OIL & GAS NON RULE STANDARD PERMIT APPLICATION

TEXLAND PETROLEUM, LP

LIF-LUBHEIRS

LUBBOCK, LUBBOCK COUNTY, TEXAS

SEPTEMBER 2024

COMM ENGINEERING

www.commengineering.com

Phone: (337) 237-4373

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Non Rule Standard Permit Application for Approval of Emissions

Texland Petroleum, LP
Lif-Lubheirs

APPLICATION

APPENDIX

Application - Section 1

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions on completing this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission (*If other is checked please describe in space provided.*)

☒ New Permit, Registration or Authorization (*Core Data Form should be submitted with the program application.*)

☐ Renewal *(Core Data Form should be submitted with the renewal form)* ☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 602816852		RN 102597648

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy) 5/1/2024

☐ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)* *If new Customer, enter previous Customer below:*

Texland Petroleum, LP

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*
080015808	17514045636	751404563	

11. Type of Customer: ☐ Corporation ☐ Individual Partnership: ☐ General ☒ Limited
Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees
☐ 0-20 ☒ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?
☒ **Yes** ☐ **No**

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant ☐ Other:

15. Mailing Address:								
	777 Main Street							
	Suite 3200							
	City	Fort Worth	**State**	TX	**ZIP**	76102	**ZIP + 4**	5344

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*
	smcneal@texpetro.com

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*

(817) 336-2751		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected, a new permit application is also required.)*

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☒ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

Lif-Lubheirs

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	777 Main Street							
	Suite 3200							
	City	Fort Worth	**State**	TX	**ZIP**	76102	**ZIP + 4**	5344
24. County	Lubbock							

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:	From Intersection of TX 289 Loop Frontage Rd and N Guava St: Travel north on N Guava St for 0.14 mile. Facility located on the left.

26. Nearest City	**State**	**Nearest ZIP Code**
Lubbock	TX	79382

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:	33.61129		**28. Longitude (W) In Decimal:**	101.80115	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
33	36	40.6	101	48	4.14

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
1311		211120	211130

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Natural Gas & Crude Oil Production

34. Mailing Address:	**777 Main Street**							
	Suite 3200							
	City	**Fort Worth**	**State**	**TX**	**ZIP**	**76102**	**ZIP + 4**	**5344**
35. E-Mail Address:	**smcneal@texpetro.com**							

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(817) 336-2751		( ) -

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☒ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Ethan McMahon	**41. Title:**	Environmental Manager

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(337 **)** 237-4373		**( )** -	ermcmahon@commengineering.com

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Texland Petroleum, LP	**Job Title:**	Regulatory Analyst
Name *(In Print):*	Shana McNeal	**Phone:**	**(** 817 **)** 336- **2751**
Signature:		**Date:**	

Application - Section 2

Texas Commission on Environmental Quality
Form PI-1S
Registrations for Air Standard Permit
(Page 1)

I. Registrant Information		
A. Company or Other Legal Customer Name:		
Texland Petroleum, LP		
B. Company Official Contact Information (☐ Mr. ☐ Mrs. ☒ Ms. ☐ Other:)_____		
Name: Shana McNeal		
Title: Regulatory Analyst		
Mailing Address: 777 Main Street, Suite 3200		
City: Fort Worth	State: TX	ZIP Code: 76102
Phone: (817) 336-2751	Fax:	
Email Address: smcneal@texpetro.com		
All permit correspondence will be sent via email.		
C. Technical Contact Information (☐ Mr. ☐ Mrs. ☒ Ms. ☐ Other:)_____		
Name: Shana McNeal		
Title: Regulatory Analyst		
Company Name: Texland Petroleum, LP		
Mailing Address: 777 Main Street, Suite 3200		
City: Fort Worth	State: TX	ZIP Code: 76102
Phone: (817) 336-2751	Fax:	
Email Address: smcneal@texpetro.com		
II. Facility and Site Information		
A. Name and Type of Facility		
Facility Name: Lif-Lubheirs		
Type of Facility:	☒ Permanent ☐ Temporary	
For portable units, please provide the serial number of the equipment being authorized below.		
Serial No:	Serial No:	

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Form PI-1S
Registrations for Air Standard Permit
(Page 2)

II. Facility and Site Information *(continued)*		
B. Facility Location Information		
Street Address:		
If there is no street address, provide written driving directions to the site and provide the closest city or town, county, and ZIP code for the site (attach description if additional space is needed).		
From Intersection of TX 289 Loop Frontage Rd and N Guava St: Travel north on N Guava St for 0.14 mile. Facility locat		
City: Lubbock	County: Lubbock	ZIP Code: 79382
Latitude (nearest second): 33.61129	Longitude (nearest second): 101.80115	
C. Core Data Form (**required** for Standard Permits 6006, 6007, and 6013).		
Is the Core Data Form (TCEQ Form 10400) attached?	☒ Yes ☐ No	
If "No," provide customer reference number (CN) and regulated entity number (RN) below.		
Customer Reference Number (CN): CN602816852		
Regulated Entity Number (RN): RN102597648		
D. TCEQ Account Identification Number (if known):		
E. Type of Action: ☒ Initial Application ☐ Change to Registration ☐ Renewal ☐ Renewal Certification		
For Change to Registration, Renewal, or Renewal Certification actions provide the following:		
Registration Number:	Expiration Date:	
F. Standard Permit Claimed:		
G. Previous Standard Exemption or PBR Registration Number:		
Is this authorization for a change to an existing facility previously authorized under a standard exemption or PBR?	☐ Yes ☒ No	
If "Yes," enter previous standard exemption number(s) and PBR registration number(s) and associated effective date in the spaces provided below.		

Standard Exemption and PBR Registration Number(s)	**Effective Date**

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II. Facility and Site Information *(continued)*	
H. Other Facilities at this Site Authorized by Standard Exemption, PBR, or Standard Permit	
Are there any other facilities at this site that are authorized by an Air Standard Exemption, PBR, or Standard Permit?	☐ Yes ☒ No
If "Yes," enter standard exemption number(s), PBR registration number(s), and Standard Permit registration number(s), and associated effective date in the spaces provided below.	
Standard Exemption, PBR Registration, and Standard Permit Registration Number(s)	**Effective Date**
I. Other Air Preconstruction Permits	
Are there any other air preconstruction permits at this site?	☐ Yes ☒ No
If "Yes," enter permit number(s) in the spaces provided below.	
J. Affected Air Preconstruction Permits	
Does the standard permit directly affect any permitted facility?	☐ Yes ☒ No
If "Yes," enter permit number(s) in the spaces provided below.	

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II. Facility and Site Information *(continued)*		
K. Federal Operating Permit (FOP) Requirements		
Is this facility located at a site that is required to obtain a FOP pursuant to 30 TAC Chapter 122?	☐ Yes ☒ No ☐ To Be Determined	
If the site currently has an existing FOP, enter the permit number:		
Check the requirements of 30 TAC Chapter 122 that will be triggered if this standard permit is approved (*check all that apply).*		
☐ Initial Application for a FOP	☐ Significant Revision for a SOP	☐ Minor Revision for a SOP
☐ Operational Flexibility/Off Permit Notification for a SOP		☐ Revision for a GOP
☐ To be Determined		☒ None
Identify the type(s) of FOP issued and/or FOP application(s) submitted/pending for the site. *(check all that apply)*		
☐ SOP	☐ GOP	☐ GOP application/revision (submitted or under APD review)
☒ N/A	☐ SOP application/revision (submitted or under APD review)	
III. Fee Information *(go to www.tceq.texas.gov/epay to pay online)*		
A. Fee Amount: $475		
B. Voucher number from ePay:		
IV. Public Notice *(if applicable)*		
A. Responsible Person (☐ Mr. ☐ Mrs. ☒ Ms. ☐ Other:)_____		
Name: Shana McNeal		
Title: Regulatory Analyst		
Company: Texland Petroleum, LP		
Mailing Address: 777 Main Street, Suite 3200		
City: Fort Worth	State: TX	ZIP Code: 76102
Phone: (817) 336-2751	Fax No.:	
Email Address: smcneal@texpetro.com		

