (8733)
Date:	Friday, March 13, 2020 2:25:21 PM

Good afternoon,

Thank you for providing these updates and revisions. I have an additional question about the emissions from the tanks and flare. If I add up the sum of the "VOC Emissions after Control" for water and oil tank flash and working/breathing emissions from the AECT tanks pages I get 48.48 tpy. But the AECT flare calculations on page 17 show only 27 tpy VOCs from Gas Stream 2, which I presume is the stream coming from the tanks. Either I'm missing something or not all of the VOC emissions are being accounted for. Can you please explain or provide some clarity on this?

Please respond as soon as possible, but no later than COB Tuesday, March 17, 2020. I am mainly teleworking for the time being, so please respond via email.

Thank you,

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Vanessa.Springer@state.nm.us
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From: ERDI
Sent: Wednesday, March 11, 2020 1:12 PM
To: Springer, Vanessa, NMENV
Subject: [EXT] Re: FW: Spur Energy Partners, LLC – Dorami 2H, 4H, 9H Federal Oil Tank Battery (8733)

Vanessa,

The answers to your questions are below:

1. See updated Table 2-A
2. See updated Table 2-A
3. See updated Table 2-A
4. See updated Table 2-A. I was not sure about the SCC Code for the VRT or VRU but I used the one that i seemed fit.
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7. See revised drawing attached
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9. Yes, the emissions inputted into the water tanks working and standing page is only 1% of the emissions. This is because we assume the water has 1% oil in it.
10. The flare does not have a pilot. It used an auto igniter system that will burn gas when present in

the flare.
11. The tanks are subject to NMAC 20.2.38.112 since they have a combined storage capacity greater than 65,000 gallons. The facility complies with this regulation through NMAC 20.2.38.112(C) by using a flare to minimize vapor or gas loss to the atmosphere.
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On Wed, Mar 11, 2020 at 10:24 AM ERDI <energyresourcedevelopmentinc@gmail.com> wrote:

> Vanessa,
> I have received your emails and will review and try my best to get you everything by the end of the day.
> Thank you,
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> > Vanessa.Springer@state.nm.us
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> >
> > ---
> > **From:** Springer, Vanessa, NMENV
> > **Sent:** Friday, March 6, 2020 3:21 PM
> > **To:** 'jmcerdi@cox.net' <jmcerdi@cox.net>
> > **Cc:** 'todd@spurepllc.com' <todd@spurepllc.com>
> > **Subject:** Spur Energy Partners, LLC – Dorami 2H, 4H, 9H Federal Oil Tank Battery (8733)
> > Good afternoon,
> > I have completed my initial review of the GCP O7G Permit application for Spur Energy Partners, LLC – Dorami 2H, 4H, 9H Federal Oil Tank Battery (Permit No. 8733) and I have the following questions/requests for updates.
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From:	Springer, Vanessa, NMENV
To:	ERDI
Cc:	jmcerdi@cox.net; todd@spurepllc.com
Subject:	RE: [EXT] Re: FW: Spur Energy Partners, LLC – Dorami 2H, 4H, 9H Federal Oil Tank Battery (8733)
Date:	Thursday, March 19, 2020 2:16:34 PM

Hi John,

You are correct, thank you for the explanation. I was double counting some emissions.

One additional question, can you confirm your phone number? Currently, in our database we have the number 225-573-8633 listed for you but that doesn't match the number you listed in the application. I just want to confirm the right info before I remove anything from our system.

Thanks,

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From: ERDI
Sent: Monday, March 16, 2020 8:26 AM
To: Springer, Vanessa, NMENV
Cc: jmcerdi@cox.net; todd@spurepllc.com
Subject: Re: [EXT] Re: FW: Spur Energy Partners, LLC – Dorami 2H, 4H, 9H Federal Oil Tank Battery (8733)

Vanessa,

I am not sure where you are getting 48.48 tpy from. When I add up the "VOC Emissions After Control", I get the following:

24.4 tpy (oil tank flash) + 0.44 tpy (oil tank W&S) + 0.84 tpy (water tank flash) + 0.0096 tpy (water tank W&S) = 25.68 tpy which is close to 25.71 tpy which is represented in "Field Gas (tpy)" on page 17 under stream 2.

Furthermore, if we add up the "VOC Uncontrolled Emissions" from the tanks, we would get the following:

1219.76 tpy (oil tank flash) + 22.76 tpy (oil tank W&S) + 42.44 tpy (water tank flash) + 0.48 tpy (water tank W&S) = 1285.44 tpy which is the value used on page 17 for "Uncontrolled (tpy) for stream 2. If we multiply the control efficiency of the flare by the uncontrolled tpy of the tanks we get 1285.44 tpy * 98% destruction = 25.7088 tpy uncontrolled which is equal to the above value calculated as "VOC Emissions after control" and what is calculated on the flare page.

I hope this answers your question. If not please give me a call at 225-573-8633 and I will do my best to answer your question.

Thank you,

John Connolly

On Fri, Mar 13, 2020 at 3:25 PM Springer, Vanessa, NMENV <Vanessa.Springer@state.nm.us> wrote:

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From: energyresourcedevelopmentinc@gmail.com
To: Springer, Vanessa, NMENV
Cc: todd@spurepllc.com
Subject: Re: File Request - File Request: Spur - Dorami 2H, 4H, and 9H Federal Oil Tank Battery
Date: Wednesday, March 11, 2020 9:31:20 AM

You have received 4 secure files from energyresourcedevelopmentinc@gmail.com.
Use the secure links below to download.

Secure File Downloads:

Available until: **25 March 2020**

Click links to download:

AECT-Dorami 2H, 4H, & 9H Federal Oil Tank Battery.pdf
5.63 MB, Fingerprint: e8199810e352ebee8606cec04631e3fe (What is this?)

GCP O&G- Dormai 2H, 4H, & 9H Federal Oil Tank Battery.docx
263.54 KB, Fingerprint: 97cc5ed2802a714ebada27994acd2b86 (What is this?)

GCP O&G- Dormai 2H, 4H, & 9H Federal Oil Tank Battery.pdf
6.73 MB, Fingerprint: 3ab9cd5513fa21e51afea01efb6b25a4 (What is this?)

Section2-Dorami 2H, 4H, & 9H Federal Oil Tank Battery.xls
244 KB, Fingerprint: fa1f8eb3fd0ae9335a820d3d3c5c8fad (What is this?)

You have received attachment link(s) within this email sent via Accellion Secure File Transfer. To retrieve the attachment(s), please click on the link(s).

From: ERDI
To: Springer, Vanessa, NMENV
Subject: Re: [EXT] Re: FW: Spur Energy Partners, LLC – Dorami 2H, 4H, 9H Federal Oil Tank Battery (8733)
Date: Friday, March 20, 2020 7:01:57 AM

Vanessa,

My number on the application is my office phone number. The 225-573-8633 is my cell phone.

On Thu, Mar 19, 2020 at 3:16 PM Springer, Vanessa, NMENV <Vanessa.Springer@state.nm.us> wrote:

> Hi John,
>
> You are correct, thank you for the explanation. I was double counting some emissions.
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525 Camino de los Marquez, Suite 1, Santa Fe NM, 87505-1816

Direct: 505-476-4373 | AQB Main: 505-476-4300

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Sent: Wednesday, March 11, 2020 1:12 PM
To: Springer, Vanessa, NMENV <Vanessa.Springer@state.nm.us>
Subject: [EXT] Re: FW: Spur Energy Partners, LLC – Dorami 2H, 4H, 9H Federal Oil Tank Battery (8733)

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From: ERDI
To: Springer, Vanessa, NMENV
Subject: Re: [EXT] Re: FW: Spur Energy Partners, LLC – Dorami 2H, 4H, 9H Federal Oil Tank Battery (8733)
Date: Monday, March 23, 2020 12:09:49 PM

It doesn't matter to me. I answer my cell phone more often since I am not always in the office.

On Mon, Mar 23, 2020 at 11:39 AM Springer, Vanessa, NMENV <Vanessa.Springer@state.nm.us> wrote:

> John,
>
> Do you have a preference as to which one is in our system as your contact number? I can have it switched to your office number if you prefer.
>
> Thanks,
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> **From:** ERDI <energyresourcedevelopmentinc@gmail.com>
> **Sent:** Friday, March 20, 2020 7:02 AM
> **To:** Springer, Vanessa, NMENV <Vanessa.Springer@state.nm.us>
> **Subject:** Re: [EXT] Re: FW: Spur Energy Partners, LLC – Dorami 2H, 4H, 9H Federal Oil Tank Battery (8733)
>
> Vanessa,
>
> My number on the application is my office phone number. The 225-573-8633 is my cell phone.
>
> On Thu, Mar 19, 2020 at 3:16 PM Springer, Vanessa, NMENV <Vanessa.Springer@state.nm.us> wrote:
>
>> Hi John,

You are correct, thank you for the explanation. I was double counting some emissions.

One additional question, can you confirm your phone number? Currently, in our database we have the number 225-573-8633 listed for you but that doesn't match the number you listed in the application. I just want to confirm the right info before I remove anything from our system.

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https://www.env.nm.gov/aqb/

From:	Springer, Vanessa, NMENV
To:	jmcerdi@cox.net
Cc:	todd@spurepllc.com
Subject:	Spur Energy Partners, LLC – Dorami 2H, 4H, 9H Federal Oil Tank Battery (8733)
Date:	Friday, March 6, 2020 3:20:36 PM

Good afternoon,

I have completed my initial review of the GCP O7G Permit application for Spur Energy Partners, LLC – Dorami 2H, 4H, 9H Federal Oil Tank Battery (Permit No. 8733) and I have the following questions/requests for updates.

Please provide the original application files electronically. **These need to be the original files, without any of the revisions described below.** Please use the Accellion request link that I sent this morning, or if there are any issues with that you can send the files via email. The electronic files are required with the application submittal. If I do not receive them within two business days this application may be denied.

In addition, I have the following requests. These require edits to your application. For any changes, please submit a pdf of just the pages that are being revised, rather than an entirely new registration form. Again, I still need the original application files as well.

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5. Table 2-C: Please include "VRT flash gas during VRU downtime" in with the other equipment that the flare controls.
6. Because the haul roads are exempt, the road emissions should not be included in table 2-D or 2-E. Please remove the rows for haul roads and adjust the facility emissions totals in each table accordingly.
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8. Section 9, the newspaper publication section was not signed and dated. Please sign and email a scan of that page.
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10. Does the flare have a continuously lit pilot? In the flare calculations on page 17 of the AECT, are the pilot emissions included in stream 1 or 2?
11. Section 8, 20.2.38 NMAC :Please address whether the tanks are subject to 20.2.38.112
12. Section A, 40 CFR 60 Subpart OOOOa: Please add the lower level citations for applicability of each emissions source listed.

Please respond to these requests as soon as possible, but no later than close of business Tuesday, March 10, 2020 so that this application can be reviewed in a timely manner.

Thank you,

Link to our Industry/Consultant Feedback Questionnaire

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Vanessa Springer, M.S.
Environmental Scientist & Permit Specialist
New Mexico Environment Department
Air Quality Bureau
525 Camino de los Marquez, Suite 1, Santa Fe NM, 87505-1816
Direct: 505-476-4373 | AQB Main: 505-476-4300
Vanessa.Springer@state.nm.us
https://www.env.nm.gov/aqb/

From: Jeremy Nichols
To: Olivia.yiu@state.nm.us; Coriz, Asheley, NMENV; Mascarenas, Marvin, NMENV; Kimbrell, Joseph, NMENV; Mashburn, Joseph, NMENV; Espinoza, Arianna, NMENV; Primm, Kathleen, NMENV; Springer, Vanessa, NMENV
Cc: Schooley, Ted, NMENV; Romero, Rhonda, NMENV
Subject: [EXT] Comments on Applications for General Construction Permits for Oil and Gas Facilities
Date: Wednesday, March 11, 2020 9:40:13 PM
Attachments: 2020-3-11 WG Comments on GCP Applications.pdf

Dear New Mexico Environment Department, Air Quality Bureau Staff:

Attached, please find comments from WildEarth Guardians regarding several general construction permit applications for oil and gas facilities in Eddy and Lea Counties in southeast New Mexico. These comments are directed to New Mexico Environment Department, Air Quality Bureau staff listed as contacts for the specific permits. Our comments address common issues related to ozone pollution in southeast New Mexico and therefore are directed to all staff contacts. We look forward to our comments being considered as the Air Quality Bureau reviews the referenced permit applications. Thank you.

Sincerely,

Jeremy Nichols

Climate and Energy Program Director
(303) 437-7663
www.wildearthguardians.org/climate-energy

From: ERDI
To: Springer, Vanessa, NMENV
Subject: [EXT] Re: FW: Spur Energy Partners, LLC – Dorami 2H, 4H, 9H Federal Oil Tank Battery (8733)
Date: Wednesday, March 11, 2020 9:24:39 AM

Vanessa,

I have received your emails and will review and try my best to get you everything by the end of the day.

Thank you,
John Connolly

On Wed, Mar 11, 2020 at 10:07 AM Springer, Vanessa, NMENV <Vanessa.Springer@state.nm.us> wrote:

> Link to our Industry/Consultant Feedback Questionnaire
>
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> Vanessa Springer, M.S.
>
> Environmental Scientist & Permit Specialist
>
> New Mexico Environment Department
> Air Quality Bureau
>
> 525 Camino de los Marquez, Suite 1, Santa Fe NM, 87505-1816
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>
> Vanessa.Springer@state.nm.us
>
> https://www.env.nm.gov/aqb/
>
> ---
>
> **From:** Springer, Vanessa, NMENV
> **Sent:** Friday, March 6, 2020 3:21 PM
> **To:** 'jmcerdi@cox.net' <jmcerdi@cox.net>
> **Cc:** 'todd@spurepllc.com' <todd@spurepllc.com>
> **Subject:** Spur Energy Partners, LLC – Dorami 2H, 4H, 9H Federal Oil Tank Battery (8733)
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> Please provide the original application files electronically. **These need to be the original**

files, without any of the revisions described below. Please use the Accellion request link that I sent this morning, or if there are any issues with that you can send the files via email. The electronic files are required with the application submittal. If I do not receive them within two business days this application may be denied.

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Thank you,

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Vanessa Springer, M.S.

Environmental Scientist & Permit Specialist

New Mexico Environment Department
Air Quality Bureau

525 Camino de los Marquez, Suite 1, Santa Fe NM, 87505-1816

Direct: 505-476-4373 | AQB Main: 505-476-4300

Vanessa.Springer@state.nm.us

https://www.env.nm.gov/aqb/

From:	ERDI
To:	Springer, Vanessa, NMENV
Subject:	[EXT] Re: FW: Spur Energy Partners, LLC – Dorami 2H, 4H, 9H Federal Oil Tank Battery (8733)
Date:	Wednesday, March 11, 2020 1:12:29 PM
Attachments:	Visio-Dorami 2H, 4H, & 9H Drawing.pdf Signed Section 9.pdf GCP O&G- Dormai 2H, 4H, & 9H Federal Oil Tank Battery.docx Revised Section2-Dorami 2H, 4H, & 9H Federal Oil Tank Battery.pdf

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Vanessa,

The answers to your questions are below:
1. See updated Table 2-A
2. See updated Table 2-A
3. See updated Table 2-A
4. See updated Table 2-A. I was not sure about the SCC Code for the VRT or VRU but I used the one that i seemed fit.
5. See updated Table 2-C
6. See updated Table 2-E and Table 2-D
7. See revised drawing attached
8. See attached
9. Yes, the emissions inputted into the water tanks working and standing page is only 1% of the emissions. This is because we assume the water has 1% oil in it.
10. The flare does not have a pilot. It used an auto igniter system that will burn gas when present in the flare.
11. The tanks are subject to NMAC 20.2.38.112 since they have a combined storage capacity greater than 65,000 gallons. The facility complies with this regulation through NMAC 20.2.38.112(C) by using a flare to minimize vapor or gas loss to the atmosphere.
12. See updated GCP Registration Form.

On Wed, Mar 11, 2020 at 10:24 AM ERDI <energyresourcedevelopmentinc@gmail.com> wrote:

> Vanessa,
>
> I have received your emails and will review and try my best to get you everything by the end of the day.
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> Thank you,
> John Connolly
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https://www.env.nm.gov/aqb/

NMED GCP-Oil & Gas Permit Application

Dorami 2H, 4H, & 9H Federal Oil Tank Battery

Eddy County, New Mexico

GCP-Oil & Gas Permit No.: Applied

AI No.: Applied

February 2020

PREPARED FOR:

Spur Energy Partners, LLC

920 Memorial City Way, Ste 1000

Houston, Texas 77024

(281) 795-2286

PREPARED BY:

Energy Resource Development, Inc.

19345 Point O Woods Court

Baton Rouge, Louisiana 70809

(225) 753-4723

Energy Resource Development, Inc.
19345 Point O Woods Court
Baton Rouge, Louisiana 70809
jmcerdi@cox.net 225-753-4723

February 10, 2020

Ms. Rhonda Romero
Minor Source Programs Manager
NMED Air Quality Bureau
525 Camino de los Marquez Suite 1
Santa Fe, NM 87505-1816

RE: GCP-Oil & Gas Permit Application
Spur Energy Partners LLC – Dorami 2H, 4H, & 9H Federal Oil Tank Battery

Dear Ms. Romero:

On behalf of Spur Energy Partners LLC, we are applying for a General Construction Permit (GCP-Oil & Gas) for the Dorami 2H, 4H, & 9H Federal Oil Tank Battery. Spur Energy Partners is submitting this package to certify the emission limits for the referenced facility. Emission estimates were based on published emission factors, manufacturers' specifications, Tanks 4.0.9d, and representative saltwater, condensate, and gas analysis. Based on estimated emissions, the site should be classified as a minor source under the Federal and State air permitting programs.

The format and content of this application are consistent with the Bureau's current policy regarding GCP-Oil & Gas permit applications; it is a complete application package using the GCP-Oil & Gas application form. Enclosed are two hard copies of the application, including an original certification, one disk containing the electronic files, and an application check. Please feel free to contact either myself at (225) 753-4723 or Todd Mucha, EVP-Operations for Spur Energy Partners, at (281) 795-2286 if you have any questions regarding this application.

Sincerely,

John Connolly

John Connolly
Energy Resource Development, Inc

Cc: Todd Mucha
Spur Energy Partners LLC
920 Memorial City Way, Ste 1000
Houston, Texas 77024

Mail Registration To:		For Department use only:
New Mexico Environment Department Air Quality Bureau 525 Camino de los Marquez, Suite 1 Santa Fe, New Mexico, 87505 Phone (505) 476-4300 Fax (505) 476-4375 www.env.nm.gov/aqb		

General Construction Permit (GCP-Oil and Gas) Registration Form
Section 1
(Locating outside of Bernalillo County, Tribal Lands, and Nonattainment Areas)

This Registration is being submitted as (check all that apply)**:**

☒ An initial GCP-Oil and Gas Registration Form for a new facility (**Registration fee required**).
☐ An updated GCP-Oil and Gas Registration Form for a modification to an existing facility (**Registration fee required**).
☐ A GCP-Oil and Gas Registration Form for an existing facility currently operating under GCP-1 or GCP-4 **(No fee required)**

The Permitting Administrative Multi-Form may be used for administrative changes identified in the GCP O&G Permit Condition C101.A. No public notification is required, and no filing fees or permit fees apply.

Construction Status: ☒ Not Constructed ☐ Existing Permitted (or NOI) Facility ☐ Existing Non-Permitted (or NOI) Facility

Acknowledgements:

☒ I acknowledge that a pre-application meeting is available to me upon request.
☒ An original signed and notarized Certification for Submittal for this GCP-Oil and Gas Registration is included.
☒ Proof of public notice is included, if required.
☒ The Air Emission Calculation Tool (AECT) is included.
☒ The emissions specified in this Registration Form will establish the emission limits in the GCP-Oil and Gas.
☒ **For new registrations or modifications, a check for the registration fee is included for $4190 prior to 1/1/20 or $4260 beginning 1/1/20.** There is an annual fee in addition to the registration fee: www.env.nm.gov/air-quality/permit-fees-2/
Facilities qualifying as a "small business" under 20.2.75.7.F NMAC qualify for reduced fees, provided that NMED has a Small Business Certification Form from your company on file. This form can be found at: www.env.nm.gov/aqb/sbap/Small_Business_Forms.html
Provide your Check Number: ____________ and Amount: $4,260.00

If a fee is required and is not submitted with the application, the registration will be denied.

1)	Company Information	AI # (if known):	If updating, provide Permit/NOI #:
1	Facility Name: Dorami 2H, 4H, & 9H Federal Oil Tank Battery	Plant primary SIC Code (4 digits): 1311 Plant NAIC code (6 digits): 211120	
a	Facility Street Address (If no facility street address, check here ☒ and provide directions in Section 4):		
2	Plant Operator Company Name: Spur Energy Partners LLC	Phone/Fax: 281-795-2286	
a	Plant Operator Address: 920 Memorial City Way, Ste 1000, Houston, Texas 77024		
3	Plant Owner(s) name(s): Spur Energy Partners LLC	Phone/Fax: 281-795-2286	
a	Plant Owner(s) Mailing Address(s): 920 Memorial City Way, Ste 1000, Houston, Texas 77024		

4	Bill To (Company): Spur Energy Partners LLC	Phone/Fax: 281-795-2286
a	Mailing Address: 920 Memorial City Way, Ste 1000, Houston, Texas 77024	E-mail:todd@spurepllc.com
5	☐ Preparer: Energy Resource Development, Inc ☐ Consultant: John Connolly	Phone/Fax: 225-753-4723
a	Mailing Address: 19345 Point O Woods Court, Baton Rouge, LA 70809	E-mail: jmcerdi@cox.net
6	Plant Operator Contact: Todd Mucha	Phone/Fax: 281-795-2286
a	Mailing Address: 920 Memorial City Way, Ste 1000, Houston, Texas 77024	E-mail: todd@spurepllc.com
7	Air Permit Contact[1]: Todd Mucha	Title: EVP-Operations
a	E-mail: todd@spurepllc.com	Phone/Fax: 281-795-2286
b	Mailing Address: 920 Memorial City Way, Ste 1000, Houston, Texas 77024	
	[1]The Air Permit Contact will receive official correspondence from the Department.	
8	Will this facility operate in conjunction with other air regulated parties on the same property? ☒ No ☐ Yes If yes, what is the name and NOI or permit number (if known) of the other facility?	

2) Applicability

1	Is the facility located in Bernalillo County, on tribal lands, or in a nonattainment area?	☒**No** ☐**Yes**
If you answered ***Yes*** to the question above, your facility **does not** qualify for this general construction permit.		
2	Is the facility's SIC code 1311, 1321, 4619, 4612 or 4922? (Other SIC codes may be approved provided that all the equipment at the facility is allowed in the GCP-Oil & Gas Permit.)	☐**No** ☒**Yes**
3	Does the regulated equipment under this GCP-Oil and Gas Registration include any combination of Allowable Equipment listed in Table 104 of the GCP Oil & Gas Permit, and no others?	☐**No** ☒**Yes**
4	Will the regulated equipment as specified in this GCP-Oil and Gas Registration emit less than the total emissions in Table 106 of the GCP-Oil and Gas permit?	☐**No** ☒**Yes**
5	Does all equipment comply with the stack parameter requirements as established in the GCP-Oil and Gas Permit?	☐**No** ☒**Yes**
6	Equipment shall be at least 100 meters (m) from any stack to terrain that is five (5) or more meters above the top of the stack. Will the equipment at the facility meet this terrain requirement?	☐**No** ☒**Yes**
7	Is the facility at least 150 m from any source that emits over 25 tons/year of NO_x? This is the distance between the two nearest stacks that emit NOx at each of the facilities. Not the facility boundaries or the center to center distances.	☐**No** ☒**Yes**
8	Is the facility at least 3 miles from any Class I area? This is the distance from the nearest facility boundary to the nearest boundary of the Class I area.	☐**No** ☒**Yes**
If you answered ***NO*** to any of questions 2-8, your facility **does not** qualify for this general construction permit.		

3) Current Facility Status

1	Has this facility already been constructed? ☐Yes ☒No	If yes, is it currently operating in New Mexico? ☐ Yes ☐ No	
2	Does this facility currently have a construction permit or Notice of Intent (NOI) (20.2.72 NMAC or 20.2.73 NMAC)? ☐Yes ☒No	If yes, the permit No. or NOI No., and whether it will remain active or not:	
3	Is this Registration in response to a Notice of Violation (NOV)? ☐Yes ☒No If so, provide current permit #:	If yes, NOV date:	NOV Tracking No.
4	Check if facility is a: Minor Source: ☐ Synthetic Minor Source: ☐ (SM80 = Controlled Emissions > 80 TPY of any regulated air pollutant): ☒		

4) Facility Location Information

1	a) Latitude (decimal degrees): 32.614589	b) Longitude (decimal degrees): -104.47883	c) County: Eddy	d) Elevation (ft): 3531
2	a) UTM Zone: ☐12 or ☒13	b) UTME (to nearest 10 meters) 548,896	c) UTMN (to nearest 10 meters): 3,608,681	

3	e) Specify which datum is used: ☐ NAD 27 ☐ NAD 83 ☒ WGS 84 See this link for more info. http://en.wikipedia.org/wiki/North_American_Datum
4	Name and zip code of nearest New Mexico town and tribal community: 88210
5	Detailed Driving Instructions including direction and distance from nearest NM town and tribal community (attach a road map if necessary). If there is no street address, provide public road mileage marker: From the intersection of Hwy 285 and Hwy 82 in Artesia, NM, go south on Hwy 285 for 15.2 miles. Turn right on CR 23 (Rock Daisy Rd) and go 4.0 miles to facility road on the left.
6	The facility is 16.4 (distance) miles Southwest (direction) of Artesia (nearest town).
7	Land Status of facility (check one): ☐ Private ☐ Indian/Pueblo ☐ Government ☒ BLM ☐ Forest Service ☐ Military

5) Other Facility Information

1	Enter the maximum daily and annual throughput of oil, gas, and natural gas liquids (NGL).	**Oil (bbl/day): 2,300 (bbl/yr): 839,500** **Gas (MMscf/day): 3.5 (MMscf/yr): 1,277.5** **NGL (bbl/day): 0 (bbl/yr): 0**
2	The facility, as described in this Registration, constitutes the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes.	☐**No** ☒**Yes**

6) Submittal Requirements

1	Include one hard copy **original signed and notarized Registration package printed double sided 'head-to-toe' 2-hole punched** as we bind the document on top, not on the side; except landscape tables, which should be head-to-head. If 'head-to-toe printing' is not possible, print single sided. Please use **numbered tab separators** in the hard copy submittal(s) as this facilitates the review process.
2	Include one **double sided hard copy, flip on long edge** for Department use. This copy does not need to be 2-hole punched.
3	The entire Registration package should be submitted electronically on one compact disk (CD). Include a single PDF document of the entire Registration as submitted and the individual documents comprising the Registration. The documents should also be submitted in Microsoft Office compatible file format (Word, Excel, etc.) allowing us to access the text in the documents (copy & paste). Any documents that cannot be submitted in a Microsoft Office compatible format shall be saved as a PDF file from within the electronic document that created the file. If you are unable to provide Microsoft office compatible electronic files or internally generated PDFs of files (items that were not created electronically: i.e. brochures, maps, graphics, etc.), submit these items in hard copy format. Spreadsheets must be unlocked since we must be able to review the formulas and inputs. **Ensure all of these are included in both the electronic and hard copies.** ☒Word Document part of the Registration Form (Sections 1 and 3-10) ☒Excel Document part of the Registration Form (Section 2) ☒Air Emissions Calculation Tool (AECT) If there is a justified reason for including other calculations, include the unlocked Excel Spreadsheet. Justification must be provided in Section 5 of the application. ☒PDF of entire application **To avoid errors, it is best to start with both a blank version of this form and the AECT for each application.**

Section 2
Tables

Insert Excel spreadsheet with applicable tables filled out. If applicable to the facility all tables must be filled out completely. The unit numbering system must be consistent throughout this Registration

Table 2-A: Regulated Emission Sources

Unit and stack numbering must correspond throughout the application package. Equipment that qualifies for an exemption under 20.2.72.202.B NMAC should be included in Table 2-B **Note:** Equipment options **are not authorized.**

Unit Number[1]	Source Description	Manufacturer/Make /Model	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] Date of Construction/ Reconstruction[2]	Controlled by Unit # Emissions vented to Stack #	Source Classi-fication Code (SCC)	RICE Ignition Type (CI, SI, 4SLB, 2SLB)[4]	For Each Piece of Equipment, Check Onc
FWKO-1	HEATED FWKO	NA	NA	0.75 MMBtu/hr	0.75 MMBtu/hr	NA 2020	NA FWKO-1	31000404	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
FWKO-2	HEATED FWKO	NA	NA	0.75 MMBtu/hr	0.75 MMBtu/hr	NA 2020	NA FWKO-2	31000404	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
FWKO-3	HEATED FWKO	NA	NA	0.75 MMBtu/hr	0.75 MMBtu/hr	NA 2020	NA FWKO-3	31000404	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
HT-1	HEATER TREATER	NA	NA	0.50 MMBtu/hr	0.50 MMBtu/hr	NA 2020	NA HT-1	31000404	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-1	1000 BBL OIL TANK	PETROSMITH EQUIPMENT LP	T-15911	1000 BBL	1000 BBL	2/4/2019 2020	FLARE FLARE	40400312	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-2	1000 BBL OIL TANK	PETROSMITH EQUIPMENT LP	T-15908	1000 BBL	1000 BBL	2/4/2019 2020	NA FLARE	40400312	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-3	1000 BBL OIL TANK	PETROSMITH EQUIPMENT LP	T-15912	1000 BBL	1000 BBL	2/4/2019 2020	NA FLARE	40400312	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-4	1000 BBL OIL TANK	PETROSMITH EQUIPMENT LP	T-15909	1000 BBL	1000 BBL	2/4/2019 2020	NA FLARE	40400312	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
PWTK-1	1000 BBL WATER TANK	SAWYER INDUSTRIES	1504	1000 BBL	1000 BBL	3/15/2019 2020	NA FLARE	40400312	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
PWTK-2	1000 BBL WATER TANK	SAWYER INDUSTRIES	1502	1000 BBL	1000 BBL	3/15/2019 2020	NA FLARE	40400312	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
PWTK-3	1000 BBL WATER TANK	SAWYER INDUSTRIES	1258	1000 BBL	1000 BBL	12/2/2018 2020	NA FLARE	40400312	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
PWTK-4	1000 BBL WATER TANK	SAWYER INDUSTRIES	1501	1000 BBL	1000 BBL	3/15/2019 2020	NA FLARE	40400312	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
FLARE	DUAL PRESSURE FLARE	VAPROX	NA	4290.58 MMScf/yr	192.109 MMScf/yr	NA 2020	NA FLARE	30600903	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
FUG-1	FACILITY WIDE FUGATIVE	NA	NA	NA	NA	NA 2020	NA NA	31088811	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

Unit Number[1]	Source Description	Manufacturer/Make /Model	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classi-fication Code (SCC)	RICE Ignition Type (CI, SI, 4SLB, 2SLB)[4]	For Each Piece of Equipment, Check Onc
MALF.	MALFUNTION EMISSIONS	NA	NA	NA	NA	NA 2020	NA NA	31088811	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
OILLOAD-1	OIL TRUCK LOADING	NA	NA	NA	NA	NA 2020	NA NA	40600132	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

[1] Unit numbers must correspond to unit numbers in the previous permit unless a complete cross reference table of all units in both permits is provided.
[2] Specify dates required to determine regulatory applicability.
[3] To properly account for power conversion efficiencies, generator set rated capacity shall be reported as the rated capacity of the engine in horsepower, not the kilowatt capacity of the generator set.
[4] "4SLB" means four stroke lean burn engine, "4SRB" means four stroke rich burn engine, "2SLB" means two stroke lean burn engine, "CI" means compression ignition, and "SI" means spark ignition

Table 2-B: Exempted Equipment (20.2.72 NMAC)

All 20.2.72 NMAC applications must list Exempted Equipment in this table. If equipment listed on this table is exempt under 20.2.72.202.B.5, include emissions calculations and emissions totals for 202.B.5 "similar functions" units, operations, and activities in Section 5, Calculations. Unit & stack numbering must be consistent throughout the application package.

Unit Number	Source Description	Manufacturer	Model No. / Serial No.	Max Capacity / Capacity Units	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction[1] / Date of Installation /Construction[1]	For Each Piece of Equipment, Check Onc
HR-1	HAUL ROAD	NA	NA / NA	NA / NA	20.2.72.202.B.5. / 20.2.72.202.B.5.	NA / 2020	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
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							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

1 Specify date(s) required to determine regulatory applicability.

Table 2-C: Emissions Control Equipment

Unit and stack numbering must correspond throughout the application package. In accordance with 20.2.72.203.A(3) and (8) NMAC, 20.2.70.300.D(5)(b) and (e) NMAC, and 20.2.73.200.B(7) NMAC, the permittee shall report all control devices and list each pollutant controlled by the control device regardless if the applicant takes credit for the reduction in emissions.

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
FLARE	COMBUSTION FLARE	2020	VOC, H2S	TK-1, TK-2, TK-3, TK-4, PWTK-1, PWTK-2, PWTK-3, PWTK-4, SALES GAS	98%	MANUFACTURER ESTIMATE
VRU-1	VAPOR RECOVERY UNIT	2020	VOC, H2S	VAPOR RECOVERY TOWER (VRT)	100%	ENGINEERING ESTIMATE

[1] List each control device on a separate line. For each control device, list all emission units controlled by the control device.

Table 2-D: Maximum Emissions (Consider federally enforceable controls under normal operating conditions)

This table must be filled out

Maximum Federally Enforceable Emissions are the emissions at maximum capacity with only federally enforceable methods of reducing emissions. Calculate the hourly emissions using the worst case hourly emissions for each pollutant. For each pollutant, calculate the annual emissions as if the facility were operating at maximum facility capacity without pollution controls for 8760 hours per year. Account for federally enforcable controls, such as an NSPS or MACT regulation. Consider federally enforceable controls due to permitting. List Hazardous Air Pollutants (HAP) in Table 2-I. Unit & stack numbering must be consistent throughout the application package. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or 1.41E-4).

Unit No.	NOx		CO		VOC		SOx		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
FWKO-1	0.086	0.377	0.072	0.315	0.005	0.022	-	-	0.007	0.031	0.007	0.031	-	-	-	-
FWKO-2	0.086	0.377	0.072	0.315	0.005	0.022	-	-	0.007	0.031	0.007	0.031	-	-	-	-
FWKO-3	0.086	0.377	0.072	0.315	0.005	0.022	-	-	0.007	0.031	0.007	0.031	-	-	-	-
HT-1	0.057	0.25	0.048	0.21	0.003	0.013	-	-	0.004	0.018	0.004	0.018	-	-	-	-
TK-1	-	-	-	-	70.92	310.63	-	-	-	-	-	-	-	-	-	-
TK-2	-	-	-	-	70.92	310.63	-	-	-	-	-	-	-	-	-	-
TK-3	-	-	-	-	70.92	310.63	-	-	-	-	-	-	-	-	-	-
TK-4	-	-	-	-	70.92	310.63	-	-	-	-	-	-	-	-	-	-
PWTK-1	-	-	-	-	2.45	10.73	-	-	-	-	-	-	-	-	-	-
PWTK-2	-	-	-	-	2.45	10.73	-	-	-	-	-	-	-	-	-	-
PWTK-3	-	-	-	-	2.45	10.73	-	-	-	-	-	-	-	-	-	-
PWTK-4	-	-	-	-	2.45	10.73	-	-	-	-	-	-	-	-	-	-
FLARE	25.56	18.47	57.42	41.49	41.79	48.14	7.477	4.435	-	-	-	-	5.292	3.139	-	-
FUG-1	-	-	-	-	0.54	2.33	-	-	-	-	-	-	0.02	0.08	-	-
MALF.	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-
OILLOAD-1	-	-	-	-	14.99	29.97	-	-	-	-	-	-	-	-	-	-
HR-1	-	-	-	-	-	-	-	-	0.13	0.44	0.01	0.05	-	-	-	-
Totals	25.875	19.851	57.684	42.645	350.818	1375.96	7.477	4.435	0.025	0.111	0.025	0.111	5.312	3.219	-	-

[1] **Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source.

Table 2-E: Requested Allowable Emissions

Enter an allowable emission limit for each piece of equipment with either an uncontrolled emission rate greater than 1 lb/hr or 1 ton per year (tpy) or a controlled emission rate of any amount. For H2S please represent all emissions even if they are less than 1 lb/hr and 1 tpy. If selecting combustion SSM emissions, enter lb/hr and tpy values. If selecting up to 10 tpy of Malfunction VOC emissions, enter tpy values. Combustion emissions from malfunction events are **not authorized** under this permit. Fill all cells in this table with the emissions in lb/hr and tpy, or a "-" symbol. A “-“ symbol indicates that emissions of this pollutant are not expected. Total the emissions from all equipment in the Totals row. Add additional rows as necessary. Unit & stack numbering must be consistent throughout the application package. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or $1.41E^{-4}$).

Unit No.	NOx		CO		VOC		SOx		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
FWKO-1	0.086	0.377	0.072	0.315	0.005	0.022	-	-	0.007	0.031	0.007	0.031	-	-	-	-
FWKO-2	0.086	0.377	0.072	0.315	0.005	0.022	-	-	0.007	0.031	0.007	0.031	-	-	-	-
FWKO-3	0.086	0.377	0.072	0.315	0.005	0.022	-	-	0.007	0.031	0.007	0.031	-	-	-	-
HT-1	0.057	0.25	0.048	0.21	0.003	0.013	-	-	0.004	0.018	0.004	0.018	-	-	-	-
TK-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PWTK-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PWTK-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PWTK-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PWTK-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FLARE	25.56	18.47	57.42	41.49	41.79	48.14	7.477	4.435	-	-	-	-	5.292	3.139	-	-
FUG-1	-	-	-	-	0.54	2.33	-	-	-	-	-	-	0.02	0.08	-	-
OILLOAD-1	-	-	-	-	14.99	29.97	-	-	-	-	-	-	-	-	-	-
HR-1	-	-	-	-	-	-	-	-	0.13	0.44	0.01	0.05	-	-	-	-
Malfunction	N/A	N/A	N/A	N/A	N/A	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Totals	25.88	19.85	57.68	42.65	57.34	90.52	7.48	4.44	0.16	0.55	0.04	0.16	5.31	3.22	-	-

[1] **Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source.

Table 2-H: Stack Exit Conditions

Unit and stack numbering must correspond throughout the application package. Include the stack exit conditions for each unit that emits from a stack, including blowdown venting parameters and tank emissions.

Stack Type (Engine, Turbine, Flare, ECD, or Thermal Oxidizer Etc.)	Serving Unit Number(s) from Table 2-A	Orientation (H-Horizontal V=Vertical)	Height Above Ground (ft)	Temp. (F)	Flow Rate (acfs)	Velocity (ft/sec)	Inside Diameter (ft)
FWKO-1	FWKO-1	Vertical	25	250	5	21.62	0.66
FWKO-2	FWKO-2	Vertical	25	250	5	21.62	0.66
FWKO-3	FWKO-3	Vertical	25	250	5	21.62	0.66
HT-1	HT-1	Vertical	25	250	5	21.62	0.66
FLARE	FLARE	Vertical	35	1400	41	51.6	1.00

Table 2-I: Emission Rates for HAPs

HAP In the table below, report the potential emission rate for each HAP from each regulated emission unit listed in Table 1, only if the entire facility emits the HAP. For each such emission unit, HAP shall be reported to the nearest 0.1 tpy. Each facility-wide Individual HAP total and the facility-wide Total HAP shall be the sum of all HAP sources calculated to the nearest 0.1 ton per year. Use the HAP nomenclature as it appears in Section 112 (b) of the 1990 CAAA. Include tank-flashing emissions estimates of HAP in this table. For each HAP listed, fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected, or the pollutant is emitted in a quantity less than the threshold amounts described above. Add additional rows as necessary.

Stack No.	Unit No.(s)	Total HAPs		Provide Pollutant Name Here □ HAP		Provide Pollutant Name Here □ HAP		Provide Pollutant Name Here □ HAP		Provide Pollutant Name Here □ HAP		Provide Pollutant Name Here □ HAP		Provide Pollutant Name Here □ HAP		Provide Pollutant Name Here □ HAP		Provide Pollutant Name Here □ HAP	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
NA	FUG-1	0.0	0.1																
Totals:																			

Table 2-J: Allowable Fuels and Fuel Sulfur for Combustion Emission Units:

Specify fuel characteristics and usage. Unit and stack numbering must correspond throughout the application package.

Unit No.	Fuel Type (Natural Gas, Field Gas, Propane, Diesel, …)	Fuel Source (purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas, or other	Specify Units				
			Engines and Turbines: SO2 percentage (%) of the NOx emission rate (except flares)	Diesel Fuel Only: ppm of Sulfur	Lower Heating Value (BTU/SCF)	Annual Fuel Usage (MMSCF/y)	Does the Allowable Fuel and Fuel Sulfur Content meet GCP O&G Condition A110.A?
FWKO-1	FIELD NATURAL GAS	RAW/FIELD NATURAL GAS	-	-	1188.8	6.9	☑ Yes ☐ No
FWKO-2	FIELD NATURAL GAS	RAW/FIELD NATURAL GAS	-	-	1188.8	6.9	☑ Yes ☐ No
FWKO-3	FIELD NATURAL GAS	RAW/FIELD NATURAL GAS	-	-	1188.8	6.9	☑ Yes ☐ No
HT-1	FIELD NATURAL GAS	RAW/FIELD NATURAL GAS	-	-	1188.8	4.6	☑ Yes ☐ No
FLARE	FIELD NATURAL GAS	RAW/FIELD NATURAL GAS	-	-	1210	192.1	☑ Yes ☐ No
							☐ Yes ☐ No
							☐ Yes ☐ No
							☐ Yes ☐ No
							☐ Yes ☐ No
							☐ Yes ☐ No
							☐ Yes ☐ No
							☐ Yes ☐ No
							☐ Yes ☐ No
							☐ Yes ☐ No
							☐ Yes ☐ No

Table 2-L: Tank Data

Include appropriate tank-flashing modeling input data. Unit and stack numbering must correspond throughout the application package.

Tank No.	Date Installed	Materials Stored	Roof Type	Seal Type	Capacity (bbl)	Diameter (M)	Vapor Space (M)	Color		Separator Pressure (psia)	Annual Throughput (gal/yr)	Turn-overs (per year)
								Roof	Shell			
TK-1	2020	CRUDE OIL	Vertical - Fixed Roof (FX)	Welded-Mechanical Shoe	1,000	4.72	4.87	GREEN	GREEN	89.7	8,814,750	215.34
TK-2	2020	CRUDE OIL	Vertical - Fixed Roof (FX)	Welded-Mechanical Shoe	1,000	4.72	4.87	GREEN	GREEN	89.7	8,814,750	215.34
TK-3	2020	CRUDE OIL	Vertical - Fixed Roof (FX)	Welded-Mechanical Shoe	1,000	4.72	4.87	GREEN	GREEN	89.7	8,814,750	215.34
TK-4	2020	CRUDE OIL	Vertical - Fixed Roof (FX)	Welded-Mechanical Shoe	1,000	4.72	4.87	GREEN	GREEN	89.7	8,814,750	215.34
PWTK-1	2020	PRODUCED WATER	Vertical - Fixed Roof (FX)	FIBERGLASS	1,000	4.72	4.87	GREEN	GREEN	264.7	30,660,000	749.01
PWTK-2	2020	PRODUCED WATER	Vertical - Fixed Roof (FX)	FIBERGLASS	1,000	4.72	4.87	GREEN	GREEN	264.7	30,660,000	749.01
PWTK-3	2020	PRODUCED WATER	Vertical - Fixed Roof (FX)	FIBERGLASS	1,000	4.72	4.87	GREEN	GREEN	264.7	30,660,000	749.01
PWTK-4	2020	PRODUCED WATER	Vertical - Fixed Roof (FX)	FIBERGLASS	1,000	4.72	4.87	GREEN	GREEN	264.7	30,660,000	749.01

Section 3
Registration Summary

The Registration Summary: Provide information about the registration submittal. The Registration Summary shall include a brief description of the facility and its process. In case of a modification to a facility, please describe the proposed changes.