Texas Commission on Environmental Quality
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IV. Public Notice *(continued)* *(if applicable)*			
B. Technical Contact (☐ Mr. ☐ Mrs. ☒ Ms. ☐ Other):			
Name: Shana McNeal			
Title: Regulatory Analyst			
Company: Texland Petroleum, LP			
Mailing Address: 777 Main Street, Suite 3200			
City: Fort Worth	State: TX	ZIP Code: 76102	
Phone No.: (817) 336-2751	Fax No.:		
Email Address: smcneal@texpetro.com			
C. Bilingual Notice			
Is a bilingual program required by the Texas Education Code in the School District?		☐ Yes ☒ No	
Are the children who attend either the elementary school or the middle school closest to your facility eligible to be enrolled in a bilingual program provided by the district?		☐ Yes ☒ No	
If "Yes," list which language(s) are required by the bilingual program?			
D. Small Business Classification and Alternate Public Notice			
Does this company (including parent companies and subsidiary companies) have fewer than 100 employees or less than $6 million in annual gross receipts?		☒ Yes ☐ No	
Is the site a major source under 30 TAC Chapter 122, Federal Operating Permit Program?		☐ Yes ☒ No	
Are the site emissions of any individual regulated air contaminant equal to or greater than 50 tpy?		☐ Yes ☒ No	
Are the site emissions of all regulated air contaminant combined equal to or greater than 75 tpy?		☐ Yes ☒ No	
V. Renewal Certification Option			
A. Does the permitted facility emit an air contaminant on the Air Pollutant Watch List, and is the permitted facility located in an area on the watch list?		☐ Yes ☐ No	
B. For facilities participating in the Houston/Galveston/Brazoria area (HGB) cap and trade program for highly reactive VOCs (HRVOCs), do the HRVOCs need to be speciated on the maximum allowable emission rates table (MAERT)?		☐ Yes ☐ No	
C. Does the company and/or site have an unsatisfactory compliance history?		☐ Yes ☐ No	
D. Are there any applications currently under review for this standard permit registration?		☐ Yes ☐ No	

V.	**Renewal Certification Option *(continued)***	
E.	Are scheduled maintenance, startup, or shutdown emissions required to be included in the standard permit registration at this time?	☐ Yes ☐ No
F.	Are any of the following actions being requested at the time of renewal:	☐ Yes ☐ No
1.	Are there any facilities that have been permanently shutdown that are proposed to be removed from the standard permit registration?	☐ Yes ☐ No
2.	Do changes need to be made to the standard permit registration in order to remain in compliance?	☐ Yes ☐ No
3.	Are sources or facilities that have always been present and represented, but never identified in the standard permit registration, proposed to be included with this renewal?	☐ Yes ☐ No
4.	Are there any changes to the current emission rates table being proposed?	☐ Yes ☐ No
*Note: If answers to all of the questions in Section V. Renewal Certification Option are "No," use the certification option and skip to Section VII. of this form. If the answers to any of the questions in Section V. Renewal Certification Option are "Yes," the certification option **cannot** be used.*		
*If notice is applicable and comments are received in response to the public notice, the application does not qualify for the renewal certification option.		
VI.	**Technical Information Including State and Federal Regulatory Requirements**	
Place a check next to the appropriate box to indicate what you have included in your submittal.		
*Note: Any technical or essential information needed to confirm that facilities are meeting the requirements of the standard permit must be provided. Not providing key information could result in an automatic deficiency and voiding of the projec*t.		
A.	Standard Permit requirements (Checklists are optional; however, your review will go faster if you provide applicable checklists.)	
Did you demonstrate that the general requirements in 30 TAC Sections 116.610 and 116.615 are met?		☒ Yes ☐ No
Did you demonstrate that emission limitations in 30 TAC Sections 106.261 and 106.262 are met?		☐ Yes ☒ No
Did you demonstrate that the individual requirements of the specific standard permit are met?		☒ Yes ☐ No
B.	Confidential Information (All pages properly marked "CONFIDENTIAL")	☐ Yes ☒ No
C.	Process Flow Diagram	☒ Yes ☐ No

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VI. Technical Information Including State and Federal Regulatory Requirements *(continued)*	
Place a check next to the appropriate box to indicate what you have included in your submittal.	
Note: Any technical or essential information needed to confirm that facilities are meeting the requirements of the standard permit must be provided. Not providing key information could result in an automatic deficiency and voiding of the project.	
D. Process Description	☒ Yes ☐ No
E. Maximum Emissions Data and Calculations	☒ Yes ☐ No
F. Plot Plan	☒ Yes ☐ No
G. Projected Start Of Construction Date, Start Of Operation Date, and Length of Time at Site:	☒ Yes ☐ No
Projected Start of Construction (provide date):	
Projected Start of Operation (provide date):	
Length of Time at the Site: Permanent	

VII. Delinquent Fees and Penalties

This form **will not be processed** until all delinquent fees and/or penalties owed to the TCEQ or the Office of the Attorney General on behalf of the TCEQ are paid in accordance with the Delinquent Fee and Penalty Protocol. For more information regarding Delinquent Fees and Penalties, go to the TCEQ website at: www.tceq.texas.gov/agency/financial/fees/delin/index.html.

VIII. Signature Requirements

The signature below confirms that I have knowledge of the facts included in this application and that these facts are true and correct to the best of my knowledge and belief. I further state that to the best of my knowledge and belief, the project for which application is made will not in any way violate any provision of the Texas Water Code (TWC), Chapter 7; the Texas Health and Safety Code, Chapter 382, the Texas Clean Air Act (TCAA) the air quality rules of the Texas Commission on Environmental Quality; or any local governmental ordinance or resolution enacted pursuant to the TCAA. I further state that I understand my signature indicates that this application meets all applicable nonattainment, prevention of significant deterioration, or major source of hazardous air pollutant permitting requirements. The signature further signifies awareness that intentionally or knowingly making or causing to be made false material statements or representations in the application is a criminal offense subject to criminal penalties.

Name (printed): Shana McNeal

Signature (original signature required):

Date:

IX. Copies of the Registration

The PI-1S application must be submitted through ePermits. No additional copies need to be sent to the Regional Office or local Air Pollution Control Program(s). The link to ePermits can be found here: www3.tceq.texas.gov/steers/.

Reset Form

Application - Section 3

Texland Petroleum, LP
Lif-Lubheirs

Non Rule Standard Permit

The Lif-Lubheirs is a sour natural gas and condensate/crude oil production facility located in Lubbock County, Texas. This Form PI-1S CERT is being submitted to establish enforceable emission rates.

Emission calculations are based on the potential to emit. Total emissions of NO_X and CO from all sources in the facility are each less than 250 tpy. The facility emissions are not considered major source.

The NESHAP for Oil and Natural Gas Production Facilities (40 CFR Part 63, Subpart HH) defines a major source as one which emits or has the potential to emit 10 tpy or more of any single HAP, or 25 tpy or more of any combination of HAPs. This facility emits less than 25 tpy; therefore, it is not subject to this regulation.

The NSPS for Oil and Natural Gas Production Facilities (40 CFR Part 60, Subpart OOOO and OOOOa and OOOOb) is not applicable. The facility was constructed before August 23, 2011.

Emission Totals

Criteria Pollutant	Tons/Year
Total VOC	18.95
Benzene	0.18
Formaldehyde	0.00
SO_2	0.41
NO_X	0.69
CO	0.58
PM_{10}	0.05
$PM_{2.5}$	0.04
H_2S	0.03

Proposed Actions

This application is being submitted for coverage of an existing facility located in Lubbock County, Texas. Texland Petroleum, LP is requesting federally enforceable emissions limits and will comply with all recordkeeping and reporting requirements. The facility is not currently permitted.

Application - Section 4

Texland Petroleum, LP
Lif-Lubheirs

Non Rule Standard Permit

The Lif-Lubheirs is a sour natural gas and crude oil production facility in Lubbock County, Texas, which handles sour natural gas (greater than 24 ppm H_2S) and condensate/crude oil. The facility handles all stages of production. The facility annually processes approximately:

365	million standard cubic feet of natural gas,
37,230	barrels of condensate/crude oil, and
797,525	barrels of produced water.

Separation
Production from the nearby wells flow to a separator and three (3) Heater Treaters, rated at 1.0 MMBTU/hr and two at 0.5 MMBTU/hr (EPNs: HT-01, HT-02, HT-03). The natural gas from the separator and heater treaters is sent to a sales pipeline. Condensate/crude oil flows to the Oil Storage Tanks and produced water flows to the Water Storage Tanks.

Condensate/Crude Oil Storage and Load Out
Condensate/crude oil is stored in four (4) 210 bbl and two (2) 500 bbl Oil Storage Tanks (EPNs: OST-01 thru OST-06). Flash, standing, and working losses are routed to the atmosphere. The stored condensate/crude oil is then shipped via pipeline to sales. The facility handles condensate/crude oil prior to lease custody transfer.

Produced Water Storage and Disposal
Produced water is stored in two (2) 500 bbl and three (3) 200 bbl Water Storage Tanks (EPNs: WST-01 thru WST-05). Flash, standing, and working losses are routed to the atmosphere. The stored produced water is then shipped via pipeline to disposal.

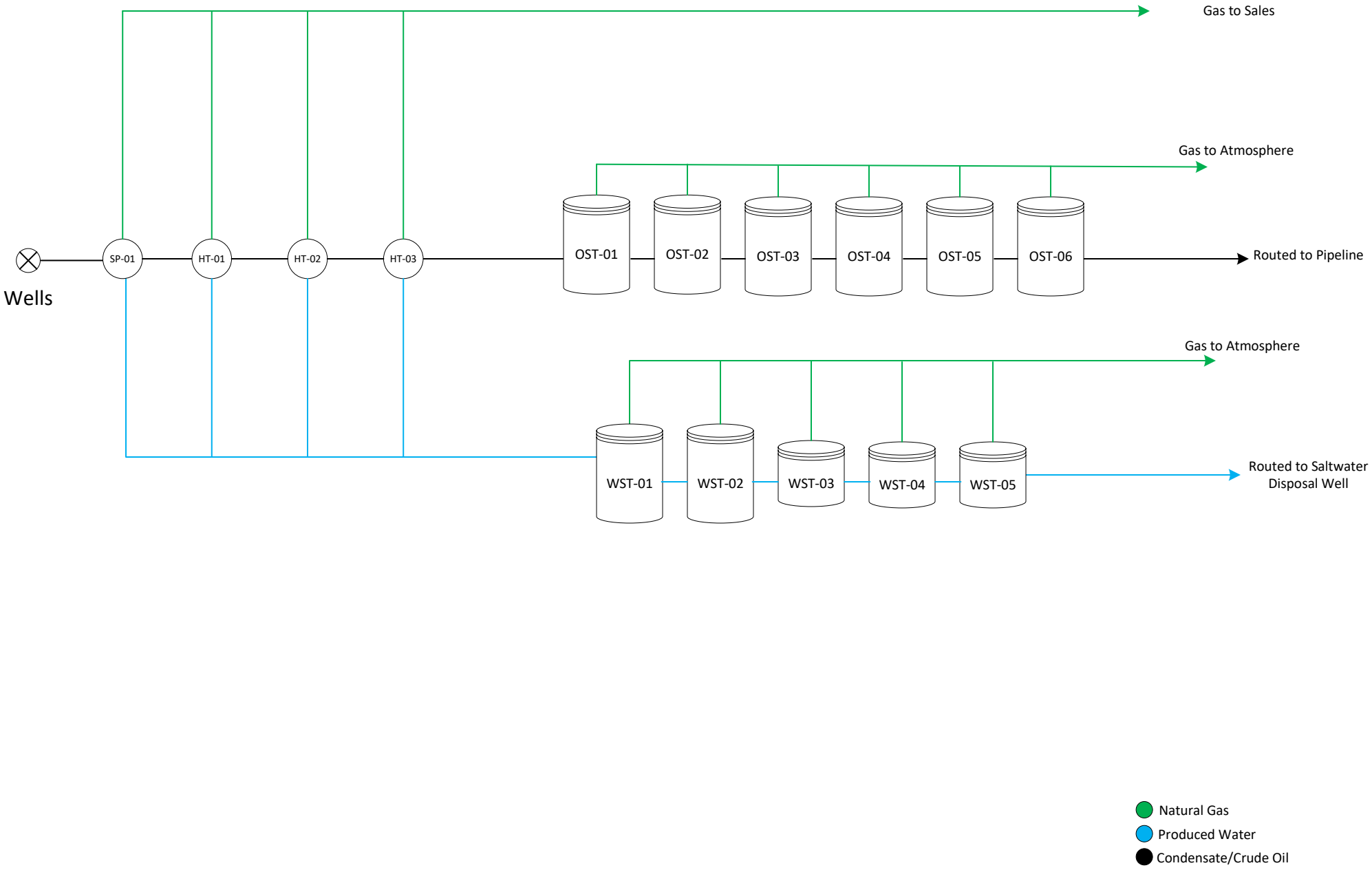
Miscellaneous Sources
Fugitive natural gas and light liquid emissions (EPN: FE-01) occur from potential leaks from flanges, valves, and piping connections. Fugitive emissions are calculated using typical Texland Petroleum, LP facility component counts and emission factors in EPA 4531, R-95-017 and TCEQ's "Air Permit Technical Guidance for Chemical Source Equipment Leak Fugitives".

Maintenance, Start-Up, and Shutdown (MSS) emissions (EPN: MSS-01) are included in the emission calculations. The site will abide by the emission limitations, best management practices, and recordkeeping requirements required to show compliance with this authorization. This registration includes emissions from routine oil and gas production MSS activities on a facility and equipment basis.

A representative oil analysis and gas analysis were utilized for the application. The representative analysis is from a nearby Texland Petroleum, LP facility and was chosen due to the area, reservoir conditions, API gravity and operating conditions of the facility. A site-specific H_2S reading of 349.6 ppm_v was obtained using the Tutwiler method.

Application - Section 5

Texland Petroleum, LP
Lif-Lubheirs
33.61129° N, 101.80115° W



Application - Section 6

Texland Petroleum, LP - Lif-Lubheirs

From Intersection of TX 289 Loop Frontage Rd and N Guava St: Travel north on N Guava St for 0.14 mile. Facility located on the left.

Application - Section 7

Texland Petroleum, LP
Lif-Lubheirs

Emissions Summary

The table below is a summary of all emission points for this registration. It is separated into *Project Emissions* and *Other Site Wide Emissions*.

The table has separate totals for *Project Total Emission Rates* and *Site Wide Total Emission Rates*.

On the table, for each emission source, there is a space for three emission rates on a pound per hour (lb//hr) basis and one emission rate on a ton per year (tpy) basis. Periodic emissions are authorized to exceed the steady state limits of the rule (150, 300, and 600 hours per year for PBR Level 1, PBR Level 2, and the Standard Permit, respectively), in which case the periodic emission limits must be met. Note that periodically emitting activities, such as loading and MSS activities, are not limited to occurring less than these time limits. It is only for that amount of time that the emissions can exceed the normal steady state limits.

Any formaldehyde emissions must be included as part of VOC emissions.

Update

Before pressing the *Update* button, make sure you have selected the correct VOC Type and Emission Type from the pull down menus in each emission calculation tab.

Emissions Summary

Project Emissions (This needs to include all emission points being added for the first time to the registration or emission points with emissions that are changing from previously registered emissions. It does NOT include emission points for which the emissions have not changed and have previously been registered (unless the emission point emissions are chosen to be re-calculated as part of this project); those emissions will be entered below in the Other Registration Emissions section of this table.)