Specify Facility Type: Check the appropriate box below:

- ☒ Production Site
- ☐ Tank Battery
- ☐ Compressor Station
- ☐ Natural Gas Plant
- ☐ Other, please specify:______________

Registration Summary:

Spur Energy Partners LLC proposes this initial GCP-Oil & Gas application for the Dorami 2H, 4H, & 9H Federal Oil Tank Battery. The site will have an initial production rate of 2,300 bbl/day of oil, 8,000 bbl/day of produced water, and 3.5 MMScf/d of produced gas. Multiple wells are associated with this production facility.

As proposed, equipment at the well site will include three (3) 0.75 MMBtu/hr free water knockouts, one (1) 0.5 MMBtu/hr heater treater, one (1) electric vapor recovery unit (VRU) with an associated Vapor Recovery Tower (VRT), a dual-pressure combustion flare, four (4) 1,000 bbl produced water tanks, four (4) 1,000 bbl oil tanks, and various gas scrubbers.

Additional emissions at the site will result from tank truck loading, truck hauling, fugitive emissions, and malfunction emissions.

The combustion flare will control emissions from the oil & produced water tanks working, standing, and flashing losses, VRT flash gas during VRU downtimes, and produced sales gas to a minimum 98% efficiency. In the event that the VRU is down for maintenance, the flare will still control emissions from the vapor recovery tower. During maintenance or unavailability on the sales gas pipeline, all produced gas off the separators will be continuously routed to the flare until gas can be sold. The flare calculation page on the AECT is broken down into two streams, the high-pressure stream and the low-pressure stream. The high-pressure stream will be a combination of sales gas off the FWKOs during pipeline interruption, VRU gas during pipeline interruption, and gas during VRU downtime. The low-pressure stream will be the flash, working, and standing losses off the oil and water tanks.

Because of both the economic and environmental impacts on operations, Spur diligently inspects the VRU to ensure that it is in continuous operation.

Written description of the routine operations of the facility:

The production stream from the Dorami 2H, 4H, & 9H wells will enter the heated three-phase free water knockouts where the oil, water, and gas will be separated. The gas off the FWKOs will be routed to sales or to the flare for combustion. The water off the FWKOs will be routed to the water tanks. The oil will be routed to the VRT prior to being sent to the oil tanks. The flash gas off the VRT will be captured by the VRU and sent to sales or to the flare for combustion. When the VRU is not working, the VRT will route any captured flash gas to the flare. The oil and water tanks will be controlled to the dual-pressure combustion flare which will combust the flash, working, and standing emissions in the tanks. The produced oil is trucked out of the facility while the water is piped out. All oil truck loading emissions will be vented to the atmosphere. The heater treater will be used to circulate tank bottoms.

Routine or predictable emissions during Startup, Shutdown and Maintenance (SSM):

There are no SSM emissions currently associated with this facility.

Malfunction Emissions (M):

Spur Energy Partners LLC request 10 TPY VOC emissions to be added to this application for any malfunctions that might happen at the facility due to sudden and unavoidable failure to air pollution control equipment or process equipment beyond the control of Spur Energy Partners.

Allowable Operations: Check the appropriate box below:

☒ Facility operates continuously (8760 hours per year)

☐ The following regulated equipment will operate less than 8760 hours per year. Add additional rows as necessary. These units are subject to Condition A108.C of the Permit.

Table A – Equipment Operating Less Than 8760 hours per year

Unit #	Requested Annual Operating Hours

Verification of Compliance with Stack Parameter Requirements:

Please use the Stack Calculator and Stack Requirements Explained Guidance on our website: All of the verification information below is required to be filled out.

www.env.nm.gov/air-quality/air-quality-oil-and-gas-gcp-application-forms/

Check the box for each type of equipment at this facility:

- ☐ Engine(s)
- ☐ Turbine(s)
- ☒ Flares(s)
- ☐ Enclosed Combustion Device (s)
- ☒ Heater(s)
- ☐ Reboiler(s)

For each type of equipment checked above, complete the applicable section below.

Engines

1. Calculate the pound per hour (lb/hr) NO_x emission rate according to GCP O&G Condition A202.I Step 1 on page 15 of the GCP O&G. Enter this value in the top row of the table below.
2. Based on the calculated facility total NO_x emission rate, determine the minimum stack parameter requirements for engines and heaters from Table 1: Engines (page 17) of the GCP O&G and enter the minimum parameters from Table 1 (page 17) of the GCP O&G in the bottom row of the table below.
3. Enter the stack parameters from each engine and heater in the blank rows of the table below. Add rows as necessary.

Table B: Engine/Generator/Heater/Reboiler Stack Parameter Verification:

Calculated Facility Total NOx Emission Rate: 0.315 lb/hr				
Engine/Generator/Heater/Reboiler Unit Number	**Height (ft)**	**Temperature (^oF)**	**Velocity (ft/s)**	**Diameter (ft)**
FWKO-1	25	250	21.62	0.66
FWKO-2	25	250	21.62	0.66
FWKO-3	25	250	21.62	0.66
HT-1	25	250	21.62	0.66
Table 1 Minimum Parameters: For verification, list the minimum parameters based on the NOx lb/hr emission rate from the GCP O&G Table 1.	5.9	571	49.2	0.3

4. Do all engines and heaters comply with the minimum stack parameters from Table 1 (page 17) of the GCP O&G?
   - ☐ Yes. Skip step 5 below.
   - ☒ No. Go to step 5 below.

5. For engines and heaters that do not comply with the minimum stack parameters in Table 1 of the GCP O&G, explain and demonstrate in detail how the engines and heaters will be authorized according to the steps on page 16 of the GCP O&G or Condition A203.C of the GCP O&G. Show all calculations.

   Condition A203.C states that if "any heater or boiler is unable to meet the minimum stack parameter requirements in Table 1 or 2 of Condition A202.I, the maximum total emission rates allowed for those heaters and reboilers is 1.23 lb/hr of NOx"; therefor, the heaters at the facility will meet this requirements since their total emission rate is 0.315 lb/hr which is below the 1.23 lb/hr threshold allowed.

Turbines

1. Calculate the pound per hour (lb/hr) NO_x emission rate according to GCP O&G Condition A202.I Step 1 on page 17 of the GCP O&G. Enter this value in the top row of the table below.
2. Based on the calculated facility total NO_x emission rate, determine the minimum stack parameter requirements for turbines and heaters from Table 2: Turbines (page 18) of the GCP O&G. Enter the minimum parameters from Table 2 (page 18) of the GCP O&G in the bottom row of the table below.
3. Enter the stack parameters from each turbine and heater in the blank rows of the table below. Add rows as necessary.

Table C: Turbine/Heater/Reboiler Stack Parameter Verification:

Calculated Facility Total NOx Emission Rate: _____lb/hr				
Turbine/Heater/Reboiler Unit Number	**Height (ft)**	**Temperature (^{o}F)**	**Velocity (ft/s)**	**Diameter (ft)**
Table 2 Minimum Parameters: For verification, list the minimum parameters based on the NOx lb/hr emission rate from the GCP O&G Table 2.				

4. Do all turbines and heaters comply with the minimum stack parameters from Table 2 (page 18) of the GCP O&G?

☐ Yes. Skip step 5 below.
☐ No. Go to step 5 below.

5. For turbines and heaters that do not comply with the minimum stack parameters in Table 2 of the GCP O&G, explain and demonstrate in detail how the turbines and heaters will be authorized according to the steps on page 18 of the GCP O&G or Condition A203.C of the GCP O&G. Show all calculations.

Flares

1. Enter SO_2 emission rates (lb/hr) for each flare in the second column of the table below.
2. Based on the SO_2 emission rates, determine the minimum stack height requirements for flares from Table 3 (page 26) of the GCP O&G and enter the minimum stack height requirements for flares from Table 3 (page 26) of the GCP O&G in the last column of the table below.
3. Enter the stack height of each flare in the third column of the table below. Add rows as necessary.

Table D: Flare Stack Height Parameter Verification:

Flare Unit Number	**SO_2 Emission Rate (lb/hr)**	**Height (ft)**	**Table 3 Minimum Stack Height:** For verification, list the minimum height parameters based on the SO2 emission rate from the GCP O&G Table 3.
FLARE	7.477	35	11.5

4. Do all flares comply with minimum stack height requirements?
   ☒ Yes
   ☐ No

5. Does the flare gas contain 6% H_2S or less by volume (pre-combustion)?
   ☒ Yes. Skip step 6 below.
   ☐ No. Go to step 6 below.

6. Explain in detail how assist gas will be added to reduce the gas composition to 6% H_2S or less by volume.

Enclosed Combustion Device(s) (ECD):

According to GCP O&G Condition A208.A, the facility must meet one of the following options if an ECD is installed at the facility:

Option 1:

1. Will the ECD(s) meet the SO_2 emission limit of 0.7 lb/hr and operate with a velocity of at least one (1) foot per second?
   - ☐ Yes. Skip Option 2 below.
   - ☐ No. Go to Option 2 below.

Option 2:

2. Will the ECD(s) meet the SO_2 emission limit of 0.9 lb/hr and operate with a velocity of at least two (2) feet per second?
   - ☐ Yes
   - ☐ No

Section 4

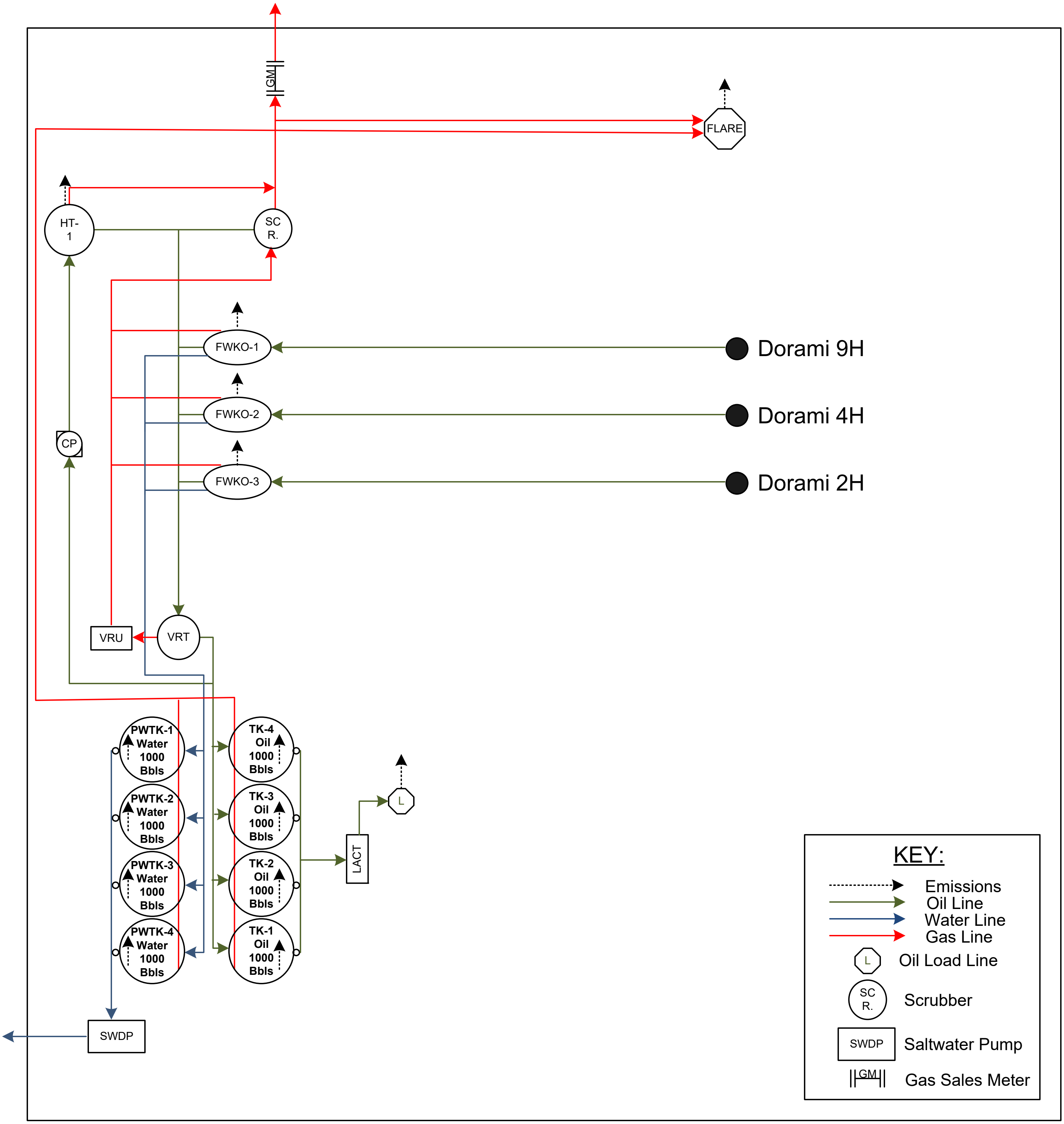
Process Flow Sheet

Attach a **process flow sheet** indicating all individual equipment, all emission points, and types of control applied to those points. All units must be labeled, and the unit numbering system must be consistent throughout this Registration. Identify all sources of emissions with a vertical arrow. Label each of the different material streams (e.g. crude oil, gas, water). The process flow sheet must be a legible size.

Spur Energy Partners LLC

Site Name: Dorami 2H, 4H, & 9H Federal Oil Tank Battery

AI Number: Applied



Prepared by: John Connolly
Date: 02/06/2020

0523

Section 5

Emissions Calculation Forms

The Department has developed the Air Emissions Calculation Tool (AECT), which is required to be used in the GCP-Oil and Gas Registration. If the AECT, for a piece of equipment is under development, provide alternate calculations. **Do not include alternative calculations unless there is an issue being resolved with the AECT. This will delay review of the application.** The AECT and this Registration Form may be updated as needed.

Tank Emissions Calculations: Provide the method used to estimate tank-flashing emissions, the input and output summary from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis. If Pro-Max or Hysis is used, all relevant input parameters shall be reported, including separator pressure, gas throughput, and all other relevant parameters necessary for flashing calculation. **The inputs must match the gas analyses information submitted. Inputs that don't match may be grounds for denial of the application submittal.**

SSM Calculations: In this Section, provide emissions calculations for Startup, Shutdown, and Routine Maintenance (SSM) emissions listed in the Table 2, and the rational for why the others are reported as zero (or left blank).

Control Devices: Report all control devices and list each pollutant controlled by the control device. Indicate in this section if you chose to not take credit for the reduction in emission rates. Only uncontrolled emission rates can be considered to determine applicability unless the state or federal acts require the control. This information is necessary to determine if federally enforceable conditions are necessary for the control device, and if the control device produces its own regulated pollutants or increases emission rates of other pollutants.

Calculation Details: The AECT is required for all emission calculations. If the AECT is not functioning, alternative calculations may be submitted only for the portions of the AECT with issues being resolved. Utilize this section to explain in detail, on an equipment-by-equipment basis, why alternative calculations are necessary.

Explain here:

Equipment Forms Submitted in this Section (add additional rows as necessary):

Equipment Type	Quantity	Check Box to Indicate Units that are Controlled	Enter Control Device Type and Pollutant Controlled
Engine		☐	
Turbine		☐	
Tanks	8	☒	FLARE; VOC & H2S
Generator		☐	
VRU	1	☐	
VRT	1	☒	VRU; VOC & H2S
ULPS		☐	
Glycol Dehydrator		☐	
Flare	1	☐	TK-1, TK-2, TK-3, TK-4, PWTK-1, PWTK-2, PWTK-3, PWTK-4, VRU-1, SALES GAS OFF THE PRODUCTION EQUIPMENT; VOC & H2S
Amine Unit		☐	
Cryogenic Unit		☐	
Fugitive Emissions	1	☐	
Heater	4	☐	
Truck Loading	1	☐	
Enclosed Combustion		☐	

Device (ECD)			
Thermal Oxidizer (TO)		☐	
Unpaved Haul Road	**1**	☐	
Other		☐	

For each scenario below, if there are more than one emissions unit, control device, or gas combustion scenario. Please copy and paste each applicable section and label the unit number(s) if the scenarios vary.

Vapor Recovery Tower, Ultra Low-Pressure Separator, or Flash Tower Located Upstream of Storage Vessels: If the facility contains one of the following units located upstream of the storage vessels and is used to flash and capture flashing emissions, check the appropriate box.
Unit number: VRT/VRU-1
☒ Vapor Recovery Tower and VRU Compressor
☐ ULPS and VRU Compressor
☐ Flash Tower and VRU Compressor

Vapor Recovery Unit (VRU) located upstream of Storage Vessels: Check the box below if the facility is using a VRU to capture flashing emissions prior to any storage vessels to limit the PTE of the storage vessels to below applicability thresholds of NSPS OOOO or NSPS OOOOa. A process vs control determination should be prepared for this type of VRU application.
Unit number:
☐ VRU capturing emissions prior to any storage vessel and routing directly to the sales pipeline

Vapor Recovery Unit (VRU) attached to Storage Vessels: Check the box below if this facility is using a VRU to reduce storage vessel emissions to limit the PTE to below NSPS OOOO or NSPS OOOOa applicability thresholds:
Unit number:
☐ VRU controlling Storage Vessel emissions and the facility is subject to the requirements under NSPS OOOO, 40 CFR 60.5411
☐ VRU controlling Storage Vessel emissions and the facility is subject to the requirements under NSPS OOOOa, 40 CFR 60.5411a

Gas Combustion Scenarios: Read through the scenarios below and check the boxes next to any appropriate facility operating scenarios. Flares shall assume a destruction efficiency of 95%, unless the facility is subject to requirements for flares under 40 CFR 60.18, or a higher destruction efficiency (up to 98%) is supported by a manufacturer specification sheet (MSS) for that unit. If so, include the MSS.

A flare, vapor combustion unit (VCU), enclosed combustion device (ECD), thermal oxidizer (TO):
Unit number: FLARE
☒ Controls storage vessels in accordance with 40 CFR 60, Subpart OOOO or OOOOa.
☒ Provides a federally enforceable control for the storage vessels to limit the PTE to below applicability thresholds of 40 CFR 60, Subpart OOOO or OOOOa.
☐ Controls the glycol dehydrator
☐ Controls the amine unit
☐ Controls truck loading
☐ Operates only during maintenance events, such as VRU downtime, check one below:
  ☐ The emissions during VRU downtime are represented as uncontrolled VOC emissions from the compressor
  ☐ The combustion emissions during VRU downtime are represented as controlled emissions from the combustion device

☐ Controls the facility during plant turnaround

Amine Unit: Provide the following information for each amine unit.

Design Capacity in MMscf/day	
Rich Amine Flowrate in gal/min	
Lean Amine Flowrate in gal/min	
Mole Loading H_2S	
Sour Gas Input in MMscf/day	

Glycol Dehydration Unit(s): Provide the following information for each glycol dehydration unit:
Please include an extended gas analysis in Section 6 of this application.

Unit #	Glycol Pump Circulation Rate

Voluntary Monitoring in Accordance with §40 CFR 60.5416(a): Check the box(s) to implement a program that meets the requirements of 40 CFR 60.5416(a). This monitoring program will be conducted in lieu of the monitoring requirements established in the GCP-Oil and Gas for individual equipment. Ceasing to implement this alternative monitoring must be reported in an updated Registration Form to the Department.

☒ Condition A205.B Control Device Options, Requirements, and Inspections for Tanks
☐ Condition A206.B Truck Loading Control Device Inspection
☐ Condition A206.C Vapor Balancing During Truck Loading
☒ Condition A209.A Vapor Recovery Unit or Department-approved Equivalent
☐ Condition A210.B Amine Unit Control Device Inspection

Fugitive H_2S Screening Threshold and Monitoring in accordance with Condition A212: Check the box that applies.

☒ Condition A212.A does not apply because the facility is below the fugitive H_2S screening threshold in Condition A212, or

☐ Condition A212.A applies. Because the facility is above the fugitive H_2S screening threshold in Condition A212, or the facility is voluntarily complying with Condition A212.A, and Condition A212.A applies

Section 6

Information Used to Determine Emissions

Check the box for each type of information submitted. This documentation is required. If applicable to the facility.

Failure to include applicable supporting documentation may result in application denial.

☒ Specifications for control equipment, including control efficiency specifications and sufficient engineering data for verification of control equipment operation, including design drawings, test reports, and design parameters that affect normal operation.

- ☐ Engine or Generator Manufacturer specifications
- ☐ Catalyst Manufacturer specifications (If a catalyst is being utilized to reduce emissions, the catalyst manufacturer emission factors must be used in all emission calculations. A 25% safety factor may be applied to each pollutant.
- ☐ NSPS JJJJ emission factors **may not** be utilized in lieu of catalyst manufacture specifications when a catalyst is installed, and the catalysts manufacturer achieves higher control efficiency.
- ☒ Flare Manufacturer specifications
- ☒ Oil/Liquid Analysis: This data is required to match the inputs in all applicable emission calculations. For facilities that have not been constructed and a representative analysis is used it cannot be older than 1 year. For existing facilities, the gas analyses required by Condition A201.A (must be 1 year old or less).
- ☒ Gas Analysis (must be 1 year old or less) This data is required to match the inputs in all applicable emission calculations.
- ☐ Extended Gas Analysis (must be 1 year old or less) This data is required to match the inputs in all applicable emission calculations.
- ☒ If requesting to use a representative gas sample, include a discussion of why the sample is representative for this facility and an explanation of how it is representative (e.g., same reservoir, same similar API gravity, similar composition).

☐ If test data are used, to support emissions calculations or to establish allowable emission limits, include a copy of the complete test report. If the test data are for an emissions unit other than the one being permitted, the emission units must be identical. Test data may not be used if any difference in operating conditions of the unit being permitted and the unit represented in the test report significantly effect emission rates.

☐ Fuel specifications sheet.

☒ If computer models are used to estimate emissions, include an input summary and a detailed report, and a disk containing the input file used to run the model.

☒ For tank-flashing emissions, include a discussion of the method used to estimate tank-flashing emissions, accuracy of the model, the **input and output** summary from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis.

Representative Gas Analysis Justification: **Representative gas analysis used is from a well with similar API gravity, same reservoir, similar composition, and with similar separation technique. Flash analysis was calculated from a nearby facility that is operating in the same reservoir that has a similar oil composition. The flash analysis was calculated for the pressure drop between the tanks and the upstream separation equipment.**

Gas Analysis

Atchafalaya Measurement, Inc.

416 East Main Street Artesia, NM 88210   575-746-3481

Inficon Micro GC Fusion F08904 R03RR2

	Sample Information
Sample Name	Percussion__Huber 3 Federal 8H__GC1-1419-04
Station Number	79410072
Lease Name	Huber 3 Federal 8H
Analysis For	Percussion Petroleum
Producer	Percussion Petroleum
Field Name	Dagger Draw
County/State	Eddy,NM
Frequency/Spot Sample	Quarterly
Sampling Method	Fill Empty
Sample Deg F	59.8
Atmos Deg F	40
Flow Rate	506.0673
Line PSIG	83.4
Date/Time Sampled	12-27-18
Cylinder Number	N/A
Cylinder Clean Date	N/A
Sampled By	Victor Urias
Analysis By	Pat Silvas
Verified/Calibration Date	1-3-19
Report Date	2019-01-04 07:59:11

Component Results

Component Name	Ret. Time	Peak Area	Norm%	PPMV	GPM (Dry) (Gal. / 1000 cu.ft.)	
Nitrogen	22.300	14311.4	2.81090	28109.000	0.000	
H2S	46.000	0.0	1.99577	19957.700	0.000	
Methane	23.120	285170.1	72.02046	720204.600	0.000	
Carbon Dioxide	26.940	14410.7	2.37167	23716.700	0.000	
Ethane	36.960	80184.1	12.11010	121101.000	3.249	
Propane	78.980	46653.6	5.24909	52490.900	1.451	
i-butane	28.780	46697.5	0.68305	6830.500	0.224	
n-Butane	30.380	104115.0	1.46730	14673.000	0.464	
i-pentane	35.440	31060.7	0.37136	3713.600	0.136	
n-Pentane	37.540	27936.5	0.32511	3251.100	0.118	
Hexanes Plus	120.000	52184.0	0.59519	5951.900	0.259	
Total:			100.00000	1000000.000	5.902	

Results Summary

Result	Dry	Sat. (Base)	
Total Raw Mole% (Dry)	100.21205		
Pressure Base (psia)	14.730		
Temperature Base	60.00		
Gross Heating Value (BTU / Ideal cu.ft.)	1205.1	1184.1	
Gross Heating Value (BTU / Real cu.ft.)	1209.4	1188.8	
Relative Density (G), Ideal	0.7474	0.7453	
Relative Density (G), Real	0.7498	0.7479	
Compressibility (Z) Factor	0.9964	0.9960	

Gas Analysis - Use if the Inputs are Weight Percents

Analysis Identifier/Name	
What site is the sample from?	
If the sample is from a representaive site, explain how this sampled stream is representative of the similar stream at this site (use the notes box provided below if more space is needed).	
Where in the process was the sample taken?	
What is the temperature and pressure of the sample (include units)?	
Who analyzed the sample?	
Date of sample:	

Component	weight %
hydrogen	
helium	
nitrogen	
CO2	
H2S	
methane (C1)	
ethane (C2)	
propane (C3)	
butanes (C4)	
pentanes (C5)	
benzene	
other hexanes (C6)	
toluene	
other heptanes (C7)	
ethylbenzene	
xylenes (o, m, p)	
other octanes (C8)	
nonanes (C9)	
decanes plus (C10+)	
Totals:	0.0000

VOC (Non-methane, Non-ethane hydrocarbons)

VOC content of total sample
VOC weight% = 0.0000
VOC weight fraction = 0.0000

VOC content of hydrocarbon fraction only
VOC weight% = #DIV/0!
VOC weight fraction = #DIV/0!

Hydrogen Sulfide
H2S weight% = 0.0000
H2S weight fraction = 0.00E+00
H2S ppm_V =
H2S ppm_{WT}= 0.00
H_2S grains/100 SCF = 0.0000
SWEET GAS

Constants:
453.59237 mol/lb-mol
0.06479891 grams/grain
385.48 scf/lb-mol
34.08188 g/mol, lb/lb-mol
H2S mw

Benzene

Benzene content of total sample
Benzene weight% = 0.0000
Benzene weight fraction = 0.0000

Benzene content of hydrocarbon fraction only
Benzene weight% = #DIV/0!
Benzene weight fraction = #DIV/0!

Gas Molecular Weight =
Gas Specific Gravity = 0.00

Constants:
28.97 air mw
385.48 scf/lb-mol

Gas Throughput (MMscf/day)= 0

Long Tons Sulfur Compounds per Day = 0

Gas Analysis - Use if the Inputs are Mole Percents

Analysis Identifier/Name	Huber 3 Federal 8H Gas Analysis
Where was the sample taken?	
If the sample is from a representaive site, explain how this sampled stream is representative of the similar stream at this site (use the notes box provided below if more space is needed).	
Where in the process was the sample taken?	
What is the temperature and pressure of the sample (include units)?	
Who analyzed the sample?	
Date of sample:	

Component	mole %	Molecular Weight (grams/mole, lb/lb-mol)	grams per 100 moles of gas	weight %
hydrogen	0.0000	2.01588	0	0.0000
helium	0.0000	4.0026	0	0.0000
nitrogen	2.8109	28.01340	79	3.5332
CO2	2.3717	44.00950	104	4.6834
H2S	1.9958	34.08188	68	3.0521
methane (C1)	72.0205	16.04246	1155	51.8422
ethane (C2)	12.1101	30.06904	364	16.3389
propane (C3)	5.2491	44.09562	231	10.3857
butanes (C4)	2.1504	58.12220	125	5.6081
pentanes (C5)	0.6965	72.14878	50	2.2548
benzene	0.0000	78.110000	0	0.0000
other hexanes (C6)	0.5952	86.18000	51	2.3016
toluene	0.0000	92.140000	0	0.0000
other heptanes (C7)	0.0000	100.20000	0	0.0000
ethylbenzene	0.0000	106.170000	0	0.0000
xylenes (o, m, p)	0.0000	106.170000	0	0.0000
other octanes (C8)	0.0000	114.23000	0	0.0000
nonanes (C9)	0.0000	128.26000	0	0.0000
decanes plus (C10+)	0.0000		0	0.0000
Totals:	100.0002	22.29	2229	100.00

VOC (Non-methane, Non-ethane hydrocarbons)

VOC content of total sample
VOC weight% = 20.5502
VOC weight fraction = 0.2055

VOC content of hydrocarbon fraction only
VOC weight% = 23.1600
VOC weight fraction = 0.2316

Hydrogen Sulfide
H2S weight% = 3.0521
H2S weight fraction = 3.05E-02
H2S ppm_V = 19958
H2S ppm_{WT}= 30520.86
H_2S grains/100 SCF = 1235.1904
SOUR GAS

Constants:
453.59237 mol/lb-mol
0.06479891 grams/grain
385.48 scf/lb-mol

Benzene

Benzene content of total sample
Benzene weight% = 0.0000
Benzene weight fraction = 0.0000

Benzene content of hydrocarbon fraction only
Benzene weight% = 0.0000
Benzene weight fraction = 0.0000

Gas Molecular Weight = 22.29
Gas Specific Gravity = 0.77

Constants:
28.97 air mw
385.48 scf/lb-mol

Gas Throughput (MMscf/day)= 0

Long Tons Sulfur Compounds per Day = 0

Flash Gas Analysis

Certificate of Analysis

Number: 5030-19100617-003A

Midland Laboratory
2200 East I-20
Midland, TX 79706
Phone 432-689-7252

Oct. 29, 2019

Mike Dunn
AMI
416 East Main St.
Artesia, NM 88210

Station Name:	GOOMAN BATTERY	Sampled By:	DEREK SAUDER
Sample Point:	HEATER	Sample Of:	Oil Spot
Method:	GPA 2286	Sample Date:	10/24/2019 10:12
Analyzed:	10/29/2019 12:19:18 by Administrator	Sample Conditions:	30 psig, @ 118 °F

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.696 psia		
Hydrogen Sulfide	0.0000	0.0000		GPM TOTAL C2+	26.242
Nitrogen	4.1416	2.6393		GPM TOTAL C3+	19.551
Carbon Dioxide	1.7297	1.7317		GPM TOTAL iC5+	3.210
Methane	5.6041	2.0452			
Ethane	24.6589	16.8674	6.691		
Propane	35.3821	35.4924	9.890		
Iso-butane	5.9747	7.8998	1.984		
n-Butane	13.9651	18.4647	4.467		
Iso-pentane	3.1895	5.2349	1.183		
n-Pentane	2.8282	4.6419	1.040		
Hexanes Plus	2.5261	4.9827	0.987		
	100.0000	100.0000	26.242		

Calculated Physical Properties	**Total**	**C6+**
Relative Density Real Gas	1.5433	2.9938
Calculated Molecular Weight	43.96	86.71
Compressibility Factor	0.9831	
GPA 2172 Calculation:		
Calculated Gross BTU per ft³ @ 14.696 psia & 60°F		
Real Gas Dry BTU	2433	4669
Water Sat. Gas Base BTU	2391	4587

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.

0530

Midland Laboratory
2200 East I-20
Midland, TX 79706
Phone 432-689-7252

Certificate of Analysis

Number: 5030-19100617-003A

Mike Dunn
AMI
416 East Main St.
Artesia, NM 88210

Oct. 29, 2019

Station Name:	GOOMAN BATTERY	Sampled By:	DEREK SAUDER
Sample Point:	HEATER	Sample Of:	Oil Spot
Method:	GPA 2286	Sample Date:	10/24/2019 10:12
Analyzed:	10/29/2019 12:19:18 by Administrator	Sample Conditions:	30 psig, @ 118 °F

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.696 psia		
Hydrogen Sulfide	0.0000	0.0000		GPM TOTAL C2+	26.2420
Nitrogen	4.1416	2.6393		GPM TOTAL C3+	19.5510
Methane	5.6041	2.0452		GPM TOTAL iC5+	3.2100
Carbon Dioxide	1.7297	1.7317			
Ethane	24.6589	16.8674	6.691		
Propane	35.3821	35.4924	9.890		
Iso-Butane	5.9747	7.8998	1.984		
n-Butane	13.9651	18.4647	4.467		
Iso-Pentane	3.1895	5.2349	1.183		
n-Pentane	2.8282	4.6419	1.040		
Hexanes	1.3991	2.6947	0.570		
Heptanes Plus	1.1270	2.2880	0.417		
	100.0000	100.0000	26.242		

Calculated Physical Properties	**Total**	**C7+**
Relative Density Real Gas	1.5433	3.0800
Calculated Molecular Weight	43.96	89.20
Compressibility Factor	0.9831	
GPA 2172 Calculation:		
Calculated Gross BTU per ft³ @ 14.696 psia & 60°F		
Real Gas Dry BTU	2433.1	4680.4
Water Sat. Gas Base BTU	2390.7	4598.8

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.

0531

Certificate of Analysis
Number: 5030-19100617-003A

Midland Laboratory
2200 East I-20
Midland, TX 79706
Phone 432-689-7252

Mike Dunn
AMI
416 East Main St.
Artesia, NM 88210

Oct. 29, 2019

Station Name:	GOOMAN BATTERY	Sampled By:	DEREK SAUDER
Sample Point:	HEATER	Sample Of:	Oil Spot
Method:	GPA 2286	Sample Date:	10/24/2019 10:12
Analyzed:	10/29/2019 12:19:18 by Administrator	Sample Conditions:	30 psig, @ 118 °F

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.696 psia
Hydrogen Sulfide	0.0000	0.0000	
Nitrogen	4.1416	2.6393	
Carbon Dioxide	1.7297	1.7317	
Methane	5.6041	2.0452	
Ethane	24.6589	16.8674	6.691
Propane	35.3821	35.4924	9.890
Iso-Butane	5.9747	7.8998	1.984
n-Butane	13.9651	18.4647	4.467
Iso-Pentane	3.1895	5.2349	1.183
n-Pentane	2.8282	4.6419	1.040
i-Hexanes	0.9677	1.8494	0.390
n-Hexane	0.4314	0.8453	0.180
Benzene	0.2230	0.3964	0.063
Cyclohexane	0.2324	0.4448	0.080
i-Heptanes	0.4464	0.9190	0.176
n-Heptane	0.0554	0.1262	0.026
Toluene	0.0245	0.0512	0.008
i-Octanes	0.1214	0.2865	0.053
n-Octane	0.0055	0.0142	0.003
Ethylbenzene	0.0011	0.0026	0.000
Xylenes	0.0010	0.0027	0.000
i-Nonanes	0.0157	0.0422	0.008
n-Nonane	0.0004	0.0010	0.000
Decane Plus	0.0002	0.0012	0.000
	100.0000	100.0000	26.242

GPM TOTAL C2+	26.242
GPM TOTAL C3+	19.551
GPM TOTAL iC5+	3.210

Calculated Physical Properties	**Total**	**C10+**
Calculated Molecular Weight	43.96	170.33
Compressibility Factor	0.9831	
GPA 2172 Calculation:		
Calculated Gross BTU per ft³ @ 14.696 psia & 60°F		
Real Gas Dry BTU	2433.1	9395.2
Water Sat. Gas Base BTU	2390.7	9075.5

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.

0532

Midland Laboratory
2200 East I-20
Midland, TX 79706
Phone 432-689-7252

Certificate of Analysis

Number: 5030-19100617-003A

Mike Dunn
AMI
416 East Main St.
Artesia, NM 88210

Oct. 29, 2019

Station Name: GOOMAN BATTERY
Sample Point: HEATER
Sample Conditions: 30 psig, @ 118 °F

Sampled By: DEREK SAUDER
Sample Of: Oil Spot
Sample Date: 10/24/2019 10:12

Analytical Data

Test	Method	Result	Units	Detection Limit	Lab Tech.	Analysis Date
Shrinkage Factor	API 20.1 M	0.9767			mb	10/29/2019
Flash Factor	API 20.1 M	25.4517	Cu.Ft./STBbl.		mb	10/29/2019
Color Visual	API 20.1 M	Crude			mb	10/29/2019
API Gravity @ 60° F	ASTM D-5002	33.4	°		mb	10/29/2019

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.

0533

Gas Analysis - Use if the Inputs are Weight Percents

Analysis Identifier/Name	
What site is the sample from?	
If the sample is from a representaive site, explain how this sampled stream is representative of the similar stream at this site (use the notes box provided below if more space is needed).	
Where in the process was the sample taken?	
What is the temperature and pressure of the sample (include units)?	
Who analyzed the sample?	
Date of sample:	

Component	**weight %**
hydrogen	
helium	
nitrogen	
CO2	
H2S	
methane (C1)	
ethane (C2)	
propane (C3)	
butanes (C4)	
pentanes (C5)	
benzene	
other hexanes (C6)	
toluene	
other heptanes (C7)	
ethylbenzene	
xylenes (o, m, p)	
other octanes (C8)	
nonanes (C9)	
decanes plus (C10+)	
Totals:	0.0000

VOC (Non-methane, Non-ethane hydrocarbons)

VOC content of total sample

VOC weight% = 0.0000
VOC weight fraction = 0.0000

VOC content of hydrocarbon fraction only

VOC weight% = #DIV/0!
VOC weight fraction = #DIV/0!

Hydrogen Sulfide

H2S weight% = 0.0000
H2S weight fraction = 0.00E+00
H2S ppm_V =
H2S ppm_{WT}= 0.00
H_2S grains/100 SCF = 0.0000
SWEET GAS

Constants:
453.59237 mol/lb-mol
0.06479891 grams/grain
385.48 scf/lb-mol
34.08188 g/mol, lb/lb-mol
H2S mw

Benzene

Benzene content of total sample

Benzene weight% = 0.0000
Benzene weight fraction = 0.0000

Benzene content of hydrocarbon fraction only

Benzene weight% = #DIV/0!
Benzene weight fraction = #DIV/0!

Gas Molecular Weight =
Gas Specific Gravity = 0.00

Constants:
28.97 air mw
385.48 scf/lb-mol

Gas Throughput (MMscf/day)= 0

Long Tons Sulfur Compounds per Day = 0

Gas Analysis - Use if the Inputs are Mole Percents

Analysis Identifier/Name	Goodman Battery Flash Analysis
Where was the sample taken?	
If the sample is from a representaive site, explain how this sampled stream is representative of the similar stream at this site (use the notes box provided below if more space is needed).	
Where in the process was the sample taken?	
What is the temperature and pressure of the sample (include units)?	
Who analyzed the sample?	
Date of sample:	

Component	**mole %**	Molecular Weight (grams/mole, lb/lb-mol)	grams per 100 moles of gas	**weight %**
hydrogen	0.0000	2.01588	0	0.0000
helium	0.0000	4.0026	0	0.0000
nitrogen	4.1416	28.01340	116	2.6343
CO2	1.7297	44.00950	76	1.7284
H2S	0.0000	34.08188	0	0.0000
methane (C1)	5.6041	16.04246	90	2.0413
ethane (C2)	24.6589	30.06904	741	16.8356
propane (C3)	35.3821	44.09562	1560	35.4254
butanes (C4)	19.9398	58.12220	1159	26.3147
pentanes (C5)	6.0177	72.14878	434	9.8582
benzene	0.2230	78.110000	17	0.3955
other hexanes (C6)	1.6315	86.18000	141	3.1925
toluene	0.0245	92.140000	2	0.0513
other heptanes (C7)	0.5018	100.20000	50	1.1417
ethylbenzene	0.0011	106.170000	0	0.0027
xylenes (o, m, p)	0.0010	106.170000	0	0.0024
other octanes (C8)	0.1269	114.23000	14	0.3291
nonanes (C9)	0.0161	128.26000	2	0.0469
decanes plus (C10+)	0.0000		0	0.0000
Totals:	99.9998	44.04	4404	100.00

VOC (Non-methane, Non-ethane hydrocarbons)

VOC content of total sample

VOC weight% = 76.7603
VOC weight fraction = 0.7676

VOC content of hydrocarbon fraction only

VOC weight% = 80.2619
VOC weight fraction = 0.8026

Hydrogen Sulfide

H2S weight% = 0.0000
H2S weight fraction = 0.00E+00
H2S ppm_V = 0
H2S ppm_{WT}= 0.00
H_2S grains/100 SCF = 0.0000
SWEET GAS

Constants:
453.59237 mol/lb-mol
0.06479891 grams/grain
385.48 scf/lb-mol

Benzene

Benzene content of total sample

Benzene weight% = 0.3955
Benzene weight fraction = 0.0040

Benzene content of hydrocarbon fraction only

Benzene weight% = 0.4135
Benzene weight fraction = 0.0041

Gas Molecular Weight = 44.04
Gas Specific Gravity = 1.52

Constants:
28.97 air mw
385.48 scf/lb-mol

Gas Throughput (MMscf/day)= 0

Long Tons Sulfur Compounds per Day = 0

Liquid Analysis

Certificate of Analysis

Number: 5030-19100539-002A

Midland Laboratory
2200 East I-20
Midland, TX 79706
Phone 432-689-7252

Nov. 06, 2019

Mike Dunn
AMI
416 East Main St.
Artesia, NM 88210

Station Name:	GOODMAN BATTERY	Sampled By:	DONAVON MILLER
Sample Point:	HEATER	Sample Of:	Oil Spot
Method:	GPA 2103M	Sample Date:	10/22/2019
Analyzed:	11/01/2019 00:45:22 by MB2	Sample Conditions:	92 °F

Analytical Data

Components	Mol. %	MW	Wt. %	Sp. Gravity	L.V. %
Hydrogen Sulfide	NIL	NIL	NIL	NIL	NIL
Nitrogen	0.040	28.013	0.007	0.8069	0.007
Methane	0.030	16.043	0.003	0.3000	0.008
Carbon Dioxide	0.018	44.010	0.005	0.8172	0.005
Ethane	0.397	30.069	0.075	0.3563	0.172
Propane	1.973	44.096	0.546	0.5072	0.878
Iso-Butane	0.888	58.122	0.324	0.5628	0.470
n-Butane	3.377	58.122	1.232	0.5842	1.720
Iso-Pentane	2.391	72.149	1.083	0.6251	1.413
n-Pentane	3.049	72.149	1.381	0.6307	1.786
i-Hexanes	0.796	85.432	0.427	0.6656	0.523
n-Hexane	0.593	86.175	0.321	0.6641	0.394
2,2,4-Trimethylpentane	0.040	114.229	0.029	0.6964	0.034
Benzene	1.324	78.112	0.649	0.8844	0.599
Heptanes	5.468	100.202	3.439	0.6882	4.076
Toluene	2.974	92.138	1.720	0.8719	1.609
Octanes	7.251	114.229	5.199	0.7066	6.003
Ethylbenzene	1.408	106.165	0.938	0.8716	0.878
Xylenes	1.552	106.167	1.034	0.8761	0.963
Nonanes	5.169	128.255	4.161	0.7222	4.700
Decanes Plus	61.262	201.356	77.427	0.8564	73.762
	100.000		100.000		100.000

Calculated Physical Properties	Total	C10+
Specific Gravity at 60°F	0.8158	0.8564
API Gravity at 60°F	41.949	33.735
Molecular Weight	159.316	201.356
Pounds per Gallon (in Vacuum)	6.801	7.140
Pounds per Gallon (in Air)	6.794	7.132
Cu. Ft. Vapor per Gallon @ 14.696 psia	16.201	13.455

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.

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Midland Laboratory
2200 East I-20
Midland, TX 79706
Phone 432-689-7252

Certificate of Analysis

Number: 5030-19100539-002A

Mike Dunn
AMI
416 East Main St.
Artesia, NM 88210

Nov. 06, 2019

Station Name: GOODMAN BATTERY
Sample Point: HEATER
Sample Conditions: 92 °F

Sampled By: DONAVON MILLER
Sample Of: Oil Spot
Sample Date: 10/22/2019

Analytical Data

Test	Method	Result	Units	Detection Limit	Lab Tech.	Analysis Date
API Gravity @ 60° F	ASTM D-5002	37.63	°			11/06/2019
Specific Gravity @ 60/60° F	ASTM D-5002	0.8367	_			11/06/2019
Density @ 60° F	ASTM D-5002	0.8358	g/ml			11/06/2019
ASTM D323 RVPE @ 100° F	ASTM D-6377	8.13	psi			11/06/2019
VP of Crude Oil: V/L = 4:1 @ 100 °F	ASTM D-6377	8.89	psi			11/06/2019

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.

0536

Liquid Analysis - Use if the Inputs are Weight Percents

Analysis Identifier/Name	
What site is the sample from?	
If the sample is from a representaive site, explain how this sampled stream is representative of the similar stream at this site (use the notes box provided below if more space is needed).	
Where in the process was the sample taken?	
What is the temperature and pressure of the sample (include units)?	
Who analyzed the sample?	
Date of sample:	

Component	**weight %**
hydrogen	
helium	
nitrogen	
CO2	
H2S	
methane (C1)	
ethane (C2)	
propane (C3)	
butanes (C4)	
pentanes (C5)	
benzene	
other hexanes (C6)	
toluene	
other heptanes (C7)	
ethylbenzene	
xylenes (o, m, p)	
other octanes (C8)	
nonanes (C9)	
decanes plus (C10+)	
Totals:	0.0000

VOC (Non-methane, Non-ethane hydrocarbons)

VOC content of total sample

VOC weight% = 0.0000
VOC weight fraction = 0.0000

VOC content of hydrocarbon fraction only

VOC weight% = #DIV/0!
VOC weight fraction = #DIV/0!

Hydrogen Sulfide

H2S weight% = 0.0000
H2S weight fraction = 0.00E+00
H2S ppm_V =
H2S ppm_{WT} = 0.00

Benzene

Benzene content of total sample

Benzene weight% = 0.0000
Benzene weight fraction = 0.0000

Benzene content of hydrocarbon fraction only

Benzene weight% = #DIV/0!
Benzene weight fraction = #DIV/0!

Liquid Analysis - Use if the Inputs are Mole Percents

Analysis Identifier/Name	Goodman Battery Liquid Analysis
What site is the sample from?	
If the sample is from a representaive site, explain how this sampled stream is representative of the similar stream at this site (use the notes box provided below if more space is needed).	
Where in the process was the sample taken?	
What is the temperature and pressure of the sample (include units)?	
Who analyzed the sample?	
Date of sample:	

Component	**mole %**	Molecular Weight (grams/mole, lb/lb-mol)	grams per 100 moles of gas	**weight %**
hydrogen	0.0000	2.01588	0	0.0000
helium	0.0000	4.0026	0	0.0000
nitrogen	0.0400	28.01340	1	0.0070
CO2	0.0180	44.00950	1	0.0050
H2S	0.0000	34.08188	0	0.0000
methane (C1)	0.0300	16.04246	0	0.0030
ethane (C2)	0.3970	30.06904	12	0.0749
propane (C3)	1.9730	44.09562	87	0.5461
butanes (C4)	4.2650	58.12220	248	1.5560
pentanes (C5)	5.4860	72.14878	396	2.4845
benzene	1.3240	78.110000	103	0.6492
other hexanes (C6)	1.3890	86.18000	120	0.7514
toluene	2.9740	92.140000	274	1.7201
other heptanes (C7)	5.4680	100.20000	548	3.4392
ethylbenzene	1.4080	106.170000	149	0.9383
xylenes (o, m, p)	1.5520	106.170000	165	1.0343
other octanes (C8)	7.2510	114.22900	828	5.1991
nonanes (C9)	5.1690	128.25500	663	4.1614
decanes plus (C10+)	61.2620	201.35600	12335	77.4305
Totals:	100.0060	159.31	15931.0301	100.00

VOC (Non-methane, Non-ethane hydrocarbons)

VOC content of total sample

VOC weight% = 99.9100
VOC weight fraction = 0.9991

VOC content of hydrocarbon fraction only

VOC weight% = 99.9220
VOC weight fraction = 0.9992

Hydrogen Sulfide

H2S weight% = 0.0000
H2S weight fraction = 0.00E+00
H2S ppm_V = 0.00
H2S ppm_{WT} = 0.00

Benzene

Benzene content of total sample

Benzene weight% = 0.6492
Benzene weight fraction = 0.0065

Benzene content of hydrocarbon fraction only

Benzene weight% = 0.6492
Benzene weight fraction = 0.0065

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

Identification	
User Identification:	1000 BBL OIL TANK
City:	Houston
State:	Texas
Company:	Spur Energy Partners
Type of Tank:	Vertical Fixed Roof Tank
Description:	Dorami 2H, 4H, & 9H Federal Oil Tank Battery 4 - 1000 BBL OIL TANKS DAILY FACILITY THROUGHPUT: 2300 BBL/DAY DAILY TANK THROUGHPUT: 575 BBL/DAY/TANK
Tank Dimensions	
Shell Height (ft):	30.00
Diameter (ft):	15.50
Liquid Height (ft) :	29.00
Avg. Liquid Height (ft):	15.00
Volume (gallons):	40,934.03
Turnovers:	215.34
Net Throughput(gal/yr):	8,814,750.00
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)	0.00
Slope (ft/ft) (Cone Roof)	0.00
Breather Vent Settings	
Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Roswell, New Mexico (Avg Atmospheric Pressure = 12.73 psia)

0538

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

1000 BBL OIL TANK - Vertical Fixed Roof Tank
Houston, Texas

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
Crude oil (RVP 5)	All	72.26	58.28	86.25	63.90	3.6413	2.7818	4.7011	50.0000			207.00	Option 4: RVP=5

0539

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

1000 BBL OIL TANK - Vertical Fixed Roof Tank
Houston, Texas

Annual Emission Calcaulations	
Standing Losses (lb):	2,620.1925
Vapor Space Volume (cu ft):	2,830.3786
Vapor Density (lb/cu ft):	0.0319
Vapor Space Expansion Factor:	0.3097
Vented Vapor Saturation Factor:	0.2567
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	2,830.3786
Tank Diameter (ft):	15.5000
Vapor Space Outage (ft):	15.0000
Tank Shell Height (ft):	30.0000
Average Liquid Height (ft):	15.0000
Roof Outage (ft):	0.0000
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.0000
Roof Height (ft):	0.0000
Roof Slope (ft/ft):	0.0000
Shell Radius (ft):	7.7500
Vapor Density	
Vapor Density (lb/cu ft):	0.0319
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.6413
Daily Avg. Liquid Surface Temp. (deg. R):	531.9348
Daily Average Ambient Temp. (deg. F):	60.8167
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	523.5667
Tank Paint Solar Absorptance (Shell):	0.6800
Tank Paint Solar Absorptance (Roof):	0.6800
Daily Total Solar Insulation Factor (Btu/sqft day):	1,810.0000
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.3097
Daily Vapor Temperature Range (deg. R):	55.9424
Daily Vapor Pressure Range (psia):	1.9192
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.6413
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.7818
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	4.7011
Daily Avg. Liquid Surface Temp. (deg R):	531.9348
Daily Min. Liquid Surface Temp. (deg R):	517.9492
Daily Max. Liquid Surface Temp. (deg R):	545.9204
Daily Ambient Temp. Range (deg. R):	29.8333
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.2567
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	3.6413
Vapor Space Outage (ft):	15.0000
Working Losses (lb):	8,768.9213
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.6413
Annual Net Throughput (gal/yr.):	8,814,750.0000
Annual Turnovers:	215.3404
Turnover Factor:	0.3060
Maximum Liquid Volume (gal):	40,934.0270
Maximum Liquid Height (ft):	29.0000
Tank Diameter (ft):	15.5000
Working Loss Product Factor:	0.7500
Total Losses (lb):	11,389.1138

0540

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

Emissions Report for: Annual

1000 BBL OIL TANK - Vertical Fixed Roof Tank
Houston, Texas

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Crude oil (RVP 5)	8,768.92	2,620.19	11,389.11

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

Identification

User Identification:	1000 BBL WATER TANK
City:	Houston
State:	Texas
Company:	Spur Energy Partners
Type of Tank:	Vertical Fixed Roof Tank
Description:	Dorami 2H, 4H, & 9H Federal Oil Tank Battery 4 - 1000 BBL WATER TANKS DAILY FACILITY THROUGHPUT: 8000 BBL/DAY DAILY TANK THROUGHPUT: 2000 BBL/DAY/TANK

Tank Dimensions

Shell Height (ft):	30.00
Diameter (ft):	15.50
Liquid Height (ft) :	29.00
Avg. Liquid Height (ft):	15.00
Volume (gallons):	40,934.03
Turnovers:	749.01
Net Throughput(gal/yr):	30,660,000.00
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)	0.25
Slope (ft/ft) (Cone Roof)	0.03

Breather Vent Settings

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

Meterological Data used in Emissions Calculations: Roswell, New Mexico (Avg Atmospheric Pressure = 12.73 psia)

0542

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

1000 BBL WATER TANK - Vertical Fixed Roof Tank
Houston, Texas

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
Crude oil (RVP 5)	All	72.26	58.28	86.25	63.90	3.6413	2.7818	4.7011	50.0000			207.00	Option 4: RVP=5

0543

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

1000 BBL WATER TANK - Vertical Fixed Roof Tank
Houston, Texas

Annual Emission Calcaulations	
Standing Losses (lb):	2,623.9145
Vapor Space Volume (cu ft):	2,846.1030
Vapor Density (lb/cu ft):	0.0319
Vapor Space Expansion Factor:	0.3097
Vented Vapor Saturation Factor:	0.2557
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	2,846.1030
Tank Diameter (ft):	15.5000
Vapor Space Outage (ft):	15.0833
Tank Shell Height (ft):	30.0000
Average Liquid Height (ft):	15.0000
Roof Outage (ft):	0.0833
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.0833
Roof Height (ft):	0.2500
Roof Slope (ft/ft):	0.0300
Shell Radius (ft):	7.7500
Vapor Density	
Vapor Density (lb/cu ft):	0.0319
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.6413
Daily Avg. Liquid Surface Temp. (deg. R):	531.9348
Daily Average Ambient Temp. (deg. F):	60.8167
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	523.5667
Tank Paint Solar Absorptance (Shell):	0.6800
Tank Paint Solar Absorptance (Roof):	0.6800
Daily Total Solar Insulation Factor (Btu/sqft day):	1,810.0000
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.3097
Daily Vapor Temperature Range (deg. R):	55.9424
Daily Vapor Pressure Range (psia):	1.9192
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.6413
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.7818
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	4.7011
Daily Avg. Liquid Surface Temp. (deg R):	531.9348
Daily Min. Liquid Surface Temp. (deg R):	517.9492
Daily Max. Liquid Surface Temp. (deg R):	545.9204
Daily Ambient Temp. Range (deg. R):	29.8333
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.2557
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	3.6413
Vapor Space Outage (ft):	15.0833
Working Losses (lb):	20,606.0812
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.6413
Annual Net Throughput (gal/yr.):	30,660,000.0000
Annual Turnovers:	749.0101
Turnover Factor:	0.2067
Maximum Liquid Volume (gal):	40,934.0270
Maximum Liquid Height (ft):	29.0000
Tank Diameter (ft):	15.5000
Working Loss Product Factor:	0.7500
Total Losses (lb):	23,229.9958

0544

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

Emissions Report for: Annual

1000 BBL WATER TANK - Vertical Fixed Roof Tank
Houston, Texas

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Crude oil (RVP 5)	20,606.08	2,623.91	23,230.00

0545

GFS SERIES DUAL PRESSURE FLARE

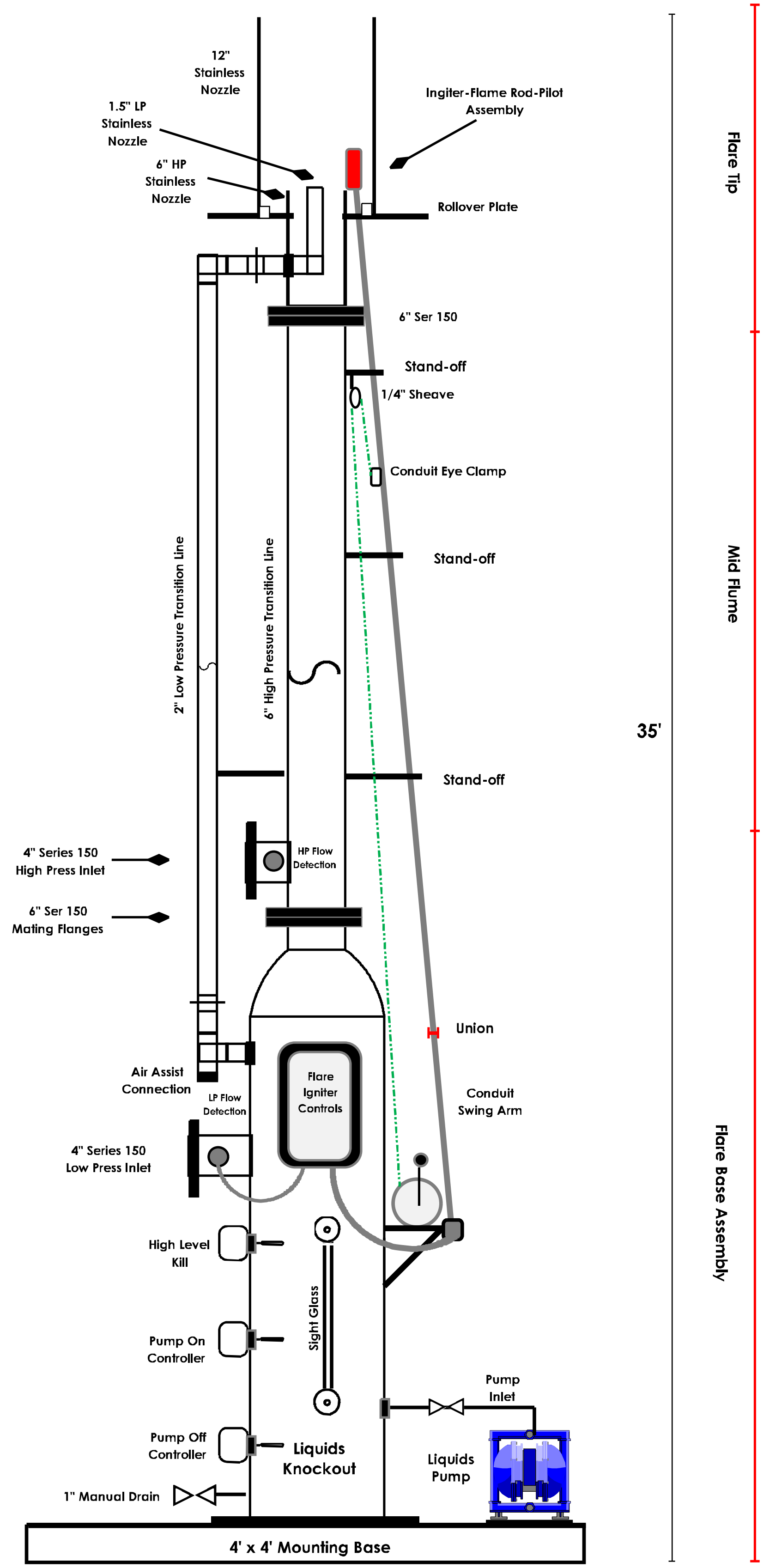
INSTALLATION & OPERATIONS MANUAL

601 Quail Run Road – Weatherford, Texas 76088 - Office – 855-582-7769 / Website www.vaproxllc.com

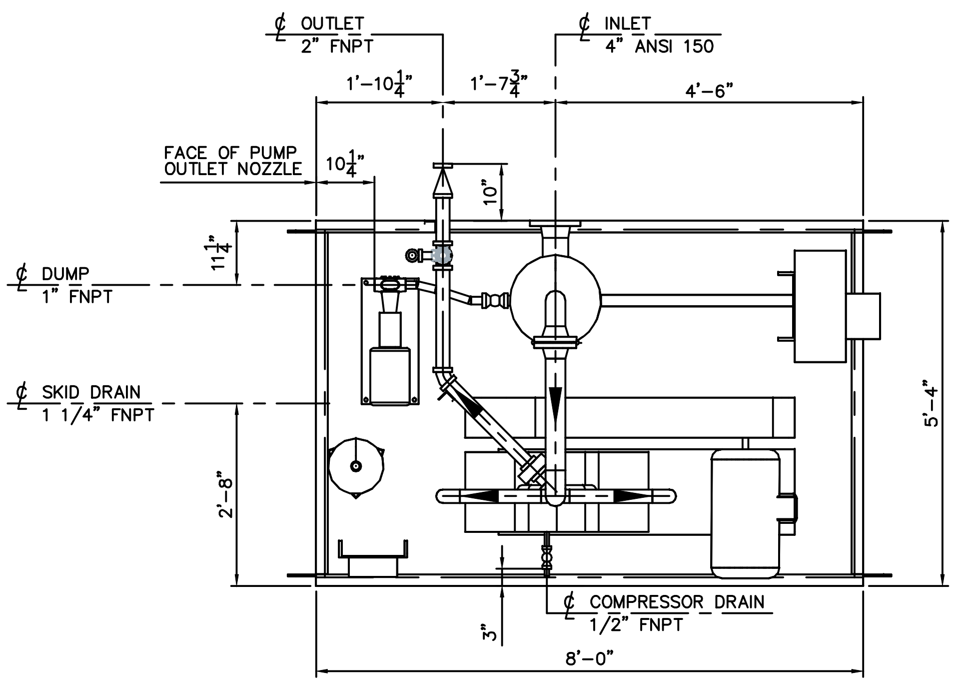
Dual Pressure Flare - Oil Flare

Vaprox (https://www.vaporprocess.com/) offers a full line of tank battery dual pressure flares. These Systems utilize one flare assembly that attains 98% or greater VOC destruction efficiency for both low pressure tank vapor gas and high pressure emergency vent gas while complying with all state and federal air quality regulations. The dual pressure flare system eliminates the need for a second flare on your tank battery facility, thus reducing construction costs. All Vaprox systems are available in 12vdc and 120vac and come standard with an interchangeable ventilated (smokeless) stainless steel flare tip. Vaprox flares are designed to control liquids found in the waste gas stream with a scrubber pot located at the base completed with a liquid sight glass, level switch, and liquid evacuation pump (pneumatic diaphragm or electric). Vaprox's unique retractable igniter assembly allows the operator to lower the igniter assembly to ground level for maintenance purposes without the cost and safety concerns associated with operating a man lift. You can be sure you're getting the utmost quality and safety from our dual pressure flare by Vaprox (https://www.vaporprocess.com/).

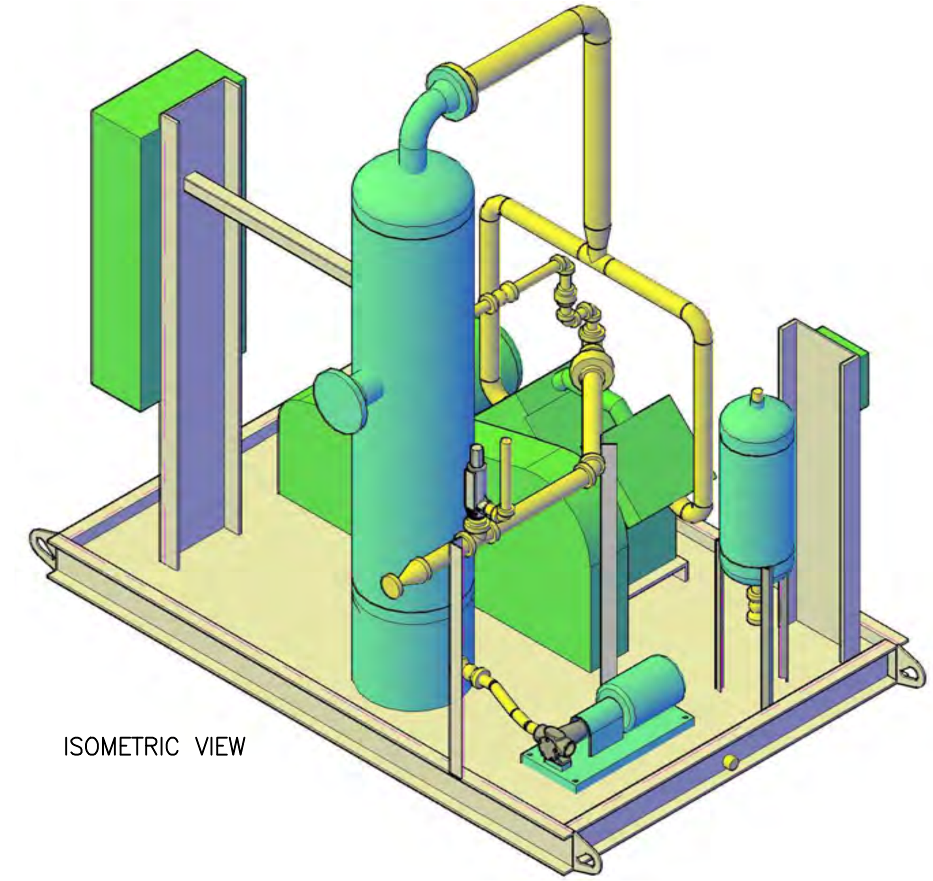
Dual pressure flare and oil flare systems are available with a variety of equipment options including continuous pilot, continuous or intermittent ignition, flow activated ignition, flow detection, mass flow measurement, flame detection via flame rod or thermocouple, data logging with SCADA reporting via RS485 Modbus, flame arrestors, and custom guy wire systems.



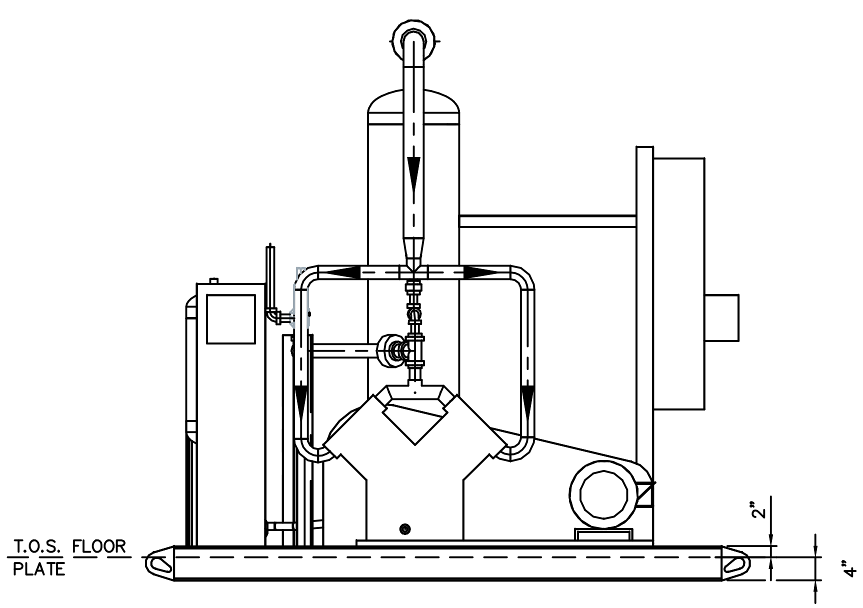
TITLE	Vaprox Dual Pressure Flare - Standard Configuration				
AUTHOR	R. Hogue				
DATE	1-19-2015	SHEET	1	OF	1
REVISION	Revision 1E Vaprox , LLC				



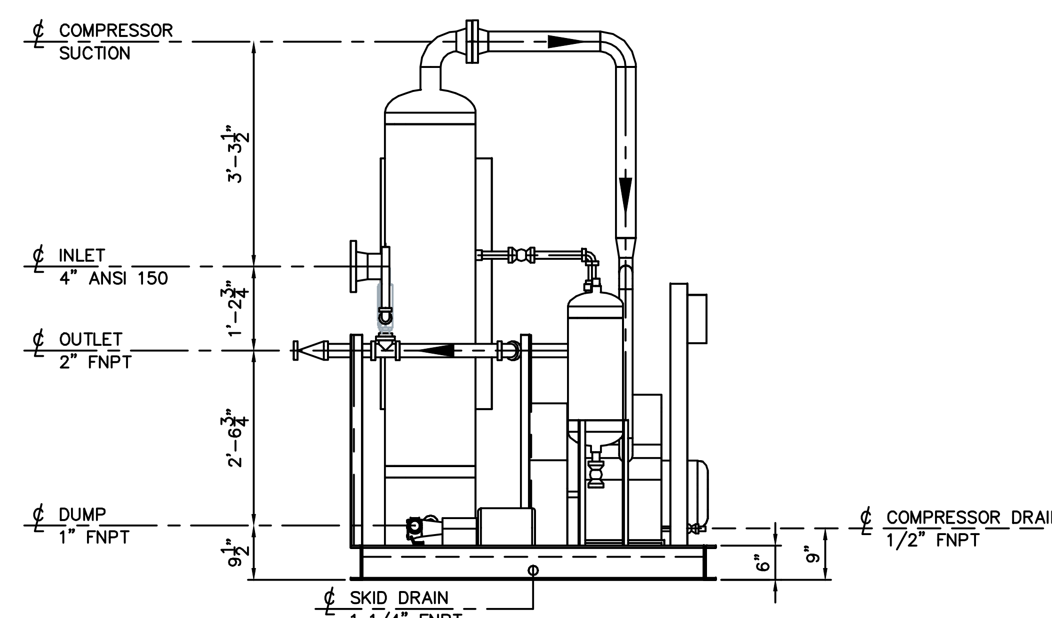
PLAN VIEW



ISOMETRIC VIEW



SIDE VIEW



END VIEW

NOTE:
1. THIS DRAWING IS BASED ON FIELD DIMENSIONS TAKEN FROM A EXISTING UNIT THAT WAS AT RICHARD'S ENERGY COMPRESSIONS MIDLAND SHOP.
2. ON-SKID INSTRUMENTATION, TUBING, AND CONDUIT NOT SHOWN.

REFERENCE DRAWINGS

NO.	TITLE

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK.	APP.
A	06/11/12	ISSUED FOR REVIEW	ALS	KL	

ENGINEERING RECORD

	BY	DATE
DRN:	ALS	06/11/19
DES:		
CHK:	KL	06/11/19
APP:		
AFE No.		
CLIENT ENGR:		
PROJ. ENGR:		
SCALE:	NONE	

NCG NICHOLAS CONSULTING GROUP, INC.
NICHOLAS CONSULTING GROUP, INC.
MIDLAND, TEXAS
www.theNCG.com

CAD NO. D482785100

RICHARD'S ENERGY COMPRESSION, LLC

RICHARD'S ENERGY COMPRESSION, LLC
GENERAL ARRANGEMENT
PLAN, SIDE, END & ISOMETRIC VIEWS
VAPOR RECOVERY UNIT

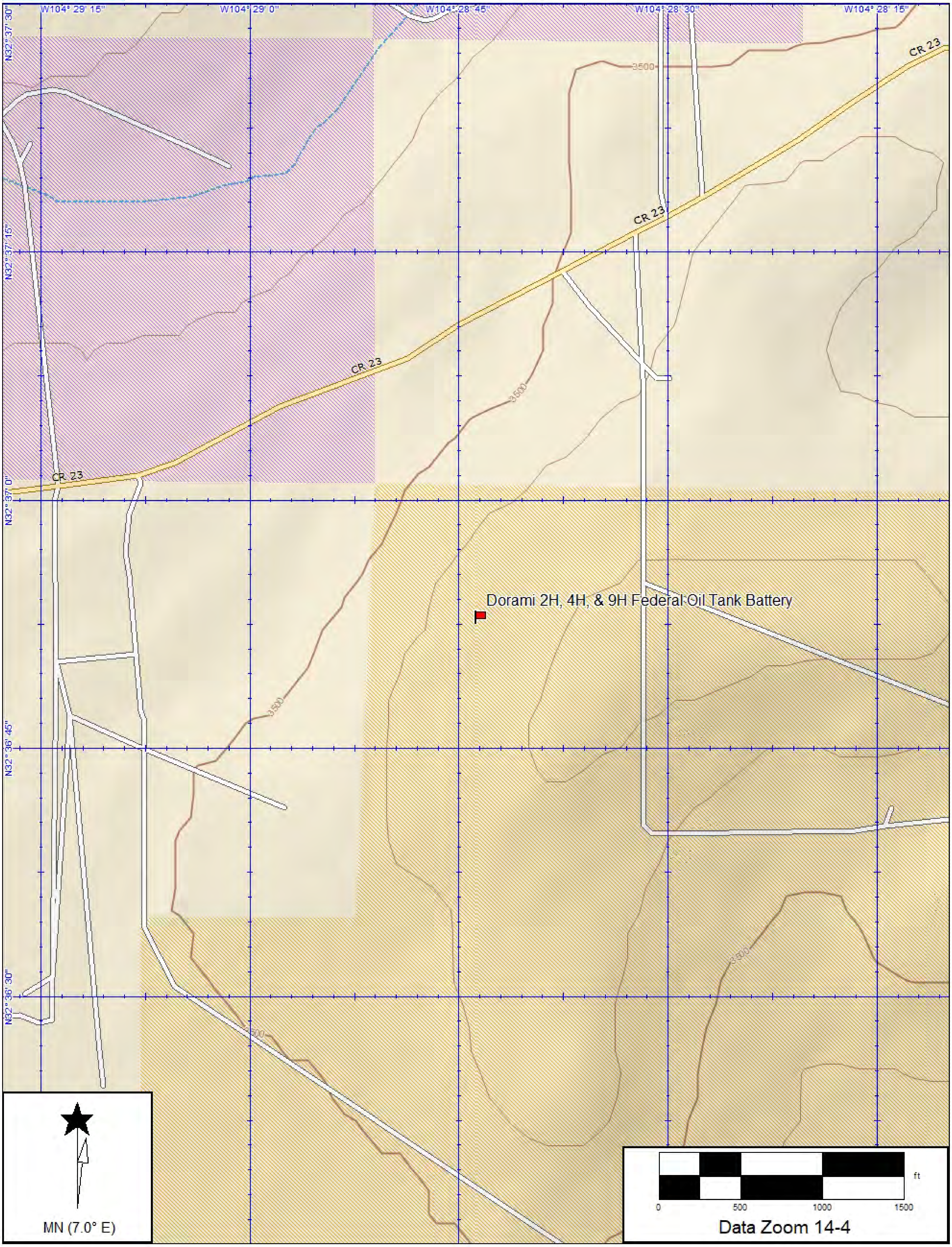
PROJ. NO.	DWG. NO.	REV
4827	D-4827-85-100	A

Section 7

Map(s)

A map such as a 7.5 minute topographic quadrangle showing the exact location of the source. The map shall also include the following:

The UTM or Longitudinal coordinate system on both axes	An indicator showing which direction is north
A minimum radius around the plant of 0.8km (0.5 miles)	Access and haul roads
Topographic features of the area	Facility property boundaries
The name of the map	A graphical scale


W104° 29' 15"
W104° 29' 0"
W104° 28' 45"
W104° 28' 30"
W104° 28' 15"
N32° 37' 30"
N32° 37' 15"
N32° 37' 0"
N32° 36' 45"
N32° 36' 30"
CR 23
CR 23
CR 23
CR 23
3500
3500
3500
3500
Dorami 2H, 4H, & 9H Federal Oil Tank Battery
MN (7.0° E)
ft
0
500
1000
1500
Data Zoom 14-4

Section 8A

Applicable State & Federal Regulations

Provide a discussion demonstrating compliance with each applicable state & federal regulation. All input cells should be filled in, even if the response is 'No' or 'N/A'.

In the "Justification" column, identify the criteria that are critical to the applicability determination, numbering each. For each unit listed in the "Applies to Unit No(s)" column, after each listed unit, include the lowest level citation of the applicable regulation. For each unit, list the information necessary to verify the applicability of the regulation, including date of manufacture, date of construction, size (hp), and combustion type. Doing so will provide the applicability criteria for each unit.

Applicable STATE REGULATIONS:

STATE REGU-LATIONS CITATION	Title	Federally Enforceable	Overview of Regulation	Unit(s) or Facility	Applies? (Yes or No)	JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m^3, 3. VOL)
20.2.1 NMAC	General Provisions	Yes	General Provisions apply to Notice of Intent, Construction, and Title V permit applications.	Facility	Yes	
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	20.2.3 NMAC is a State Implementation Plan (SIP) approved regulation that limits the maximum allowable concentration of Sulfur Compounds, Carbon Monoxide, and Nitrogen Dioxide.	Facility	Yes	20.2.3 NMAC is a SIP approved regulation that limits the maximum allowable concentration of Total Suspended Particulates, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide. The facility meets maximum allowable concentrations of the TSP, SO_2, H_2S, NOx, and CO under this regulation.
20.2.7 NMAC	Excess Emissions	Yes	If your entire facility or individual pieces of equipment are subject to emissions limits in a permit or numerical emissions standards in a federal or state regulation, this applies.	Facility	Yes	This regulation establishes requirements for the facility if operations at the facility result in any excess emissions. The owner or operator will operate the source at the facility having an excess emission, to the extent practicable, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. The facility will also notify the NMED of any excess emissions.
20.2.38 NMAC	Hydrocarbon Storage Facility	No	20.2.38.109 TANK STORAGE ASSOCIATED WITH PETROLEUM PRODUCTION OR PROCESSING FACILITY	TK-1, TK-2, TK-3, TK-4, PWTK-1, PWTK-2, PWTK-3, PWTK-4	Yes	The purpose of this regulation is to minimize hydrogen sulfide emissions from hydrocarbon storage facilities. The storage tanks, TK-1 through TK-4 & PWTK-1 through PWTK-4 are a new production facility as they were constructed after July 1, 1975. The tanks are all 1000 bbl. The tanks are subject to 20.2.38.109 NMAC. The tanks comply with the requirement to minimize vapor loss to the atmosphere through use of the flare
20.2.61.109 NMAC	Smoke & Visible Emissions	No	Engines and heaters are Stationary Combustion Equipment. Specify units subject to this regulation.	FWKO-1, FWKO-1, FWKO-3, HT-1,	Yes	This regulation establishes controls on smoke and visible emissions from certain sources, including stationary combustion equipment. The heaters and flare are subject to this regulation as they are

STATE REGU-LATIONS CITATION	Title	Federally Enforceable	Overview of Regulation	Unit(s) or Facility	Applies? (Yes or No)	JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m^3, 3. VOL)
				FLARE		stationary combustion equipment.
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	NOI: 20.2.73.200 NMAC applies to all facilities emitting over 10 TPY of any regulated air contaminate. Thus, permitted facilities are also subject to this rule. This GCP-O&G registration also serves the purpose of meeting 20.2.73 the NMAC notification requirements.) Emissions Inventory: 20.2.73.300.A(1) NMAC applies to facilities registering under the GCP. Emission Inventory reporting is required upon request by the department per 20.2.73.300.B(4) NMAC.	Facility	YES	This regulation establishes emission inventory requirements. The facility meets the applicability requirements of 20.2.73.300 NMAC. The facility will meet any applicable reporting requirements under 20.2.73 NMAC.
20.2.77 NMAC	New Source Performance	Yes	This is a stationary source which is subject to the requirements of 40 CFR Part 60, as amended on the date of certification.	Facility	YES	The facility is subjects to NSPS OOOOa
20.2.78 NMAC	Emission Standards for HAPS	Yes	This facility emits hazardous air pollutants which are subject to the requirements of 40 CFR Part 61, as amended on the date of certification.	NA	NO	The facility is a minor source for HAPS
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 63, as amended on the date of certification.	NA	NO	The purpose of this regulation is to establish state authority to implement new source performance standards for stationary sources in New Mexico subject to 40 CFR Part 63. This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 63, as amended through August 29, 2013. This regulation does not apply as no units at this facility are subject to 40 CFR Part 63.

Applicable FEDERAL REGULATIONS (This is not an exhaustive list; add applicable regulations such as NSPS GG and KKKK):

FEDERAL REGU-LATIONS CITATION	Title	Overview of Regulation	Units(s) or Facility	Applies? (Yes or No)	JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m3, 3. VOL)
40 CFR 50	NAAQS	Defined as applicable at 20.2.70.7.E.11, Any national ambient air quality standard	Facility	YES	This regulation defines national ambient air quality standards. The facility meets all applicable national ambient air quality standards for NOx, CO, SO2, H2S, PM10, and PM2.5 under this regulation.
40 CFR 60, Subpart A	General Provisions	Applies if any other NSPS subpart applies.	Facility, Flare	YES	Applies if any other NSPS subpart applies.
40 CFR 60, Subpart OOOO	Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction	If there is a standard or other requirement, then the facility is an "affected facility." Currently there are standards for: gas wells (60.5375); centrifugal compressors (60.5380); reciprocating compressors (60.5385): controllers		NO	

FEDERAL REGU-LATIONS CITATION	Title	Overview of Regulation	Units(s) or Facility	Applies? (Yes or No)	JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m3, 3. VOL)
	Commenced After August 23, 2011, and on or before September 18, 2015	(60.5390); storage vessels (60.5395); equipment leaks (60.5400); sweetening units (60.5405). **If standards apply, list the unit number(s) and regulatory citation of the standard that applies to that unit (e.g. Centrifugal Compressors 1a-3a are subject to the standards at 60.5380(a)(1) and (2) since we use a control device to reduce emissions)**			
40 CFR 60, Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015	If there is a standard or other requirement, then the facility is an "affected facility." Currently there are standards for: gas wells (60.5375a); centrifugal compressors (60.5380a); reciprocating compressors (60.5385a): controllers (60.5390a); storage vessels (60.5395a); fugitive emissions at well sites and compressor stations (60.5397a); equipment leaks at gas plants (60.5400a); sweetening units (60.5405a).	Fugitives TK-1, TK-2, TK-3, TK-4, PWTK-1, PWTK-2, PWTK-3, PWTK-4, VRU-1, FLARE	**YES**	This regulation establishes standards of performance for crude oil and natural gas production, transmission and distribution. The rule applies to "affected" facilities that are constructed, modified, or reconstructed after September 18, 2015. The facility commenced construction after September 18, 2015. The facility is therefor subject to NSPS OOOOa.
40 CFR 60, Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	See 40 CFR 60.4200(a) 1 through 4 to determine applicable category and state engine size, fuel type, and date of manufacture.	NA	**NO**	
40 CFR 60, Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	See 40 CFR 60.4230(a), 1 through 5 to determine applicable category and state engine size, fuel type, and date of manufacture.	NA	**NO**	
40 CFR 63, Subpart A	General Provisions	Applies if any other subpart applies.	NA	**NO**	
40 CFR 63, Subpart HH	NESHAP for Glycol Dehydrators	See 40 CFR 63, Subpart HH	NA	**NO**	
40 CFR 63, Subpart ZZZZ	NESHAP for Stationary Reciprocating Internal Combustion Engines (**RICE MACT**)	Facilities are subject to this subpart if they own or operate a stationary RICE, except if the stationary RICE is being tested at a stationary RICE test cell/stand.	NA	**NO**	

Section 8B
Compliance Test History

To evaluate the requirement for compliance tests, you must submit a compliance test history. The table below provides an example.

Compliance Test History Table

Unit No.	Test Description	Test Date

Section 9 Proof of Public Notice

General Posting of Notice

I, JERRY MATHEWS, the undersigned, certify that on 2/6/20 (DATE), I posted a true and correct copy of the attached Public Notice in a publicly accessible and conspicuous place, visible from the nearest public road, at the entrance of the property on which the facility is, or is proposed to be, located.

Signed this 5 day of FEBRUARY, 2020.

Jerry Mathews 2/5/20
Signature Date

JERRY MATHEWS Production Superintendent
Printed Name Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

Newspaper Publication of Notice

☐ An original or copy of the actual newspaper advertisement posted in a newspaper in general circulation in the applicable county is attached. The original or copy of the advertisement includes the header showing the date and newspaper or publication title.

OR

☒ An affidavit from the newspaper or publication in general circulation in the applicable county stating that the advertisement was published is attached. The affidavit includes the date of the advertisement's publication, and a legible photocopy of the entire ad.

Signature Date

NOTICE

Spur Energy Partners LLC announces its intent to apply to the New Mexico Environment Department for an air quality General Construction Permit, (GCP-Oil and Gas). The name of this facility is Dorami 2H, 4H, & 9H Federal Oil Tank Battery. The expected date of the submittal of our Registration for an air quality permit to the Air Quality Bureau is February 19, 2020. This notice is a requirement according to New Mexico air quality regulations.

The exact initial location of the facility is UTM Zone 13, UTM Easting 548,896 m, UTM Northing 3,608,681 m. The approximate location of this site is 16.4 miles southwest of Artesia, NM in Eddy County. The standard operating schedule of this facility will be continuous.

Air emissions of any regulated air contaminant will be less than or equal to:

Pollutant	Tons per year (TPY)
1. Nitrogen Oxides (NOx)	95
2. Carbon Monoxide (CO)	95
3. Volatile Organic Compounds (VOC) (stack)	95
4. Particulate Matter (PM10)	25
5. Particulate Matter (PM2.5)	25
6. Total Suspended Particulates	25
7. Sulfur Dioxide (SO2)	95
8. Hydrogen Sulfide (H2S)	25
9. Any one (1) Hazardous Air Pollutant (HAP)	< 10
10. Sum of all Hazardous Air Pollutants (HAPs)	< 25

The owner and/or operator of the Plant is:

Spur Energy Partners LLC
920 Memorial City Way, Suite 1000
Houston, Texas 77024

If you have any questions or comments about construction or operation of above facility, and want your comments to be made as a part of the permit review process, you must submit your comments in writing to the address below:

New Mexico Environment Department
Air Quality Bureau Permit Section
525 Camino de los Marquez, Suite 1
Santa Fe, New Mexico, 87505
Phone (505) 476-4300
Fax (505) 476-4375
www.env.nm.gov/aqb
Other comments and questions may be submitted verbally.

Please refer to the company name and site name, as used in this notice or send a copy of this notice along with your comments, since the Department may not have received the permit Registration at the time of this notice.

Attención

Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-476-5557.

Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kristine Yurdin, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

Affidavit of Publication

No. 25379

State of New Mexico Publisher

County of Eddy:

Danny Scott

being duly sworn sayes that he is the **Publisher**

of the Artesia Daily Press, a daily newspaper of General circulation, published in English at Artesia, said county and state, and that the hereto attached

Legal Ad

was published in a regular and entire issue of the said Artesia Daily Press, a daily newspaper duly qualified for that purpose within the meaning of Chapter 167 of the 1937 Session Laws of the state of New Mexico for

1 Consecutive weeks/day on the same day as follows:

First Publication	February 6, 2020
Second Publication	
Third Publication	
Fourth Publication	
Fifth Publication	
Sixth Publication	
Seventh Publication	

Subscribed and sworn before me this

6th day of February 2020

OFFICIAL SEAL
Latisha Romine
NOTARY PUBLIC-STATE OF NEW MEXICO
My commission expires: 5/12/2023

Latisha Romine

Latisha Romine

Notary Public, Eddy County, New Mexico

Copy of Publication:

Legal Notice

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4. Particulate Matter (PM10)	25
5. Particulate Matter (PM2.5)	25
6. Total Suspended Particulates	25
7. Sulfur Dioxide (SO2)	95
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9. Any one (1) Hazardous Air Pollutant (HAP)	< 10
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Spur Energy Partners LLC
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Phone (505) 476-4300
Fax (505) 476-4375
www.env.nm.gov/aqb

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Section 10
Certification

Company Name: Spur Energy Partners LLC

I, Todd Mucha, hereby certify that the information and data submitted in this Registration are true and as accurate as possible, to the best of my knowledge and professional expertise and experience.

Signed this ____ day of ________________, ________, upon my oath or affirmation, before a notary of the State of

__________________________________.

______________________________________ ______________________

*Signature Date

______________________________________ ______________________

Printed Name Title

Scribed and sworn before me on this ____ day of _________________________, _________.