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates			
			steady state lbs/hr	< 30 psig periodic lbs/hr	≥ 30 psig periodic lbs/hr	TPY (4)
FE-01	Fugitive Emissions	Total VOC	2.9191			12.7858
		Total Crude Oil or Condensate VOC	2.9191			12.7858
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0293			0.1282
		Formaldehyde	0.0000			0.0000
		H_2S	0.0008			0.0033
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000
HT-01	Heater Treater	Total VOC	0.0043			0.0188
		Total Crude Oil or Condensate VOC	0.0000			0.0000
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0000			0.0000
		Formaldehyde	0.0000			0.0000
		H_2S	0.0000			0.0000
		SO_2	0.0463			0.2026
		NO_X	0.0782			0.3425
		CO	0.0657			0.2877
		PM_{10}	0.0059			0.0260
		$PM_{2.5}$	0.0045			0.0195

HT-02	Heater Treater	**Total VOC**	0.0022			0.0094
		Total Crude Oil or Condensate VOC	0.0000			0.0000
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0000			0.0000
		Formaldehyde	0.0000			0.0000
		H_2S	0.0000			0.0000
		SO_2	0.0231			0.1013
		NO_X	0.0391			0.1713
		CO	0.0328			0.1439
		PM_{10}	0.0030			0.0130
		$PM_{2.5}$	0.0022			0.0098
HT-03	Heater Treater	**Total VOC**	0.0022			0.0094
		Total Crude Oil or Condensate VOC	0.0000			0.0000
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0000			0.0000
		Formaldehyde	0.0000			0.0000
		H_2S	0.0000			0.0000
		SO_2	0.0231			0.1013
		NO_X	0.0391			0.1713
		CO	0.0328			0.1439
		PM_{10}	0.0030			0.0130
		$PM_{2.5}$	0.0022			0.0098
OST-01	Oil Storage Tank - Flash	**Total VOC**	0.0529			0.2317
		Total Crude Oil or Condensate VOC	0.0529			0.2317
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0005			0.0021
		Formaldehyde	0.0000			0.0000
		H_2S	0.0000			0.0001
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000
OST-02	Oil Storage Tank - Flash	**Total VOC**	0.0529			0.2317
		Total Crude Oil or Condensate VOC	0.0529			0.2317
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0005			0.0021
		Formaldehyde	0.0000			0.0000
		H_2S	0.0000			0.0001
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000

OST-03	Oil Storage Tank - Flash	**Total VOC**	0.0529			0.2317
		Total Crude Oil or Condensate VOC	0.0529			0.2317
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0005			0.0021
		Formaldehyde	0.0000			0.0000
		H_2S	0.0000			0.0001
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000
OST-04	Oil Storage Tank - Flash	**Total VOC**	0.0529			0.2317
		Total Crude Oil or Condensate VOC	0.0529			0.2317
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0005			0.0021
		Formaldehyde	0.0000			0.0000
		H_2S	0.0000			0.0001
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000
OST-05	Oil Storage Tank - Flash	**Total VOC**	0.0529			0.2317
		Total Crude Oil or Condensate VOC	0.0529			0.2317
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0005			0.0021
		Formaldehyde	0.0000			0.0000
		H_2S	0.0000			0.0001
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000
OST-06	Oil Storage Tank - Flash	**Total VOC**	0.0529			0.2317
		Total Crude Oil or Condensate VOC	0.0529			0.2317
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0005			0.0021
		Formaldehyde	0.0000			0.0000
		H_2S	0.0000			0.0001
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000

OST-01	Oil Storage Tank - Breathing & Working	**Total VOC**	0.1207			0.5288
		Total Crude Oil or Condensate VOC	0.1207			0.5288
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0011			0.0047
		Formaldehyde	0.0000			0.0000
		H_2S	0.0001			0.0003
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000
OST-02	Oil Storage Tank - Breathing & Working	**Total VOC**	0.1207			0.5288
		Total Crude Oil or Condensate VOC	0.1207			0.5288
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0011			0.0047
		Formaldehyde	0.0000			0.0000
		H_2S	0.0001			0.0003
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000
OST-03	Oil Storage Tank - Breathing & Working	**Total VOC**	0.1207			0.5288
		Total Crude Oil or Condensate VOC	0.1207			0.5288
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0011			0.0047
		Formaldehyde	0.0000			0.0000
		H_2S	0.0001			0.0003
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000
OST-04	Oil Storage Tank - Breathing & Working	**Total VOC**	0.1207			0.5288
		Total Crude Oil or Condensate VOC	0.1207			0.5288
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0011			0.0047
		Formaldehyde	0.0000			0.0000
		H_2S	0.0001			0.0003
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000

OST-05	Oil Storage Tank - Breathing & Working	**Total VOC**	0.2119			0.9282
		Total Crude Oil or Condensate VOC	0.2119			0.9282
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0019			0.0083
		Formaldehyde	0.0000			0.0000
		H_2S	0.0001			0.0006
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000
OST-06	Oil Storage Tank - Breathing & Working	**Total VOC**	0.2119			0.9282
		Total Crude Oil or Condensate VOC	0.2119			0.9282
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0019			0.0083
		Formaldehyde	0.0000			0.0000
		H_2S	0.0001			0.0006
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000
WST-01	Water Storage Tank - Flash	**Total VOC**	0.0136			0.0596
		Total Crude Oil or Condensate VOC	0.0136			0.0596
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0001			0.0005
		Formaldehyde	0.0000			0.0000
		H_2S	0.0009			0.0038
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000
WST-02	Water Storage Tank - Flash	**Total VOC**	0.0136			0.0596
		Total Crude Oil or Condensate VOC	0.0136			0.0596
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0001			0.0005
		Formaldehyde	0.0000			0.0000
		H_2S	0.0009			0.0038
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000

WST-03	Water Storage Tank - Flash	**Total VOC**	0.0136			0.0596
		Total Crude Oil or Condensate VOC	0.0136			0.0596
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0001			0.0005
		Formaldehyde	0.0000			0.0000
		H_2S	0.0009			0.0038
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000
WST-04	Water Storage Tank - Flash	**Total VOC**	0.0136			0.0596
		Total Crude Oil or Condensate VOC	0.0136			0.0596
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0001			0.0005
		Formaldehyde	0.0000			0.0000
		H_2S	0.0009			0.0038
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000
WST-05	Water Storage Tank - Flash	**Total VOC**	0.0136			0.0596
		Total Crude Oil or Condensate VOC	0.0136			0.0596
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0001			0.0005
		Formaldehyde	0.0000			0.0000
		H_2S	0.0009			0.0038
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000
WST-01	Water Storage Tank - Breathing & Working	**Total VOC**	0.0049			0.0216
		Total Crude Oil or Condensate VOC	0.0049			0.0216
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0000			0.0002
		Formaldehyde	0.0000			0.0000
		H_2S	0.0003			0.0014
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000

WST-02	Water Storage Tank - Breathing & Working	**Total VOC**	0.0056			0.0243
		Total Crude Oil or Condensate VOC	0.0056			0.0243
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0000			0.0002
		Formaldehyde	0.0000			0.0000
		H_2S	0.0004			0.0016
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000
WST-03	Water Storage Tank - Breathing & Working	**Total VOC**	0.0040			0.0176
		Total Crude Oil or Condensate VOC	0.0040			0.0176
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0000			0.0002
		Formaldehyde	0.0000			0.0000
		H_2S	0.0003			0.0011
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000
WST-04	Water Storage Tank - Breathing & Working	**Total VOC**	0.0040			0.0176
		Total Crude Oil or Condensate VOC	0.0040			0.0176
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0000			0.0002
		Formaldehyde	0.0000			0.0000
		H_2S	0.0003			0.0011
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000
WST-05	Water Storage Tank - Breathing & Working	**Total VOC**	0.0040			0.0176
		Total Crude Oil or Condensate VOC	0.0040			0.0176
		Total Natural Gas VOC	0.0000			0.0000
		Benzene	0.0000			0.0002
		Formaldehyde	0.0000			0.0000
		H_2S	0.0003			0.0011
		SO_2	0.0000			0.0000
		NO_X	0.0000			0.0000
		CO	0.0000			0.0000
		PM_{10}	0.0000			0.0000
		$PM_{2.5}$	0.0000			0.0000