My authorization as a notary of the State of ______________________________ expires on the

________________ day of ______________________, _____________.

______________________________________ ______________________

Notary's Signature Date

____

Notary's Printed Name

Permit Tracking Coversheet

COPY

Tech Services Staff & Assigning Manager	Facility AI Name ☐ Tempo Name OK ☒ Use name specified below: **Spur – Dorami 2H, 4H, and 9H Federal Oil Tank Battery**	
	Company Name ☐ Tempo Name OK ☒ Application Name OK ☐ Owner/Operator Change **Spur Energy Partners LLC**	
	Airs #: **35-015-2322** Use portable Airs# (777) for GCPs 2, 3, TC; Streamlines, etc.	Tech Serv Staff Date & Initials
	AI Number: 39447 | Permit No.: **8733**	
	AI Type: **O&G: Production Facility** | Assigned To: Vanessa	2/28/20 LMK
	Previously assigned to (or Major Source Assignment matrix): Choose an item.	
	Activity Class: **NSR** | Activity Type (Graybar)[1] ☐ Use tempo assist to delete actuals **GCP - O&G** ☐ Relocation - Update physical address and Location-Cultural Window	Supervisor Date & Initials 2/28 JR
	User Group: **AQB-GCP-O&G** | General Attribute for New Actions: **SM 80** | ☐ Changing permit type *(end old User Group in MF and add new one.)* ☐ Add end date to AQB user groups + AI *(permit being closed)*	
Data Steward	☒ Permittee & Consultant info updated? | WAL Updated: ☒ Staff Assigned ☒ App Received Date (Use date stamp)	Data Steward Date & Initials: 2/28/20 KS
	PRN or PRT 20200001 | Outstanding invoice? ☒ No ☐ Yes - $	
	Fee: **Received Full payment** Permit Fee type: **GCP ($4,260)** Check Amount: **$4,260**	
Admin Staff 2 days	Create: **Folder & Insert** Folder Color: **Red**	Date & Initials: JL 3/3/20
Permit Specialist	☐ Provided modeling application & CD to modeling manager. ☐ My current plan is to have emissions reviewed by: ______ ☐ Requested date for modeling to be complete: ______ ☐ Permit due date: ______	Date & Initials:
Permit Specialist	☐ Requested invoice due date: (based on 30 days after ruled complete) | If NSR action is Withdrawn or Denied: Take to Data Steward to discuss balance due and invoicing options.	Date & Initials:
Data Steward (NSR only)	☐ Created permitting Balance Due Invoice and Return to Staff	Date & Initials:
Permit Specialist	☐ Permit conversion! In WAL of previous permit actions add "closed" task and enter issuance date of this action.	Date & Initials:
GCP-O&G Int. Review	Assigned to: | Date Completed & put in Mailbox:	Date & Initials:

Notes: NO CD

10125

SEP PERMIAN LLC
OPERATING ACCOUNT
920 MEMORIAL CITY WAY STE #1000
HOUSTON, TX 77024

32-1432/1110

DATE 2/26/20

PAY TO THE ORDER OF New Mexico Air Quality Bureau $ 4,260.00

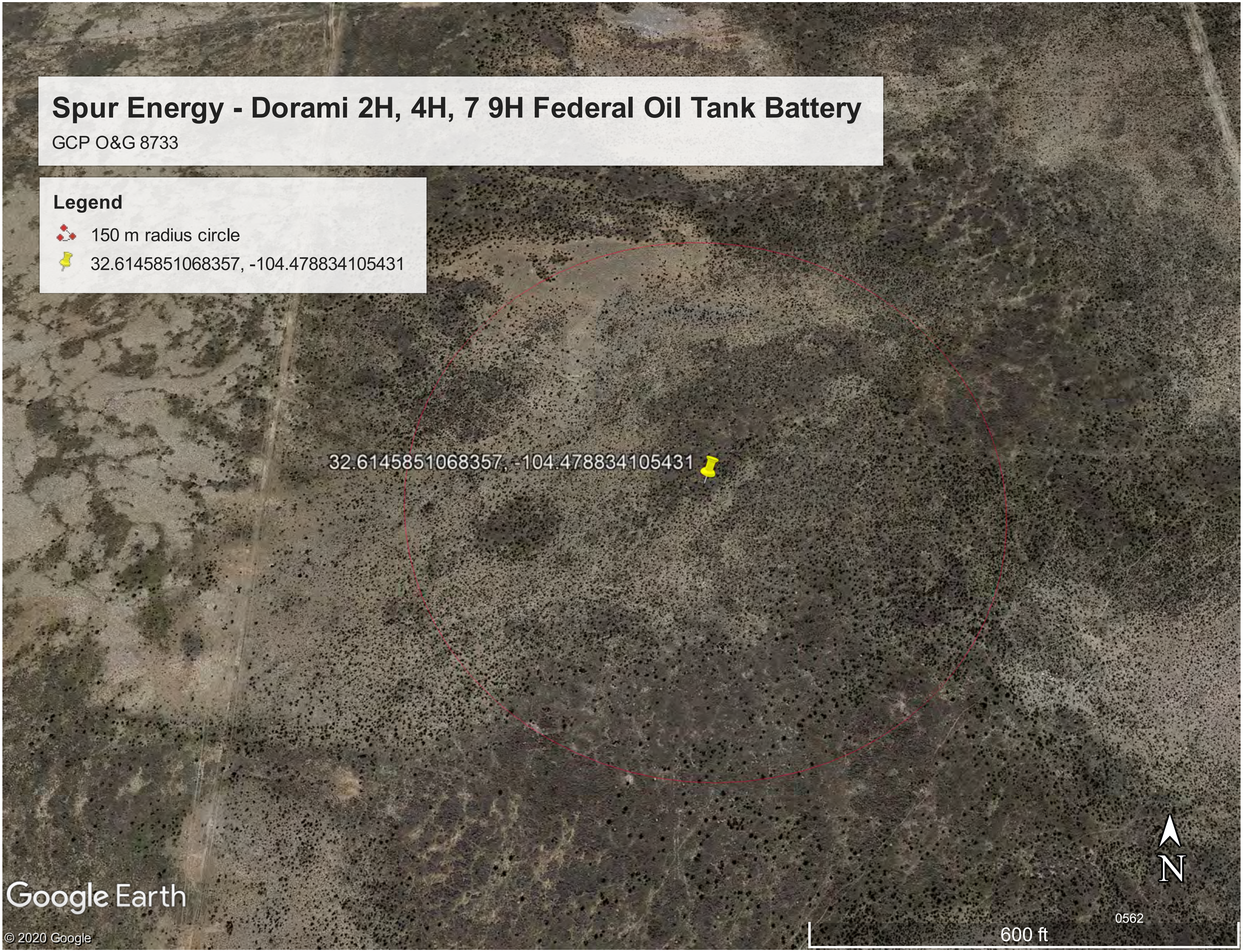
Four Thousand Two Hundred Sixty Dollars and .00/100 Cents DOLLARS

BANK OF TEXAS
www.bankoftexas.com

FOR

⑈010125⑈ ⑆111014325⑆ ⑈8096735487⑈

Received
FEB 27 2020
Air Quality Bureau


Spur Energy - Dorami 2H, 4H, 7 9H Federal Oil Tank Battery
GCP O&G 8733
Legend
150 m radius circle
32.6145851068357, -104.478834105431
32.6145851068357, -104.478834105431
N
Google Earth
© 2020 Google
0562
600 ft

Location Information for Spur Energy - Dorami 2H, 4H, 7 9H Federal Oil Tank
UTMEast: 548896
UTMNorth: 3608681
Elevation: 3531
Zone: 13
DateCreated: 12/12/2019
UserID: Vanessa Springer
Datum: WGS84
Latitude: 32.6145851068357
Longitude: -104.478834105431
PSDMajor: False
SurroundingSourceCount: 0

Table 1: Table of Location Information

Heading	Distance(miles)	Distance(km)	Direction	Site	Company	TEMPO_AI_ID	SumOfEmissions(T/yr)	Pollutant
CO monitor (First closest).	129.72	208.77	east-northeast of	800 S San Marcial Street, El Paso, TX	481410044	0	0	CO
CO monitor (Second closest).	208.05	334.82	southeast of	201 PROSPERITY SE	350010029	0	0	CO
PM10 monitor (First closest).	79.33	127.66	west of	Hobbs - 2320 N. Jefferson St	5ZS	0	0	PM10
PM10 monitor (Second closest).	119.59	192.46	east-northeast of	Chaparral-Chaparral Middle School 680 McCombs	6ZK	0	0	PM10
PM2.5 monitor (First closest).	79.33	127.66	west of	Hobbs - 2320 N. Jefferson St	5ZS	0	0	PM2.5
PM2.5 monitor (Second closest).	130.96	210.76	east-northeast of	Anthony-Elementary School	6CM	0	0	PM2.5
Facility emitting over 25 tons/year (first closest)	3.17	5.11	east of	DCP - Dagger Draw Compressor Station	DCP Operating Company LP	255	92.8	NO2
Facility emitting over 25 tons/year (second closest)	4.29	6.90	east-southeast of	Lucid Artesia - 7 Rivers Draw Compressor Station	Lucid Artesia Company	335	44.4	NO2
Facility emitting over 25 tons/year (third closest)	5.83	9.38	east of	Lucid Artesia - Larue Compressor Station GCP4-0849	Lucid Artesia Company	337	34.3	NO2
Facility emitting over 250 tons/year	11.64	18.73	north-northeast of	OXY - Indian Basin Gas Plant	OXY USA WTP Limited Partnership	197	397.76	NO2

(first closest)								
Facility emitting over 250 tons/year (second closest)	16.53	26.60	south-southwest of	HollyFrontier - Artesia Refinery	HollyFrontier Navajo Refining LLC	198	711.32	NO2
Facility emitting over 250 tons/year (third closest)	18.48	29.74	west-southwest of	Artesia Gas Plant	DCP Operating Company LP	199	646.52	NO2
State Park (first closest).	4.50	7.25	west-northwest of	Brantley Lake	OXY USA WTP Limited Partnership	197	397.76	NO2
State Park (second closest).	14.73	23.70	northwest of	Living Desert Zoo & Gardens	HollyFrontier Navajo Refining LLC	198	711.32	NO2
State Park (third closest).	48.88	78.66	south of	Bottomless Lakes	DCP Operating Company LP	199	646.52	NO2
Class I area (First closest).	28.87	46.45	north of	Carlsbad Caverns National Park		0	0	
Class I area (Second closest).	45.12	72.61	north-northeast of	Guadalupe Mountains National Park		0	0	
Class I area (Third closest).	65.72	105.76	south of	Salt Creek		0	0	
Class I area (Fourth closest).	89.32	143.74	southeast of	White Mountain Wilderness Area		0	0	
City (First closest).	12.34	19.86	south-southwest of	Atoka		0	0	
City (Second closest).	16.37	26.35	south of	Artesia		0	0	
NO2 monitor (First closest).	20.57	33.10	northwest of	2811 Holland Street, Carlsbad, NM	5ZR	0	0	NO2
NO2 monitor (Second closest).	79.33	127.66	west of	Hobbs - 2320 N. Jefferson St	5ZS	0	0	NO2
SO2 monitor	212.14	341.40	southeast of	4700A SAN MATEO NE	350010023	0	0	SO2

(First closest).								
SO2 monitor (Second closest).	212.37	341.77	east of	Hurley-Chino Blvd near Hurley Park	7T	0	0	SO2

GCP Oil & Gas Stack Calculator

Program version: November 5, 2019

NOX Total emission rate	0.315	Equivalent Diameter (for facility)	1.32
Group 2 NOX emission rate			
SO2 total emission rate	7.477		

Set flare NOX emission rate to 0. Set SO2 emission rate to 0 for all equipment but flares and ECD's.

Equipment

ID	Equipment Name	Equipment Type	NOX Rate (lb/hr)	SO2 Rate (lb/hr)		Height (ft)	Diameter (ft)	Velocity (ft/s)	Temperature (deg. F)	Group	Comments
1	FWKO-1	Heater	0.086	0	Actual	25	0.66	21.62	250	3	Small heater, no minimum stack parameters.
					Minimum	0	0	0	0		
2	FWKO-2	Heater	0.086	0	Actual	25	0.66	21.62	250	3	Small heater, no minimum stack parameters.
					Minimum	0	0	0	0		
3	FWKO-3	Heater	0.086	0	Actual	25	0.66	21.62	250	3	Small heater, no minimum stack parameters.
					Minimum	0	0	0	0		
4	HT-1	Heater	0.057	0	Actual	25	0.66	21.62	250	3	Small heater, no minimum stack parameters.
					Minimum	0	0	0	0		
5	Flare	Flare	0	7.477	Actual	35	0	0	0	1	
					Minimum	11.5	0	0	0		

Mail Registration To:		For Department use only:
New Mexico Environment Department Air Quality Bureau 525 Camino de los Marquez, Suite 1 Santa Fe, New Mexico, 87505 Phone (505) 476-4300 Fax (505) 476-4375 www.env.nm.gov/aqb		

General Construction Permit (GCP-Oil and Gas) Registration Form
Section 1
(Locating outside of Bernalillo County, Tribal Lands, and Nonattainment Areas)

This Registration is being submitted as (check all that apply)**:**

☒ An initial GCP-Oil and Gas Registration Form for a new facility (**Registration fee required**).
☐ An updated GCP-Oil and Gas Registration Form for a modification to an existing facility (**Registration fee required**).
☐ A GCP-Oil and Gas Registration Form for an existing facility currently operating under GCP-1 or GCP-4 **(No fee required)**

The Permitting Administrative Multi-Form may be used for administrative changes identified in the GCP O&G Permit Condition C101.A. No public notification is required, and no filing fees or permit fees apply.

Construction Status: ☒ Not Constructed ☐ Existing Permitted (or NOI) Facility ☐ Existing Non-Permitted (or NOI) Facility

Acknowledgements:

☒ I acknowledge that a pre-application meeting is available to me upon request.
☒ An original signed and notarized Certification for Submittal for this GCP-Oil and Gas Registration is included.
☒ Proof of public notice is included, if required.
☒ The Air Emission Calculation Tool (AECT) is included.
☒ The emissions specified in this Registration Form will establish the emission limits in the GCP-Oil and Gas.
☒ **For new registrations or modifications, a check for the registration fee is included for $4190 prior to 1/1/20 or $4260 beginning 1/1/20.** There is an annual fee in addition to the registration fee: www.env.nm.gov/air-quality/permit-fees-2/
Facilities qualifying as a "small business" under 20.2.75.7.F NMAC qualify for reduced fees, provided that NMED has a Small Business Certification Form from your company on file. This form can be found at: www.env.nm.gov/aqb/sbap/Small_Business_Forms.html
Provide your Check Number: ____________ and Amount: $4,260.00

If a fee is required and is not submitted with the application, the registration will be denied.

1)	Company Information	AI # (if known):	If updating, provide Permit/NOI #:
1	Facility Name: Dorami 2H, 4H, & 9H Federal Oil Tank Battery	Plant primary SIC Code (4 digits): 1311 Plant NAIC code (6 digits): 211120	
a	Facility Street Address (If no facility street address, check here ☒ and provide directions in Section 4):		
2	Plant Operator Company Name: Spur Energy Partners LLC	Phone/Fax: 281-795-2286	
a	Plant Operator Address: 920 Memorial City Way, Ste 1000, Houston, Texas 77024		
3	Plant Owner(s) name(s): Spur Energy Partners LLC	Phone/Fax: 281-795-2286	
a	Plant Owner(s) Mailing Address(s): 920 Memorial City Way, Ste 1000, Houston, Texas 77024		

4	Bill To (Company): Spur Energy Partners LLC	Phone/Fax: 281-795-2286
a	Mailing Address: 920 Memorial City Way, Ste 1000, Houston, Texas 77024	E-mail:todd@spurepllc.com
5	☐ Preparer: Energy Resource Development, Inc ☐ Consultant: John Connolly	Phone/Fax: 225-753-4723
a	Mailing Address: 19345 Point O Woods Court, Baton Rouge, LA 70809	E-mail: jmcerdi@cox.net
6	Plant Operator Contact: Todd Mucha	Phone/Fax: 281-795-2286
a	Mailing Address: 920 Memorial City Way, Ste 1000, Houston, Texas 77024	E-mail: todd@spurepllc.com
7	Air Permit Contact[1]: Todd Mucha	Title: EVP-Operations
a	E-mail: todd@spurepllc.com	Phone/Fax: 281-795-2286
b	Mailing Address: 920 Memorial City Way, Ste 1000, Houston, Texas 77024	
	[1]The Air Permit Contact will receive official correspondence from the Department.	
8	Will this facility operate in conjunction with other air regulated parties on the same property? ☒ No ☐ Yes If yes, what is the name and NOI or permit number (if known) of the other facility?	

2) Applicability

1	Is the facility located in Bernalillo County, on tribal lands, or in a nonattainment area?	☒**No** ☐**Yes**
If you answered ***Yes*** to the question above, your facility **does not** qualify for this general construction permit.		
2	Is the facility's SIC code 1311, 1321, 4619, 4612 or 4922? (Other SIC codes may be approved provided that all the equipment at the facility is allowed in the GCP-Oil & Gas Permit.)	☐**No** ☒**Yes**
3	Does the regulated equipment under this GCP-Oil and Gas Registration include any combination of Allowable Equipment listed in Table 104 of the GCP Oil & Gas Permit, and no others?	☐**No** ☒**Yes**
4	Will the regulated equipment as specified in this GCP-Oil and Gas Registration emit less than the total emissions in Table 106 of the GCP-Oil and Gas permit?	☐**No** ☒**Yes**
5	Does all equipment comply with the stack parameter requirements as established in the GCP-Oil and Gas Permit?	☐**No** ☒**Yes**
6	Equipment shall be at least 100 meters (m) from any stack to terrain that is five (5) or more meters above the top of the stack. Will the equipment at the facility meet this terrain requirement?	☐**No** ☒**Yes**
7	Is the facility at least 150 m from any source that emits over 25 tons/year of NO_x? This is the distance between the two nearest stacks that emit NOx at each of the facilities. Not the facility boundaries or the center to center distances.	☐**No** ☒**Yes**
8	Is the facility at least 3 miles from any Class I area? This is the distance from the nearest facility boundary to the nearest boundary of the Class I area.	☐**No** ☒**Yes**
If you answered ***NO*** to any of questions 2-8, your facility **does not** qualify for this general construction permit.		

3) Current Facility Status

1	Has this facility already been constructed? ☐Yes ☒No	If yes, is it currently operating in New Mexico? ☐ Yes ☐ No	
2	Does this facility currently have a construction permit or Notice of Intent (NOI) (20.2.72 NMAC or 20.2.73 NMAC)? ☐Yes ☒No	If yes, the permit No. or NOI No., and whether it will remain active or not:	
3	Is this Registration in response to a Notice of Violation (NOV)? ☐Yes ☒No If so, provide current permit #:	If yes, NOV date:	NOV Tracking No.
4	Check if facility is a: Minor Source: ☐ Synthetic Minor Source: ☐ (SM80 = Controlled Emissions > 80 TPY of any regulated air pollutant): ☒		

4) Facility Location Information

1	a) Latitude (decimal degrees): 32.614589	b) Longitude (decimal degrees): -104.47883	c) County: Eddy	d) Elevation (ft): 3531
2	a) UTM Zone: ☐12 or ☒13	b) UTME (to nearest 10 meters) 548,896	c) UTMN (to nearest 10 meters): 3,608,681	

3	e) Specify which datum is used: ☐ NAD 27 ☐ NAD 83 ☒ WGS 84 See this link for more info. http://en.wikipedia.org/wiki/North_American_Datum
4	Name and zip code of nearest New Mexico town and tribal community: 88210
5	Detailed Driving Instructions including direction and distance from nearest NM town and tribal community (attach a road map if necessary). If there is no street address, provide public road mileage marker: From the intersection of Hwy 285 and Hwy 82 in Artesia, NM, go south on Hwy 285 for 15.2 miles. Turn right on CR 23 (Rock Daisy Rd) and go 4.0 miles to facility road on the left.
6	The facility is 16.4 (distance) miles Southwest (direction) of Artesia (nearest town).
7	Land Status of facility (check one): ☐ Private ☐ Indian/Pueblo ☐ Government ☒ BLM ☐ Forest Service ☐ Military

5) Other Facility Information

1	Enter the maximum daily and annual throughput of oil, gas, and natural gas liquids (NGL).	**Oil (bbl/day): 2,300** **(bbl/yr): 839,500** **Gas (MMscf/day): 3.5** **(MMscf/yr): 1,277.5** **NGL (bbl/day): 0** **(bbl/yr): 0**
2	The facility, as described in this Registration, constitutes the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes.	☐**No** ☒**Yes**

6) Submittal Requirements

1	Include one hard copy **original signed and notarized Registration package printed double sided 'head-to-toe'** <u>**2-hole**</u> <u>**punched**</u> as we bind the document on top, not on the side; except landscape tables, which should be head-to-head. If 'head-to-toe printing' is not possible, print single sided. Please use **numbered tab separators** in the hard copy submittal(s) as this facilitates the review process.
2	Include one **double sided hard copy, flip on long edge** for Department use. This <u>copy</u> does not need to be 2-hole punched.
3	The entire Registration package should be submitted electronically on one compact disk (CD). Include a single PDF document of the entire Registration as submitted and the individual documents comprising the Registration. The documents should also be submitted in Microsoft Office compatible file format (Word, Excel, etc.) allowing us to access the text in the documents (copy & paste). Any documents that cannot be submitted in a Microsoft Office compatible format shall be saved as a PDF file from within the electronic document that created the file. If you are unable to provide Microsoft office compatible electronic files or internally generated PDFs of files (items that were not created electronically: i.e. brochures, maps, graphics, etc.), submit these items in hard copy format. Spreadsheets must be unlocked since we must be able to review the formulas and inputs. **Ensure all of these are included in both the electronic and hard copies.** ☒Word Document part of the Registration Form (Sections 1 and 3-10) ☒Excel Document part of the Registration Form (Section 2) ☒Air Emissions Calculation Tool (AECT) If there is a justified reason for including other calculations, include the unlocked Excel Spreadsheet. Justification must be provided in Section 5 of the application. ☒PDF of entire application **To avoid errors, it is best to start with both a blank version of this form and the AECT for each application.**

Section 2
Tables

Insert Excel spreadsheet with applicable tables filled out. If applicable to the facility all tables must be filled out completely. The unit numbering system must be consistent throughout this Registration

Section 3
Registration Summary

The Registration Summary: Provide information about the registration submittal. The Registration Summary shall include a brief description of the facility and its process. In case of a modification to a facility, please describe the proposed changes.

Specify Facility Type: Check the appropriate box below:

☒ Production Site
☐ Tank Battery
☐ Compressor Station
☐ Natural Gas Plant
☐ Other, please specify:______________

Registration Summary:

Spur Energy Partners LLC proposes this initial GCP-Oil & Gas application for the Dorami 2H, 4H, & 9H Federal Oil Tank Battery. The site will have an initial production rate of 2,300 bbl/day of oil, 8,000 bbl/day of produced water, and 3.5 MMScf/d of produced gas. Multiple wells are associated with this production facility.

As proposed, equipment at the well site will include three (3) 0.75 MMBtu/hr free water knockouts, one (1) 0.5 MMBtu/hr heater treater, one (1) electric vapor recovery unit (VRU) with an associated Vapor Recovery Tower (VRT), a dual-pressure combustion flare, four (4) 1,000 bbl produced water tanks, four (4) 1,000 bbl oil tanks, and various gas scrubbers.

Additional emissions at the site will result from tank truck loading, truck hauling, fugitive emissions, and malfunction emissions.

The combustion flare will control emissions from the oil & produced water tanks working, standing, and flashing losses, VRT flash gas during VRU downtimes, and produced sales gas to a minimum 98% efficiency. In the event that the VRU is down for maintenance, the flare will still control emissions from the vapor recovery tower. During maintenance or unavailability on the sales gas pipeline, all produced gas off the separators will be continuously routed to the flare until gas can be sold. The flare calculation page on the AECT is broken down into two streams, the high-pressure stream and the low-pressure stream. The high-pressure stream will be a combination of sales gas off the FWKOs during pipeline interruption, VRU gas during pipeline interruption, and gas during VRU downtime. The low-pressure stream will be the flash, working, and standing losses off the oil and water tanks.

Because of both the economic and environmental impacts on operations, Spur diligently inspects the VRU to ensure that it is in continuous operation.

Written description of the routine operations of the facility:

The production stream from the Dorami 2H, 4H, & 9H wells will enter the heated three-phase free water knockouts where the oil, water, and gas will be separated. The gas off the FWKOs will be routed to sales or to the flare for combustion. The water off the FWKOs will be routed to the water tanks. The oil will be routed to the VRT prior to being sent to the oil tanks. The flash gas off the VRT will be captured by the VRU and sent to sales or to the flare for combustion. When the VRU is not working, the VRT will route any captured flash gas to the flare. The oil and water tanks will be controlled to the dual-pressure combustion flare which will combust the flash, working, and standing emissions in the tanks. The produced oil is trucked out of the facility while the water is piped out. All oil truck loading emissions will be vented to the atmosphere. The heater treater will be used to circulate tank bottoms.

Routine or predictable emissions during Startup, Shutdown and Maintenance (SSM):

There are no SSM emissions currently associated with this facility.

Malfunction Emissions (M):

Spur Energy Partners LLC request 10 TPY VOC emissions to be added to this application for any malfunctions that might happen at the facility due to sudden and unavoidable failure to air pollution control equipment or process equipment beyond the control of Spur Energy Partners.

Allowable Operations: Check the appropriate box below:

☒ Facility operates continuously (8760 hours per year)

☐ The following regulated equipment will operate less than 8760 hours per year. Add additional rows as necessary. These units are subject to Condition A108.C of the Permit.

Table A – Equipment Operating Less Than 8760 hours per year

Unit #	Requested Annual Operating Hours

Verification of Compliance with Stack Parameter Requirements:

Please use the Stack Calculator and Stack Requirements Explained Guidance on our website: All of the verification information below is required to be filled out.

www.env.nm.gov/air-quality/air-quality-oil-and-gas-gcp-application-forms/

Check the box for each type of equipment at this facility:

- ☐ Engine(s)
- ☐ Turbine(s)
- ☒ Flares(s)
- ☐ Enclosed Combustion Device (s)
- ☒ Heater(s)
- ☐ Reboiler(s)

For each type of equipment checked above, complete the applicable section below.

Engines

1. Calculate the pound per hour (lb/hr) NO_x emission rate according to GCP O&G Condition A202.I Step 1 on page 15 of the GCP O&G. Enter this value in the top row of the table below.
2. Based on the calculated facility total NO_x emission rate, determine the minimum stack parameter requirements for engines and heaters from Table 1: Engines (page 17) of the GCP O&G and enter the minimum parameters from Table 1 (page 17) of the GCP O&G in the bottom row of the table below.
3. Enter the stack parameters from each engine and heater in the blank rows of the table below. Add rows as necessary.

Table B: Engine/Generator/Heater/Reboiler Stack Parameter Verification:

Calculated Facility Total NOx Emission Rate: 0.315 lb/hr				
Engine/Generator/Heater/Reboiler Unit Number	**Height (ft)**	**Temperature (^oF)**	**Velocity (ft/s)**	**Diameter (ft)**
FWKO-1	25	250	21.62	0.66
FWKO-2	25	250	21.62	0.66
FWKO-3	25	250	21.62	0.66
HT-1	25	250	21.62	0.66
Table 1 Minimum Parameters: For verification, list the minimum parameters based on the NOx lb/hr emission rate from the GCP O&G Table 1.	5.9	571	49.2	0.3

4. Do all engines and heaters comply with the minimum stack parameters from Table 1 (page 17) of the GCP O&G?
   - ☐ Yes. Skip step 5 below.
   - ☒ No. Go to step 5 below.

5. For engines and heaters that do not comply with the minimum stack parameters in Table 1 of the GCP O&G, explain and demonstrate in detail how the engines and heaters will be authorized according to the steps on page 16 of the GCP O&G or Condition A203.C of the GCP O&G. Show all calculations.

   Condition A203.C states that if "any heater or boiler is unable to meet the minimum stack parameter requirements in Table 1 or 2 of Condition A202.I, the maximum total emission rates allowed for those heaters and reboilers is 1.23 lb/hr of NOx"; therefor, the heaters at the facility will meet this requirements since their total emission rate is 0.315 lb/hr which is below the 1.23 lb/hr threshold allowed.

Turbines

1. Calculate the pound per hour (lb/hr) NO_x emission rate according to GCP O&G Condition A202.I Step 1 on page 17 of the GCP O&G. Enter this value in the top row of the table below.
2. Based on the calculated facility total NO_x emission rate, determine the minimum stack parameter requirements for turbines and heaters from Table 2: Turbines (page 18) of the GCP O&G. Enter the minimum parameters from Table 2 (page 18) of the GCP O&G in the bottom row of the table below.
3. Enter the stack parameters from each turbine and heater in the blank rows of the table below. Add rows as necessary.

Table C: Turbine/Heater/Reboiler Stack Parameter Verification:

Calculated Facility Total NOx Emission Rate: _____lb/hr				
Turbine/Heater/Reboiler Unit Number	**Height (ft)**	**Temperature (^oF)**	**Velocity (ft/s)**	**Diameter (ft)**
Table 2 Minimum Parameters: For verification, list the minimum parameters based on the NOx lb/hr emission rate from the GCP O&G Table 2.				

4. Do all turbines and heaters comply with the minimum stack parameters from Table 2 (page 18) of the GCP O&G?

☐ Yes. Skip step 5 below.
☐ No. Go to step 5 below.

5. For turbines and heaters that do not comply with the minimum stack parameters in Table 2 of the GCP O&G, explain and demonstrate in detail how the turbines and heaters will be authorized according to the steps on page 18 of the GCP O&G or Condition A203.C of the GCP O&G. Show all calculations.

Flares

1. Enter SO_2 emission rates (lb/hr) for each flare in the second column of the table below.
2. Based on the SO_2 emission rates, determine the minimum stack height requirements for flares from Table 3 (page 26) of the GCP O&G and enter the minimum stack height requirements for flares from Table 3 (page 26) of the GCP O&G in the last column of the table below.
3. Enter the stack height of each flare in the third column of the table below. Add rows as necessary.

Table D: Flare Stack Height Parameter Verification:

Flare Unit Number	**SO_2 Emission Rate (lb/hr)**	**Height (ft)**	**Table 3 Minimum Stack Height:** For verification, list the minimum height parameters based on the SO2 emission rate from the GCP O&G Table 3.
FLARE	7.477	35	11.5

4. Do all flares comply with minimum stack height requirements?
   ☒ Yes
   ☐ No

5. Does the flare gas contain 6% H_2S or less by volume (pre-combustion)?
   ☒ Yes. Skip step 6 below.
   ☐ No. Go to step 6 below.

6. Explain in detail how assist gas will be added to reduce the gas composition to 6% H_2S or less by volume.

Enclosed Combustion Device(s) (ECD):

According to GCP O&G Condition A208.A, the facility must meet one of the following options if an ECD is installed at the facility:

Option 1:

1. Will the ECD(s) meet the SO_2 emission limit of 0.7 lb/hr and operate with a velocity of at least one (1) foot per second?
   - ☐ Yes. Skip Option 2 below.
   - ☐ No. Go to Option 2 below.

Option 2:

2. Will the ECD(s) meet the SO_2 emission limit of 0.9 lb/hr and operate with a velocity of at least two (2) feet per second?
   - ☐ Yes
   - ☐ No

Section 4

Process Flow Sheet

Attach a **process flow sheet** indicating all individual equipment, all emission points, and types of control applied to those points. All units must be labeled, and the unit numbering system must be consistent throughout this Registration. Identify all sources of emissions with a vertical arrow. Label each of the different material streams (e.g. crude oil, gas, water). The process flow sheet must be a legible size.

Section 5

Emissions Calculation Forms

The Department has developed the Air Emissions Calculation Tool (AECT), which is required to be used in the GCP-Oil and Gas Registration. If the AECT, for a piece of equipment is under development, provide alternate calculations. **Do not include alternative calculations unless there is an issue being resolved with the AECT. This will delay review of the application.** The AECT and this Registration Form may be updated as needed.

Tank Emissions Calculations: Provide the method used to estimate tank-flashing emissions, the input and output summary from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis. If Pro-Max or Hysis is used, all relevant input parameters shall be reported, including separator pressure, gas throughput, and all other relevant parameters necessary for flashing calculation. **The inputs must match the gas analyses information submitted. Inputs that don't match may be grounds for denial of the application submittal.**

SSM Calculations: In this Section, provide emissions calculations for Startup, Shutdown, and Routine Maintenance (SSM) emissions listed in the Table 2, and the rational for why the others are reported as zero (or left blank).

Control Devices: Report all control devices and list each pollutant controlled by the control device. Indicate in this section if you chose to not take credit for the reduction in emission rates. Only uncontrolled emission rates can be considered to determine applicability unless the state or federal acts require the control. This information is necessary to determine if federally enforceable conditions are necessary for the control device, and if the control device produces its own regulated pollutants or increases emission rates of other pollutants.

Calculation Details: The AECT is required for all emission calculations. If the AECT is not functioning, alternative calculations may be submitted only for the portions of the AECT with issues being resolved. Utilize this section to explain in detail, on an equipment-by-equipment basis, why alternative calculations are necessary.

Explain here:

Equipment Forms Submitted in this Section (add additional rows as necessary):

Equipment Type	Quantity	Check Box to Indicate Units that are Controlled	Enter Control Device Type and Pollutant Controlled
Engine		☐	
Turbine		☐	
Tanks	8	☒	FLARE; VOC & H2S
Generator		☐	
VRU	1	☐	
VRT	1	☒	VRU; VOC & H2S
ULPS		☐	
Glycol Dehydrator		☐	
Flare	1	☐	TK-1, TK-2, TK-3, TK-4, PWTK-1, PWTK-2, PWTK-3, PWTK-4, VRU-1, SALES GAS OFF THE PRODUCTION EQUIPMENT; VOC & H2S
Amine Unit		☐	
Cryogenic Unit		☐	
Fugitive Emissions	1	☐	
Heater	4	☐	
Truck Loading	1	☐	
Enclosed Combustion		☐	

Device (ECD)			
Thermal Oxidizer (TO)		☐	
Unpaved Haul Road	**1**	☐	
Other		☐	

For each scenario below, if there are more than one emissions unit, control device, or gas combustion scenario. Please copy and paste each applicable section and label the unit number(s) if the scenarios vary.

Vapor Recovery Tower, Ultra Low-Pressure Separator, or Flash Tower Located Upstream of Storage Vessels: If the facility contains one of the following units located upstream of the storage vessels and is used to flash and capture flashing emissions, check the appropriate box.
Unit number: VRT/VRU-1
☒ Vapor Recovery Tower and VRU Compressor
☐ ULPS and VRU Compressor
☐ Flash Tower and VRU Compressor

Vapor Recovery Unit (VRU) located upstream of Storage Vessels: Check the box below if the facility is using a VRU to capture flashing emissions prior to any storage vessels to limit the PTE of the storage vessels to below applicability thresholds of NSPS OOOO or NSPS OOOOa. A process vs control determination should be prepared for this type of VRU application.
Unit number:
☐ VRU capturing emissions prior to any storage vessel and routing directly to the sales pipeline

Vapor Recovery Unit (VRU) attached to Storage Vessels: Check the box below if this facility is using a VRU to reduce storage vessel emissions to limit the PTE to below NSPS OOOO or NSPS OOOOa applicability thresholds:
Unit number:
☐ VRU controlling Storage Vessel emissions and the facility is subject to the requirements under NSPS OOOO, 40 CFR 60.5411
☐ VRU controlling Storage Vessel emissions and the facility is subject to the requirements under NSPS OOOOa, 40 CFR 60.5411a

Gas Combustion Scenarios: Read through the scenarios below and check the boxes next to any appropriate facility operating scenarios. Flares shall assume a destruction efficiency of 95%, unless the facility is subject to requirements for flares under 40 CFR 60.18, or a higher destruction efficiency (up to 98%) is supported by a manufacturer specification sheet (MSS) for that unit. If so, include the MSS.

A flare, vapor combustion unit (VCU), enclosed combustion device (ECD), thermal oxidizer (TO):
Unit number: FLARE
☒ Controls storage vessels in accordance with 40 CFR 60, Subpart OOOO or OOOOa.
☒ Provides a federally enforceable control for the storage vessels to limit the PTE to below applicability thresholds of 40 CFR 60, Subpart OOOO or OOOOa.
☐ Controls the glycol dehydrator
☐ Controls the amine unit
☐ Controls truck loading
☐ Operates only during maintenance events, such as VRU downtime, check one below:
  ☐ The emissions during VRU downtime are represented as uncontrolled VOC emissions from the compressor
  ☐ The combustion emissions during VRU downtime are represented as controlled emissions from the combustion device

☐ Controls the facility during plant turnaround

Amine Unit: Provide the following information for each amine unit.

Design Capacity in MMscf/day	
Rich Amine Flowrate in gal/min	
Lean Amine Flowrate in gal/min	
Mole Loading H_2S	
Sour Gas Input in MMscf/day	

Glycol Dehydration Unit(s): Provide the following information for each glycol dehydration unit:
Please include an extended gas analysis in Section 6 of this application.

Unit #	Glycol Pump Circulation Rate

Voluntary Monitoring in Accordance with §40 CFR 60.5416(a): Check the box(s) to implement a program that meets the requirements of 40 CFR 60.5416(a). This monitoring program will be conducted in lieu of the monitoring requirements established in the GCP-Oil and Gas for individual equipment. Ceasing to implement this alternative monitoring must be reported in an updated Registration Form to the Department.

☒ Condition A205.B Control Device Options, Requirements, and Inspections for Tanks
☐ Condition A206.B Truck Loading Control Device Inspection
☐ Condition A206.C Vapor Balancing During Truck Loading
☒ Condition A209.A Vapor Recovery Unit or Department-approved Equivalent
☐ Condition A210.B Amine Unit Control Device Inspection

Fugitive H_2S Screening Threshold and Monitoring in accordance with Condition A212: Check the box that applies.

☒ Condition A212.A does not apply because the facility is below the fugitive H_2S screening threshold in Condition A212, or

☐ Condition A212.A applies. Because the facility is above the fugitive H_2S screening threshold in Condition A212, or the facility is voluntarily complying with Condition A212.A, and Condition A212.A applies

Section 6

Information Used to Determine Emissions

Check the box for each type of information submitted. This documentation is required. If applicable to the facility.

Failure to include applicable supporting documentation may result in application denial.

☒ Specifications for control equipment, including control efficiency specifications and sufficient engineering data for verification of control equipment operation, including design drawings, test reports, and design parameters that affect normal operation.

- ☐ Engine or Generator Manufacturer specifications
- ☐ Catalyst Manufacturer specifications (If a catalyst is being utilized to reduce emissions, the catalyst manufacturer emission factors must be used in all emission calculations. A 25% safety factor may be applied to each pollutant.
- ☐ NSPS JJJJ emission factors **may not** be utilized in lieu of catalyst manufacture specifications when a catalyst is installed, and the catalysts manufacturer achieves higher control efficiency.
- ☒ Flare Manufacturer specifications
- ☒ Oil/Liquid Analysis: This data is required to match the inputs in all applicable emission calculations. For facilities that have not been constructed and a representative analysis is used it cannot be older than 1 year. For existing facilities, the gas analyses required by Condition A201.A (must be 1 year old or less).
- ☒ Gas Analysis (must be 1 year old or less) This data is required to match the inputs in all applicable emission calculations.
- ☐ Extended Gas Analysis (must be 1 year old or less) This data is required to match the inputs in all applicable emission calculations.
- ☒ If requesting to use a representative gas sample, include a discussion of why the sample is representative for this facility and an explanation of how it is representative (e.g., same reservoir, same similar API gravity, similar composition).

☐ If test data are used, to support emissions calculations or to establish allowable emission limits, include a copy of the complete test report. If the test data are for an emissions unit other than the one being permitted, the emission units must be identical. Test data may not be used if any difference in operating conditions of the unit being permitted and the unit represented in the test report significantly effect emission rates.

☐ Fuel specifications sheet.

☒ If computer models are used to estimate emissions, include an input summary and a detailed report, and a disk containing the input file used to run the model.

☒ For tank-flashing emissions, include a discussion of the method used to estimate tank-flashing emissions, accuracy of the model, the **input and output** summary from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis.

Representative Gas Analysis Justification: **Representative gas analysis used is from a well with similar API gravity, same reservoir, similar composition, and with similar separation technique. Flash analysis was calculated from a nearby facility that is operating in the same reservoir that has a similar oil composition. The flash analysis was calculated for the pressure drop between the tanks and the upstream separation equipment.**

Section 7

Map(s)

A map such as a 7.5 minute topographic quadrangle showing the exact location of the source. The map shall also include the following:

The UTM or Longitudinal coordinate system on both axes	An indicator showing which direction is north
A minimum radius around the plant of 0.8km (0.5 miles)	Access and haul roads
Topographic features of the area	Facility property boundaries
The name of the map	A graphical scale

Section 8A

Applicable State & Federal Regulations

Provide a discussion demonstrating compliance with each applicable state & federal regulation. All input cells should be filled in, even if the response is 'No' or 'N/A'.

In the "Justification" column, identify the criteria that are critical to the applicability determination, numbering each. For each unit listed in the "Applies to Unit No(s)" column, after each listed unit, include the lowest level citation of the applicable regulation. For each unit, list the information necessary to verify the applicability of the regulation, including date of manufacture, date of construction, size (hp), and combustion type. Doing so will provide the applicability criteria for each unit.

Applicable STATE REGULATIONS:

STATE REGU-LATIONS CITATION	Title	Federally Enforceable	Overview of Regulation	Unit(s) or Facility	Applies? (Yes or No)	JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m^3, 3. VOL)
20.2.1 NMAC	General Provisions	Yes	General Provisions apply to Notice of Intent, Construction, and Title V permit applications.	Facility	Yes	
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	20.2.3 NMAC is a State Implementation Plan (SIP) approved regulation that limits the maximum allowable concentration of Sulfur Compounds, Carbon Monoxide, and Nitrogen Dioxide.	Facility	Yes	20.2.3 NMAC is a SIP approved regulation that limits the maximum allowable concentration of Total Suspended Particulates, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide. The facility meets maximum allowable concentrations of the TSP, SO_2, H_2S, NOx, and CO under this regulation.
20.2.7 NMAC	Excess Emissions	Yes	If your entire facility or individual pieces of equipment are subject to emissions limits in a permit or numerical emissions standards in a federal or state regulation, this applies.	Facility	Yes	This regulation establishes requirements for the facility if operations at the facility result in any excess emissions. The owner or operator will operate the source at the facility having an excess emission, to the extent practicable, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. The facility will also notify the NMED of any excess emissions.
20.2.38 NMAC	Hydrocarbon Storage Facility	No	20.2.38.109 TANK STORAGE ASSOCIATED WITH PETROLEUM PRODUCTION OR PROCESSING FACILITY 20.2.38.112 NEW TANK BATTERY -- MORE THAN 65,000 GALLONS CAPACITY	TK-1, TK-2, TK-3, TK-4, PWTK-1, PWTK-2, PWTK-3, PWTK-4	Yes	The purpose of this regulation is to minimize hydrogen sulfide emissions from hydrocarbon storage facilities. The storage tanks, TK-1 through TK-4 & PWTK-1 through PWTK-4 are a new production facility as they were constructed after July 1, 1975. The tanks are all 1000 bbl. The tanks are subject to 20.2.38.109 NMAC. The tanks comply with the requirement to minimize vapor loss to the atmosphere through use of the flare. The tanks are subject to NMAC 20.2.38.112 since they have a combined storage capacity greater than 65,000 gallons. The facility complies with this regulation through NMAC 20.2.38.112(C) by using a flare to minimize vapor or gas loss to the

STATE REGU-LATIONS CITATION	Title	Federally Enforceable	Overview of Regulation	Unit(s) or Facility	Applies? (Yes or No)	JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m^3, 3. VOL)
						atmosphere.
20.2.61.109 NMAC	Smoke & Visible Emissions	No	Engines and heaters are Stationary Combustion Equipment. Specify units subject to this regulation.	FWKO-1, FWKO-1, FWKO-3, HT-1, FLARE	**Yes**	This regulation establishes controls on smoke and visible emissions from certain sources, including stationary combustion equipment. The heaters and flare are subject to this regulation as they are stationary combustion equipment.
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	NOI: 20.2.73.200 NMAC applies to all facilities emitting over 10 TPY of any regulated air contaminate. Thus, permitted facilities are also subject to this rule. This GCP-O&G registration also serves the purpose of meeting 20.2.73 the NMAC notification requirements.) Emissions Inventory: 20.2.73.300.A(1) NMAC applies to facilities registering under the GCP. Emission Inventory reporting is required upon request by the department per 20.2.73.300.B(4) NMAC.	Facility	**YES**	This regulation establishes emission inventory requirements. The facility meets the applicability requirements of 20.2.73.300 NMAC. The facility will meet any applicable reporting requirements under 20.2.73 NMAC.
20.2.77 NMAC	New Source Performance	Yes	This is a stationary source which is subject to the requirements of 40 CFR Part 60, as amended on the date of certification.	Facility	**YES**	The facility is subjects to NSPS OOOOa
20.2.78 NMAC	Emission Standards for HAPS	Yes	This facility emits hazardous air pollutants which are subject to the requirements of 40 CFR Part 61, as amended on the date of certification.	NA	**NO**	The facility is a minor source for HAPS
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 63, as amended on the date of certification.	NA	**NO**	The purpose of this regulation is to establish state authority to implement new source performance standards for stationary sources in New Mexico subject to 40 CFR Part 63. This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 63, as amended through August 29, 2013. This regulation does not apply as no units at this facility are subject to 40 CFR Part 63.