MSS-01	Routine MSS	**Total VOC**		0.0837		0.3662
		Total Crude Oil or Condensate VOC		0.0000		0.0000
		Total Natural Gas VOC		0.0837		0.3662
		Benzene		0.0012		0.0053
		Formaldehyde		0.0000		0.0000
		H_2S		0.0001		0.0005
		SO_2		0.0000		0.0000
		NO_X		0.0000		0.0000
		CO		0.0000		0.0000
		PM_{10}		0.0000		0.0000
		$PM_{2.5}$		0.0000		0.0000

Project Total Emission Rates (Note that these periodic totals are NOT simply the sum of the periodic emission rates from each emission point. The periodic emission limits in the rule need to be compared to the sum of steady state and periodic emissions, that is the worst case combination of continuously and periodically emitting sources that could occur in any one hour. The periodic emission rates shown here are the sum of all steady state and periodic emissions in the project. If the worst case combination of continuously and periodically emitting sources is less than this, then please input the values in this table to the right. **Please explain below which emission points are included in this worst case combination.**)	**Air Contaminant Name (3)**	**Emission Rates**			
		steady state lbs/hr	**< 30 psig periodic lbs/hr**	**≥ 30 psig periodic lbs/hr**	**TPY (4)**
	Total VOC	4.24	4.33	4.33	18.95
	Total Crude Oil or Condensate VOC	4.23	4.23	4.23	18.54
	Total Natural Gas VOC	0.00	0.08	0.08	0.37
	Benzene	0.04	0.04	0.04	0.18
	Formaldehyde	0.00	0.00	0.00	0.00
	H_2S	0.01	0.01	0.01	0.03
	SO_2	0.09	0.09	0.09	0.41
	NO_X	0.16	0.16	0.16	0.69
	CO	0.13	0.13	0.13	0.58
	PM_{10}	0.01	0.01	0.01	0.05
	$PM_{2.5}$	0.01	0.01	0.01	0.04
If the automated formulas for the project emission totals (which assume that it is possible for all steady state and periodic emissions in the project to occur in the same hour) have been overwritten, explain any changes made and list the project emission points that occur in the realistic worst case hour. (Leave this blank or put NA if none of the formulas have been overwritten.)					

<u>Other Site Wide Emissions</u> (This needs to include any other emission points not included in the Project Emissions Summary but are associated with the site. This should be all the operationally dependent units that are within 1/4 mile of each other and are also owned/operated by the same company and located on contiguous or adjacent property. It is possible that nothing needs to be entered here.)

There are no other site wide emission points other than project emission points.

Site Wide Total Emission Rates (Note that these periodic totals are NOT simply the sum of the periodic emission rates from each emission point. The periodic emission limits in the rule need to be compared to the sum of steady state and periodic emissions, that is the worst case combination of continuously and periodically emitting sources that could occur in any one hour. The periodic emission rates shown here are the sum of all steady state and periodic emissions in the registration. If the worst case combination of continuously and periodically emitting sources is less than this, then please input the values in this table to the right. **Please explain below which emission points are included in this worst case combination.**)	**Air Contaminant Name (3)**	**steady state lbs/hr**	**< 30 psig periodic lbs/hr**	**≥ 30 psig periodic lbs/hr**	**TPY (4)**
	Total VOC	4.24	4.33	4.33	18.95
	Total Crude Oil or Condensate VOC	4.23	4.23	4.23	18.54
	Total Natural Gas VOC	0.00	0.08	0.08	0.37
	Benzene	0.04	0.04	0.04	0.18
	Formaldehyde	0.00	0.00	0.00	0.00
	H_2S	0.01	0.01	0.01	0.03
	SO_2	0.09	0.09	0.09	0.41
	NO_X	0.16	0.16	0.16	0.69
	CO	0.13	0.13	0.13	0.58
	PM_{10}	0.01	0.01	0.01	0.05
	$PM_{2.5}$	0.01	0.01	0.01	0.04
If the automated formulas for the registration emission totals (which assume that it is possible for all steady state and periodic emissions in the registration to occur in the same hour) have been overwritten, explain any changes made and list the registration emission points that occur in the realistic worst case hour. (Leave this blank or put NA if none of the formulas have been overwritten.)					
Based on the Site Wide Total Emission Rates, this authorization falls under:				**PBR Level 2**	

Enter any notes here:	

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.

(2) Specific point source name. For fugitive sources, use area name or fugitive source name.

(3)
- VOC — volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
- H_2S — hydrogen sulfide
- SO_2 — sulfur dioxide
- NO_X — total oxides of nitrogen
- CO — carbon monoxide
- PM_{10} — total particulate matter equal to or less than 10 microns in diameter, including $PM_{2.5}$
- $PM_{2.5}$ — particulate matter equal to or less than 2.5 microns in diameter

(4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.

(5) If emissions from a source are:

(A) uncontrolled, then the uncontrolled emissions are reported in this table as being emitted from the source.

(B) controlled by a flare, vapor combustor, thermal oxidizer, or vapor recovery unit (VRU), then the controlled emissions are reported on this table as being emitted from the control device.

(C) controlled by another type of control device, then the controlled emissions are reported on this table for the source (even though emissions are actually being emitted at the control device).

(6) For controlled tank, glycol/amine flash tank and regenerator, and MSS emissions, it is assumed that all vapors make it to the control device (100% collection efficiency). For controlled loading emissions, a 100% collection efficiency is <u>not</u> assumed.

(7) A VRU itself is not actually considered an emission point; however, this table associates unrecovered (uncontrolled) emissions from sources controlled by a VRU at the VRU.

Application - Section 8

Texland Petroleum, LP
Lif-Lubheirs
Non Rule Standard Permit Applicaton
Table 6 Engine and Turbines Emission and Operational Standards

Engine Type	Engine Size	Manufacture Date	NOx (g/hp-hr)	CO (g/hp-hr)	VOC (g/hp-hr)	Applicability		
						Yes	No	N/A
Rich burn, Non-emergency, Spark-ignitred	less than 100 hp	All dates	No Standard	No Standard	No Standard			X
	greater than or equal to 100 hp	Before January 1, 2011	2	3	No Standard			X
	greater than or equal to 100 hp	After January 1, 2011	1	3	1			X
	After January 1, 2015, regardless of manufacture date, no rich burn engine greater than or equal to 240 hp authorized by this permit shall emit NOx in excess of 0.5 g/bhp-hr. After January 1, 2018, regardless of manufacture date, no rich burn engine greater than or equal to 100 hp authorized by this permit shall emit NOx in excess of 0.5 g/bhp-hr. If an authorization or authorizations is issued for a spark ignited rich burn engine under this standard permit after the applicable date of January 1, 2015 or January 1, 2018, NOx emissions from that engine shall not exceed 0.5 g/bhp-hr, except that the standard permit holder shall have a one year grace period from the date of the initial authorization under this standard permit to comply with the limit of 0.5 g/bhp-hr for NOx. The commission reserves the right to re-evaluate the upgrade requirement if EPA promulgates any standards for existing engines.							X
Lean Burn, 2SLB Non-emergency, Spark-ignited	less than 500 hp	All dates	No Standard	No Standard	No Standard			X
	greater than or equal to 500 hp	Before September 23, 1982	8	3	No Standard			X
		Before June 18, 1992 and rated less than 825 hp	8	3	No Standard			X
		After September 23, 1982, but prior to June 18, 1992 and rated 825 hp or greater	5	3	No Standard			X
		After June 18, 1992 but prior to July 1, 2010	2.0 except under reduced speed, 80-100% of full torque conditions may be 5.0	3	No Standard			X
		On or after July 1, 2010	1	3	1			X
Lean Burn, 4SLB, Non-emergency, Spark-ignited, and Dual-fuel	less than 500 hp	Before July 1, 2008	No Standard	No Standard	No Standard			X
		On or after July 1, 2008	2	3	1			X
	greater than or equal to 500 hp	Before September 23, 1982	5.0 except under reduced speed, 80-100% of full torque conditions may be	3	No Standard			X
		Before June 18, 1992 and rated less than 825 hp	5.0 except under reduced speed, 80-100% of full torque conditions may be 8.0	3	No Standard			X
		After September 23, 1982, but prior to June 18, 1992 and rated 825 hp or greater	5	3	No Standard			X
		After June 18, 1992 but prior to July 1, 2010	2.0 except under reduced speed, 80-100% of full torque conditions, may be 5.0		No Standard			X
		On or after July 1, 2010	1	3	1			X
	After January 1, 2020, no spark ignited 4-stroke lean burn engine authorized by this standard permit that existed on-site on January 1, 2012, shall emit NOx in excess of 2.0 g/bhp-hr. If an oil and gas standard permit authorization or authorizations are is issued for a spark ignited 4-stroke lean burn engine after January 1, 2012, NOx emissions from that engine shall not exceed 2.0 g/bhp-hr after January 1, 2015. However, if the date of the initial authorization is after January 1, 2015, the standard permit holder shall have a three year grace period from the date of the initial authorization under the oil and gas standard permit to comply with the limit of 2.0 g/bhp-hr for NOx. The commission reserves the right to re-evaluate the upgrade requirement if EPA promulgates any standards for existing engine							X
Turbines	Turbines shall not emit greater than 25 ppmvd @ 15% O2 for NOX and 50 ppmvd @ 15% O2 for CO.							X

Texland Petroleum, LP
Lif-Lubheirs
Non Rule Standard Permit Applicaton
Table 7 Sampling and Demonstrations of Compliance

Category	Description	Specifications and Expectations	Applicability		
			Yes	No	N/A
Exclusions	Control Systems	Control device monitoring and records are required only where the device is necessary for the site to meet emission rate limits	X		
Sampling General	When Applicable Ports & Platforms, Methods, Notifications and Timing	(A)If necessary, sampling ports and platforms shall be incorporated into the design of all exhaust stacks according to the specifications set forth in "Chapter 2, Stack Sampling Facilities." Engines and other facilities which are physically incapable of having platforms are excluded from this requirement. For control devices with effectiveness requirements only, appropriate sampling ports shall also be installed upstream of the inlet to control devices or controlled recovery systems with control efficiency requirements. Alternate sampling facility designs may be submitted for written approval by the Texas Commission on Environmental Quality (TCEQ) Regional Director or his designee. (B) Where stack testing is required, Sampling shall be conducted within 180 days of the change that required the registration, in accordance with the appropriate procedures of the TCEQ Sampling Procedures Manual and in accordance with the appropriate EPA Reference Methods. Unless otherwise specified, each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard. Where appropriate, sampling shall occur as three one-hour test runs and then averaged to demonstrate compliance with the limits of this authorization. Any deviations from those procedures must be approved in writing by the TCEQ Regional Director or his designee prior to sampling. (C) The Regional Office shall be afforded the opportunity to observe all such sampling. (D) The holder of this authorization is responsible for providing sampling and testing facilities and conducting the sampling and testing operations at his expense. (E) The TCEQ Regional Office that has jurisdiction over the site shall be contacted as soon as any testing is scheduled, but not less than 30 days prior to sampling. The region shall have discretion to amend the 30 day prior notification. Except for engine testing and liquid/gas analysis sampling, all other sampling shall include an opportunity for the appropriate regional office to schedule a pretest meeting. The notice shall include: (i) Date for pretest meeting, if required; (ii)Date sampling will occur; (iii) Name of firm conducting sampling; (iv)Type of sampling equipment to be used; (v) Method or procedure to be used in sampling; (vi)Procedure used to determine operating rates or other relevant parameters during the sampling period; (vii) parameters to be documented during the sampling event; (viii) any proposed deviations to the prescribed sampling methods. If held, the purpose of the pretest meeting is to review the necessary sampling and testing procedures, to provide the proper data forms for recording pertinent data, and to review the format procedures for submitting the test reports. (F) Within 60 days after the completion of the testing and sampling required herein, one original and one copy of the sampling reports shall be sent to the Regional Office. (G) When sampling is required, all Quality Assurance/Quality Control shall follow 30 TAC Ch 25 National Environmental Laboratory Accreditation Conference accreditation requirements.	X		
Fugitive monitoring and LDAR	Analyzers	An approved gas analyzer or other approved detection monitoring device used for the volatile organic compound fugitive inspection and repair requirement is a device that conforms to the requirements listed in Title 40 CFR '60.485(a) and (b), or is otherwise approved by the Environmental Protection Agency as a device to monitor for VOC fugitive emission leaks. Approved gas analyzers shall conform to requirements listed in Method 21 of 40 CFR Part 60, Appendix A. The gas analyzer shall be calibrated with methane. In addition, the response factor of the instrument for a specific VOC of interest shall be determined and meet the requirements of Standard permit 8 of Method 21. If a mixture of VOCs is being monitored, the response factor shall be calculated for the average composition of the process fluid. If a response factor less than 10 cannot be achieved using methane, then the instrument may be calibrated with one of the VOC to be measured or any other VOC so long as the instrument has a response factor of less than 10 for each of the VOC to be measured. In lieu of using a hydrocarbon gas analyzer and EPA Method 21, the owner or operator may use the Alternative Work Practice in 40 CFR Part 60, §60.18(g) - (i). The optical gas imaging instrument must meet all requirements specified in 40 CFR §60.18(g) - (i), except the annual Test Method 21 requirement in 40 CFR §60.18(h)(7) and the reporting requirement in 40 CFR §60.18(i)(5) do not apply.			X
Verify composition of materials	All site-specific gas or liquid analysis	Reports necessary to verify composition (including hydrogen sulfide (H2S) at any point in the process. All analyses shall be site specific or a representative sample may be used to estimate emissions if all of the parameters in the gas and liquid analysis protocol provided by the commission are met. A site-specific or define representative analysis shall be performed within 90 days of initial start of operation or implementation of a change which requires registration. When new streams are added to the site and the character or composition of the streams change and cause an increase in authorized emissions, or upon request of the appropriate Regional office or local air pollution control program with jurisdiction, a new analysis will need to be performed. Analysis techniques may include, but are not limited to, Gas Chromatography (GC), Tutweiler, stain tube analysis, and sales oil/condensate reports. These records will document the following: (A) H2S content; (B) flow rate; (C) heat content; or (D) other characteristic including, but not limited to: (i) American Petroleum Institute gravity and Reid vapor pressure (RVP);(ii) sales oil throughput; or (iii) condensate throughput. Laboratory extended VOC GC analysis at a minimum to C10+ and H2S analysis for gas and liquids for the following shall be performed and used for emission compliance demonstrations:(A) Separator at the inlet; (B) Dehydration Unit / Glycol Contactor prior to dehydrator;(C) Amine Unit prior to sweetening unit; (D) Separator dumping to gunbarrel or storage tank; (E) Tanks for liquids and vapors; or (F) P	X		

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Table 7 Sampling and Demonstrations of Compliance