Applicable FEDERAL REGULATIONS (This is not an exhaustive list; add applicable regulations such as NSPS GG and KKKK):

FEDERAL REGU-LATIONS CITATION	Title	Overview of Regulation	Units(s) or Facility	Applies? (Yes or No)	JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m3, 3. VOL)
40 CFR 50	NAAQS	Defined as applicable at 20.2.70.7.E.11, Any national ambient air quality standard	Facility	**YES**	This regulation defines national ambient air quality standards. The facility meets all applicable national ambient air quality

FEDERAL REGU-LATIONS CITATION	Title	Overview of Regulation	Units(s) or Facility	Applies? (Yes or No)	JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m3, 3. VOL)
					standards for NOx, CO, SO2, H2S, PM10, and PM2.5 under this regulation.
40 CFR 60, Subpart A	General Provisions	Applies if any other NSPS subpart applies.	Facility, Flare	**YES**	Applies if any other NSPS subpart applies.
40 CFR 60, Subpart OOOO	Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced After August 23, 2011, and on or before September 18, 2015	If there is a standard or other requirement, then the facility is an "affected facility." Currently there are standards for: gas wells (60.5375); centrifugal compressors (60.5380); reciprocating compressors (60.5385): controllers (60.5390); storage vessels (60.5395); equipment leaks (60.5400); sweetening units (60.5405). **If standards apply, list the unit number(s) and regulatory citation of the standard that applies to that unit (e.g. Centrifugal Compressors 1a-3a are subject to the standards at 60.5380(a)(1) and (2) since we use a control device to reduce emissions)**		**NO**	
40 CFR 60, Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015	If there is a standard or other requirement, then the facility is an "affected facility." Currently there are standards for: gas wells (60.5375a); centrifugal compressors (60.5380a); reciprocating compressors (60.5385a): controllers (60.5390a); storage vessels (60.5395a); fugitive emissions at well sites and compressor stations (60.5397a); equipment leaks at gas plants (60.5400a); sweetening units (60.5405a).	Fugitives TK-1, TK-2, TK-3, TK-4, PWTK-1, PWTK-2, PWTK-3, PWTK-4,	**YES**	This regulation establishes standards of performance for crude oil and natural gas production, transmission and distribution. The rule applies to "affected" facilities that are constructed, modified, or reconstructed after September 18, 2015. The facility commenced construction after September 18, 2015. The facility is therefor subject to NSPS OOOOa. Fugitive emissions are subject to 60.5397a and the tank are subject to 60.5395a
40 CFR 60, Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	See 40 CFR 60.4200(a) 1 through 4 to determine applicable category and state engine size, fuel type, and date of manufacture.	NA	**NO**	
40 CFR 60, Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	See 40 CFR 60.4230(a), 1 through 5 to determine applicable category and state engine size, fuel type, and date of manufacture.	NA	**NO**	
40 CFR 63, Subpart A	General Provisions	Applies if any other subpart applies.	NA	**NO**	
40 CFR 63,	NESHAP for Glycol	See 40 CFR 63, Subpart HH	NA	**NO**	

FEDERAL REGULATIONS CITATION	Title	Overview of Regulation	Units(s) or Facility	Applies? (Yes or No)	JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m3, 3. VOL)
Subpart HH	Dehydrators				
40 CFR 63, Subpart ZZZZ	NESHAP for Stationary Reciprocating Internal Combustion Engines (**RICE MACT**)	Facilities are subject to this subpart if they own or operate a stationary RICE, except if the stationary RICE is being tested at a stationary RICE test cell/stand.	NA	**NO**	

Section 8B
Compliance Test History

To evaluate the requirement for compliance tests, you must submit a compliance test history. The table below provides an example.

Compliance Test History Table

Unit No.	Test Description	Test Date

Section 9 Proof of Public Notice

General Posting of Notice

I, ___________________________________, the undersigned, certify that on _____________________ **(DATE),** I posted a true and correct copy of the attached Public Notice in a publicly accessible and conspicuous place, visible from the nearest public road, at the entrance of the property on which the facility is, or is proposed to be, located.

Signed this ________ day of ____________________, ___________,

_______________________________________ __________________
Signature Date

____
Printed Name Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

Newspaper Publication of Notice

☐ An original or copy of the actual newspaper advertisement posted in a newspaper in general circulation in the applicable county is attached. The original or copy of the advertisement includes the header showing the date and newspaper or publication title.

OR

☒ An affidavit from the newspaper or publication in general circulation in the applicable county stating that the advertisement was published is attached. The affidavit includes the date of the advertisement's publication, and a legible photocopy of the entire ad.

_______________________________________ __________________
Signature Date

NOTICE

Spur Energy Partners LLC announces its intent to apply to the New Mexico Environment Department for an air quality General Construction Permit, (GCP-Oil and Gas). The name of this facility is Dorami 2H, 4H, & 9H Federal Oil Tank Battery. The expected date of the submittal of our Registration for an air quality permit to the Air Quality Bureau is February 19, 2020. This notice is a requirement according to New Mexico air quality regulations.

The exact initial location of the facility is UTM Zone 13, UTM Easting 548,896 m, UTM Northing 3,608,681 m. The approximate location of this site is 16.4 miles southwest of Artesia, NM in Eddy County. The standard operating schedule of this facility will be continuous.

Air emissions of any regulated air contaminant will be less than or equal to:

Pollutant	Tons per year (TPY)
1. Nitrogen Oxides (NOx)	95
2. Carbon Monoxide (CO)	95
3. Volatile Organic Compounds (VOC) (stack)	95
4. Particulate Matter (PM10)	25
5. Particulate Matter (PM2.5)	25
6. Total Suspended Particulates	25
7. Sulfur Dioxide (SO2)	95
8. Hydrogen Sulfide (H2S)	25
9. Any one (1) Hazardous Air Pollutant (HAP)	< 10
10. Sum of all Hazardous Air Pollutants (HAPs)	< 25

The owner and/or operator of the Plant is:

Spur Energy Partners LLC
920 Memorial City Way, Suite 1000
Houston, Texas 77024

If you have any questions or comments about construction or operation of above facility, and want your comments to be made as a part of the permit review process, you must submit your comments in writing to the address below:

New Mexico Environment Department
Air Quality Bureau Permit Section
525 Camino de los Marquez, Suite 1
Santa Fe, New Mexico, 87505
Phone (505) 476-4300
Fax (505) 476-4375
www.env.nm.gov/aqb
Other comments and questions may be submitted verbally.

Please refer to the company name and site name, as used in this notice or send a copy of this notice along with your comments, since the Department may not have received the permit Registration at the time of this notice.

Attención

Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-476-5557.

Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kristine Yurdin, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

Section 10
Certification

Company Name: Spur Energy Partners LLC

I, Todd Mucha, hereby certify that the information and data submitted in this Registration are true and as accurate as possible, to the best of my knowledge and professional expertise and experience.

Signed this ____ day of ________________, ________, upon my oath or affirmation, before a notary of the State of

__________________________________.

______________________________________ ______________________

*Signature Date

______________________________________ ______________________

Printed Name Title

Scribed and sworn before me on this ____ day of _________________________, _________.

My authorization as a notary of the State of _______________________________ expires on the

________________ day of ______________________, _____________.

______________________________________ ______________________

Notary's Signature Date

____

Notary's Printed Name

Table 2-A: Regulated Emission Sources

Unit and stack numbering must correspond throughout the application package. Equipment that qualifies for an exemption under 20.2.72.202.B NMAC should be included in Table 2-B **Note:** Equipment options **are not authorized.**

Unit Number[1]	Source Description	Manufacturer/Make /Model	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] Date of Construction/ Reconstruction[2]	Controlled by Unit # Emissions vented to Stack #	Source Classi-fication Code (SCC)	RICE Ignition Type (CI, SI, 4SLB, 2SLB)[4]	For Each Piece of Equipment, Check Onc
FWKO-1	HEATED FREE WATER KNOCKOUT	NA	NA	0.75 MMBtu/hr	0.75 MMBtu/hr	NA 2020	FLARE FWKO-1	31000404	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
FWKO-2	HEATED FREE WATER KNOCKOUT	NA	NA	0.75 MMBtu/hr	0.75 MMBtu/hr	NA 2020	FLARE FWKO-2	31000404	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
FWKO-3	HEATED FREE WATER KNOCKOUT	NA	NA	0.75 MMBtu/hr	0.75 MMBtu/hr	NA 2020	FLARE FWKO-3	31000404	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
HT-1	HEATER TREATER	NA	NA	0.50 MMBtu/hr	0.50 MMBtu/hr	NA 2020	FLARE HT-1	31000404	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-1	1000 BBL OIL TANK	PETROSMITH EQUIPMENT LP	T-15911	1000 BBL	1000 BBL	2/4/2019 2020	FLARE FLARE	40400312	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-2	1000 BBL OIL TANK	PETROSMITH EQUIPMENT LP	T-15908	1000 BBL	1000 BBL	2/4/2019 2020	FLARE FLARE	40400312	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-3	1000 BBL OIL TANK	PETROSMITH EQUIPMENT LP	T-15912	1000 BBL	1000 BBL	2/4/2019 2020	FLARE FLARE	40400312	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-4	1000 BBL OIL TANK	PETROSMITH EQUIPMENT LP	T-15909	1000 BBL	1000 BBL	2/4/2019 2020	FLARE FLARE	40400312	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
PWTK-1	1000 BBL WATER TANK	SAWYER INDUSTRIES	1504	1000 BBL	1000 BBL	3/15/2019 2020	FLARE FLARE	40400315	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
PWTK-2	1000 BBL WATER TANK	SAWYER INDUSTRIES	1502	1000 BBL	1000 BBL	3/15/2019 2020	FLARE FLARE	40400315	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
PWTK-3	1000 BBL WATER TANK	SAWYER INDUSTRIES	1258	1000 BBL	1000 BBL	12/2/2018 2020	FLARE FLARE	40400315	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
PWTK-4	1000 BBL WATER TANK	SAWYER INDUSTRIES	1501	1000 BBL	1000 BBL	3/15/2019 2020	FLARE FLARE	40400315	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
FLARE	DUAL PRESSURE FLARE	VAPROX	NA	4290.58 MMScf/yr	192.109 MMScf/yr	NA 2020	NA FLARE	30600903	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
FUG-1	FACILITY WIDE FUGATIVE	NA	NA	NA	NA	NA 2020	NA NA	31088811	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

Unit Number[1]	Source Description	Manufacturer/Make /Model	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classi-fication Code (SCC)	RICE Ignition Type (CI, SI, 4SLB, 2SLB)[4]	For Each Piece of Equipment, Check Onc
MALF.	MALFUNTION EMISSIONS	NA	NA	NA	NA	NA 2020	NA NA	31088811	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
OILLOAD-1	OIL TRUCK LOADING	NA	NA	NA	NA	NA 2020	NA NA	40600132	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
VRU-1	VAPOR RECOVERY UNIT	RICHARD'S ENERGY COMPRESSION, LLC	NA	NA	NA	NA 2020	FLARE FLARE	31000199	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
VRT-1	VAPOR RECOVERY TOWER	NA	NA	NA	NA	NA 2020	VRU/FLARE FLARE	31000129	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

[1] Unit numbers must correspond to unit numbers in the previous permit unless a complete cross reference table of all units in both permits is provided.
[2] Specify dates required to determine regulatory applicability.
[3] To properly account for power conversion efficiencies, generator set rated capacity shall be reported as the rated capacity of the engine in horsepower, not the kilowatt capacity of the generator set.
[4] "4SLB" means four stroke lean burn engine, "4SRB" means four stroke rich burn engine, "2SLB" means two stroke lean burn engine, "CI" means compression ignition, and "SI" means spark ignition

Table 2-C: Emissions Control Equipment

Unit and stack numbering must correspond throughout the application package. In accordance with 20.2.72.203.A(3) and (8) NMAC, 20.2.70.300.D(5)(b) and (e) NMAC, and 20.2.73.200.B(7) NMAC, the permittee shall report all control devices and list each pollutant controlled by the control device regardless if the applicant takes credit for the reduction in emissions.

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
FLARE	COMBUSTION FLARE	2020	VOC, H2S	TK-1, TK-2, TK-3, TK-4, PWTK-1, PWTK-2, PWTK-3, PWTK-4, SALES GAS, VRT FLASH GAS DURING VRU DOWNTIME	98%	MANUFACTURER ESTIMATE
VRU-1	VAPOR RECOVERY UNIT	2020	VOC, H2S	VAPOR RECOVERY TOWER (VRT)	100%	ENGINEERING ESTIMATE

[1] List each control device on a separate line. For each control device, list all emission units controlled by the control device.

Table 2-D: Maximum Emissions (Consider federally enforceable controls under normal operating conditions)

This table must be filled out

Maximum Federally Enforceable Emissions are the emissions at maximum capacity with only federally enforceable methods of reducing emissions. Calculate the hourly emissions using the worst case hourly emissions for each pollutant. For each pollutant, calculate the annual emissions as if the facility were operating at maximum facility capacity without pollution controls for 8760 hours per year. Account for federally enforcable controls, such as an NSPS or MACT regulation. Consider federally enforceable controls due to permitting. List Hazardous Air Pollutants (HAP) in Table 2-I. Unit & stack numbering must be consistent throughout the application package. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or 1.41E-4).

Unit No.	NOx		CO		VOC		SOx		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
FWKO-1	0.086	0.377	0.072	0.315	0.005	0.022	-	-	0.007	0.031	0.007	0.031	-	-	-	-
FWKO-2	0.086	0.377	0.072	0.315	0.005	0.022	-	-	0.007	0.031	0.007	0.031	-	-	-	-
FWKO-3	0.086	0.377	0.072	0.315	0.005	0.022	-	-	0.007	0.031	0.007	0.031	-	-	-	-
HT-1	0.057	0.25	0.048	0.21	0.003	0.013	-	-	0.004	0.018	0.004	0.018	-	-	-	-
TK-1	-	-	-	-	70.92	310.63	-	-	-	-	-	-	-	-	-	-
TK-2	-	-	-	-	70.92	310.63	-	-	-	-	-	-	-	-	-	-
TK-3	-	-	-	-	70.92	310.63	-	-	-	-	-	-	-	-	-	-
TK-4	-	-	-	-	70.92	310.63	-	-	-	-	-	-	-	-	-	-
PWTK-1	-	-	-	-	2.45	10.73	-	-	-	-	-	-	-	-	-	-
PWTK-2	-	-	-	-	2.45	10.73	-	-	-	-	-	-	-	-	-	-
PWTK-3	-	-	-	-	2.45	10.73	-	-	-	-	-	-	-	-	-	-
PWTK-4	-	-	-	-	2.45	10.73	-	-	-	-	-	-	-	-	-	-
FLARE	25.56	18.47	57.42	41.49	41.79	48.14	7.477	4.435	-	-	-	-	5.292	3.139	-	-
FUG-1	-	-	-	-	0.54	2.33	-	-	-	-	-	-	0.02	0.08	-	-
MALF.	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-
OILLOAD-1	-	-	-	-	14.99	29.97	-	-	-	-	-	-	-	-	-	-
Totals	25.875	19.851	57.684	42.645	350.818	1375.96	7.477	4.435	0.025	0.111	0.025	0.111	5.312	3.219	-	-

[1] **Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source.

Table 2-E: Requested Allowable Emissions

Enter an allowable emission limit for each piece of equipment with either an uncontrolled emission rate greater than 1 lb/hr or 1 ton per year (tpy) or a controlled emission rate of any amount. For H2S please represent all emissions even if they are less than 1 lb/hr and 1 tpy. If selecting combustion SSM emissions, enter lb/hr and tpy values. If selecting up to 10 tpy of Malfunction VOC emissions, enter tpy values. Combustion emissions from malfunction events are **not authorized** under this permit. Fill all cells in this table with the emissions in lb/hr and tpy, or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Total the emissions from all equipment in the Totals row. Add additional rows as necessary. Unit & stack numbering must be consistent throughout the application package. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or $1.41E^{-4}$).

Unit No.	NOx		CO		VOC		SOx		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
FWKO-1	0.086	0.377	0.072	0.315	0.005	0.022	-	-	0.007	0.031	0.007	0.031	-	-	-	-
FWKO-2	0.086	0.377	0.072	0.315	0.005	0.022	-	-	0.007	0.031	0.007	0.031	-	-	-	-
FWKO-3	0.086	0.377	0.072	0.315	0.005	0.022	-	-	0.007	0.031	0.007	0.031	-	-	-	-
HT-1	0.057	0.25	0.048	0.21	0.003	0.013	-	-	0.004	0.018	0.004	0.018	-	-	-	-
TK-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PWTK-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PWTK-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PWTK-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PWTK-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FLARE	25.56	18.47	57.42	41.49	41.79	48.14	7.477	4.435	-	-	-	-	5.292	3.139	-	-
FUG-1	-	-	-	-	0.54	2.33	-	-	-	-	-	-	0.02	0.08	-	-
OILLOAD-1	-	-	-	-	14.99	29.97	-	-	-	-	-	-	-	-	-	-
Malfunction	N/A	N/A	N/A	N/A	N/A	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Totals	25.88	19.85	57.68	42.65	57.34	90.52	7.48	4.44	0.03	0.11	0.03	0.11	5.31	3.22	-	-

[1] **Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source.

Section 9 Proof of Public Notice

General Posting of Notice

I, JERRY MATHEWS, the undersigned, certify that on 2/6/20 (DATE), I ~~posted~~ a true and correct copy of the attached Public Notice in a publicly accessible and conspicuous place, visible from the nearest public road, at the entrance of the property on which the facility is, or is proposed to be, located.

Signed this 5 day of FEBRUARY, 2020.

Jerry Mathews
Signature

2/5/20
Date

JERRY MATHEWS Production Superintendent
Printed Name Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

Newspaper Publication of Notice

☐ An original or copy of the actual newspaper advertisement posted in a newspaper in general circulation in the applicable county is attached. The original or copy of the advertisement includes the header showing the date and newspaper or publication title.

OR

☒ An affidavit from the newspaper or publication in general circulation in the applicable county stating that the advertisement was published is attached. The affidavit includes the date of the advertisement's publication, and a legible photocopy of the entire ad.

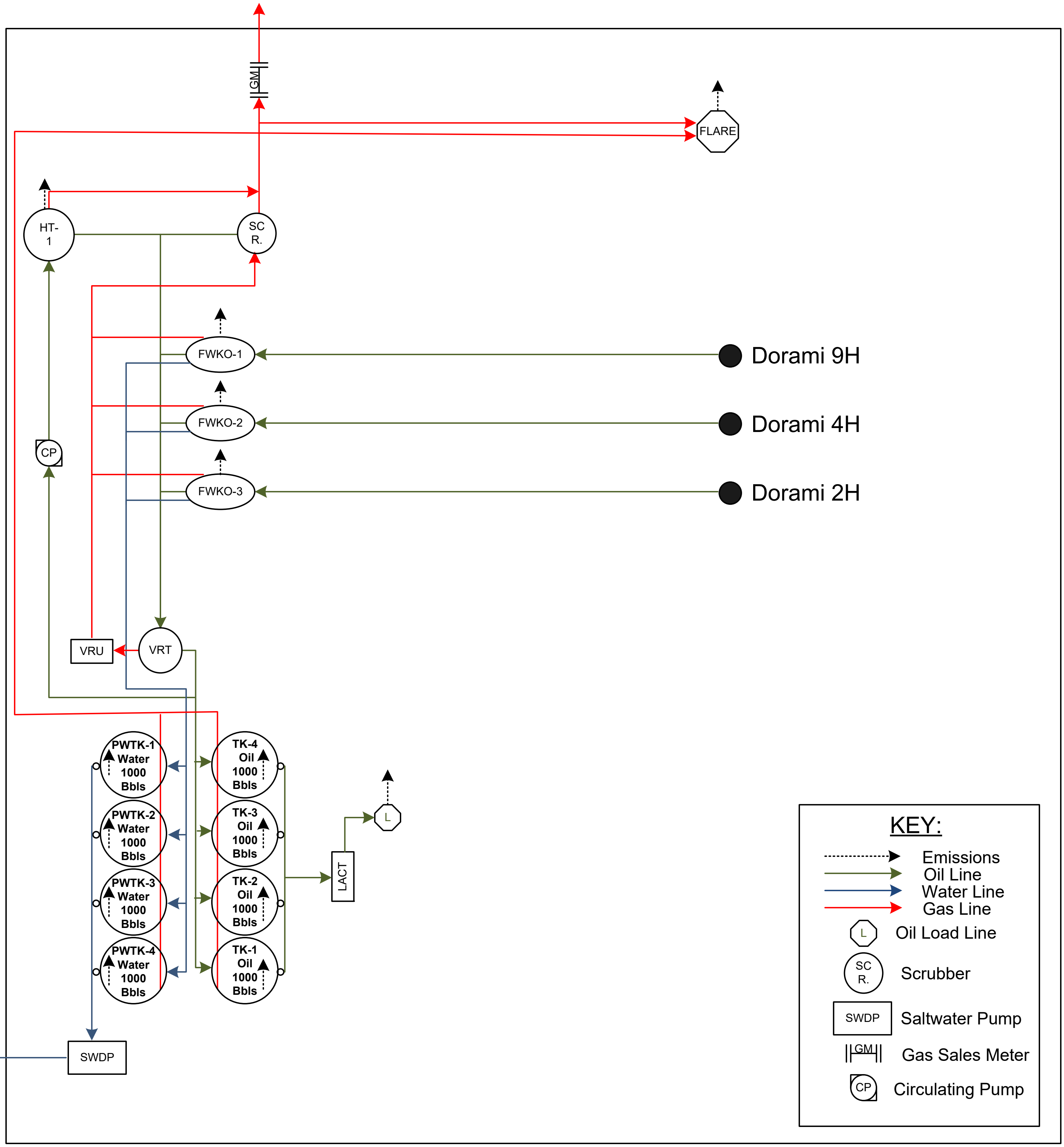
Signature

03/11/2020
Date

Spur Energy Partners LLC

Site Name: Dorami 2H, 4H, & 9H Federal Oil Tank Battery

AI Number: Applied



Prepared by: John Connolly
Updated: 03/11/2020

March 11, 2020

BY ELECTRONIC MAIL

Olivia Yiu, Asheley Coriz,
Marvin Mascarenas, Joseph Kimbrell,
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Re: Comments on Applications for General Construction Permits for Oil and Gas Facilities, Concerns Over Approval of General Permits in Southeast New Mexico

Dear New Mexico Air Quality Bureau Contacts:

WildEarth Guardians submits the following comments in response to several applications for general construction permits for oil and gas facilities in southeast New Mexico for which you have been identified as New Mexico Environment Department ("NMED") contacts.

In light of ongoing violations of the 8-hour ozone national ambient air quality standards ("NAAQS") in Eddy and Lea Counties, the New Mexico Environment Department ("NMED") is no longer permitted to allow oil and gas companies to obtain general permits for their operations. In light of this, NMED must reject the following registrations for general construction permits and must immediately halt the issuance of any further general construction permits for oil and gas facilities in Eddy and Lea Counties.

Our comments are specific to the following applications for general construction permits submitted for oil and gas facilities located in Eddy or Lea Counties:

Company	Facility(ies)	NSR Permit No.	Date Application Received
DCP Operating Company LP	West Turkey Track Compressor Station	2098M5	March 4, 2020
DCP Operating Company LP	Jackson Booster Station	2041M6	March 4, 2020
XTO Energy Inc.	James Ranch Unit DI 7	8746	March 4, 2020
OXY USA Inc.	NC Sand Dunes Compressor Station	8744	March 3, 2020
EOG Resources Inc.	Viper Localized Gas Lift Station	8739	March 2, 2020
EOG Resources Inc.	Date 14 CTB	8738	March 2, 2020
Lucid Energy Delaware LLC	Greyhound Compressor Station	8084M2	March 2, 2020
Matador Production Co.	Dr. Scrivner Facility	7825M3	March 2, 2020
ConocoPhillips Co.	Zeppo 5 Fed Com 25H Battery	8737	March 2, 2020
Ameredev II LLC	Pine Straw CTB	8217M2	February 27, 2020
Devon Production Co.	Blue Krait 23 CTB 2	8734	February 27, 2020
Kaiser-Francis Oil Co.	South Bell Lake Pad 11	7132M3	February 27, 2020
Kaiser-Francis Oil Co.	North Bell Lake Pad 0	8149M1	February 27, 2020
Spur Energy Partners LLC	Dorami 2H, 4H and 9H Federal Oil Tank Battery	8733	February 27, 2020
XTO Energy Inc.	Big Eddy Unit DI 38	8730	February 26, 2020
XTO Energy Inc.	Corral Canyon 23	8729	February 26, 2020

At issue is the fact that ozone monitors in southeast New Mexico are currently violating the ozone NAAQS. At this point, all three ozone monitors in both Eddy and Lea Counties are in nonattainment, with 2017-2019 design values all above the 2015 NAAQS of 0.070 parts per million. What's more, these monitoring sites have recorded regular exceedances of the 2015 8-hour ozone NAAQS since 2015. The tables below show the annual first, second, third, and fourth maximum 8-hour ozone readings at the three monitors in Lea and Eddy Counties between 2015 and 2019.

Hobbs, NM 8-Hour Ozone Readings (in ppm), 2015-2019

	2015	2016	2017	2018	2019
1st Max.	0.070	0.069	0.080	0.083	0.082
2nd Max.	0.069	0.066	0.074	0.078	0.075
3rd Max.	0.069	0.065	0.072	0.077	0.073
4th Max.	0.067	0.065	0.069	0.076	0.070
Number of Days Above NAAQS	0	0	3	6	3

Carlsbad, NM 8-Hour Ozone Readings (in ppm), 2015-2019

	2015	2016	2017	2018	2019
1st Max.	0.069	0.065	0.082	0.096	0.095
2nd Max.	0.068	0.064	0.078	0.095	0.092
3rd Max.	0.067	0.064	0.077	0.091	0.084
4th Max.	0.067	0.063	0.076	0.083	0.080
Number of Days Above NAAQS	0	0	10	18	19

Carlsbad Caverns National Park 8-Hour Ozone Readings, 2015-2019

	2015	2016	2017	2018	2019
1st Max.	0.068	0.070	0.069	0.099	0.082
2nd Max.	0.068	0.069	0.065	0.081	0.080
3rd Max.	0.065	0.069	0.065	0.080	0.078
4th Max.	0.065	0.069	0.065	0.080	0.074
Number of Days Above NAAQS	0	0	0	10	6

A violation of the 8-hour ozone NAAQS is triggered when the three-year average of the annual fourth highest daily reading exceeds the NAAQS. *See* 40 C.F.R. § 50.19(b). This three-year average value is commonly referred to as the "design value." Based on this monitoring data, all three ozone monitors are in violation of the NAAQS, with the design value at the Carlsbad monitor even violating the ozone NAAQS adopted in 2008, which limited 8-hour concentrations to no more than 0.075 parts per million. The table below shows that the design values at the Lea and Eddy County monitors have increased over the last five years and that currently, all three monitors are violating the ozone NAAQS.

8-Hour Ozone Design Values for Lea and Eddy County, New Mexico Monitoring Sites

Monitor	Monitor ID	2015-2017 Design Value	2016-2018 Design Value	2017-2019 Design Value
Hobbs	350250008	0.067	0.070	0.071
Carlsbad	350151005	0.068	0.074	0.079
Carlsbad Caverns	350150010	0.066	0.071	0.073

Under NMED's regulations, a general construction permit cannot be approved if it would "cause or contribute to air contaminant levels in excess of any national or New Mexico ambient air quality standard." 20.2.72.220(A)(2)(c) NMAC. To this end, a source may only register for an oil and gas general construction permit if it can demonstrate compliance with the NAAQS. Indeed, the registration forms for general construction permits for oil and gas facilities requires operators to demonstrate compliance with the NAAQS. Furthermore, NMED

can only approve a general construction permit if it determines that "all facilities registered [] will not cause or contribute to air contaminant levels in excess of any national [] ambient air quality standard." *See e.g.* NMED, "Air Quality Bureau General Construction Permit for Oil and Gas Facilities, GCP-Oil and Gas" at Condition B100.

In light of current ozone levels in Eddy and Lea Counties, there is no possible way for NMED or sources to conclude that construction and operation of new oil and gas facilities would not cause or contribute to violations of the ozone NAAQS. Every general construction permit registration would authorize increases in nitrogen oxides ("NOx") and volatile organic compounds ("VOCs")—both gases that react with sunlight to form ozone. The general construction permit applications for each facility listed above anticipate increases of up to 95 tons/year for both VOCs and NOx for each source. This means that every source seeking general construction permits will cause or contribute to ozone violations in Eddy and Lea Counties by increasing overall ozone-forming pollution in the region at a time when ozone levels are in violation of the NAAQS.

Given this, there is currently no legal justification for oil and gas sources to qualify for registration for general permits in Eddy and Lea Counties. Accordingly, NMED cannot approve the aforementioned applications for general construction permits, as well as any additional general construction permits, unless and until the ozone NAAQS are attained in Eddy and Lea Counties.

If NMED continues to approve general construction permits for oil and gas facilities in southeast New Mexico, then it will indicate the state implementation plan ("SIP") is inadequate to attain and maintain compliance with the NAAQS and will jeopardize the state's ability to continue implementing its air quality regulatory program under the Clean Air Act.

Thank you for the opportunity to provide these comments.

Sincerely,

Jeremy Nichols
Climate and Energy Program Director
WildEarth Guardians
(303) 437-7663
jnichols@wildearthguardians.org

Mail Registration To:		For Department use only:
New Mexico Environment Department Air Quality Bureau 525 Camino de los Marquez, Suite 1 Santa Fe, New Mexico, 87505 Phone (505) 476-4300 Fax (505) 476-4375 www.env.nm.gov/aqb	NEW MEXICO ENVIRONMENT DEPARTMENT	Airs # 35-015-2322 AI # 39447 Permit # 8733

General Construction Permit (GCP-Oil and Gas) Registration Form Section 1

(Locating outside of Bernalillo County, Tribal Lands, and Nonattainment Areas)

This Registration is being submitted as (check all that apply)**:**

☒ An initial GCP-Oil and Gas Registration Form for a new facility (**Registration fee required**).
☐ An updated GCP-Oil and Gas Registration Form for a modification to an existing facility (**Registration fee required**).
☐ A GCP-Oil and Gas Registration Form for an existing facility currently operating under GCP-1 or GCP-4 **(No fee required)**

The Permitting Administrative Multi-Form may be used for administrative changes identified in the GCP O&G Permit Condition C101.A. No public notification is required, and no filing fees or permit fees apply.

Construction Status: ☒ Not Constructed ☐ Existing Permitted (or NOI) Facility ☐ Existing Non-Permitted (or NOI) Facility

Acknowledgements:

☒ I acknowledge that a pre-application meeting is available to me upon request.
☒ An original signed and notarized Certification for Submittal for this GCP-Oil and Gas Registration is included.
☒ Proof of public notice is included, if required.
☒ The Air Emission Calculation Tool (AECT) is included.
☒ The emissions specified in this Registration Form will establish the emission limits in the GCP-Oil and Gas.
☒ **For new registrations or modifications, a check for the registration fee is included for $4190 prior to 1/1/20 or $4260 beginning 1/1/20.** There is an annual fee in addition to the registration fee: www.env.nm.gov/air-quality/permit-fees-2/
Facilities qualifying as a "small business" under 20.2.75.7.F NMAC qualify for reduced fees, provided that NMED has a Small Business Certification Form from your company on file. This form can be found at: www.env.nm.gov/aqb/sbap/Small_Business_Forms.html
Provide your Check Number: ____________ and Amount: $4,260.00

If a fee is required and is not submitted with the application, the registration will be denied.

1) Company Information		AI # (if known):	If updating, provide Permit/NOI #:
1	Facility Name: Dorami 2H, 4H, & 9H Federal Oil Tank Battery	Plant primary SIC Code (4 digits): 1311 Plant NAIC code (6 digits): 211120	
a	Facility Street Address (If no facility street address, check here ☒ and provide directions in Section 4):		
2	Plant Operator Company Name: Spur Energy Partners LLC	Phone/Fax: 281-795-2286	
a	Plant Operator Address: 920 Memorial City Way, Ste 1000, Houston, Texas 77024		
3	Plant Owner(s) name(s): Spur Energy Partners LLC	Phone/Fax: 281-795-2286	
a	Plant Owner(s) Mailing Address(s): 920 Memorial City Way, Ste 1000, Houston, Texas 77024		

4	Bill To (Company): Spur Energy Partners LLC	Phone/Fax: 281-795-2286
a	Mailing Address: 920 Memorial City Way, Ste 1000, Houston, Texas 77024	E-mail:todd@spurepllc.com
5	☐ Preparer: Energy Resource Development, Inc ☐ Consultant: John Connolly	Phone/Fax: 225-753-4723
a	Mailing Address: 19345 Point O Woods Court, Baton Rouge, LA 70809	E-mail: jmcerdi@cox.net
6	Plant Operator Contact: Todd Mucha	Phone/Fax: 281-795-2286
a	Mailing Address: 920 Memorial City Way, Ste 1000, Houston, Texas 77024	E-mail: todd@spurepllc.com
7	Air Permit Contact[1]: Todd Mucha	Title: EVP-Operations
a	E-mail: todd@spurepllc.com	Phone/Fax: 281-795-2286
b	Mailing Address: 920 Memorial City Way, Ste 1000, Houston, Texas 77024	
	[1]The Air Permit Contact will receive official correspondence from the Department.	
8	Will this facility operate in conjunction with other air regulated parties on the same property? ☒ No ☐ Yes If yes, what is the name and NOI or permit number (if known) of the other facility?	

2) Applicability

1	Is the facility located in Bernalillo County, on tribal lands, or in a nonattainment area?	☒**No** ☐**Yes**
	If you answered ***Yes*** to the question above, your facility **does not** qualify for this general construction permit.	
2	Is the facility's SIC code 1311, 1321, 4619, 4612 or 4922? (Other SIC codes may be approved provided that all the equipment at the facility is allowed in the GCP-Oil & Gas Permit.)	☐**No** ☒**Yes**
3	Does the regulated equipment under this GCP-Oil and Gas Registration include any combination of Allowable Equipment listed in Table 104 of the GCP Oil & Gas Permit, and no others?	☐**No** ☒**Yes**
4	Will the regulated equipment as specified in this GCP-Oil and Gas Registration emit less than the total emissions in Table 106 of the GCP-Oil and Gas permit?	☐**No** ☒**Yes**
5	Does all equipment comply with the stack parameter requirements as established in the GCP-Oil and Gas Permit?	☐**No** ☒**Yes**
6	Equipment shall be at least 100 meters (m) from any stack to terrain that is five (5) or more meters above the top of the stack. Will the equipment at the facility meet this terrain requirement?	☐**No** ☒**Yes**
7	Is the facility at least 150 m from any source that emits over 25 tons/year of NO_x? This is the distance between the two nearest stacks that emit NOx at each of the facilities. Not the facility boundaries or the center to center distances.	☐**No** ☒**Yes**
8	Is the facility at least 3 miles from any Class I area? This is the distance from the nearest facility boundary to the nearest boundary of the Class I area.	☐**No** ☒**Yes**
	If you answered ***NO*** to any of questions 2-8, your facility **does not** qualify for this general construction permit.	

3) Current Facility Status

1	Has this facility already been constructed? ☐Yes ☒No	If yes, is it currently operating in New Mexico? ☐ Yes ☐ No
2	Does this facility currently have a construction permit or Notice of Intent (NOI) (20.2.72 NMAC or 20.2.73 NMAC)? ☐Yes ☒No	If yes, the permit No. or NOI No., and whether it will remain active or not:
3	Is this Registration in response to a Notice of Violation (NOV)? ☐Yes ☒No If so, provide current permit #:	If yes, NOV date: / NOV Tracking No.
4	Check if facility is a: Minor Source: ☐ Synthetic Minor Source: ☐ (SM80 = Controlled Emissions > 80 TPY of any regulated air pollutant): ☒	

4) Facility Location Information

1	a) Latitude (decimal degrees): 32.614589	b) Longitude (decimal degrees): -104.47883	c) County: Eddy	d) Elevation (ft): 3531
2	a) UTM Zone: ☐12 or ☒13	b) UTME (to nearest 10 meters) 548,896	c) UTMN (to nearest 10 meters): 3,608,681	

3	e) Specify which datum is used: ☐ NAD 27 ☐ NAD 83 ☒ WGS 84 See this link for more info. http://en.wikipedia.org/wiki/North_American_Datum
4	Name and zip code of nearest New Mexico town and tribal community: 88210
5	Detailed Driving Instructions including direction and distance from nearest NM town and tribal community (attach a road map if necessary). If there is no street address, provide public road mileage marker: From the intersection of Hwy 285 and Hwy 82 in Artesia, NM, go south on Hwy 285 for 15.2 miles. Turn right on CR 23 (Rock Daisy Rd) and go 4.0 miles to facility road on the left.
6	The facility is 16.4 (distance) miles Southwest (direction) of Artesia (nearest town).
7	Land Status of facility (check one): ☐ Private ☐ Indian/Pueblo ☐ Government ☒ BLM ☐ Forest Service ☐ Military

5) Other Facility Information

1	Enter the maximum daily and annual throughput of oil, gas, and natural gas liquids (NGL).	**Oil (bbl/day): 2,300** **(bbl/yr): 839,500** **Gas (MMscf/day): 3.5** **(MMscf/yr): 1,277.5** **NGL (bbl/day): 0** **(bbl/yr): 0**
2	The facility, as described in this Registration, constitutes the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes.	☐**No** ☒**Yes**

6) Submittal Requirements

1	Include one hard copy **original signed and notarized Registration package printed double sided 'head-to-toe' 2-hole punched** as we bind the document on top, not on the side; except landscape tables, which should be head-to-head. If 'head-to-toe printing' is not possible, print single sided. Please use **numbered tab separators** in the hard copy submittal(s) as this facilitates the review process.
2	Include one **double sided hard copy, flip on long edge** for Department use. This copy does not need to be 2-hole punched.
3	The entire Registration package should be submitted electronically on one compact disk (CD). Include a single PDF document of the entire Registration as submitted and the individual documents comprising the Registration. The documents should also be submitted in Microsoft Office compatible file format (Word, Excel, etc.) allowing us to access the text in the documents (copy & paste). Any documents that cannot be submitted in a Microsoft Office compatible format shall be saved as a PDF file from within the electronic document that created the file. If you are unable to provide Microsoft office compatible electronic files or internally generated PDFs of files (items that were not created electronically: i.e. brochures, maps, graphics, etc.), submit these items in hard copy format. Spreadsheets must be unlocked since we must be able to review the formulas and inputs. **Ensure all of these are included in both the electronic and hard copies.** ☒Word Document part of the Registration Form (Sections 1 and 3-10) ☒Excel Document part of the Registration Form (Section 2) ☒Air Emissions Calculation Tool (AECT) If there is a justified reason for including other calculations, include the unlocked Excel Spreadsheet. Justification must be provided in Section 5 of the application. ☒PDF of entire application **To avoid errors, it is best to start with both a blank version of this form and the AECT for each application.**

Section 2
Tables

Insert Excel spreadsheet with applicable tables filled out. If applicable to the facility all tables must be filled out completely. The unit numbering system must be consistent throughout this Registration

Table 2-A: Regulated Emission Sources

Unit and stack numbering must correspond throughout the application package. Equipment that qualifies for an exemption under 20.2.72.202.B NMAC should be included in Table 2-B **Note:** Equipment options **are not authorized.**

Unit Number[1]	Source Description	Manufacturer/Make /Model	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] Date of Construction/ Reconstruction[2]	Controlled by Unit # Emissions vented to Stack #	Source Classi-fication Code (SCC)	RICE Ignition Type (CI, SI, 4SLB, 2SLB)[4]	For Each Piece of Equipment, Check Onc
FWKO-1	HEATED FREE WATER KNOCKOUT	NA	NA	0.75 MMBtu/hr	0.75 MMBtu/hr	NA 2020	FLARE FWKO-1	31000404	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
FWKO-2	HEATED FREE WATER KNOCKOUT	NA	NA	0.75 MMBtu/hr	0.75 MMBtu/hr	NA 2020	FLARE FWKO-2	31000404	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
FWKO-3	HEATED FREE WATER KNOCKOUT	NA	NA	0.75 MMBtu/hr	0.75 MMBtu/hr	NA 2020	FLARE FWKO-3	31000404	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
HT-1	HEATER TREATER	NA	NA	0.50 MMBtu/hr	0.50 MMBtu/hr	NA 2020	FLARE HT-1	31000404	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-1	1000 BBL OIL TANK	PETROSMITH EQUIPMENT LP	T-15911	1000 BBL	1000 BBL	2/4/2019 2020	FLARE FLARE	40400312	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-2	1000 BBL OIL TANK	PETROSMITH EQUIPMENT LP	T-15908	1000 BBL	1000 BBL	2/4/2019 2020	FLARE FLARE	40400312	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-3	1000 BBL OIL TANK	PETROSMITH EQUIPMENT LP	T-15912	1000 BBL	1000 BBL	2/4/2019 2020	FLARE FLARE	40400312	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
TK-4	1000 BBL OIL TANK	PETROSMITH EQUIPMENT LP	T-15909	1000 BBL	1000 BBL	2/4/2019 2020	FLARE FLARE	40400312	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
PWTK-1	1000 BBL WATER TANK	SAWYER INDUSTRIES	1504	1000 BBL	1000 BBL	3/15/2019 2020	FLARE FLARE	40400315	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
PWTK-2	1000 BBL WATER TANK	SAWYER INDUSTRIES	1502	1000 BBL	1000 BBL	3/15/2019 2020	FLARE FLARE	40400315	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
PWTK-3	1000 BBL WATER TANK	SAWYER INDUSTRIES	1258	1000 BBL	1000 BBL	12/2/2018 2020	FLARE FLARE	40400315	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
PWTK-4	1000 BBL WATER TANK	SAWYER INDUSTRIES	1501	1000 BBL	1000 BBL	3/15/2019 2020	FLARE FLARE	40400315	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
FLARE	DUAL PRESSURE FLARE	VAPROX	NA	4290.58 MMScf/yr	192.109 MMScf/yr	NA 2020	NA FLARE	30600903	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
FUG-1	FACILITY WIDE FUGATIVE	NA	NA	NA	NA	NA 2020	NA NA	31088811	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

Unit Number[1]	Source Description	Manufacturer/Make /Model	Serial #	Manufact-urer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classi-fication Code (SCC)	RICE Ignition Type (CI, SI, 4SLB, 2SLB)[4]	For Each Piece of Equipment, Check Onc
MALF.	MALFUNTION EMISSIONS	NA	NA	NA	NA	NA 2020	NA NA	31088811	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
OILLOAD-1	OIL TRUCK LOADING	NA	NA	NA	NA	NA 2020	NA NA	40600132	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
VRU-1	VAPOR RECOVERY UNIT	RICHARD'S ENERGY COMPRESSION, LLC	NA	NA	NA	NA 2020	FLARE FLARE	31000199	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
VRT-1	VAPOR RECOVERY TOWER	NA	NA	NA	NA	NA 2020	VRU/FLARE FLARE	31000129	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

[1] Unit numbers must correspond to unit numbers in the previous permit unless a complete cross reference table of all units in both permits is provided.
[2] Specify dates required to determine regulatory applicability.
[3] To properly account for power conversion efficiencies, generator set rated capacity shall be reported as the rated capacity of the engine in horsepower, not the kilowatt capacity of the generator set.
[4] "4SLB" means four stroke lean burn engine, "4SRB" means four stroke rich burn engine, "2SLB" means two stroke lean burn engine, "CI" means compression ignition, and "SI" means spark ignition

Table 2-B: Exempted Equipment (20.2.72 NMAC)

All 20.2.72 NMAC applications must list Exempted Equipment in this table. If equipment listed on this table is exempt under 20.2.72.202.B.5, include emissions calculations and emissions totals for 202.B.5 "similar functions" units, operations, and activities in Section 5, Calculations. Unit & stack numbering must be consistent throughout the application package.

Unit Number	Source Description	Manufacturer	Model No.	Max Capacity	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction[1]	For Each Piece of Equipment, Check Onc
			Serial No.	Capacity Units		Date of Installation /Construction[1]	
HR-1	HAUL ROAD	NA	NA	NA	20.2.72.202.B.5.	NA	☐ Existing (unchanged) ☐ To be Removed X New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			NA	NA	20.2.72.202.B.5.	2020	
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

1 Specify date(s) required to determine regulatory applicability.

Table 2-C: Emissions Control Equipment

Unit and stack numbering must correspond throughout the application package. In accordance with 20.2.72.203.A(3) and (8) NMAC, 20.2.70.300.D(5)(b) and (e) NMAC, and 20.2.73.200.B(7) NMAC, the permittee shall report all control devices and list each pollutant controlled by the control device regardless if the applicant takes credit for the reduction in emissions.

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
FLARE	COMBUSTION FLARE	2020	VOC, H2S	TK-1, TK-2, TK-3, TK-4, PWTK-1, PWTK-2, PWTK-3, PWTK-4, SALES GAS, VRT FLASH GAS DURING VRU DOWNTIME	98%	MANUFACTURER ESTIMATE
VRU-1	VAPOR RECOVERY UNIT	2020	VOC, H2S	VAPOR RECOVERY TOWER (VRT)	100%	ENGINEERING ESTIMATE

[1] List each control device on a separate line. For each control device, list all emission units controlled by the control device.

Table 2-D: Maximum Emissions (Consider federally enforceable controls under normal operating conditions)

This table must be filled out

Maximum Federally Enforceable Emissions are the emissions at maximum capacity with only federally enforceable methods of reducing emissions. Calculate the hourly emissions using the worst case hourly emissions for each pollutant. For each pollutant, calculate the annual emissions as if the facility were operating at maximum facility capacity without pollution controls for 8760 hours per year. Account for federally enforcable controls, such as an NSPS or MACT regulation. Consider federally enforceable controls due to permitting. List Hazardous Air Pollutants (HAP) in Table 2-I. Unit & stack numbering must be consistent throughout the application package. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or 1.41E-4).

Unit No.	NOx		CO		VOC		SOx		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
FWKO-1	0.086	0.377	0.072	0.315	0.005	0.022	-	-	0.007	0.031	0.007	0.031	-	-	-	-
FWKO-2	0.086	0.377	0.072	0.315	0.005	0.022	-	-	0.007	0.031	0.007	0.031	-	-	-	-
FWKO-3	0.086	0.377	0.072	0.315	0.005	0.022	-	-	0.007	0.031	0.007	0.031	-	-	-	-
HT-1	0.057	0.25	0.048	0.21	0.003	0.013	-	-	0.004	0.018	0.004	0.018	-	-	-	-
TK-1	-	-	-	-	70.92	310.63	-	-	-	-	-	-	-	-	-	-
TK-2	-	-	-	-	70.92	310.63	-	-	-	-	-	-	-	-	-	-
TK-3	-	-	-	-	70.92	310.63	-	-	-	-	-	-	-	-	-	-
TK-4	-	-	-	-	70.92	310.63	-	-	-	-	-	-	-	-	-	-
PWTK-1	-	-	-	-	2.45	10.73	-	-	-	-	-	-	-	-	-	-
PWTK-2	-	-	-	-	2.45	10.73	-	-	-	-	-	-	-	-	-	-
PWTK-3	-	-	-	-	2.45	10.73	-	-	-	-	-	-	-	-	-	-
PWTK-4	-	-	-	-	2.45	10.73	-	-	-	-	-	-	-	-	-	-
FLARE	25.56	18.47	57.42	41.49	41.79	48.14	7.477	4.435	-	-	-	-	5.292	3.139	-	-
FUG-1	-	-	-	-	0.54	2.33	-	-	-	-	-	-	0.02	0.08	-	-
MALF.	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-
OILLOAD-1	-	-	-	-	14.99	29.97	-	-	-	-	-	-	-	-	-	-
Totals	25.875	19.851	57.684	42.645	350.818	1375.96	7.477	4.435	0.025	0.111	0.025	0.111	5.312	3.219	-	-

[1] **Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source.

Table 2-E: Requested Allowable Emissions

Enter an allowable emission limit for each piece of equipment with either an uncontrolled emission rate greater than 1 lb/hr or 1 ton per year (tpy) or a controlled emission rate of any amount. For H2S please represent all emissions even if they are less than 1 lb/hr and 1 tpy. If selecting combustion SSM emissions, enter lb/hr and tpy values. If selecting up to 10 tpy of Malfunction VOC emissions, enter tpy values. Combustion emissions from malfunction events are **not authorized** under this permit. Fill all cells in this table with the emissions in lb/hr and tpy, or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Total the emissions from all equipment in the Totals row. Add additional rows as necessary. Unit & stack numbering must be consistent throughout the application package. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or $1.41E^{-4}$).

Unit No.	NOx		CO		VOC		SOx		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
FWKO-1	0.086	0.377	0.072	0.315	0.005	0.022	-	-	0.007	0.031	0.007	0.031	-	-	-	-
FWKO-2	0.086	0.377	0.072	0.315	0.005	0.022	-	-	0.007	0.031	0.007	0.031	-	-	-	-
FWKO-3	0.086	0.377	0.072	0.315	0.005	0.022	-	-	0.007	0.031	0.007	0.031	-	-	-	-
HT-1	0.057	0.25	0.048	0.21	0.003	0.013	-	-	0.004	0.018	0.004	0.018	-	-	-	-
TK-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TK-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PWTK-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PWTK-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PWTK-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PWTK-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FLARE	25.56	18.47	57.42	41.49	41.79	48.14	7.477	4.435	-	-	-	-	5.292	3.139	-	-
FUG-1	-	-	-	-	0.54	2.33	-	-	-	-	-	-	0.02	0.08	-	-
OILLOAD-1	-	-	-	-	14.99	29.97	-	-	-	-	-	-	-	-	-	-
Malfunction	N/A	N/A	N/A	N/A	N/A	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Totals	25.88	19.85	57.68	42.65	57.34	90.52	7.48	4.44	0.03	0.11	0.03	0.11	5.31	3.22	-	-

[1] **Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source.

Table 2-H: Stack Exit Conditions

Unit and stack numbering must correspond throughout the application package. Include the stack exit conditions for each unit that emits from a stack, including blowdown venting parameters and tank emissions.

Stack Type (Engine, Turbine, Flare, ECD, or Thermal Oxidizer Etc.)	Serving Unit Number(s) from Table 2-A	Orientation (H-Horizontal V=Vertical)	Height Above Ground (ft)	Temp. (F)	Flow Rate (acfs)	Velocity (ft/sec)	Inside Diameter (ft)
FWKO-1	FWKO-1	Vertical	25	250	5	21.62	0.66
FWKO-2	FWKO-2	Vertical	25	250	5	21.62	0.66
FWKO-3	FWKO-3	Vertical	25	250	5	21.62	0.66
HT-1	HT-1	Vertical	25	250	5	21.62	0.66
FLARE	FLARE	Vertical	35	1400	41	51.6	1.00

Table 2-I: Emission Rates for HAPs

HAP In the table below, report the potential emission rate for each HAP from each regulated emission unit listed in Table 1, only if the entire facility emits the HAP. For each such emission unit, HAP shall be reported to the nearest 0.1 tpy. Each facility-wide Individual HAP total and the facility-wide Total HAP shall be the sum of all HAP sources calculated to the nearest 0.1 ton per year. Use the HAP nomenclature as it appears in Section 112 (b) of the 1990 CAAA. Include tank-flashing emissions estimates of HAP in this table. For each HAP listed, fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected, or the pollutant is emitted in a quantity less than the threshold amounts described above. Add additional rows as necessary.

Stack No.	Unit No.(s)	Total HAPs		Provide Pollutant Name Here ☐ HAP		Provide Pollutant Name Here ☐ HAP		Provide Pollutant Name Here ☐ HAP		Provide Pollutant Name Here ☐ HAP		Provide Pollutant Name Here ☐ HAP		Provide Pollutant Name Here ☐ HAP		Provide Pollutant Name Here ☐ HAP		Provide Pollutant Name Here ☐ HAP	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
NA	FUG-1	0.0	0.1																
Totals:																			

Table 2-J: Allowable Fuels and Fuel Sulfur for Combustion Emission Units:

Specify fuel characteristics and usage. Unit and stack numbering must correspond throughout the application package.

Unit No.	Fuel Type (Natural Gas, Field Gas, Propane, Diesel, …)	Fuel Source (purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas, or other	Specify Units				
			Engines and Turbines: SO2 percentage (%) of the NOx emission rate (except flares)	Diesel Fuel Only: ppm of Sulfur	Lower Heating Value (BTU/SCF)	Annual Fuel Usage (MMSCF/y)	Does the Allowable Fuel and Fuel Sulfur Content meet GCP O&G Condition A110.A?
FWKO-1	FIELD NATURAL GAS	RAW/FIELD NATURAL GAS	-	-	1188.8	6.9	☑ Yes ☐ No
FWKO-2	FIELD NATURAL GAS	RAW/FIELD NATURAL GAS	-	-	1188.8	6.9	☑ Yes ☐ No
FWKO-3	FIELD NATURAL GAS	RAW/FIELD NATURAL GAS	-	-	1188.8	6.9	☑ Yes ☐ No
HT-1	FIELD NATURAL GAS	RAW/FIELD NATURAL GAS	-	-	1188.8	4.6	☑ Yes ☐ No
FLARE	FIELD NATURAL GAS	RAW/FIELD NATURAL GAS	-	-	1210	192.1	☑ Yes ☐ No
							☐ Yes ☐ No
							☐ Yes ☐ No
							☐ Yes ☐ No
							☐ Yes ☐ No
							☐ Yes ☐ No
							☐ Yes ☐ No
							☐ Yes ☐ No
							☐ Yes ☐ No
							☐ Yes ☐ No
							☐ Yes ☐ No

Table 2-L: Tank Data

Include appropriate tank-flashing modeling input data. Unit and stack numbering must correspond throughout the application package.

Tank No.	Date Installed	Materials Stored	Roof Type	Seal Type	Capacity (bbl)	Diameter (M)	Vapor Space (M)	Color		Separator Pressure (psia)	Annual Throughput (gal/yr)	Turn-overs (per year)
								Roof	Shell			
TK-1	2020	CRUDE OIL	Vertical - Fixed Roof (FX)	Welded-Mechanical Shoe	1,000	4.72	4.87	GREEN	GREEN	89.7	8,814,750	215.34
TK-2	2020	CRUDE OIL	Vertical - Fixed Roof (FX)	Welded-Mechanical Shoe	1,000	4.72	4.87	GREEN	GREEN	89.7	8,814,750	215.34
TK-3	2020	CRUDE OIL	Vertical - Fixed Roof (FX)	Welded-Mechanical Shoe	1,000	4.72	4.87	GREEN	GREEN	89.7	8,814,750	215.34
TK-4	2020	CRUDE OIL	Vertical - Fixed Roof (FX)	Welded-Mechanical Shoe	1,000	4.72	4.87	GREEN	GREEN	89.7	8,814,750	215.34
PWTK-1	2020	PRODUCED WATER	Vertical - Fixed Roof (FX)	FIBERGLASS	1,000	4.72	4.87	GREEN	GREEN	264.7	30,660,000	749.01
PWTK-2	2020	PRODUCED WATER	Vertical - Fixed Roof (FX)	FIBERGLASS	1,000	4.72	4.87	GREEN	GREEN	264.7	30,660,000	749.01
PWTK-3	2020	PRODUCED WATER	Vertical - Fixed Roof (FX)	FIBERGLASS	1,000	4.72	4.87	GREEN	GREEN	264.7	30,660,000	749.01
PWTK-4	2020	PRODUCED WATER	Vertical - Fixed Roof (FX)	FIBERGLASS	1,000	4.72	4.87	GREEN	GREEN	264.7	30,660,000	749.01

Section 3
Registration Summary

The Registration Summary: Provide information about the registration submittal. The Registration Summary shall include a brief description of the facility and its process. In case of a modification to a facility, please describe the proposed changes.

Specify Facility Type: Check the appropriate box below:

☒ Production Site

☐ Tank Battery

☐ Compressor Station

☐ Natural Gas Plant

☐ Other, please specify:______________

Registration Summary:

Spur Energy Partners LLC proposes this initial GCP-Oil & Gas application for the Dorami 2H, 4H, & 9H Federal Oil Tank Battery. The site will have an initial production rate of 2,300 bbl/day of oil, 8,000 bbl/day of produced water, and 3.5 MMScf/d of produced gas. Multiple wells are associated with this production facility.

As proposed, equipment at the well site will include three (3) 0.75 MMBtu/hr free water knockouts, one (1) 0.5 MMBtu/hr heater treater, one (1) electric vapor recovery unit (VRU) with an associated Vapor Recovery Tower (VRT), a dual-pressure combustion flare, four (4) 1,000 bbl produced water tanks, four (4) 1,000 bbl oil tanks, and various gas scrubbers.

Additional emissions at the site will result from tank truck loading, truck hauling, fugitive emissions, and malfunction emissions.

The combustion flare will control emissions from the oil & produced water tanks working, standing, and flashing losses, VRT flash gas during VRU downtimes, and produced sales gas to a minimum 98% efficiency. In the event that the VRU is down for maintenance, the flare will still control emissions from the vapor recovery tower. During maintenance or unavailability on the sales gas pipeline, all produced gas off the separators will be continuously routed to the flare until gas can be sold. The flare calculation page on the AECT is broken down into two streams, the high-pressure stream and the low-pressure stream. The high-pressure stream will be a combination of sales gas off the FWKOs during pipeline interruption, VRU gas during pipeline interruption, and gas during VRU downtime. The low-pressure stream will be the flash, working, and standing losses off the oil and water tanks.

Because of both the economic and environmental impacts on operations, Spur diligently inspects the VRU to ensure that it is in continuous operation.

Written description of the routine operations of the facility:

The production stream from the Dorami 2H, 4H, & 9H wells will enter the heated three-phase free water knockouts where the oil, water, and gas will be separated. The gas off the FWKOs will be routed to sales or to the flare for combustion. The water off the FWKOs will be routed to the water tanks. The oil will be routed to the VRT prior to being sent to the oil tanks. The flash gas off the VRT will be captured by the VRU and sent to sales or to the flare for combustion. When the VRU is not working, the VRT will route any captured flash gas to the flare. The oil and water tanks will be controlled to the dual-pressure combustion flare which will combust the flash, working, and standing emissions in the tanks. The produced oil is trucked out of the facility while the water is piped out. All oil truck loading emissions will be vented to the atmosphere. The heater treater will be used to circulate tank bottoms.

Routine or predictable emissions during Startup, Shutdown and Maintenance (SSM):

There are no SSM emissions currently associated with this facility.

Malfunction Emissions (M):

Spur Energy Partners LLC request 10 TPY VOC emissions to be added to this application for any malfunctions that might happen at the facility due to sudden and unavoidable failure to air pollution control equipment or process equipment beyond the control of Spur Energy Partners.

Allowable Operations: Check the appropriate box below:

☒ Facility operates continuously (8760 hours per year)

☐ The following regulated equipment will operate less than 8760 hours per year. Add additional rows as necessary. These units are subject to Condition A108.C of the Permit.

Table A – Equipment Operating Less Than 8760 hours per year

Unit #	Requested Annual Operating Hours

Verification of Compliance with Stack Parameter Requirements:

Please use the Stack Calculator and Stack Requirements Explained Guidance on our website: All of the verification information below is required to be filled out.

www.env.nm.gov/air-quality/air-quality-oil-and-gas-gcp-application-forms/

Check the box for each type of equipment at this facility:

- ☐ Engine(s)
- ☐ Turbine(s)
- ☒ Flares(s)
- ☐ Enclosed Combustion Device (s)
- ☒ Heater(s)
- ☐ Reboiler(s)

For each type of equipment checked above, complete the applicable section below.

Engines

1. Calculate the pound per hour (lb/hr) NO_x emission rate according to GCP O&G Condition A202.I Step 1 on page 15 of the GCP O&G. Enter this value in the top row of the table below.
2. Based on the calculated facility total NO_x emission rate, determine the minimum stack parameter requirements for engines and heaters from Table 1: Engines (page 17) of the GCP O&G and enter the minimum parameters from Table 1 (page 17) of the GCP O&G in the bottom row of the table below.
3. Enter the stack parameters from each engine and heater in the blank rows of the table below. Add rows as necessary.

Table B: Engine/Generator/Heater/Reboiler Stack Parameter Verification:

Calculated Facility Total NOx Emission Rate: 0.315 lb/hr				
Engine/Generator/Heater/Reboiler Unit Number	**Height (ft)**	**Temperature (^oF)**	**Velocity (ft/s)**	**Diameter (ft)**
FWKO-1	25	250	21.62	0.66
FWKO-2	25	250	21.62	0.66
FWKO-3	25	250	21.62	0.66
HT-1	25	250	21.62	0.66
Table 1 Minimum Parameters: For verification, list the minimum parameters based on the NOx lb/hr emission rate from the GCP O&G Table 1.	5.9	571	49.2	0.3

4. Do all engines and heaters comply with the minimum stack parameters from Table 1 (page 17) of the GCP O&G?
   - ☐ Yes. Skip step 5 below.
   - ☒ No. Go to step 5 below.

5. For engines and heaters that do not comply with the minimum stack parameters in Table 1 of the GCP O&G, explain and demonstrate in detail how the engines and heaters will be authorized according to the steps on page 16 of the GCP O&G or Condition A203.C of the GCP O&G. Show all calculations.

   Condition A203.C states that if "any heater or boiler is unable to meet the minimum stack parameter requirements in Table 1 or 2 of Condition A202.I, the maximum total emission rates allowed for those heaters and reboilers is 1.23 lb/hr of NOx"; therefor, the heaters at the facility will meet this requirements since their total emission rate is 0.315 lb/hr which is below the 1.23 lb/hr threshold allowed.

Turbines

1. Calculate the pound per hour (lb/hr) NO_x emission rate according to GCP O&G Condition A202.I Step 1 on page 17 of the GCP O&G. Enter this value in the top row of the table below.
2. Based on the calculated facility total NO_x emission rate, determine the minimum stack parameter requirements for turbines and heaters from Table 2: Turbines (page 18) of the GCP O&G. Enter the minimum parameters from Table 2 (page 18) of the GCP O&G in the bottom row of the table below.
3. Enter the stack parameters from each turbine and heater in the blank rows of the table below. Add rows as necessary.

Table C: Turbine/Heater/Reboiler Stack Parameter Verification:

Calculated Facility Total NOx Emission Rate: _____lb/hr				
Turbine/Heater/Reboiler Unit Number	**Height (ft)**	**Temperature (^{o}F)**	**Velocity (ft/s)**	**Diameter (ft)**
Table 2 Minimum Parameters: For verification, list the minimum parameters based on the NOx lb/hr emission rate from the GCP O&G Table 2.				

4. Do all turbines and heaters comply with the minimum stack parameters from Table 2 (page 18) of the GCP O&G?

☐ Yes. Skip step 5 below.
☐ No. Go to step 5 below.

5. For turbines and heaters that do not comply with the minimum stack parameters in Table 2 of the GCP O&G, explain and demonstrate in detail how the turbines and heaters will be authorized according to the steps on page 18 of the GCP O&G or Condition A203.C of the GCP O&G. Show all calculations.

Flares

1. Enter SO_2 emission rates (lb/hr) for each flare in the second column of the table below.
2. Based on the SO_2 emission rates, determine the minimum stack height requirements for flares from Table 3 (page 26) of the GCP O&G and enter the minimum stack height requirements for flares from Table 3 (page 26) of the GCP O&G in the last column of the table below.
3. Enter the stack height of each flare in the third column of the table below. Add rows as necessary.

Table D: Flare Stack Height Parameter Verification:

Flare Unit Number	**SO_2 Emission Rate (lb/hr)**	**Height (ft)**	**Table 3 Minimum Stack Height:** For verification, list the minimum height parameters based on the SO2 emission rate from the GCP O&G Table 3.
FLARE	7.477	35	11.5

4. Do all flares comply with minimum stack height requirements?
   ☒ Yes
   ☐ No

5. Does the flare gas contain 6% H_2S or less by volume (pre-combustion)?
   ☒ Yes. Skip step 6 below.
   ☐ No. Go to step 6 below.

6. Explain in detail how assist gas will be added to reduce the gas composition to 6% H_2S or less by volume.

Enclosed Combustion Device(s) (ECD):

According to GCP O&G Condition A208.A, the facility must meet one of the following options if an ECD is installed at the facility:

Option 1:

1. Will the ECD(s) meet the SO_2 emission limit of 0.7 lb/hr and operate with a velocity of at least one (1) foot per second?
   - ☐ Yes. Skip Option 2 below.
   - ☐ No. Go to Option 2 below.

Option 2:

2. Will the ECD(s) meet the SO_2 emission limit of 0.9 lb/hr and operate with a velocity of at least two (2) feet per second?
   - ☐ Yes
   - ☐ No

Section 4

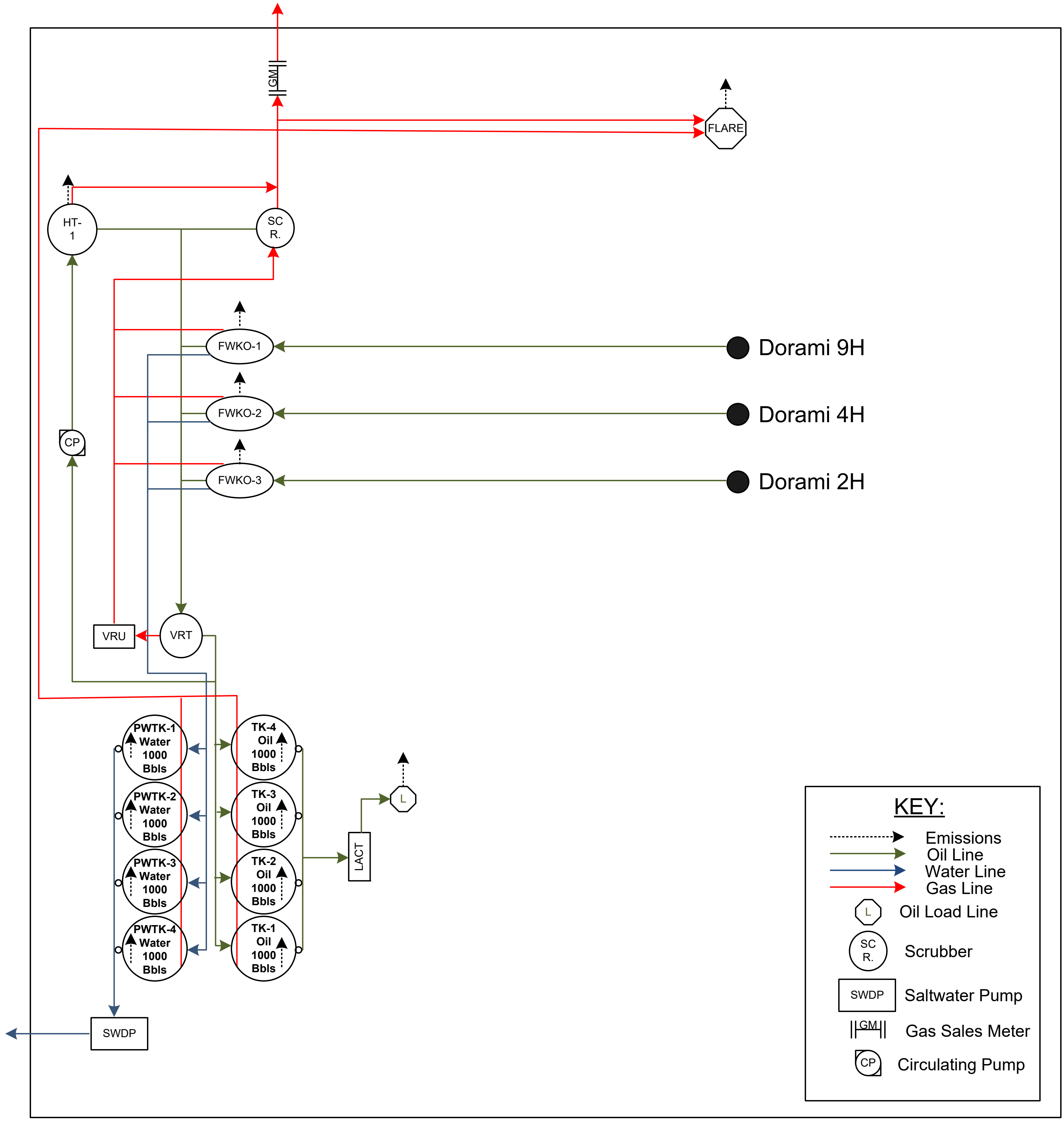
Process Flow Sheet

Attach a **process flow sheet** indicating all individual equipment, all emission points, and types of control applied to those points. All units must be labeled, and the unit numbering system must be consistent throughout this Registration. Identify all sources of emissions with a vertical arrow. Label each of the different material streams (e.g. crude oil, gas, water). The process flow sheet must be a legible size.

Spur Energy Partners LLC

Site Name: Dorami 2H, 4H, & 9H Federal Oil Tank Battery

AI Number: Applied



Prepared by: John Connolly
Updated: 03/11/2020

0623

Section 5

Emissions Calculation Forms

The Department has developed the Air Emissions Calculation Tool (AECT), which is required to be used in the GCP-Oil and Gas Registration. If the AECT, for a piece of equipment is under development, provide alternate calculations. **Do not include alternative calculations unless there is an issue being resolved with the AECT. This will delay review of the application.** The AECT and this Registration Form may be updated as needed.

Tank Emissions Calculations: Provide the method used to estimate tank-flashing emissions, the input and output summary from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis. If Pro-Max or Hysis is used, all relevant input parameters shall be reported, including separator pressure, gas throughput, and all other relevant parameters necessary for flashing calculation. **The inputs must match the gas analyses information submitted. Inputs that don't match may be grounds for denial of the application submittal.**

SSM Calculations: In this Section, provide emissions calculations for Startup, Shutdown, and Routine Maintenance (SSM) emissions listed in the Table 2, and the rational for why the others are reported as zero (or left blank).

Control Devices: Report all control devices and list each pollutant controlled by the control device. Indicate in this section if you chose to not take credit for the reduction in emission rates. Only uncontrolled emission rates can be considered to determine applicability unless the state or federal acts require the control. This information is necessary to determine if federally enforceable conditions are necessary for the control device, and if the control device produces its own regulated pollutants or increases emission rates of other pollutants.

Calculation Details: The AECT is required for all emission calculations. If the AECT is not functioning, alternative calculations may be submitted only for the portions of the AECT with issues being resolved. Utilize this section to explain in detail, on an equipment-by-equipment basis, why alternative calculations are necessary.

Explain here:

Equipment Forms Submitted in this Section (add additional rows as necessary):

Equipment Type	Quantity	Check Box to Indicate Units that are Controlled	Enter Control Device Type and Pollutant Controlled
Engine		☐	
Turbine		☐	
Tanks	8	☒	FLARE; VOC & H2S
Generator		☐	
VRU	1	☐	
VRT	1	☒	VRU; VOC & H2S
ULPS		☐	
Glycol Dehydrator		☐	
Flare	1	☐	TK-1, TK-2, TK-3, TK-4, PWTK-1, PWTK-2, PWTK-3, PWTK-4, VRU-1, SALES GAS OFF THE PRODUCTION EQUIPMENT; VOC & H2S
Amine Unit		☐	
Cryogenic Unit		☐	
Fugitive Emissions	1	☐	
Heater	4	☐	
Truck Loading	1	☐	
Enclosed Combustion		☐	

Device (ECD)			
Thermal Oxidizer (TO)		☐	
Unpaved Haul Road	1	☐	
Other		☐	

For each scenario below, if there are more than one emissions unit, control device, or gas combustion scenario. Please copy and paste each applicable section and label the unit number(s) if the scenarios vary.

Vapor Recovery Tower, Ultra Low-Pressure Separator, or Flash Tower Located Upstream of Storage Vessels: If the facility contains one of the following units located upstream of the storage vessels and is used to flash and capture flashing emissions, check the appropriate box.
Unit number: VRT/VRU-1
☒ Vapor Recovery Tower and VRU Compressor
☐ ULPS and VRU Compressor
☐ Flash Tower and VRU Compressor

Vapor Recovery Unit (VRU) located upstream of Storage Vessels: Check the box below if the facility is using a VRU to capture flashing emissions prior to any storage vessels to limit the PTE of the storage vessels to below applicability thresholds of NSPS OOOO or NSPS OOOOa. A process vs control determination should be prepared for this type of VRU application.
Unit number:
☐ VRU capturing emissions prior to any storage vessel and routing directly to the sales pipeline

Vapor Recovery Unit (VRU) attached to Storage Vessels: Check the box below if this facility is using a VRU to reduce storage vessel emissions to limit the PTE to below NSPS OOOO or NSPS OOOOa applicability thresholds:
Unit number:
☐ VRU controlling Storage Vessel emissions and the facility is subject to the requirements under NSPS OOOO, 40 CFR 60.5411
☐ VRU controlling Storage Vessel emissions and the facility is subject to the requirements under NSPS OOOOa, 40 CFR 60.5411a

Gas Combustion Scenarios: Read through the scenarios below and check the boxes next to any appropriate facility operating scenarios. Flares shall assume a destruction efficiency of 95%, unless the facility is subject to requirements for flares under 40 CFR 60.18, or a higher destruction efficiency (up to 98%) is supported by a manufacturer specification sheet (MSS) for that unit. If so, include the MSS.

A flare, vapor combustion unit (VCU), enclosed combustion device (ECD), thermal oxidizer (TO):
Unit number: FLARE
☒ Controls storage vessels in accordance with 40 CFR 60, Subpart OOOO or OOOOa.
☒ Provides a federally enforceable control for the storage vessels to limit the PTE to below applicability thresholds of 40 CFR 60, Subpart OOOO or OOOOa.
☐ Controls the glycol dehydrator
☐ Controls the amine unit
☐ Controls truck loading
☐ Operates only during maintenance events, such as VRU downtime, check one below:
☐ The emissions during VRU downtime are represented as uncontrolled VOC emissions from the compressor
☐ The combustion emissions during VRU downtime are represented as controlled emissions from the combustion device

☐ Controls the facility during plant turnaround

Amine Unit: Provide the following information for each amine unit.

Design Capacity in MMscf/day	
Rich Amine Flowrate in gal/min	
Lean Amine Flowrate in gal/min	
Mole Loading H_2S	
Sour Gas Input in MMscf/day	

Glycol Dehydration Unit(s): Provide the following information for each glycol dehydration unit:
Please include an extended gas analysis in Section 6 of this application.

Unit #	Glycol Pump Circulation Rate

Voluntary Monitoring in Accordance with §40 CFR 60.5416(a): Check the box(s) to implement a program that meets the requirements of 40 CFR 60.5416(a). This monitoring program will be conducted in lieu of the monitoring requirements established in the GCP-Oil and Gas for individual equipment. Ceasing to implement this alternative monitoring must be reported in an updated Registration Form to the Department.

☒ Condition A205.B Control Device Options, Requirements, and Inspections for Tanks
☐ Condition A206.B Truck Loading Control Device Inspection
☐ Condition A206.C Vapor Balancing During Truck Loading
☒ Condition A209.A Vapor Recovery Unit or Department-approved Equivalent
☐ Condition A210.B Amine Unit Control Device Inspection

Fugitive H_2S Screening Threshold and Monitoring in accordance with Condition A212: Check the box that applies.

☒ Condition A212.A does not apply because the facility is below the fugitive H_2S screening threshold in Condition A212, or

☐ Condition A212.A applies. Because the facility is above the fugitive H_2S screening threshold in Condition A212, or the facility is voluntarily complying with Condition A212.A, and Condition A212.A applies

Section 6

Information Used to Determine Emissions

Check the box for each type of information submitted. This documentation is required. If applicable to the facility.

Failure to include applicable supporting documentation may result in application denial.

☒ Specifications for control equipment, including control efficiency specifications and sufficient engineering data for verification of control equipment operation, including design drawings, test reports, and design parameters that affect normal operation.

- ☐ Engine or Generator Manufacturer specifications
- ☐ Catalyst Manufacturer specifications (If a catalyst is being utilized to reduce emissions, the catalyst manufacturer emission factors must be used in all emission calculations. A 25% safety factor may be applied to each pollutant.
- ☐ NSPS JJJJ emission factors **may not** be utilized in lieu of catalyst manufacture specifications when a catalyst is installed, and the catalysts manufacturer achieves higher control efficiency.
- ☒ Flare Manufacturer specifications
- ☒ Oil/Liquid Analysis: This data is required to match the inputs in all applicable emission calculations. For facilities that have not been constructed and a representative analysis is used it cannot be older than 1 year. For existing facilities, the gas analyses required by Condition A201.A (must be 1 year old or less).
- ☒ Gas Analysis (must be 1 year old or less) This data is required to match the inputs in all applicable emission calculations.
- ☐ Extended Gas Analysis (must be 1 year old or less) This data is required to match the inputs in all applicable emission calculations.
- ☒ If requesting to use a representative gas sample, include a discussion of why the sample is representative for this facility and an explanation of how it is representative (e.g., same reservoir, same similar API gravity, similar composition).

☐ If test data are used, to support emissions calculations or to establish allowable emission limits, include a copy of the complete test report. If the test data are for an emissions unit other than the one being permitted, the emission units must be identical. Test data may not be used if any difference in operating conditions of the unit being permitted and the unit represented in the test report significantly effect emission rates.

☐ Fuel specifications sheet.

☒ If computer models are used to estimate emissions, include an input summary and a detailed report, and a disk containing the input file used to run the model.

☒ For tank-flashing emissions, include a discussion of the method used to estimate tank-flashing emissions, accuracy of the model, the **input and output** summary from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis.

<u>Representative Gas Analysis Justification:</u> Representative gas analysis used is from a well with similar API gravity, same reservoir, similar composition, and with similar separation technique. Flash analysis was calculated from a nearby facility that is operating in the same reservoir that has a similar oil composition. The flash analysis was calculated for the pressure drop between the tanks and the upstream separation equipment.

Gas Analysis

Atchafalaya Measurement, Inc.
416 East Main Street Artesia, NM 88210 575-746-3481

Inficon Micro GC Fusion F08904 R03RR2

	Sample Information
Sample Name	Percussion__Huber 3 Federal 8H__GC1-1419-04
Station Number	79410072
Lease Name	Huber 3 Federal 8H
Analysis For	Percussion Petroleum
Producer	Percussion Petroleum
Field Name	Dagger Draw
County/State	Eddy,NM
Frequency/Spot Sample	Quarterly
Sampling Method	Fill Empty
Sample Deg F	59.8
Atmos Deg F	40
Flow Rate	506.0673
Line PSIG	83.4
Date/Time Sampled	12-27-18
Cylinder Number	N/A
Cylinder Clean Date	N/A
Sampled By	Victor Urias
Analysis By	Pat Silvas
Verified/Calibration Date	1-3-19
Report Date	2019-01-04 07:59:11

Component Results

Component Name	Ret. Time	Peak Area	Norm%	PPMV	GPM (Dry) (Gal. / 1000 cu.ft.)
Nitrogen	22.300	14311.4	2.81090	28109.000	0.000
H2S	46.000	0.0	1.99577	19957.700	0.000
Methane	23.120	285170.1	72.02046	720204.600	0.000
Carbon Dioxide	26.940	14410.7	2.37167	23716.700	0.000
Ethane	36.960	80184.1	12.11010	121101.000	3.249
Propane	78.980	46653.6	5.24909	52490.900	1.451
i-butane	28.780	46697.5	0.68305	6830.500	0.224
n-Butane	30.380	104115.0	1.46730	14673.000	0.464
i-pentane	35.440	31060.7	0.37136	3713.600	0.136
n-Pentane	37.540	27936.5	0.32511	3251.100	0.118
Hexanes Plus	120.000	52184.0	0.59519	5951.900	0.259
Total:			100.00000	1000000.000	5.902

Results Summary

Result	Dry	Sat. (Base)
Total Raw Mole% (Dry)	100.21205	
Pressure Base (psia)	14.730	
Temperature Base	60.00	
Gross Heating Value (BTU / Ideal cu.ft.)	1205.1	1184.1
Gross Heating Value (BTU / Real cu.ft.)	1209.4	1188.8
Relative Density (G), Ideal	0.7474	0.7453
Relative Density (G), Real	0.7498	0.7479
Compressibility (Z) Factor	0.9964	0.9960

Gas Analysis - Use if the Inputs are Weight Percents

Analysis Identifier/Name	
What site is the sample from?	
If the sample is from a representaive site, explain how this sampled stream is representative of the similar stream at this site (use the notes box provided below if more space is needed).	
Where in the process was the sample taken?	
What is the temperature and pressure of the sample (include units)?	
Who analyzed the sample?	
Date of sample:	

Component	**weight %**
hydrogen	
helium	
nitrogen	
CO2	
H2S	
methane (C1)	
ethane (C2)	
propane (C3)	
butanes (C4)	
pentanes (C5)	
benzene	
other hexanes (C6)	
toluene	
other heptanes (C7)	
ethylbenzene	
xylenes (o, m, p)	
other octanes (C8)	
nonanes (C9)	
decanes plus (C10+)	
Totals:	0.0000

VOC (Non-methane, Non-ethane hydrocarbons)

VOC content of total sample
VOC weight% = 0.0000
VOC weight fraction = 0.0000

VOC content of hydrocarbon fraction only
VOC weight% = #DIV/0!
VOC weight fraction = #DIV/0!

Hydrogen Sulfide
H2S weight% = 0.0000
H2S weight fraction = 0.00E+00
H2S ppm_V =
H2S ppm_{WT}= 0.00
H_2S grains/100 SCF = 0.0000
SWEET GAS

Constants:
453.59237 mol/lb-mol
0.06479891 grams/grain
385.48 scf/lb-mol
34.08188 g/mol, lb/lb-mol
H2S mw

Benzene

Benzene content of total sample
Benzene weight% = 0.0000
Benzene weight fraction = 0.0000

Benzene content of hydrocarbon fraction only
Benzene weight% = #DIV/0!
Benzene weight fraction = #DIV/0!

Gas Molecular Weight =
Gas Specific Gravity = 0.00

Constants:
28.97 air mw
385.48 scf/lb-mol

Gas Throughput (MMscf/day)= 0

Long Tons Sulfur Compounds per Day = 0

Gas Analysis - Use if the Inputs are Mole Percents

Analysis Identifier/Name	Huber 3 Federal 8H Gas Analysis
Where was the sample taken?	
If the sample is from a representaive site, explain how this sampled stream is representative of the similar stream at this site (use the notes box provided below if more space is needed).	
Where in the process was the sample taken?	
What is the temperature and pressure of the sample (include units)?	
Who analyzed the sample?	
Date of sample:	

Component	**mole %**	Molecular Weight (grams/mole, lb/lb-mol)	grams per 100 moles of gas	**weight %**
hydrogen	0.0000	2.01588	0	0.0000
helium	0.0000	4.0026	0	0.0000
nitrogen	2.8109	28.01340	79	3.5332
CO2	2.3717	44.00950	104	4.6834
H2S	1.9958	34.08188	68	3.0521
methane (C1)	72.0205	16.04246	1155	51.8422
ethane (C2)	12.1101	30.06904	364	16.3389
propane (C3)	5.2491	44.09562	231	10.3857
butanes (C4)	2.1504	58.12220	125	5.6081
pentanes (C5)	0.6965	72.14878	50	2.2548
benzene	0.0000	78.110000	0	0.0000
other hexanes (C6)	0.5952	86.18000	51	2.3016
toluene	0.0000	92.140000	0	0.0000
other heptanes (C7)	0.0000	100.20000	0	0.0000
ethylbenzene	0.0000	106.170000	0	0.0000
xylenes (o, m, p)	0.0000	106.170000	0	0.0000
other octanes (C8)	0.0000	114.23000	0	0.0000
nonanes (C9)	0.0000	128.26000	0	0.0000
decanes plus (C10+)	0.0000		0	0.0000
Totals:	100.0002	22.29	2229	100.00

VOC (Non-methane, Non-ethane hydrocarbons)

VOC content of total sample
VOC weight% = 20.5502
VOC weight fraction = 0.2055

VOC content of hydrocarbon fraction only
VOC weight% = 23.1600
VOC weight fraction = 0.2316

Hydrogen Sulfide
H2S weight% = 3.0521
H2S weight fraction = 3.05E-02
H2S ppm_V = 19958
H2S ppm_{WT}= 30520.86
H_2S grains/100 SCF = 1235.1904
SOUR GAS

Constants:
453.59237 mol/lb-mol
0.06479891 grams/grain
385.48 scf/lb-mol

Benzene

Benzene content of total sample
Benzene weight% = 0.0000
Benzene weight fraction = 0.0000

Benzene content of hydrocarbon fraction only
Benzene weight% = 0.0000
Benzene weight fraction = 0.0000

Gas Molecular Weight = 22.29
Gas Specific Gravity = 0.77

Constants:
28.97 air mw
385.48 scf/lb-mol

Gas Throughput (MMscf/day)= 0

Long Tons Sulfur Compounds per Day = 0

Flash Gas Analysis

Certificate of Analysis

Number: 5030-19100617-003A

Midland Laboratory
2200 East I-20
Midland, TX 79706
Phone 432-689-7252

Mike Dunn
AMI
416 East Main St.
Artesia, NM 88210

Oct. 29, 2019

Station Name:	GOOMAN BATTERY	Sampled By:	DEREK SAUDER
Sample Point:	HEATER	Sample Of:	Oil Spot
Method:	GPA 2286	Sample Date:	10/24/2019 10:12
Analyzed:	10/29/2019 12:19:18 by Administrator	Sample Conditions:	30 psig, @ 118 °F

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.696 psia		
Hydrogen Sulfide	0.0000	0.0000		GPM TOTAL C2+	26.242
Nitrogen	4.1416	2.6393		GPM TOTAL C3+	19.551
Carbon Dioxide	1.7297	1.7317		GPM TOTAL iC5+	3.210
Methane	5.6041	2.0452			
Ethane	24.6589	16.8674	6.691		
Propane	35.3821	35.4924	9.890		
Iso-butane	5.9747	7.8998	1.984		
n-Butane	13.9651	18.4647	4.467		
Iso-pentane	3.1895	5.2349	1.183		
n-Pentane	2.8282	4.6419	1.040		
Hexanes Plus	2.5261	4.9827	0.987		
	100.0000	100.0000	26.242		

Calculated Physical Properties	Total	C6+
Relative Density Real Gas	1.5433	2.9938
Calculated Molecular Weight	43.96	86.71
Compressibility Factor	0.9831	
GPA 2172 Calculation:		
Calculated Gross BTU per ft³ @ 14.696 psia & 60°F		
Real Gas Dry BTU	2433	4669
Water Sat. Gas Base BTU	2391	4587

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.