Category	Description	Specifications and Expectations	Applicability		
			Yes	No	N/A
Engines & Turbines	Initial Sampling of (i) Any engine greater than 500 horsepower; (ii) Any turbine	Perform stack sampling and other testing as required to establish the actual quantities of air contaminants being emitted into the atmosphere (including but not limited to nitrogen oxide (NOX), carbon monoxide (CO), and oxygen (O2). Each combustion facility shall be tested at a minimum of 50% of the design maximum firing rate of the facility. Each tested firing rate shall be identified in the sampling report. Sampling shall occur within 180 days after initial start-up of each unit. Additional sampling shall occur as requested by the TCEQ Regional Director. If there are multiple engines at an oil and gas sites (OGS) of identical model, year, and control system, sampling may be performed on 50% of the units and used for compliance demonstration of all identical units at the OGS. The remaining 50% of the units not initially tested must be tested during the next biennial testing period. This sampling is not required upon initial installation at any location if the engine or turbine was previously installed and tested at any location in the United States and the test conformed with EPA Reference Methods. Regardless of engine location, records of performance testing, or relied upon sampling reports, must remain with each specific engine for a minimum of five years unless records are unavailable and the permit holder performs the initial sampling on-site. No one may claim records are unavailable for the time period in which an engine is at the site which is authorized by this standard permit. This testing is not required for emergency engines unless requested by the TCEQ Regional Director. Idle engines do not need to be re-started only for the purpose of completing required testing. If biennial testing is required for an engine that is re-started for production purposes, the biennial testing is required within 30 days after re-starting the engine.			X
Engines	Periodic Evaluation	The following is applicable to sites with federal operating permits only: (A) For any engine with a NOx standard under Table 6, conduct evaluations of each engine performance quarterly after initial compliance testing by measuring the NOx and CO content of the exhaust. Tests shall occur more than 30 days apart. Individual engines shall be subject to the quarterly performance evaluation if they were in operation for 1000 hours or more during the quarter period. If an engine is not operating, the permit holder may delay the test until such time as the engine is expected to run for more than fourteen days. Idled engines do not need to be re-started only for the purpose of completing required testing. (B) The use of portable analyzers specifically designed for measuring the concentration of each contaminant in parts per million by volume is acceptable for these evaluations. The portable analyzer shall be operated at minimum in accordance with the manufacturer's instructions. The operator may modify the procedure if it does not negatively alter the accuracy of the analyzer. Also, colorimetric testing (stain tubes) maybe used in these periodic evaluations. The NOx and CO emissions then shall be converted into units of grams per horsepower-hour and pounds per hour. (C) Emissions shall be measured and recorded in the as-found operating condition, except no compliance determination shall be established during start-up, shutdown, or under breakdown conditions. (D) In lieu of the above mentioned periodic monitoring for engines and biennial testing, the holder of this permit may install, calibrate, maintain, and operate a continuous emission monitoring system (CEMS) to measure and record the concentrations of NOx and CO from any engine, turbine, or other external combustion facility. Diluents to be measured include O2 or CO2. Except for system breakdowns, repairs, calibration checks, zero and span adjustments, and other quality assurance tests, the Continuous Emission Monitoring Systems (CEMS) shall be in continuous operation and shall record a minimum of four, and normally 60, approximately equally spaced data points for each full hour. The NOx and diluents CEMS shall be operated according to the methods and procedures as set out in 40 CFR Part 60, Appendix B, Performance Specifications 2 and 3. The CO CEMS shall be operated according to the methods and procedures as set out in 40 CFR Part 60, Appendix B, Performance Specifications 4, 4A, or 4B. CEMS shall follow the quality assurance requirements of Appendix F except that Cylinder Gas Audits may be conducted in all four calendar quarters in lieu of the annual Relative Accuracy Test Audit. A CEMS with downtime due to breakdown or repair of more than 10% of the facility operating time for any calendar shall be considered as a defective CEMS and the CEMS shall be replaced within 2 weeks.			X
Engines & Turbines	Biennail Testing Any engine greater than 500 horsepower or any turbine	Every two years starting from the completion date of the Initial Compliance Testing, any engine greater than 500 horsepower or any turbine shall be retested according to the procedures of the Initial Compliance Testing. Retesting shall occur within 90 days of the two year anniversary date. If a facility has been operated for less than 2000 hours during the two year period, it may skip the retesting requirement for that period. After biennial testing, any engine retested under the above requirements shall resume periodic evaluations within the next 6 calendar months (January to June or July to December). If biennial testing is required for an engine that is re-started for production purposes, the biennial testing shall be performed within 45 days after re-starting the engine.			X

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Table 7 Sampling and Demonstrations of Compliance

Category	Description	Specifications and Expectations	Applicability		
			Yes	No	N/A
Oxidation or Combustion Control Device	Initial Sampling and Monitoring for performance for VOC, Benzene, and H_2S	Stack testing, when a company wants to establish efficiencies of 99% or greater, must be coordinated and approved. Sampling is required for VOC, benzene and H_2S at Region's discretion. The thermal oxidizer (TO) must have proper monitoring and sampling ports installed in the vent stream and the exit to the combustion chamber, to monitor and test the unit simultaneously. The temperature and oxygen measurement devices shall reduce the temperature and oxygen concentration readings to an averaging period of 6 minutes or less and record it at that frequency. The temperature measurement device shall be installed, calibrated, and maintained according to accepted practice and the manufacturer's specifications. The device shall have an accuracy of the greater of ±0.75% of the temperature being measured expressed in degrees Celsius or ±2.5ºC. The oxygen or carbon monoxide analyzer shall be zeroed and spanned daily and corrective action taken when the 24-hour span drift exceeds two times the amounts specified Performance Specification No. 3 or 4A, 40 CFR Part 60, Appendix B. Zero and span is not required on weekends and plant holidays if instrument technicians are not normally scheduled on those days. The oxygen or carbon monoxide analyzer shall be quality-assured at least semiannually using cylinder gas audits (CGAs) in accordance with 40 CFR Part 60, Appendix F, Procedure 1, §5.1.2, with the following exception: a relative accuracy test audit is not required once every four quarters (i.e., two successive semiannual CGAs may be conducted). An equivalent quality-assurance method approved by the TCEQ may also be used. Successive semiannual audits shall occur no closer than four months. Necessary corrective action shall be taken for all CGA exceedances of ±15 percent accuracy and any continuous emissions monitoring system downtime in excess of 5% of the incinerator operating time. These occurrences and corrective actions shall be reported to the appropriate TCEQ Regional Director on a quarterly basis. Supplemental stack concentration measurements may be required at the discretion of the appropriate TCEQ Regional Director. Quality assured or valid data of oxygen or carbon monoxide analyzer must be generated when the TO is operating except during the performance of a daily zero and span check. Loss of valid data due to periods of monitor break down, inaccurate data, repair, maintenance, or calibration may be exempted provided it does not exceed 5% of the time (in minutes) that the oxidizer operated over the previous rolling 12 month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.			X

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Table 8 Monitoring and Records Demonstrations