Certificate of Analysis

Number: 5030-19100617-003A

Midland Laboratory
2200 East I-20
Midland, TX 79706
Phone 432-689-7252

Mike Dunn
AMI
416 East Main St.
Artesia, NM 88210

Oct. 29, 2019

Station Name:	GOOMAN BATTERY	Sampled By:	DEREK SAUDER
Sample Point:	HEATER	Sample Of:	Oil Spot
Method:	GPA 2286	Sample Date:	10/24/2019 10:12
Analyzed:	10/29/2019 12:19:18 by Administrator	Sample Conditions:	30 psig, @ 118 °F

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.696 psia
Hydrogen Sulfide	0.0000	0.0000	
Nitrogen	4.1416	2.6393	
Methane	5.6041	2.0452	
Carbon Dioxide	1.7297	1.7317	
Ethane	24.6589	16.8674	6.691
Propane	35.3821	35.4924	9.890
Iso-Butane	5.9747	7.8998	1.984
n-Butane	13.9651	18.4647	4.467
Iso-Pentane	3.1895	5.2349	1.183
n-Pentane	2.8282	4.6419	1.040
Hexanes	1.3991	2.6947	0.570
Heptanes Plus	1.1270	2.2880	0.417
	100.0000	100.0000	26.242

GPM TOTAL C2+	26.2420
GPM TOTAL C3+	19.5510
GPM TOTAL iC5+	3.2100

Calculated Physical Properties	**Total**	**C7+**
Relative Density Real Gas	1.5433	3.0800
Calculated Molecular Weight	43.96	89.20
Compressibility Factor	0.9831	
GPA 2172 Calculation:		
Calculated Gross BTU per ft³ @ 14.696 psia & 60°F		
Real Gas Dry BTU	2433.1	4680.4
Water Sat. Gas Base BTU	2390.7	4598.8

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.

Midland Laboratory
2200 East I-20
Midland, TX 79706
Phone 432-689-7252

Certificate of Analysis

Number: 5030-19100617-003A

Mike Dunn
AMI
416 East Main St.
Artesia, NM 88210

Oct. 29, 2019

Station Name: GOOMAN BATTERY
Sample Point: HEATER
Method: GPA 2286
Analyzed: 10/29/2019 12:19:18 by Administrator

Sampled By: DEREK SAUDER
Sample Of: Oil   Spot
Sample Date: 10/24/2019 10:12
Sample Conditions: 30 psig, @ 118 °F

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.696 psia
Hydrogen Sulfide	0.0000	0.0000	
Nitrogen	4.1416	2.6393	
Carbon Dioxide	1.7297	1.7317	
Methane	5.6041	2.0452	
Ethane	24.6589	16.8674	6.691
Propane	35.3821	35.4924	9.890
Iso-Butane	5.9747	7.8998	1.984
n-Butane	13.9651	18.4647	4.467
Iso-Pentane	3.1895	5.2349	1.183
n-Pentane	2.8282	4.6419	1.040
i-Hexanes	0.9677	1.8494	0.390
n-Hexane	0.4314	0.8453	0.180
Benzene	0.2230	0.3964	0.063
Cyclohexane	0.2324	0.4448	0.080
i-Heptanes	0.4464	0.9190	0.176
n-Heptane	0.0554	0.1262	0.026
Toluene	0.0245	0.0512	0.008
i-Octanes	0.1214	0.2865	0.053
n-Octane	0.0055	0.0142	0.003
Ethylbenzene	0.0011	0.0026	0.000
Xylenes	0.0010	0.0027	0.000
i-Nonanes	0.0157	0.0422	0.008
n-Nonane	0.0004	0.0010	0.000
Decane Plus	0.0002	0.0012	0.000
	100.0000	100.0000	26.242

GPM TOTAL C2+	26.242
GPM TOTAL C3+	19.551
GPM TOTAL iC5+	3.210

Calculated Physical Properties	**Total**	**C10+**
Calculated Molecular Weight	43.96	170.33
Compressibility Factor	0.9831	
GPA 2172 Calculation:		
Calculated Gross BTU per ft³ @ 14.696 psia & 60°F		
Real Gas Dry BTU	2433.1	9395.2
Water Sat. Gas Base BTU	2390.7	9075.5

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.

SPL

Certificate of Analysis

Number: 5030-19100617-003A

Midland Laboratory
2200 East I-20
Midland, TX 79706
Phone 432-689-7252

Mike Dunn
AMI
416 East Main St.
Artesia, NM 88210

Oct. 29, 2019

Station Name: GOOMAN BATTERY
Sample Point: HEATER
Sample Conditions: 30 psig, @ 118 °F

Sampled By: DEREK SAUDER
Sample Of: Oil Spot
Sample Date: 10/24/2019 10:12

Analytical Data

Test	Method	Result	Units	Detection Limit	Lab Tech.	Analysis Date
Shrinkage Factor	API 20.1 M	0.9767			mb	10/29/2019
Flash Factor	API 20.1 M	25.4517	Cu.Ft./STBbl.		mb	10/29/2019
Color Visual	API 20.1 M	Crude			mb	10/29/2019
API Gravity @ 60° F	ASTM D-5002	33.4	°		mb	10/29/2019

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.

Gas Analysis - Use if the Inputs are Weight Percents

Analysis Identifier/Name	
What site is the sample from?	
If the sample is from a representaive site, explain how this sampled stream is representative of the similar stream at this site (use the notes box provided below if more space is needed).	
Where in the process was the sample taken?	
What is the temperature and pressure of the sample (include units)?	
Who analyzed the sample?	
Date of sample:	

Component	**weight %**
hydrogen	
helium	
nitrogen	
CO2	
H2S	
methane (C1)	
ethane (C2)	
propane (C3)	
butanes (C4)	
pentanes (C5)	
benzene	
other hexanes (C6)	
toluene	
other heptanes (C7)	
ethylbenzene	
xylenes (o, m, p)	
other octanes (C8)	
nonanes (C9)	
decanes plus (C10+)	
Totals:	0.0000

VOC (Non-methane, Non-ethane hydrocarbons)

VOC content of total sample
VOC weight% = 0.0000
VOC weight fraction = 0.0000

VOC content of hydrocarbon fraction only
VOC weight% = #DIV/0!
VOC weight fraction = #DIV/0!

Hydrogen Sulfide
H2S weight% = 0.0000
H2S weight fraction = 0.00E+00
H2S ppm_V =
H2S ppm_{WT}= 0.00
H_2S grains/100 SCF = 0.0000
SWEET GAS

Constants:
453.59237 mol/lb-mol
0.06479891 grams/grain
385.48 scf/lb-mol
34.08188 g/mol, lb/lb-mol
H2S mw

Benzene

Benzene content of total sample
Benzene weight% = 0.0000
Benzene weight fraction = 0.0000

Benzene content of hydrocarbon fraction only
Benzene weight% = #DIV/0!
Benzene weight fraction = #DIV/0!

Gas Molecular Weight =
Gas Specific Gravity = 0.00

Constants:
28.97 air mw
385.48 scf/lb-mol

Gas Throughput (MMscf/day)= 0

Long Tons Sulfur Compounds per Day = 0

Gas Analysis - Use if the Inputs are Mole Percents

Analysis Identifier/Name	Goodman Battery Flash Analysis
Where was the sample taken?	
If the sample is from a representaive site, explain how this sampled stream is representative of the similar stream at this site (use the notes box provided below if more space is needed).	
Where in the process was the sample taken?	
What is the temperature and pressure of the sample (include units)?	
Who analyzed the sample?	
Date of sample:	

Component	**mole %**	Molecular Weight (grams/mole, lb/lb-mol)	grams per 100 moles of gas	**weight %**
hydrogen	0.0000	2.01588	0	0.0000
helium	0.0000	4.0026	0	0.0000
nitrogen	4.1416	28.01340	116	2.6343
CO2	1.7297	44.00950	76	1.7284
H2S	0.0000	34.08188	0	0.0000
methane (C1)	5.6041	16.04246	90	2.0413
ethane (C2)	24.6589	30.06904	741	16.8356
propane (C3)	35.3821	44.09562	1560	35.4254
butanes (C4)	19.9398	58.12220	1159	26.3147
pentanes (C5)	6.0177	72.14878	434	9.8582
benzene	0.2230	78.110000	17	0.3955
other hexanes (C6)	1.6315	86.18000	141	3.1925
toluene	0.0245	92.140000	2	0.0513
other heptanes (C7)	0.5018	100.20000	50	1.1417
ethylbenzene	0.0011	106.170000	0	0.0027
xylenes (o, m, p)	0.0010	106.170000	0	0.0024
other octanes (C8)	0.1269	114.23000	14	0.3291
nonanes (C9)	0.0161	128.26000	2	0.0469
decanes plus (C10+)	0.0000		0	0.0000
Totals:	99.9998	44.04	4404	100.00

VOC (Non-methane, Non-ethane hydrocarbons)

VOC content of total sample
VOC weight% = 76.7603
VOC weight fraction = 0.7676

VOC content of hydrocarbon fraction only
VOC weight% = 80.2619
VOC weight fraction = 0.8026

Hydrogen Sulfide
H2S weight% = 0.0000
H2S weight fraction = 0.00E+00
H2S ppm_V = 0
H2S ppm_{WT}= 0.00
H_2S grains/100 SCF = 0.0000
SWEET GAS

Constants:
453.59237 mol/lb-mol
0.06479891 grams/grain
385.48 scf/lb-mol

Benzene

Benzene content of total sample
Benzene weight% = 0.3955
Benzene weight fraction = 0.0040

Benzene content of hydrocarbon fraction only
Benzene weight% = 0.4135
Benzene weight fraction = 0.0041

Gas Molecular Weight = 44.04
Gas Specific Gravity = 1.52

Constants:
28.97 air mw
385.48 scf/lb-mol

Gas Throughput (MMscf/day)= 0

Long Tons Sulfur Compounds per Day = 0

Liquid Analysis

Certificate of Analysis

Number: 5030-19100539-002A

Midland Laboratory
2200 East I-20
Midland, TX 79706
Phone 432-689-7252

Nov. 06, 2019

Mike Dunn
AMI
416 East Main St.
Artesia, NM 88210

Station Name:	GOODMAN BATTERY	Sampled By:	DONAVON MILLER
Sample Point:	HEATER	Sample Of:	Oil Spot
Method:	GPA 2103M	Sample Date:	10/22/2019
Analyzed:	11/01/2019 00:45:22 by MB2	Sample Conditions:	92 °F

Analytical Data

Components	Mol. %	MW	Wt. %	Sp. Gravity	L.V. %
Hydrogen Sulfide	NIL	NIL	NIL	NIL	NIL
Nitrogen	0.040	28.013	0.007	0.8069	0.007
Methane	0.030	16.043	0.003	0.3000	0.008
Carbon Dioxide	0.018	44.010	0.005	0.8172	0.005
Ethane	0.397	30.069	0.075	0.3563	0.172
Propane	1.973	44.096	0.546	0.5072	0.878
Iso-Butane	0.888	58.122	0.324	0.5628	0.470
n-Butane	3.377	58.122	1.232	0.5842	1.720
Iso-Pentane	2.391	72.149	1.083	0.6251	1.413
n-Pentane	3.049	72.149	1.381	0.6307	1.786
i-Hexanes	0.796	85.432	0.427	0.6656	0.523
n-Hexane	0.593	86.175	0.321	0.6641	0.394
2,2,4-Trimethylpentane	0.040	114.229	0.029	0.6964	0.034
Benzene	1.324	78.112	0.649	0.8844	0.599
Heptanes	5.468	100.202	3.439	0.6882	4.076
Toluene	2.974	92.138	1.720	0.8719	1.609
Octanes	7.251	114.229	5.199	0.7066	6.003
Ethylbenzene	1.408	106.165	0.938	0.8716	0.878
Xylenes	1.552	106.167	1.034	0.8761	0.963
Nonanes	5.169	128.255	4.161	0.7222	4.700
Decanes Plus	61.262	201.356	77.427	0.8564	73.762
	100.000		100.000		100.000

Calculated Physical Properties	Total	C10+
Specific Gravity at 60°F	0.8158	0.8564
API Gravity at 60°F	41.949	33.735
Molecular Weight	159.316	201.356
Pounds per Gallon (in Vacuum)	6.801	7.140
Pounds per Gallon (in Air)	6.794	7.132
Cu. Ft. Vapor per Gallon @ 14.696 psia	16.201	13.455

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.

0635

Midland Laboratory
2200 East I-20
Midland, TX 79706
Phone 432-689-7252

Certificate of Analysis

Number: 5030-19100539-002A

Mike Dunn
AMI
416 East Main St.
Artesia, NM 88210

Nov. 06, 2019

Station Name: GOODMAN BATTERY
Sample Point: HEATER
Sample Conditions: 92 °F

Sampled By: DONAVON MILLER
Sample Of: Oil Spot
Sample Date: 10/22/2019

Analytical Data

Test	Method	Result	Units	Detection Limit	Lab Tech.	Analysis Date
API Gravity @ 60° F	ASTM D-5002	37.63	°			11/06/2019
Specific Gravity @ 60/60° F	ASTM D-5002	0.8367	_			11/06/2019
Density @ 60° F	ASTM D-5002	0.8358	g/ml			11/06/2019
ASTM D323 RVPE @ 100° F	ASTM D-6377	8.13	psi			11/06/2019
VP of Crude Oil: V/L = 4:1 @ 100 °F	ASTM D-6377	8.89	psi			11/06/2019

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.

Liquid Analysis - Use if the Inputs are Weight Percents	
Analysis Identifier/Name	
What site is the sample from?	
If the sample is from a representaive site, explain how this sampled stream is representative of the similar stream at this site (use the notes box provided below if more space is needed).	
Where in the process was the sample taken?	
What is the temperature and pressure of the sample (include units)?	
Who analyzed the sample?	
Date of sample:	

Component	**weight %**
hydrogen	
helium	
nitrogen	
CO2	
H2S	
methane (C1)	
ethane (C2)	
propane (C3)	
butanes (C4)	
pentanes (C5)	
benzene	
other hexanes (C6)	
toluene	
other heptanes (C7)	
ethylbenzene	
xylenes (o, m, p)	
other octanes (C8)	
nonanes (C9)	
decanes plus (C10+)	
Totals:	0.0000

VOC (Non-methane, Non-ethane hydrocarbons)

VOC content of total sample

VOC weight% =	0.0000
VOC weight fraction =	0.0000

VOC content of hydrocarbon fraction only

VOC weight% =	#DIV/0!
VOC weight fraction =	#DIV/0!

Hydrogen Sulfide

H2S weight% =	0.0000
H2S weight fraction =	0.00E+00
H2S ppm_V =	
H2S ppm_{WT} =	0.00

Benzene

Benzene content of total sample

Benzene weight% =	0.0000
Benzene weight fraction =	0.0000

Benzene content of hydrocarbon fraction only

Benzene weight% =	#DIV/0!
Benzene weight fraction =	#DIV/0!

Liquid Analysis - Use if the Inputs are Mole Percents	
Analysis Identifier/Name	Goodman Battery Liquid Analysis
What site is the sample from?	
If the sample is from a representaive site, explain how this sampled stream is representative of the similar stream at this site (use the notes box provided below if more space is needed).	
Where in the process was the sample taken?	
What is the temperature and pressure of the sample (include units)?	
Who analyzed the sample?	
Date of sample:	

Component	**mole %**	Molecular Weight (grams/mole, lb/lb-mol)	grams per 100 moles of gas	**weight %**
hydrogen	0.0000	2.01588	0	0.0000
helium	0.0000	4.0026	0	0.0000
nitrogen	0.0400	28.01340	1	0.0070
CO2	0.0180	44.00950	1	0.0050
H2S	0.0000	34.08188	0	0.0000
methane (C1)	0.0300	16.04246	0	0.0030
ethane (C2)	0.3970	30.06904	12	0.0749
propane (C3)	1.9730	44.09562	87	0.5461
butanes (C4)	4.2650	58.12220	248	1.5560
pentanes (C5)	5.4860	72.14878	396	2.4845
benzene	1.3240	78.110000	103	0.6492
other hexanes (C6)	1.3890	86.18000	120	0.7514
toluene	2.9740	92.140000	274	1.7201
other heptanes (C7)	5.4680	100.20000	548	3.4392
ethylbenzene	1.4080	106.170000	149	0.9383
xylenes (o, m, p)	1.5520	106.170000	165	1.0343
other octanes (C8)	7.2510	114.22900	828	5.1991
nonanes (C9)	5.1690	128.25500	663	4.1614
decanes plus (C10+)	61.2620	201.35600	12335	77.4305
Totals:	100.0060	159.31	15931.0301	100.00

VOC (Non-methane, Non-ethane hydrocarbons)

VOC content of total sample

VOC weight% =	99.9100
VOC weight fraction =	0.9991

VOC content of hydrocarbon fraction only

VOC weight% =	99.9220
VOC weight fraction =	0.9992

Hydrogen Sulfide

H2S weight% =	0.0000
H2S weight fraction =	0.00E+00
H2S ppm_V =	0.00
H2S ppm_{WT} =	0.00

Benzene

Benzene content of total sample

Benzene weight% =	0.6492
Benzene weight fraction =	0.0065

Benzene content of hydrocarbon fraction only

Benzene weight% =	0.6492
Benzene weight fraction =	0.0065

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

Identification	
User Identification:	1000 BBL OIL TANK
City:	Houston
State:	Texas
Company:	Spur Energy Partners
Type of Tank:	Vertical Fixed Roof Tank
Description:	Dorami 2H, 4H, & 9H Federal Oil Tank Battery 4 - 1000 BBL OIL TANKS DAILY FACILITY THROUGHPUT: 2300 BBL/DAY DAILY TANK THROUGHPUT: 575 BBL/DAY/TANK
Tank Dimensions	
Shell Height (ft):	30.00
Diameter (ft):	15.50
Liquid Height (ft) :	29.00
Avg. Liquid Height (ft):	15.00
Volume (gallons):	40,934.03
Turnovers:	215.34
Net Throughput(gal/yr):	8,814,750.00
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)	0.00
Slope (ft/ft) (Cone Roof)	0.00
Breather Vent Settings	
Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Roswell, New Mexico (Avg Atmospheric Pressure = 12.73 psia)

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

1000 BBL OIL TANK - Vertical Fixed Roof Tank
Houston, Texas

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
Crude oil (RVP 5)	All	72.26	58.28	86.25	63.90	3.6413	2.7818	4.7011	50.0000			207.00	Option 4: RVP=5

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

1000 BBL OIL TANK - Vertical Fixed Roof Tank
Houston, Texas

Annual Emission Calcaulations	
Standing Losses (lb):	2,620.1925
Vapor Space Volume (cu ft):	2,830.3786
Vapor Density (lb/cu ft):	0.0319
Vapor Space Expansion Factor:	0.3097
Vented Vapor Saturation Factor:	0.2567
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	2,830.3786
Tank Diameter (ft):	15.5000
Vapor Space Outage (ft):	15.0000
Tank Shell Height (ft):	30.0000
Average Liquid Height (ft):	15.0000
Roof Outage (ft):	0.0000
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.0000
Roof Height (ft):	0.0000
Roof Slope (ft/ft):	0.0000
Shell Radius (ft):	7.7500
Vapor Density	
Vapor Density (lb/cu ft):	0.0319
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.6413
Daily Avg. Liquid Surface Temp. (deg. R):	531.9348
Daily Average Ambient Temp. (deg. F):	60.8167
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	523.5667
Tank Paint Solar Absorptance (Shell):	0.6800
Tank Paint Solar Absorptance (Roof):	0.6800
Daily Total Solar Insulation Factor (Btu/sqft day):	1,810.0000
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.3097
Daily Vapor Temperature Range (deg. R):	55.9424
Daily Vapor Pressure Range (psia):	1.9192
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.6413
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.7818
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	4.7011
Daily Avg. Liquid Surface Temp. (deg R):	531.9348
Daily Min. Liquid Surface Temp. (deg R):	517.9492
Daily Max. Liquid Surface Temp. (deg R):	545.9204
Daily Ambient Temp. Range (deg. R):	29.8333
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.2567
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	3.6413
Vapor Space Outage (ft):	15.0000
Working Losses (lb):	8,768.9213
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.6413
Annual Net Throughput (gal/yr.):	8,814,750.0000
Annual Turnovers:	215.3404
Turnover Factor:	0.3060
Maximum Liquid Volume (gal):	40,934.0270
Maximum Liquid Height (ft):	29.0000
Tank Diameter (ft):	15.5000
Working Loss Product Factor:	0.7500
Total Losses (lb):	11,389.1138

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

Emissions Report for: Annual

1000 BBL OIL TANK - Vertical Fixed Roof Tank
Houston, Texas

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Crude oil (RVP 5)	8,768.92	2,620.19	11,389.11

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

Identification

User Identification:	1000 BBL WATER TANK
City:	Houston
State:	Texas
Company:	Spur Energy Partners
Type of Tank:	Vertical Fixed Roof Tank
Description:	Dorami 2H, 4H, & 9H Federal Oil Tank Battery 4 - 1000 BBL WATER TANKS DAILY FACILITY THROUGHPUT: 8000 BBL/DAY DAILY TANK THROUGHPUT: 2000 BBL/DAY/TANK

Tank Dimensions

Shell Height (ft):	30.00
Diameter (ft):	15.50
Liquid Height (ft) :	29.00
Avg. Liquid Height (ft):	15.00
Volume (gallons):	40,934.03
Turnovers:	749.01
Net Throughput(gal/yr):	30,660,000.00
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)	0.25
Slope (ft/ft) (Cone Roof)	0.03

Breather Vent Settings

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

Meterological Data used in Emissions Calculations: Roswell, New Mexico (Avg Atmospheric Pressure = 12.73 psia)

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

1000 BBL WATER TANK - Vertical Fixed Roof Tank
Houston, Texas

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
Crude oil (RVP 5)	All	72.26	58.28	86.25	63.90	3.6413	2.7818	4.7011	50.0000			207.00	Option 4: RVP=5

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

1000 BBL WATER TANK - Vertical Fixed Roof Tank
Houston, Texas

Annual Emission Calcaulations	
Standing Losses (lb):	2,623.9145
Vapor Space Volume (cu ft):	2,846.1030
Vapor Density (lb/cu ft):	0.0319
Vapor Space Expansion Factor:	0.3097
Vented Vapor Saturation Factor:	0.2557
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	2,846.1030
Tank Diameter (ft):	15.5000
Vapor Space Outage (ft):	15.0833
Tank Shell Height (ft):	30.0000
Average Liquid Height (ft):	15.0000
Roof Outage (ft):	0.0833
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.0833
Roof Height (ft):	0.2500
Roof Slope (ft/ft):	0.0300
Shell Radius (ft):	7.7500
Vapor Density	
Vapor Density (lb/cu ft):	0.0319
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.6413
Daily Avg. Liquid Surface Temp. (deg. R):	531.9348
Daily Average Ambient Temp. (deg. F):	60.8167
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	523.5667
Tank Paint Solar Absorptance (Shell):	0.6800
Tank Paint Solar Absorptance (Roof):	0.6800
Daily Total Solar Insulation Factor (Btu/sqft day):	1,810.0000
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.3097
Daily Vapor Temperature Range (deg. R):	55.9424
Daily Vapor Pressure Range (psia):	1.9192
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.6413
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.7818
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	4.7011
Daily Avg. Liquid Surface Temp. (deg R):	531.9348
Daily Min. Liquid Surface Temp. (deg R):	517.9492
Daily Max. Liquid Surface Temp. (deg R):	545.9204
Daily Ambient Temp. Range (deg. R):	29.8333
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.2557
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	3.6413
Vapor Space Outage (ft):	15.0833
Working Losses (lb):	20,606.0812
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.6413
Annual Net Throughput (gal/yr.):	30,660,000.0000
Annual Turnovers:	749.0101
Turnover Factor:	0.2067
Maximum Liquid Volume (gal):	40,934.0270
Maximum Liquid Height (ft):	29.0000
Tank Diameter (ft):	15.5000
Working Loss Product Factor:	0.7500
Total Losses (lb):	23,229.9958

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

Emissions Report for: Annual

1000 BBL WATER TANK - Vertical Fixed Roof Tank
Houston, Texas

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Crude oil (RVP 5)	20,606.08	2,623.91	23,230.00

GFS SERIES DUAL PRESSURE FLARE

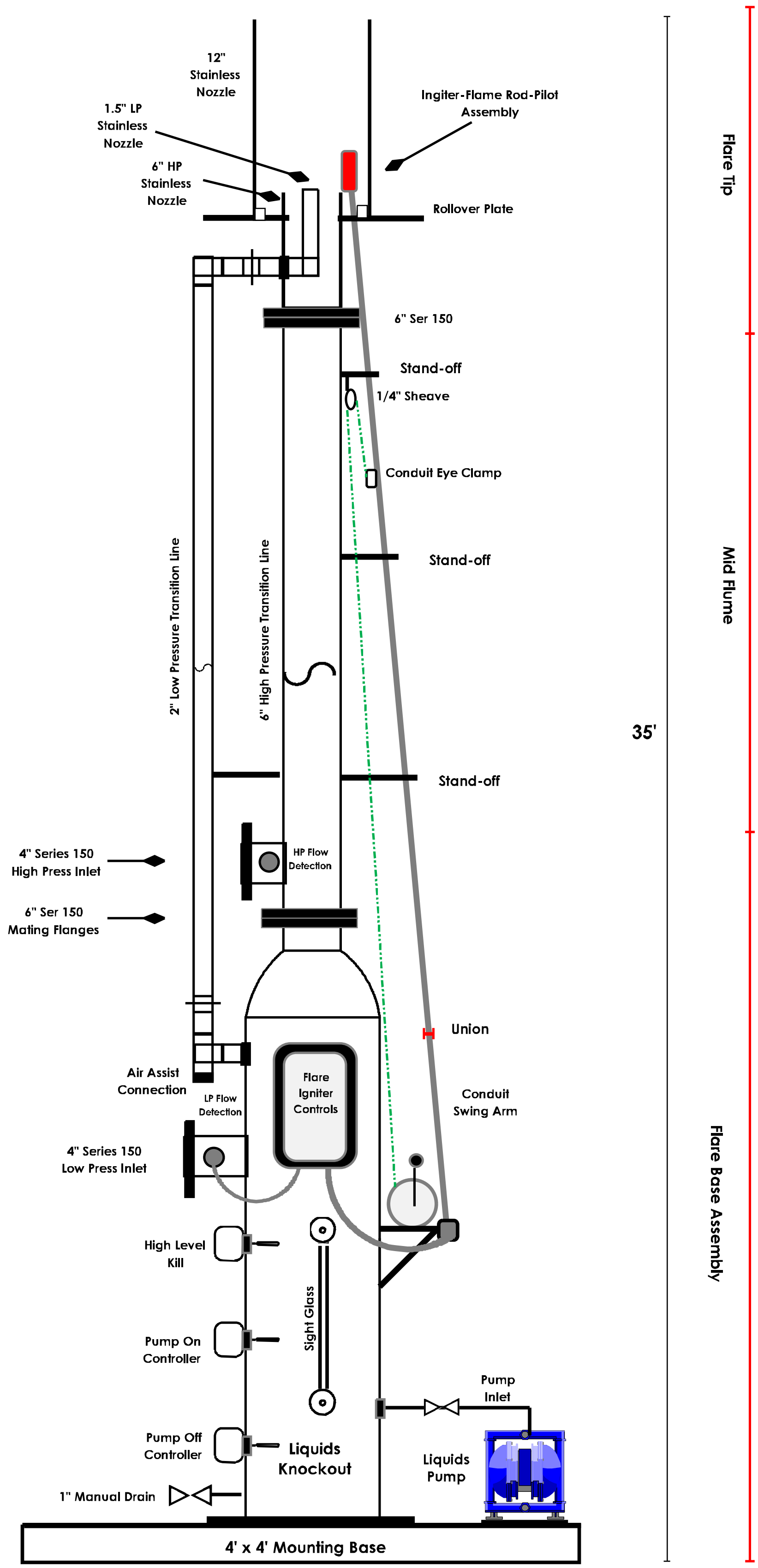
INSTALLATION & OPERATIONS MANUAL

601 Quail Run Road – Weatherford, Texas 76088 - Office – 855-582-7769 / Website www.vaproxllc.com
0646

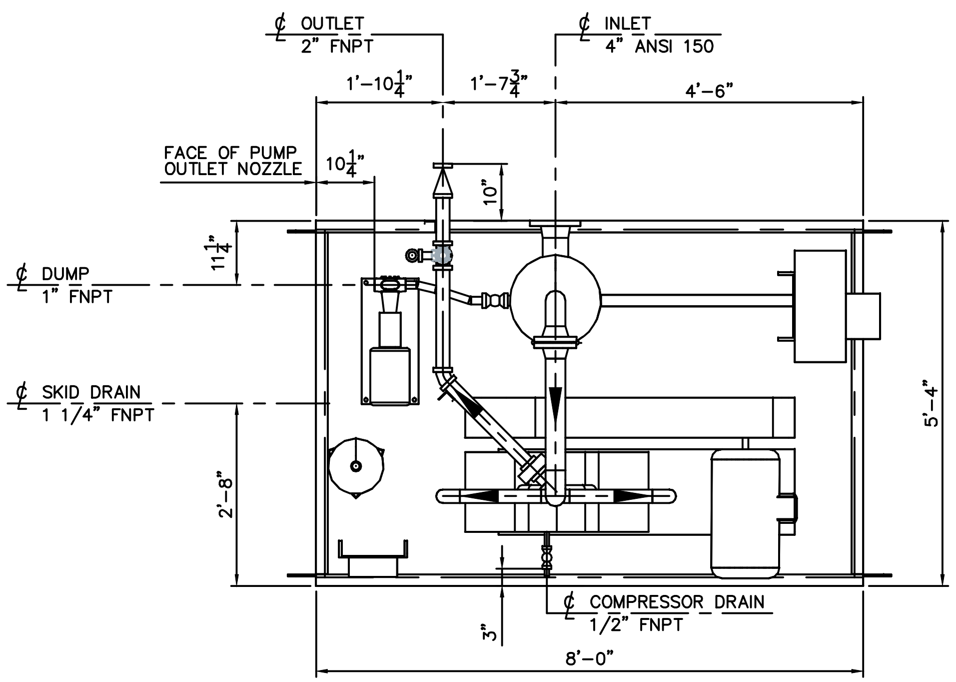
Dual Pressure Flare - Oil Flare

Vaprox (https://www.vaporprocess.com/) offers a full line of tank battery dual pressure flares. These Systems utilize one flare assembly that attains 98% or greater VOC destruction efficiency for both low pressure tank vapor gas and high pressure emergency vent gas while complying with all state and federal air quality regulations. The dual pressure flare system eliminates the need for a second flare on your tank battery facility, thus reducing construction costs. All Vaprox systems are available in 12vdc and 120vac and come standard with an interchangeable ventilated (smokeless) stainless steel flare tip. Vaprox flares are designed to control liquids found in the waste gas stream with a scrubber pot located at the base completed with a liquid sight glass, level switch, and liquid evacuation pump (pneumatic diaphragm or electric). Vaprox's unique retractable igniter assembly allows the operator to lower the igniter assembly to ground level for maintenance purposes without the cost and safety concerns associated with operating a man lift. You can be sure you're getting the utmost quality and safety from our dual pressure flare by Vaprox (https://www.vaporprocess.com/).

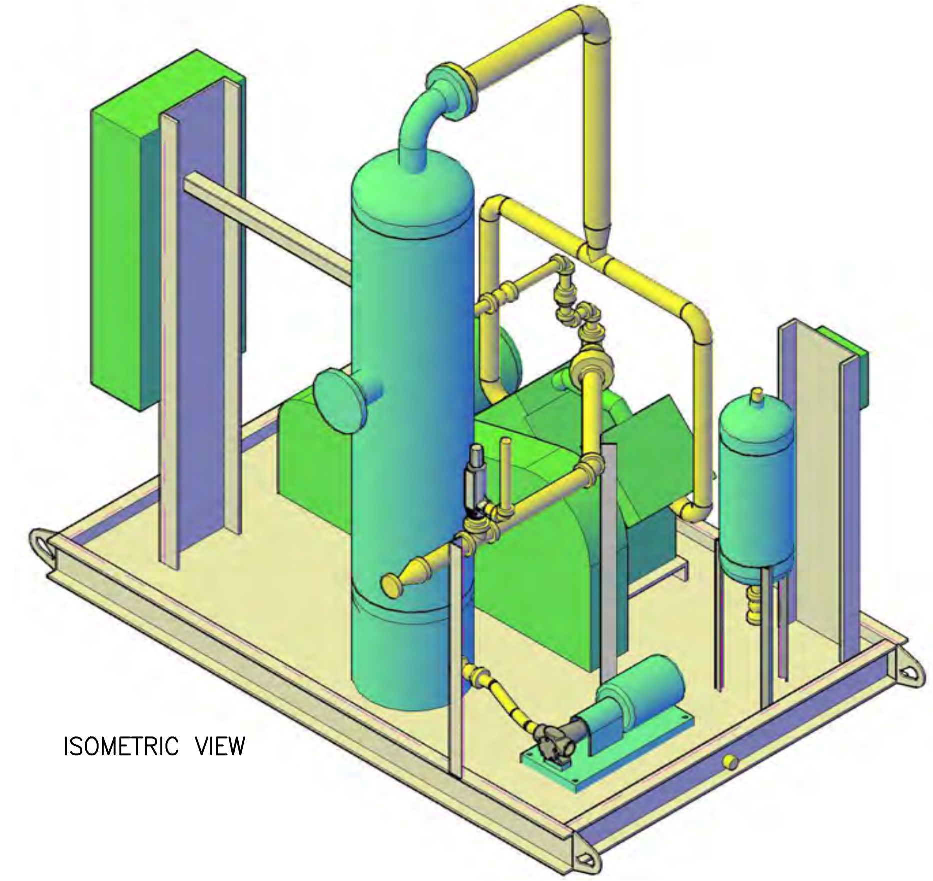
Dual pressure flare and oil flare systems are available with a variety of equipment options including continuous pilot, continuous or intermittent ignition, flow activated ignition, flow detection, mass flow measurement, flame detection via flame rod or thermocouple, data logging with SCADA reporting via RS485 Modbus, flame arrestors, and custom guy wire systems.

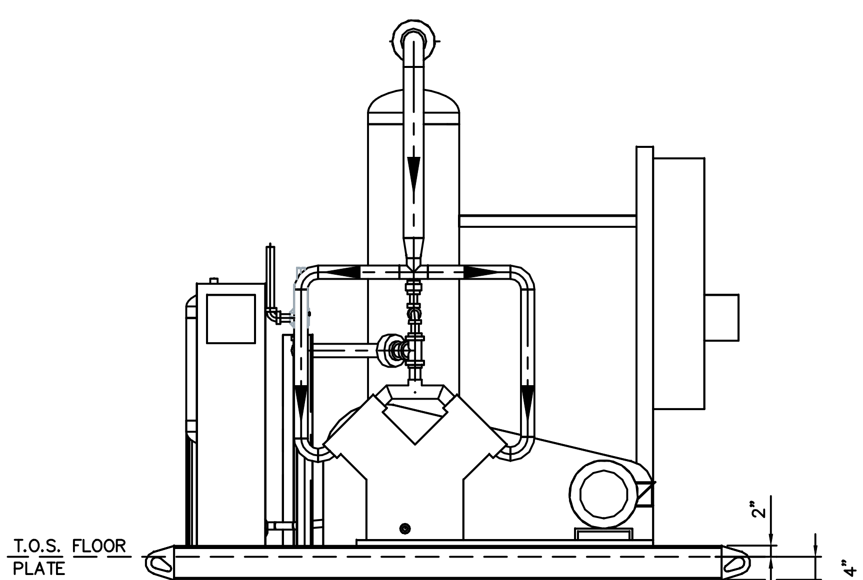


TITLE	Vaprox Dual Pressure Flare - Standard Configuration				
AUTHOR	R. Hogue				
DATE	1-19-2015	SHEET	1	OF	1
REVISION	Revision 1E Vaprox , LLC				

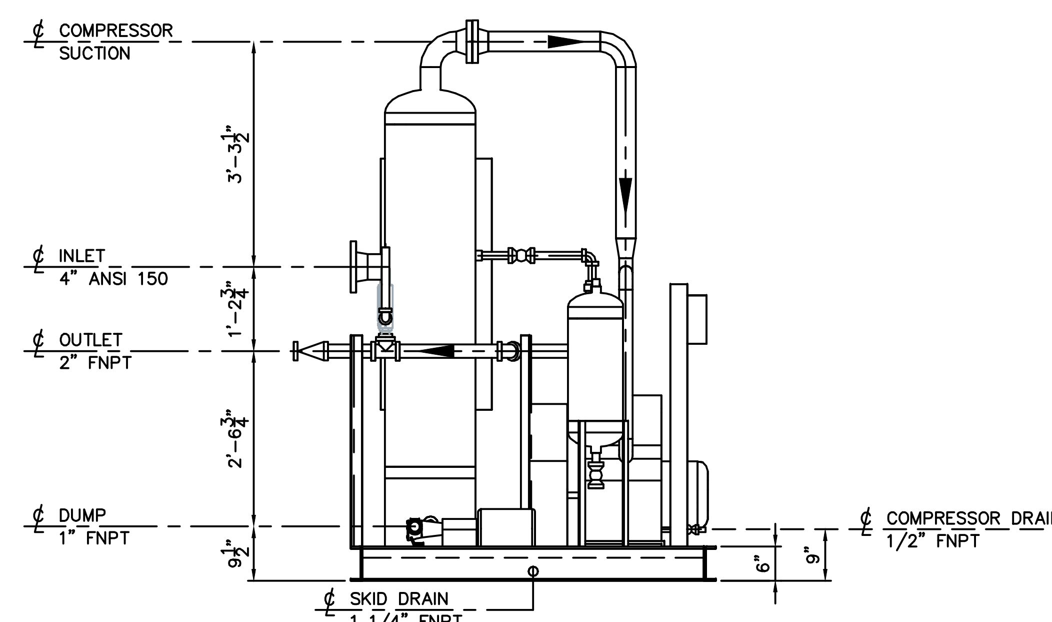


PLAN VIEW


ISOMETRIC VIEW



SIDE VIEW



END VIEW

NOTE:
1. THIS DRAWING IS BASED ON FIELD DIMENSIONS TAKEN FROM A EXISTING UNIT THAT WAS AT RICHARD'S ENERGY COMPRESSIONS MIDLAND SHOP.
2. ON-SKID INSTRUMENTATION, TUBING, AND CONDUIT NOT SHOWN.

REFERENCE DRAWINGS

NO.	TITLE

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK.	APP.
A	06/11/12	ISSUED FOR REVIEW	ALS	KL	

ENGINEERING RECORD

	BY	DATE
DRN:	ALS	06/11/19
DES:		
CHK:	KL	06/11/19
APP:		
AFE No.		
CLIENT ENGR:		
PROJ. ENGR:		
SCALE:	NONE	

NICHOLAS CONSULTING GROUP, INC.
MIDLAND, TEXAS
www.theNCG.com

CAD NO. D482785100

RICHARD'S ENERGY COMPRESSION, LLC

RICHARD'S ENERGY COMPRESSION, LLC
GENERAL ARRANGEMENT
PLAN, SIDE, END & ISOMETRIC VIEWS
VAPOR RECOVERY UNIT

PROJ. NO.	DWG. NO.	REV
4827	D-4827-85-100	A

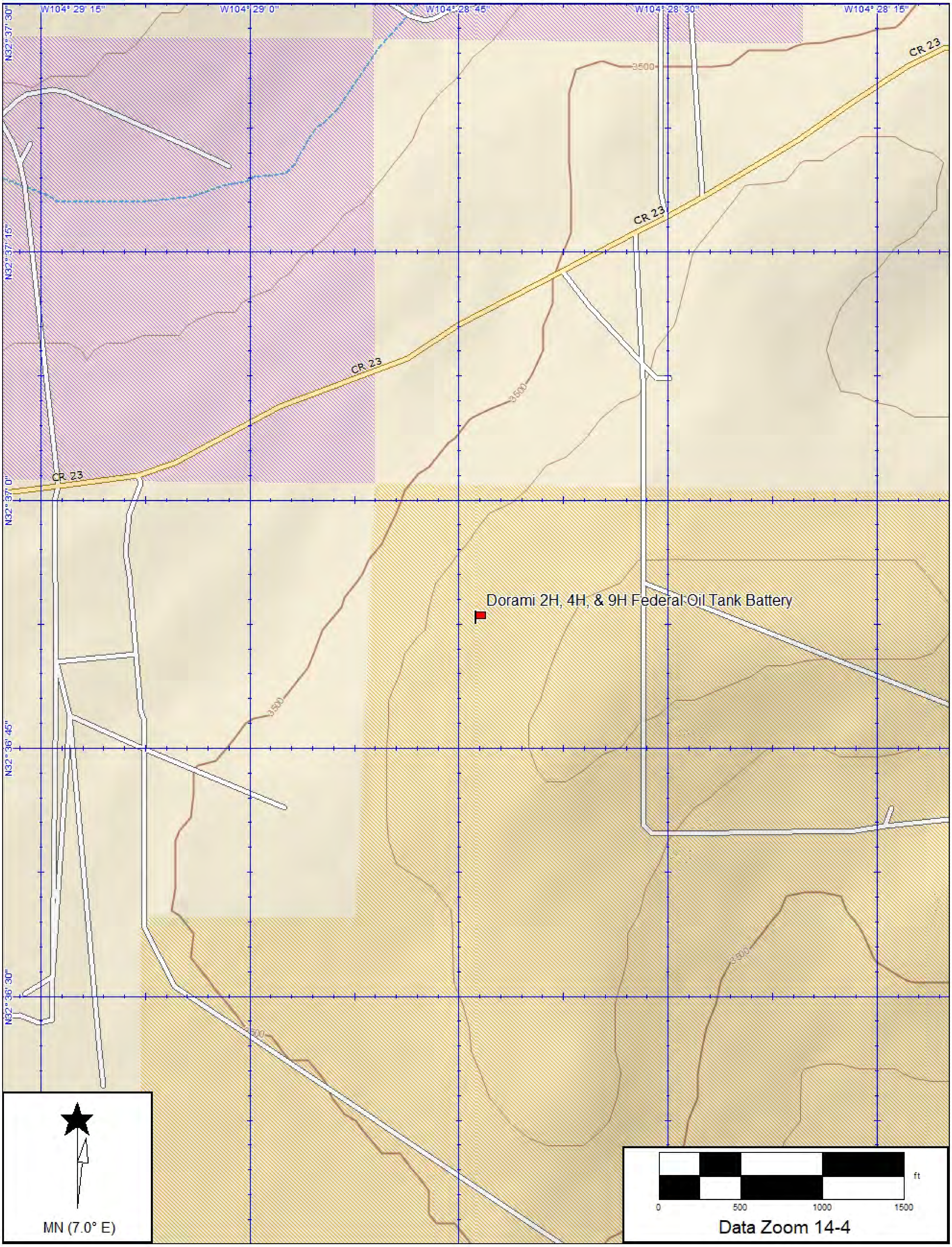
P:\4827 - Richards Energy - VRU GA Drawing\80-Design\85-Mechanical & Piping\3D-Model\GENERAL ARRANGEMENTS\D-4827-85-100.dwg

Section 7

Map(s)

A map such as a 7.5 minute topographic quadrangle showing the exact location of the source. The map shall also include the following:

The UTM or Longitudinal coordinate system on both axes	An indicator showing which direction is north
A minimum radius around the plant of 0.8km (0.5 miles)	Access and haul roads
Topographic features of the area	Facility property boundaries
The name of the map	A graphical scale



Data use subject to license.

www.delorme.com

Section 8A

Applicable State & Federal Regulations

Provide a discussion demonstrating compliance with each applicable state & federal regulation. All input cells should be filled in, even if the response is 'No' or 'N/A'.

In the "Justification" column, identify the criteria that are critical to the applicability determination, numbering each. For each unit listed in the "Applies to Unit No(s)" column, after each listed unit, include the lowest level citation of the applicable regulation. For each unit, list the information necessary to verify the applicability of the regulation, including date of manufacture, date of construction, size (hp), and combustion type. Doing so will provide the applicability criteria for each unit.

Applicable STATE REGULATIONS:

STATE REGU-LATIONS CITATION	Title	Federally Enforceable	Overview of Regulation	Unit(s) or Facility	Applies? (Yes or No)	JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m^3, 3. VOL)
20.2.1 NMAC	General Provisions	Yes	General Provisions apply to Notice of Intent, Construction, and Title V permit applications.	Facility	Yes	
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	20.2.3 NMAC is a State Implementation Plan (SIP) approved regulation that limits the maximum allowable concentration of Sulfur Compounds, Carbon Monoxide, and Nitrogen Dioxide.	Facility	Yes	20.2.3 NMAC is a SIP approved regulation that limits the maximum allowable concentration of Total Suspended Particulates, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide. The facility meets maximum allowable concentrations of the TSP, SO_2, H_2S, NOx, and CO under this regulation.
20.2.7 NMAC	Excess Emissions	Yes	If your entire facility or individual pieces of equipment are subject to emissions limits in a permit or numerical emissions standards in a federal or state regulation, this applies.	Facility	Yes	This regulation establishes requirements for the facility if operations at the facility result in any excess emissions. The owner or operator will operate the source at the facility having an excess emission, to the extent practicable, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. The facility will also notify the NMED of any excess emissions.
20.2.38 NMAC	Hydrocarbon Storage Facility	No	20.2.38.109 TANK STORAGE ASSOCIATED WITH PETROLEUM PRODUCTION OR PROCESSING FACILITY 20.2.38.112 NEW TANK BATTERY -- MORE THAN 65,000 GALLONS CAPACITY	TK-1, TK-2, TK-3, TK-4, PWTK-1, PWTK-2, PWTK-3, PWTK-4	Yes	The purpose of this regulation is to minimize hydrogen sulfide emissions from hydrocarbon storage facilities. The storage tanks, TK-1 through TK-4 & PWTK-1 through PWTK-4 are a new production facility as they were constructed after July 1, 1975. The tanks are all 1000 bbl. The tanks are subject to 20.2.38.109 NMAC. The tanks comply with the requirement to minimize vapor loss to the atmosphere through use of the flare. The tanks are subject to NMAC 20.2.38.112 since they have a combined storage capacity greater than 65,000 gallons. The facility complies with this regulation through NMAC 20.2.38.112(C) by using a flare to minimize vapor or gas loss to the

STATE REGU-LATIONS CITATION	Title	Federally Enforceable	Overview of Regulation	Unit(s) or Facility	Applies? (Yes or No)	JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m^3, 3. VOL)
						atmosphere.
20.2.61.109 NMAC	Smoke & Visible Emissions	No	Engines and heaters are Stationary Combustion Equipment. Specify units subject to this regulation.	FWKO-1, FWKO-1, FWKO-3, HT-1, FLARE	Yes	This regulation establishes controls on smoke and visible emissions from certain sources, including stationary combustion equipment. The heaters and flare are subject to this regulation as they are stationary combustion equipment.
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	NOI: 20.2.73.200 NMAC applies to all facilities emitting over 10 TPY of any regulated air contaminate. Thus, permitted facilities are also subject to this rule. This GCP-O&G registration also serves the purpose of meeting 20.2.73 the NMAC notification requirements.) Emissions Inventory: 20.2.73.300.A(1) NMAC applies to facilities registering under the GCP. Emission Inventory reporting is required upon request by the department per 20.2.73.300.B(4) NMAC.	Facility	YES	This regulation establishes emission inventory requirements. The facility meets the applicability requirements of 20.2.73.300 NMAC. The facility will meet any applicable reporting requirements under 20.2.73 NMAC.
20.2.77 NMAC	New Source Performance	Yes	This is a stationary source which is subject to the requirements of 40 CFR Part 60, as amended on the date of certification.	Facility	YES	The facility is subjects to NSPS OOOOa
20.2.78 NMAC	Emission Standards for HAPS	Yes	This facility emits hazardous air pollutants which are subject to the requirements of 40 CFR Part 61, as amended on the date of certification.	NA	NO	The facility is a minor source for HAPS
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 63, as amended on the date of certification.	NA	NO	The purpose of this regulation is to establish state authority to implement new source performance standards for stationary sources in New Mexico subject to 40 CFR Part 63. This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 63, as amended through August 29, 2013. This regulation does not apply as no units at this facility are subject to 40 CFR Part 63.

Applicable FEDERAL REGULATIONS (This is not an exhaustive list; add applicable regulations such as NSPS GG and KKKK):

FEDERAL REGU-LATIONS CITATION	Title	Overview of Regulation	Units(s) or Facility	Applies? (Yes or No)	JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m3, 3. VOL)
40 CFR 50	NAAQS	Defined as applicable at 20.2.70.7.E.11, Any national ambient air quality standard	Facility	YES	This regulation defines national ambient air quality standards. The facility meets all applicable national ambient air quality

FEDERAL REGULATIONS CITATION	Title	Overview of Regulation	Units(s) or Facility	Applies? (Yes or No)	JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m3, 3. VOL)
					standards for NOx, CO, SO2, H2S, PM10, and PM2.5 under this regulation.
40 CFR 60, Subpart A	General Provisions	Applies if any other NSPS subpart applies.	Facility, Flare	**YES**	Applies if any other NSPS subpart applies.
40 CFR 60, Subpart OOOO	Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced After August 23, 2011, and on or before September 18, 2015	If there is a standard or other requirement, then the facility is an "affected facility." Currently there are standards for: gas wells (60.5375); centrifugal compressors (60.5380); reciprocating compressors (60.5385): controllers (60.5390); storage vessels (60.5395); equipment leaks (60.5400); sweetening units (60.5405). **If standards apply, list the unit number(s) and regulatory citation of the standard that applies to that unit (e.g. Centrifugal Compressors 1a-3a are subject to the standards at 60.5380(a)(1) and (2) since we use a control device to reduce emissions)**		**NO**	
40 CFR 60, Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015	If there is a standard or other requirement, then the facility is an "affected facility." Currently there are standards for: gas wells (60.5375a); centrifugal compressors (60.5380a); reciprocating compressors (60.5385a): controllers (60.5390a); storage vessels (60.5395a); fugitive emissions at well sites and compressor stations (60.5397a); equipment leaks at gas plants (60.5400a); sweetening units (60.5405a).	Fugitives TK-1, TK-2, TK-3, TK-4, PWTK-1, PWTK-2, PWTK-3, PWTK-4,	**YES**	This regulation establishes standards of performance for crude oil and natural gas production, transmission and distribution. The rule applies to "affected" facilities that are constructed, modified, or reconstructed after September 18, 2015. The facility commenced construction after September 18, 2015. The facility is therefor subject to NSPS OOOOa. Fugitive emissions are subject to 60.5397a and the tank are subject to 60.5395a
40 CFR 60, Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	See 40 CFR 60.4200(a) 1 through 4 to determine applicable category and state engine size, fuel type, and date of manufacture.	NA	**NO**	
40 CFR 60, Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	See 40 CFR 60.4230(a), 1 through 5 to determine applicable category and state engine size, fuel type, and date of manufacture.	NA	**NO**	
40 CFR 63, Subpart A	General Provisions	Applies if any other subpart applies.	NA	**NO**	
40 CFR 63,	NESHAP for Glycol	See 40 CFR 63, Subpart HH	NA	**NO**	

FEDERAL REGU-LATIONS CITATION	Title	Overview of Regulation	Units(s) or Facility	Applies? (Yes or No)	JUSTIFICATION: Identify the applicability criteria, numbering each (i.e. 1. Post 7/23/84, 2. 75 m3, 3. VOL)
Subpart HH	Dehydrators				
40 CFR 63, Subpart ZZZZ	NESHAP for Stationary Reciprocating Internal Combustion Engines (**RICE MACT**)	Facilities are subject to this subpart if they own or operate a stationary RICE, except if the stationary RICE is being tested at a stationary RICE test cell/stand.	NA	**NO**	

Section 8B
Compliance Test History

To evaluate the requirement for compliance tests, you must submit a compliance test history. The table below provides an example.

Compliance Test History Table

Unit No.	Test Description	Test Date

Section 9 Proof of Public Notice

General Posting of Notice

I, JERRY MATHEWS, the undersigned, certify that on 2/6/20 (DATE), I ~~posted~~ a true and correct copy of the attached Public Notice in a publicly accessible and conspicuous place, visible from the nearest public road, at the entrance of the property on which the facility is, or is proposed to be, located.

Signed this 5 day of FEBRUARY, 2020.

Jerry Mathews
Signature

2/5/20
Date

JERRY MATHEWS
Printed Name

Production Superintendent
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

Newspaper Publication of Notice

☐ An original or copy of the actual newspaper advertisement posted in a newspaper in general circulation in the applicable county is attached. The original or copy of the advertisement includes the header showing the date and newspaper or publication title.

OR

☒ An affidavit from the newspaper or publication in general circulation in the applicable county stating that the advertisement was published is attached. The affidavit includes the date of the advertisement's publication, and a legible photocopy of the entire ad.

Signature

03/11/2020
Date

NOTICE

Spur Energy Partners LLC announces its intent to apply to the New Mexico Environment Department for an air quality General Construction Permit, (GCP-Oil and Gas). The name of this facility is Dorami 2H, 4H, & 9H Federal Oil Tank Battery. The expected date of the submittal of our Registration for an air quality permit to the Air Quality Bureau is February 19, 2020. This notice is a requirement according to New Mexico air quality regulations.

The exact initial location of the facility is UTM Zone 13, UTM Easting 548,896 m, UTM Northing 3,608,681 m. The approximate location of this site is 16.4 miles southwest of Artesia, NM in Eddy County. The standard operating schedule of this facility will be continuous.

Air emissions of any regulated air contaminant will be less than or equal to:

Pollutant	Tons per year (TPY)
1. Nitrogen Oxides (NOx)	95
2. Carbon Monoxide (CO)	95
3. Volatile Organic Compounds (VOC) (stack)	95
4. Particulate Matter (PM10)	25
5. Particulate Matter (PM2.5)	25
6. Total Suspended Particulates	25
7. Sulfur Dioxide (SO2)	95
8. Hydrogen Sulfide (H2S)	25
9. Any one (1) Hazardous Air Pollutant (HAP)	< 10
10. Sum of all Hazardous Air Pollutants (HAPs)	< 25

The owner and/or operator of the Plant is:

Spur Energy Partners LLC
920 Memorial City Way, Suite 1000
Houston, Texas 77024

If you have any questions or comments about construction or operation of above facility, and want your comments to be made as a part of the permit review process, you must submit your comments in writing to the address below:

New Mexico Environment Department
Air Quality Bureau Permit Section
525 Camino de los Marquez, Suite 1
Santa Fe, New Mexico, 87505
Phone (505) 476-4300
Fax (505) 476-4375
www.env.nm.gov/aqb
Other comments and questions may be submitted verbally.

Please refer to the company name and site name, as used in this notice or send a copy of this notice along with your comments, since the Department may not have received the permit Registration at the time of this notice.

Attención

Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-476-5557.

Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kristine Yurdin, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

Affidavit of Publication

No. 25379

State of New Mexico Publisher

County of Eddy:

Danny Scott Danny Scott

being duly sworn sayes that he is the **Publisher**

of the Artesia Daily Press, a daily newspaper of General circulation, published in English at Artesia, said county and state, and that the hereto attached

Legal Ad

was published in a regular and entire issue of the said Artesia Daily Press, a daily newspaper duly qualified for that purpose within the meaning of Chapter 167 of the 1937 Session Laws of the state of New Mexico for 1 Consecutive weeks/day on the same day as follows:

First Publication	February 6, 2020
Second Publication	
Third Publication	
Fourth Publication	
Fifth Publication	
Sixth Publication	
Seventh Publication	

Subscribed and sworn before me this

6th day of February 2020

OFFICIAL SEAL
Latisha Romine
NOTARY PUBLIC-STATE OF NEW MEXICO
My commission expires: 5/12/2023

Latisha Romine

Latisha Romine

Notary Public, Eddy County, New Mexico

Copy of Publication:

Legal Notice

NOTICE

Spur Energy Partners LLC announces its intent to apply to the New Mexico Environment Department for an air quality General Construction Permit, (GCP-Oil and Gas). The name of this facility is Dorami 2H, 4H, & 9H Federal Oil Tank Battery. The expected date of the submittal of our Registration for an air quality permit to the Air Quality Bureau is February 19, 2020. This notice is a requirement according to New Mexico air quality regulations.

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Air emissions of any regulated air contaminant will be less than or equal to:

Pollutant	Tons per year (TPY)
1. Nitrogen Oxides (NOx)	95
2. Carbon Monoxide (CO)	95
3. Volatile Organic Compounds (VOC) (stack)	95
4. Particulate Matter (PM10)	25
5. Particulate Matter (PM2.5)	25
6. Total Suspended Particulates	25
7. Sulfur Dioxide (SO2)	95
8. Hydrogen Sulfide (H2S)	25
9. Any one (1) Hazardous Air Pollutant (HAP)	< 10
10. Sum of all Hazardous Air Pollutants (HAPs)	< 25

The owner and/or operator of the Plant is:
Spur Energy Partners LLC
920 Memorial City Way, Suite 1000
Houston, Texas 77024

If you have any questions or comments about construction or operation of above facility, and want your comments to be made as a part of the permit review process, you must submit your comments in writing to the address below:

New Mexico Environment Department
Air Quality Bureau Permit Section
525 Camino de los Marquez, Suite 1
Santa Fe, New Mexico, 87505
Phone (505) 476-4300
Fax (505) 476-4375
www.env.nm.gov/aqb
Other comments and questions may be submitted verbally.

Please refer to the company name and site name, as used in this notice or send a copy of this notice along with your comments, since the Department may not have received the permit Registration at the time of this notice.

Atención

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Notice of Non-Discrimination

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Section 10
Certification

Company Name: Spur Energy Partners LLC

I, Todd Mucha, hereby certify that the information and data submitted in this Registration are true and as accurate as possible, to the best of my knowledge and professional expertise and experience.

Signed this 24 day of Febu, 2020, upon my oath or affirmation, before a notary of the State of

Texas.

*Signature

Date 2/24/2020

Todd Mucha
Printed Name

EVP-Op
Title

Scribed and sworn before me on this 24th day of February, 2020.

My authorization as a notary of the State of Texas expires on the

19th day of September, 2023.

Michelle Dussetschleger
Notary's Signature

Date 2/24/2020

Michelle Dussetschleger
Notary's Printed Name

MICHELLE DUSSETSCHLEGER
Notary Public, State of Texas
Comm. Expires 09-19-2023
Notary ID 132181084

New Mexico
ENVIRONMENT DEPARTMENT

525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505-1816
Phone (505) 476-4300
Fax (505) 476-4375
www.env.nm.gov

MICHELLE LUJAN GRISHAM
GOVERNOR

HOWIE C. MORALES
LT. GOVERNOR

JAMES C. KENNEY
CABINET SECRETARY

JENNIFER J. PRUETT
DEPUTY SECRETARY

March 23, 2020

Certified Mail No.
Return Receipt Requested

Todd Mucha
EVP-Operations
Spur Energy Partners LLC
920 Memorial City Way
Suite 1000
Houston, TX 77024

Air Quality General Permit GCP- Oil & Gas 8733
IDEA No. 39447 - PRN20200001
Spur - Dorami 2H, 4H, and 9H Federal Oil Tank Battery
AIRS No. 350152322

Dear Todd Mucha:

This letter is in response to your air quality General Construction Permit - Oil & Gas (GCP-O&G) application dated February 24, 2020 to construct an oil and gas facility in New Mexico. The application was received by the Department on February 27, 2020.

A review has been completed and the information provided is sufficient to issue your permit in accordance with the GCP-O&G conditions as established under 20.2.72.220 NMAC.

Attached is a copy of your permit registration and the GCP-O&G. The GCP-O&G includes the terms and conditions for operation as well as emission and compliance requirements.

Pursuant to 20.2.75.11 NMAC, the Department will assess an annual fee for this facility. This regulation set the fee amount at $1,500 through 2004 and requires it to be adjusted annually for the Consumer Price Index on January 1. The current fee amount is available by contacting the Department or can be found on the Department's website. The AQB will invoice the permittee for the annual fee amount at the beginning of each calendar year. This fee does not apply to sources which are assessed an annual fee in accordance with 20.2.71 NMAC. For sources that satisfy the definition of "small business" in subsection F of 20.2.75.7 NMAC, this annual fee will be divided by two.

All fees shall be remitted in the form of a corporate check, certified check, or money order made payable to the "NM Environment Department, AQB" mailed to the address shown on the invoice, and shall be accompanied by the remittance slip attached to the invoice.

If you have any questions, please contact me in Santa Fe at 505-476-4373 or vanessa.springer@state.nm.us.

Sincerely,

Vanessa Springer
Air Permit Specialist
Permits Section
Air Quality Bureau

cc via email: John Connolly, Energy Resource Development, Inc

Enclosure: Instructions to access the Industry/Consultant Feedback Questionnaire online.

MICHELLE LUJAN GRISHAM
GOVERNOR

HOWIE C. MORALES
LT. GOVERNOR

New Mexico
ENVIRONMENT DEPARTMENT

525 Camino de los Marquez, Suite 1
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JAMES C. KENNEY
CABINET SECRETARY

JENNIFER J. PRUETT
DEPUTY SECRETARY

Statement of Basis/Data Base Summary
GCP- Oil & Gas (O&G) Permit

Size
SM>80

Permit Writer:	Vanessa Springer
GCP No.	8733
Agency Interest No.	39447 - PRN20200001
AIRS ID No.	350152322
SIC Code:	1311: Crude petroleum and natural gas
Facility Type:	O&G-Production Facility
Company:	Spur Energy Partners LLC
Facility:	Dorami 2H, 4H, and 9H Federal Oil Tank Battery
Type of Permit Action:	GCP - Oil and Gas
Registration Date:	February 24, 2020
Receive Date:	February 27, 2020
Co. Pub Notice Date/Paper:	February 6, 2020 / Artesia Daily Press
Public Hearing:	N/A
Permit Due:	March 28, 2020
Permit Issued:	March 23, 2020
Facility Location:	16.4 miles southwest of Artesia, NM
UTM Zone:	13
UTM Easting:	548896 meters
UTM Northing:	3608681 meters
Elevation:	3531 feet
County:	Eddy
Contact Name:	Todd Mucha **Phone:** 281-795-2286 **Email:** todd@spurepllc.com
Contact Address:	920 Memorial City Way Suite 1000 Houston, TX 77024

Consultant Name: John Connolly
Energy Resource Development, Inc
Phone: 225-753-4723
Email: jmcerdi@cox.net

Consultant Address: 19345 Point O Woods Court
Baton Rouge, LA 70809

1.0 Registration Summary:

Spur Energy Partners LLC proposes this initial GCP-Oil & Gas application for the Dorami 2H, 4H, & 9H Federal Oil Tank Battery. The site will have an initial production rate of 2,300 bbl/day of oil, 8,000 bbl/day of produced water, and 3.5 MMScf/d of produced gas. Multiple wells are associated with this production facility.

As proposed, equipment at the well site will include three (3) 0.75 MMBtu/hr free water knockouts, one (1) 0.5 MMBtu/hr heater treater, one (1) electric vapor recovery unit (VRU) with an associated Vapor Recovery Tower (VRT), a dual-pressure combustion flare, four (4) 1,000 bbl produced water tanks, four (4) 1,000 bbl oil tanks, and various gas scrubbers.

Additional emissions at the site will result from tank truck loading, truck hauling, fugitive emissions, and malfunction emissions.

The combustion flare will control emissions from the oil & produced water tanks working, standing, and flashing losses, VRT flash gas during VRU downtimes, and produced sales gas to a minimum 98% efficiency. In the event that the VRU is down for maintenance, the flare will still control emissions from the vapor recovery tower. During maintenance or unavailability on the sales gas pipeline, all produced gas off the separators will be continuously routed to the flare until gas can be sold. The flare calculation page on the AECT is broken down into two streams, the high-pressure stream and the low-pressure stream. The high-pressure stream will be a combination of sales gas off the FWKOs during pipeline interruption, VRU gas during pipeline interruption, and gas during VRU downtime. The low-pressure stream will be the flash, working, and standing losses off the oil and water tanks.

2.0 Description of Modification:

N/A – Not a modification

3.0 History (In descending chronological order)

Permit Number	Issue Date	Action Type	Description of Action (Changes)
8733	3/23/2020	GCP O&G – New	Equipment at the well site will include three (3) 0.75 MMBtu/hr free water knockouts, one (1) 0.5 MMBtu/hr heater treater, one (1) electric vapor recovery unit (VRU) with an associated Vapor Recovery Tower (VRT), a dual-pressure combustion flare, four (4) 1,000 bbl produced water tanks, four (4) 1,000 bbl oil tanks, and various gas scrubbers. Additional emissions at the site will result from tank truck loading, truck hauling, fugitive emissions, and malfunction emissions.

4.0 Public Response/Concerns:

Jeremy Nichols, Climate and Energy Program Director for WildEarth Guardians, submitted a comment about this facility, which the permit writer passed on to upper management. Permit writer was instructed to process the application as usual.

5.0 Facility Specifications:

Total Pollutant Emissions from Entire Facility (for information only, not an enforceable condition):

Pollutant	Emissions (tons per year)	Emission Type
Particulate Matter (2.5 microns or less)	0.11	Allowable
Nitrogen Dioxide	19.85	Allowable
Particulate Matter (10 microns or less)	0.11	Allowable
Hydrogen sulfide (NMAAQ)	3.22	Allowable
Sulfur Dioxide	4.44	Allowable
Volatile Organic Compounds (VOC)	90.52	Allowable
Carbon Monoxide	42.65	Allowable

Total HAPS* and NM TAPS that exceed 1.0 ton per year (for information only, not an enforceable condition):

Pollutant	Emissions (tons per year)	Emission Type
Total HAP	0.1	Potential

*** HAP emissions are already included in VOC emissions**
Note: The Total HAPS may not match the sum of the individual HAPS in this table as it will include values from HAPS that are below 1.0 tpy.

Air Pollution Control Devices:

Subject Item ID, Type, ID, (Unit #)	SI Description	Primary	Control Equipment Mfg & model (or equivalent)
PWTK-1 (EQPT9)	1000 bbl Water Tank	Flare	Vaprox
PWTK-2 (EQPT10)	1000 bbl Water Tank	Flare	Vaprox
PWTK-3 (EQPT11)	1000 bbl Water Tank	Flare	Vaprox
PWTK-4 (EQPT12)	1000 bbl Water Tank	Flare	Vaprox
TK-1 (EQPT5)	1000 bbl Oil Tank	Flare	Vaprox
TK-2 (EQPT6)	1000 bbl Oil Tank	Flare	Vaprox
TK-3 (EQPT7)	1000 bbl Oil Tank	Flare	Vaprox
TK-4 (EQPT8)	1000 bbl Oil Tank	Flare	Vaprox

Equipment Specifications (Active):

Unit No.	Unit Type	Manufacturer	Operating Rate Max/Site	Operating Capacity Max/Site	Subject Item Status	Subject Item Description
FLARE EQPT13	Process Flare	Vaprox	4290.58 MM SCF/y / 192.11 MM SCF/y	/	Active	4290.58 / 192.109 MMScf/y Dual Tip Flare
FUG-1 RPNT1	Fugitives		/	/	Active	Facility-wide Fugitives
FWKO-1 EQPT1	Heater Treater/Stack Pak		.75 MM BTU/h / .75 MM BTU/h	/	Active	0.75 MMBtu/h Heated Water Knockout

Unit No.	Unit Type	Manufacturer	Operating Rate Max/Site	Operating Capacity Max/Site	Subject Item Status	Subject Item Description
FWKO-2 EQPT2	Heater Treater/Stack Pak		.75 MM BTU/h / .75 MM BTU/h	/	Active	0.75 MMBtu/h Heated Water Knockout
FWKO-3 EQPT3	Heater Treater/Stack Pak		.75 MM BTU/h / .75 MM BTU/h	/	Active	0.75 MMBtu/h Heated Water Knockout
HT-1 EQPT4	Heater Treater/Stack Pak		.5 MM BTU/h / .5 MM BTU/h	/	Active	0.5 MMBtu/h Heater Treater
MALF RPNT2	Fugitives		/	/	Active	Malfunction emissions
OILLOAD-1 EQPT14	Loading/Unloading Rack		/	35259000 bbl/y / 35259000 bbl/y	Active	Oil Truck Loading
PWTK-1 EQPT9	Tank - Above Ground		/	1000 bbl / 30660000 gal/y	Active	1000 bbl Water Tank
PWTK-2 EQPT10	Tank - Above Ground		/	1000 bbl / 30660000 gal/y	Active	1000 bbl Water Tank
PWTK-3 EQPT11	Tank - Above Ground		/	1000 bbl / 30660000 gal/y	Active	1000 bbl Water Tank
PWTK-4 EQPT12	Tank - Above Ground		/	1000 bbl / 30660000 gal/y	Active	1000 bbl Water Tank
TK-1 EQPT5	Tank - Above Ground		/	1000 bbl / 8814750 gal/y	Active	1000 bbl Oil Tank

Unit No.	Unit Type	Manufacturer	Operating Rate Max/Site	Operating Capacity Max/Site	Subject Item Status	Subject Item Description
TK-2 EQPT6	Tank - Above Ground		/	1000 bbl / 8814750 gal/y	Active	1000 bbl Oil Tank
TK-3 EQPT7	Tank - Above Ground		/	1000 bbl / 8814750 gal/y	Active	1000 bbl Oil Tank
TK-4 EQPT8	Tank - Above Ground		/	1000 bbl / 8814750 gal/y	Active	1000 bbl Oil Tank

Equipment Specifications (Retired/Removed):

Unit No.	Unit Type	Manufacturer	Model No.	Serial No.	Yr of Construction	Yr of Manufacture	Operating Rate Max/Site	Operating Capacity Max/Site	Subject Item Status	Subject Item Description
N/A										

Emissions: Pollutant **Permitted** (Allowable) Emissions per piece of equipment or Subject Item as represented by applicant.

Unit No.	NO_x (pph)	[1]NO_x (tpy)	CO (pph)	CO (tpy)	VOC (pph)	VOC (tpy)	SO_2 (pph)	SO_2 (tpy)	PM_{10} (pph)	PM_{10} (tpy)	$PM_{2.5}$ (pph)	$PM_{2.5}$ (tpy)	H_2S (pph)	H_2S (tpy)
PWTK-1 (EQPT9)														
TK-1 (EQPT5)														
FWKO-3 (EQPT3)	0.086	0.377	0.072	0.315	0.005	0.022			0.007	0.031	0.007	0.031		
HT-1 (EQPT4)	0.057	0.25	0.048	0.21	0.003	0.013			0.004	0.018	0.004	0.018		

Unit No.	NO_x (pph)	[1]NO_x (tpy)	CO (pph)	CO (tpy)	VOC (pph)	VOC (tpy)	SO_2 (pph)	SO_2 (tpy)	PM_{10} (pph)	PM_{10} (tpy)	$PM_{2.5}$ (pph)	$PM_{2.5}$ (tpy)	H_2S (pph)	H_2S (tpy)
TK-4 (EQPT8)														
PWTK-4 (EQPT12)														
PWTK-2 (EQPT10)														
PWTK-3 (EQPT11)														
MALF (RPNT2)						10.00								
TK-3 (EQPT7)														
FLARE (EQPT13)	25.56	18.47	57.42	41.49	41.79	48.14	7.477	4.435					5.292	3.139
OILLOAD-1 (EQPT14)					14.99	29.97								
FWKO-1 (EQPT1)	0.086	0.377	0.072	0.315	0.005	0.022			0.007	0.031	0.007	0.031		
TK-2 (EQPT6)														
FUG-1 (RPNT1)					0.54	2.33							0.02	0.08

Unit No.	NO_x (pph)	[1]NO_x (tpy)	CO (pph)	CO (tpy)	VOC (pph)	VOC (tpy)	SO_2 (pph)	SO_2 (tpy)	PM_{10} (pph)	PM_{10} (tpy)	$PM_{2.5}$ (pph)	$PM_{2.5}$ (tpy)	H_2S (pph)	H_2S (tpy)
FWKO-2 (EQPT2)	0.086	0.377	0.072	0.315	0.005	0.022			0.007	0.031	0.007	0.031		

[1] Nitrogen dioxide emissions include all oxides of nitrogen expressed as NO_2

6.0 Compliance Testing: That may apply.

Unit(s)	Compliance Test	Timeline
Engine(s) or Turbine(s) > 180 hp Exemption: Existing units that have been tested within the last five (5) years are not required to perform an initial compliance test.	Initial Compliance Test Testing requirements shall be conducted in accordance with Section B111 of the GCP- O&G Permit. A test may be waived by the Department if the test is not required under a NMAC, NSPS, NESHAP or MACT.	Compliance tests shall be conducted within sixty (60) days after the unit(s) achieve the maximum normal production rate. If the maximum normal production rate does not occur within one hundred twenty (120) days of source startup, then the tests must be conducted no later than one hundred eighty (180) days after initial startup of the source.
Engine(s) or Turbine(s) > 180 hp Facilities with a PER less than 80 tpy of each regulated air pollutant shall perform periodic testing every three (3) years.	Periodic Testing Testing requirements shall be conducted in accordance with Section B111 of the GCP- O&G Permit. A test may be waived by the Department if the test is not required under a NMAC, NSPS, NESHAP or MACT.	Every three (3) years.
Engine(s) or Turbine(s) > 180 hp Facilities with PER greater than the 80 tpy of any regulated air pollutant shall perform periodic testing once per calendar year for each engine or turbine > 180 hp.	Periodic Testing Testing requirements shall be conducted in accordance with Section B111 of the GCP- O&G Permit	Every calendar year.
Flares	N/A unless subject to compliance test under a NMAC, NSPS, NESHAP or MACT.	Test dates according to applicable regulation

Thermal Oxidizers	If the owner or operator does not provide manufacturer's data to establish the minimum operating temperature required to achieve 98% control efficiency, the owner/operator shall perform an initial compliance test to determine such operating temperature.	Within sixty (60) days of the start of operations, and the results shall be submitted to the Department within thirty (30) days of the test.
Storage Tanks	N/A unless subject to compliance test under a NMAC, NSPS, NESHAP or MACT.	Test dates according to applicable Regulation.

7.0 Startup and Shutdown:

Were emissions from startup, shutdown, and scheduled maintenance operations calculated and included in the emission tables? ☐ Yes
☒ No: Only malfunction emissions were included (10 tpy VOCs).

8.0 State and Federal Regulatory Analysis (NMAC/AQCR): Refer to Section 8 of the GCP O&G Registration Form.

9.0 Permit Writer Comments:

In regards to the applicability of 40 CFR 60, OOOa to the facility's tanks: The flare is used as a control for the produced water tanks and oil tanks. The flare keeps the water tanks below the 6 tpy threshold for OOOOa applicability. However, the oil tanks are over 6 tpy even with the flare controlling emissions, so the oil tanks 1-4 are subject to OOOOa. The applicant chose to count the post-control emissions from all tanks at the flare, which is why in Tempo the tank emissions appear to be 0 tpy. In the AECT oil tanks pages, you can see that emissions after control are over 6 tpy.

From:	Schooley, Ted, NMENV
To:	Jeremy Nichols; Romero, Rhonda, NMENV
Subject:	RE: [EXT] request for updates on oil and gas general permit registrations
Date:	Tuesday, May 12, 2020 8:20:00 AM

Mr. Nichols,

Thank you for your email regarding the status of the Oil and Gas General Construction Permits (O&G GCPs) for which WEG has submitted comments. At the bottom of this email is a table showing the status of the registrations WEG has inquired about. Information regarding GCP registration applications can be found on the Bureau's website on the following page: https://www.env.nm.gov/air-quality/aqb-p_current_permitting_activites/, which includes this link: **Current Permitting Actions for NSR and Title V – Updated 04/30/2020**.

Administrative review of the Department's determination to grant an application to register under a GCP is available pursuant to the Environmental Improvement Board's GCP regulations at subsection 20.2.72.220.C(5) NMAC (available here), which in turn references the Air Quality Control Act at NMSA 1978, Section 74-2-7. Subsection 74-2-7(H) of the statute provides that any person who participated in a permitting action before the Department and who is adversely affected by such permitting action may file a petition for hearing before the EIB within 30 days from the date notice is given of the Department's action.

For any of the O&G GCP registration applications listed below on which WEG submitted comments, you may regard the date of this email as the date notice was provided to WEG of the Department's action on those applications.

Best,

Ted Schooley

Permit Programs Section Chief
New Mexico Environment Department
Air Quality Bureau
525 Camino de los Marquez, Suite 1, Santa Fe, NM 87505
Office: (505) 476-4334
ted.schooley@state.nm.us
https://www.env.nm.gov/air-quality/

"Innovation, Science, Collaboration, Compliance"

Company	**Facility(ies)**	**NSR Permit No.**	**Date Application Received**	**Permitting Action Type**	**Status**
Cimarex Energy Co. of Colorado	Dos Equis 11-14 Federal Com 4H	8136M1	March 30, 2020	GCP-Oil and Gas	Issued
Matador Production Co.	Ray state Slot 3 Facility	8793	March 30, 2020	GCP-Oil and Gas	Issued
Matador Production Co.	Stebbins 19 Fed 3 Facility	7811M2	March 26, 2020	GCP-Oil and Gas	Issued
Matador Production Co.	Grevey Com Tank Battery	8780	March 26, 2020	GCP-Oil and Gas	Issued
New Mexico Gas Company	Lea County Compressor Station	8781	March 26, 2020	GCP-Oil and Gas	Issued

Summit Midstream Permian LLC	Lane Gas Plant	7426M1	March 26, 2020	GCP-Oil and Gas	Withdrawn
XTO Energy Inc.	Poker Lake Unit 28, Big Sinks Tank Battery	8395M1	March 26, 2020	GCP- GCP Oil and Gas	Issued
XTO Energy Inc.	Poker Lake Unit 21, Brushy Draw West Tank	8398M1	March 26, 2020	GCP- GCP Oil and Gas	Issued
XTO Energy Inc.	Poker Lake Unit 17, Twin Wells Ranch West	8782	March 26, 2020	GCP-Oil and Gas	Issued
Devon Energy Production Co.	Belloq 11 CTB 1	8201M2	March 26, 2020	GCP- Oil and Gas	Issued
Ameredev II LLC	Nandina CBT	8189M1	March 25, 2020	GCP- Oil and Gas	Issued
Marathon Oil Permian LLC	Mazer Rackham 20 Fed Com CTB	8652M1	March 23, 2020	GCP- Oil and Gas	Issued
Chevron USA Inc.	Dagger Lake Section 4 CTB	8776	March 20, 2020	GCP6/NOI	Issued
Chevron USA Inc.	Dagger Lake Section 4 CS	8777	March 20, 2020	GCP- Oil and Gas	Issued
Devon Energy Production Co.	Papa Fritas 27 CTB 2	8778	March 20, 2020	GCP- Oil and Gas	Issued
Devon Energy Production Co.	Papas Fritas 27 CTB 1	8779	March 19, 2020	GCP- Oil and Gas	Issued
Cotton Draw Midstream LLC	Moon Compressor Station	8110M2	March 18, 2020	GCP- Oil and Gas	Issued
Devon Energy Production Co.	Uraninite 32 CTB 2	8773	March 18, 2020	GCP- Oil and Gas	Issued
Matador Production Co.	Stebbins 20 Fed Facility	7585M1	March 18, 2020	GCP- Oil and Gas	Issued
Matador Production Co.	Jack Sleeper Facility	8772	March 18, 20209	GCP- Oil and Gas	Issued
Cimarex Energy Co. of Colorado	Parkway 15-14, North State Com 1H, 2H	8701M1	March 17, 2020	GCP- Oil and Gas	Issued
Matador Production Co.	Leslie Fed West Facility	8769	March 16, 2020	GCP- Oil and Gas	Issued
Tap Rock Operating LLC	Money Graham Facility	8634M1	March 16, 2020	GCP- Oil and Gas	Issued
ConocoPhillips Co.	Emerald Federal No. 3 Production	4610M1	March 12, 2020	GCP- Oil and Gas	Issued
Devon Energy Production Co.	Boundary Raider 7 CTB 2	8766	March 12, 2020	GCP- Oil and Gas	Issued
Matador Production Co.	Rodney Robinson North Facility	8765	March 12, 2020	GCP- Oil and Gas	Issued
XTO Energy Inc.	Legg Federal Tank Battery	5044M4	March 12, 2020	GCP- Oil and Gas	Issued
Cimarex Energy Co. of Colorado	Tar Heel 19-18 Fed 1-3H and 17-19H	8763	March 11, 2020	GCP- Oil and Gas	Issued
Matador Production	Stebbins 20/19 Fed	7792M2	March 11, 2020	GCP- Oil and	Issued

Co.	Facility			Gas	
DCP Operating Company LP	West Turkey Track Compressor Station	2098M5	March 4, 2020	GCP- Oil and Gas	Issued
DCP Operating Company LP	Jackson Booster Station	2041M6	March 4, 2020	GCP- Oil and Gas	Issued
XTO Energy Inc.	James Ranch Unit DI 7	8746	March 4, 2020	GCP-Oil and Gas	Issued
OXY USA Inc.	NC Sand Dunes Compressor Station	8744	March 3, 2020	GCP- Oil and Gas	Issued
EOG Resources Inc.	Viper Localized Gas Lift Station	8739	March 2, 2020	GCP-Oil and Gas	Issued
EOG Resources Inc.	Date 14 CTB	8738	March 2, 2020	GCP-Oil and Gas	Issued
Lucid Energy Delaware LLC	Greyhound Compressor Station	8084M2	March 2, 2020	GCP-Oil and Gas	Issued
Matador Production Co.	Dr. Scrivner Facility	7825M3	March 2, 2020	GCP-Oil and Gas	Issued
ConocoPhillips Co.	Zeppo 5 Fed Com 25H Battery	8015M1	March 2, 2020	GCP-Oil and Gas	Issued
Ameredev II LLC	Pine Straw CTB	8217M2	February 27, 2020	GCP- Oil and Gas	Issued
Devon Production Co.	Blue Krait 23 CTB 2	8734	February 27, 2020	GCP-Oil and Gas	Issued
Kaiser-Francis Oil Co.	South Bell Lake Pad 11	7132M3	February 27, 2020	GCP-Oil and Gas	Issued
Kaiser-Francis Oil Co.	North Bell Lake Pad 0	8149M3	February 10, 2020	GCP Oil and Gas	Issued
Spur Energy Partners LLC	Dorami 2H, 4H and 9H Federal Oil Tank Battery	8733	February 27, 2020	GCP-Oil and Gas	Issued
XTO Energy Inc.	Big Eddy Unit DI 38	8730	February 26, 2020	GCP-Oil and Gas	Issued
XTO Energy Inc.	Corral Canyon 23	8729	February 26, 2020	GCP-Oil and Gas	Issued

From: Jeremy Nichols <jnichols@wildearthguardians.org>
Sent: Monday, May 4, 2020 7:45 PM
To: Schooley, Ted, NMENV <ted.schooley@state.nm.us>; Romero, Rhonda, NMENV <Rhonda.Romero@state.nm.us>
Subject: [EXT] request for updates on oil and gas general permit registrations

Dear Mr. Schooley and Ms. Romero:

I am writing regarding the status of the oil and gas general permit registrations listed below that are under review by the New Mexico Environment Department. As you know, WildEarth Guardians has commented on general permit applications listed below over the past several weeks. We have not

received a response from the Environment Department or a notification that any registration has been approved. It is not currently possible to determine online whether registrations have been granted or denied. Pursuant to Section 74-7-H NMSA, a person participating in a permitting action has 30 days after notification of the permitting action to file a request for hearing with the Environmental Improvement Board. If general permit registrations that WildEarth Guardians has commented on have been granted, we reques the Environment Department provide us notification so that we may file a request for hearing with the Board.

To this end, if you could please provide the status of each of the following general permit registrations, it would be much appreciated. Thank you. - Jeremy Nichols

Company	**Facility(ies)**	**NSR Permit No.**	**Date Application Received**
Cimarex Energy Co. of Colorado	Dos Equis 11-14 Federal Com 4H	8136M1	March 30, 2020
Matador Production Co.	Ray state Slot 3 Facility	8793	March 30, 2020
Matador Production Co.	Stebbins 19 Fed 3 Facility	7811M2	March 26, 2020
Matador Production Co.	Grevey Com Tank Battery	8780	March 26, 2020
New Mexico Gas Company	Lea County Compressor Station	8781	March 26, 2020
Summit Midstream Permian LLC	Lane Gas Plant	7426M1	March 26, 2020
XTO Energy Inc.	Poker Lake Unit 28, Big Sinks Tank Battery	8395M1	March 26, 2020
XTO Energy Inc.	Poker Lake Unit 21, Brushy Draw West Tank	8398M1	March 26, 2020
Matador Production Co.	Stebbins 19 Fed 3 Facility	7811M2	March 26, 2020
XTO Energy Inc.	Poker Lake Unit 17, Twin Wells Ranch West	8782	March 26, 2020
Devon Energy Production Co.	Belloq 11 CTB 1	8201M2	March 26, 2020
Ameredev II LLC	Nandina CBT	8189M1	March 25, 2020
Marathon Oil Permian LLC	Mazer Rackham 20 Fed Com CTB	8652M1	March 23, 2020
Chevron USA Inc.	Dagger Lake Section 4 CTB	8776	March 20, 2020
Chevron USA Inc.	Dagger Lake Section 4 CS	8777	March 20, 2020
Devon Energy Production Co.	Papa Fritas 27 CTB 2	8778	March 20, 2020
Devon Energy Production Co.	Papas Fritas 27 CTB 1	8779	March 19, 2020
Cotton Draw Midstream LLC	Moon Compressor Station	8110M2	March 18, 2020
Devon Energy Production Co.	Uraninite 32 CTB 2	8773	March 18, 2020
Matador Production Co.	Stebbins 20 Fed Facility	7585M1	March 18, 2020
Matador Production Co.	Jack Sleeper Facility	8772	March 18, 20209
Cimarex Energy Co. of Colorado	Parkway 15-14, North State Com 1H, 2H	8701M1	March 17, 2020

Matador Production Co.	Leslie Fed West Facility	8769	March 16, 2020
Tap Rock Operating LLC	Money Graham Facility	8634M1	March 16, 2020
ConocoPhillips Co.	Emerald Federal No. 3 Production	4610M1	March 12, 2020
Devon Energy Production Co.	Boundary Raider 7 CTB 2	8766	March 12, 2020
Matador Production Co.	Rodney Robinson North Facility	8765	March 12, 2020
XTO Energy Inc.	Legg Federal Tank Battery	5044M4	March 12, 2020
Cimarex Energy Co. of Colorado	Tar Heel 19-18 Fed 1-3H and 17-19H	8763	March 11, 2020
Matador Production Co.	Stebbins 20/19 Fed Facility	7792M2	March 11, 2020
DCP Operating Company LP	West Turkey Track Compressor Station	2098M5	March 4, 2020
DCP Operating Company LP	Jackson Booster Station	2041M6	March 4, 2020
XTO Energy Inc.	James Ranch Unit DI 7	8746	March 4, 2020
OXY USA Inc.	NC Sand Dunes Compressor Station	8744	March 3, 2020
EOG Resources Inc.	Viper Localized Gas Lift Station	8739	March 2, 2020
EOG Resources Inc.	Date 14 CTB	8738	March 2, 2020
Lucid Energy Delaware LLC	Greyhound Compressor Station	8084M2	March 2, 2020
Matador Production Co.	Dr. Scrivner Facility	7825M3	March 2, 2020
ConocoPhillips Co.	Zeppo 5 Fed Com 25H Battery	8737	March 2, 2020
Ameredev II LLC	Pine Straw CTB	8217M2	February 27, 2020
Devon Production Co.	Blue Krait 23 CTB 2	8734	February 27, 2020
Kaiser-Francis Oil Co.	South Bell Lake Pad 11	7132M3	February 27, 2020
Kaiser-Francis Oil Co.	North Bell Lake Pad 0	8149M1	February 27, 2020
Spur Energy Partners LLC	Dorami 2H, 4H and 9H Federal Oil Tank Battery	8733	February 27, 2020
XTO Energy Inc.	Big Eddy Unit DI 38	8730	February 26, 2020
XTO Energy Inc.	Corral Canyon 23	8729	February 26, 2020

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