Category	Description	Specifications and Expectations	Applicability		
			Yes	No	N/A
Site Production or Collection	natural gas, oil, condensate, and water production records	Site inlet and outlet gas volume and sulfur concentration, daily gas/liquid production and load-out from tanks	X		
Equipment and facility summary	Current process description	Accurate and detailed plot plan with property line, off-site receptors, and all equipment on-site or drawings with sufficient detail to confirm all authorized facilities to confirm emission estimates, impact review, and registration scope	X		
Equipment Specifications	Process units, tanks, vapor recovery systems; flares; thermal oxidizers; and reboiler control devices	A copy of the registration and emission calculations including the fixed equipment sizes or capacities and manufacturer's specifications and programs to maintain performance, with the plan and records for routine inspection, cleaning, repair and replacement.	X		
Physical Inspection	Fugitive Component Check	A record of the component count shall be maintained. A record of the date each quarterly inspection was made and the date components found leaking were repaired or the date of the planned shutdown.	X		
Voluntary LDAR Program	Details of fugitive component monitoring plan, and LDAR results, including QA, QC	The following records are required where a company uses an LDAR program to reduce the potential fugitive emissions from the site to meet emission limitations or certify fugitive emissions. (A) A monitoring program plan must be maintained that contains, at a minimum, the following information: (i) an accounting of all the fugitive components by type and service at the site with the total uncontrolled fugitive potential to emit estimate; (ii) identification of the components at the site that are required to be monitored with an instrument or are exempt with the justification, note the following can be used for this purpose: (a) piping and instrumentation diagram (PID); or (b) a written or electronic database.; (iii) the monitoring schedule for each component at the site with difficult-to-monitor and unsafe-to-monitor valves, as defined by Title 30 Texas Administrative Code Chapter 115 (30 TAC Chapter 115), identified and justified, note if an unsafe-to-monitor component is not considered safe to monitor within a calendar year, then it shall be monitored as soon as possible during safe-to-monitor times and a record of the plan to monitor shall be maintained; and (iv) the monitoring method that will be used (audio, visual, or olfactory (AVO) means; Method 21; the Alternative Work Practice in 40 CFR §60.18(g) - (i)); (v) for components where instrument monitoring is used, information clarifying the adequacy of the instrument response; (vi) the plan for hydraulic or pressure testing or instrument monitoring new and reworked components. (B) Records must be maintained of all monitoring instrument calibrations. (C) Records must be maintained for all monitoring and inspection data collected for each component required to be monitored with a Method 21 portable analyzer that include the type of component and the monitoring results in ppmv regardless if the screening value is above or below the leak definition.. (D) Leaking components must be tagged and a leaking-components monitoring log must be maintained for all leaks greater than the applicable leak definition (i.e.10,000 ppmv, 2000 ppmv, or 500 ppmv) of VOC detected using Method 21, all leaks detected by AVO inspection, and all leaks found using Alternative Work Practice specified in 40 CFR §60.18(g)-(i). The log must contain, at a minimum, the following: (i) the method used to monitor the leaking component (audio, visual, or olfactory inspection; Method 21; or the Alternative Work Practice in 40 CFR §60.18(g) - (i)); (ii) the name of the process unit or other appropriate identifier where the component is located; (iii) the type (e.g., valve or seal) and tag identification of component; (iv) the results of the monitoring (in ppmv if a Method 21 portable analyzer was used); (v) the date the leaking component was discovered;(vi) the date that a first attempt at repair was made to a leaking component; (vii) the date that a leaking component is repaired; (viii) the date and instrument reading of the recheck procedure after a leaking component is repaired; and (ix) the leaks that cannot be repaired until turnaround and the date that the leaking component is placed on the shutdown list. (E) If the owner or operator is using the Alternative Work Practice specified in 40 CFR §60.18(g) - (i), the records required by 40 CFR §60.18(i)(4). (F) A record of the monitored value any open-ended line or valve for which is a repair or replacement is not completed within 72 hours and monitoring in lieu of covering is chosen. (G) Any open-ended line or valve caused by a repair or replacement not completed within 72 hours shall be monitored as specified in table 10 and the checks and any corrective actions taken shall be recorded. (H) Weekly audio, visual and olfactory inspections shall be noted in a log (I) A check of the reading for any pressure-sensing device to verify rupture disc integrity shall be performed weekly and noted in a log.			X
Minor Changes	Additions, changes or replacement	Records showing all replacements and additions, including summary of emission type and quantities, for a rolling 6-month period of time.	X		

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Table 8 Monitoring and Records Demonstrations

Category	Description	Specifications and Expectations	Applicability		
			Yes	No	N/A
Equipment Replacement	Like-Kind replacements	Records on equipment specifications and operations, including summary of emissions type and quantity.	X		
Process Units	Glycol Dehydration Units	For emission estimates, the worst-case combination of parameters resulting in the greatest emission rates must be used. If worst-case parameters are not used, then glycol dehydrator unit monitoring records include dry gas flow rate, absorber pressure and temperature, glycol type, and circulation rate recorded weekly. If worst-case parameters are not used, then in addition to weekly unit monitoring, where control of flash tank or reboiler emissions are required to meet the emission limitations of the section and emissions are certified, the following control monitoring requirements apply weekly: flash tank temperature and pressure, any reboiler stripping gas flow rate, and condenser outlet temperature. VRU, flare, or thermal oxidizer control or reboiler fire box used for control must comply with the monitoring and recordkeeping for those devices. Where all emissions from the flash tank and the reboiler or reboiler condenser vent are directed to a VRU, flare, or thermal oxidizer designed to be on-line at all times the glycol dehydrator is in operation, the control system monitoring for the glycol dehydrator is not required.			X
	Amine Units	Amine units may simply retain site production or inlet gas records if all sulfur compounds in the inlet are assumed to be emitted. Where only partial removal of the inlet sulfur is assumed, for emission estimates, the worst-case combination of parameters resulting in the greatest emission rates must be used. If worst-case parameters are not used, then records of the amine solution, contactor pressure, temperature and pump rate shall be maintained. Where the waste gas is vented to combustion control, the requirements of the control device utilized should be noted.			X
Boilers, Reboilers, Heater-Treaters, and and Process Heaters	Combustion	Records of Operational Monitoring and Testing Records Records of the hours of operation of every combustion device of any size by the use of a process monitor such as a run time meter, fuel flow meter, or other process variable that indicates a unit is running unless, in the registration for the facility, the emissions from the facility were calculated using full year operation at maximum design capacity in which case no hours of operation records must be kept.			X
Internal Combustion Engines	Combustion	Records of Appropriate Operational Monitoring and Testing Records Records of the hours of operation of every combustion device and engine of any size by the use of a process monitor such as a run time meter, fuel flow meter, or other process variable that indicates a unit is running. The owner or operator may test and retest at the most frequent intervals identified in Table 7 in lieu of installing a process monitor and recording the hours of operation. If an engine has no testing requirements in Table 7, no records of the hours of operation must be kept.			X
Gas Fired Turbines	Combustion	Records of Appropriate Operational Monitoring and Testing Records Records of the hours of operation of every turbine greater than 500 hp by the use of a process monitor such as a run time meter, fuel flow meter, or other process variable that indicates a unit is running unless the permit holder determined emissions from the facility assuming full year operation at maximum design capacity in which case no hours of operation records must be kept.			X
Fuel Records	VOC and Sulfur Content	A fuel flow meter is not required if emissions are based on maximum fuel usage for 8,760 hr/yr. There are no specific requirements for allowable VOC content of fuel. If field gas contains more than 1.5 grains (24 ppmv) of H2S or 30 grains total sulfur compounds per 100 dry standard cubic feet, the operator shall maintain records, including at least quarterly measurements of fuel H_2S and total sulfur content, which demonstrate that the annual SO_2 emissions do not exceed limitations	X		
Tanks/Vessels	Color/Exterior	Records demonstrating design, inspection, and maintenance of paint color and vessel integrity	X		
Tanks/Vessels	Emission and emission potential	Maintain a record of the material stored in each tank/vessel that vents to the atmosphere and the maximum vapor pressure used to establish the maximum potential short-term emission rate. Where pressurized liquids can flash in the tank/vessel monitor and record weekly the maximum fluid pressure that can enter the tank / vessel. Records that tank / vessel hatches and relief valves are properly sealed when tank/vessel is directed to control and after loading events (as needed).	X		
Truck Loading	All Types	Records indicating type of material loaded, amount transferred, method of transfer, condition of tank truck before loading.	X		
	Vacuum Trucks	Note loading with an air mover or vacuum. No additional record is needed where a vacuum truck uses only an on-board or portable pump to push material into the truck.			X
	Controlled Loading	Where control is required note the control that is utilized.			X

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Table 8 Monitoring and Records Demonstrations

Category	Description	Specifications and Expectations	Applicability		
			Yes	No	N/A
Control Devices	Vapor Capture and Recovery	Records of hours of use are required for all units and on-line time must be considered when emission estimates and actual emissions inventories are calculated. mVRU Basic Design Function Record: Record demonstrating the unit captures vapor and includes a sensing device set to capture this vapor at peak intervals. Additional Design Parameter Record: Record demonstrating additional design parameters are utilized such as additional sensing equipment, a properly designed bypass system, an appropriate gas blanket, an adequate compressor selection, and the ability to vary the drive speed for units utilizing electric driven compressors mVRUs that are used at oil and gas sites to control emissions may claim up to 100% control efficiency provided records of basic and additional design functions and parameters of a VRU along with appropriate records listed in Table 8 are satisfied. mVRUs may claim up to 99% control efficiency for units where records of basic and additional design functions are satisfied and parameters listed in Table 8 are not satisfied. mVRUs may claim up to 95% control efficiency for units where records listed in Table 8 are not satisfied. lVRU The record of proper design must be kept to demonstrate how the unit was designed and for what capacity. The record of liquid replacement must be kept, along with the calculations for demonstrating that the VOC to liquid ratio has been maintained. Additionally, the system must be tested to demonstrate the efficiency. This testing needs to be performed and results recorded to receive 95% control efficiency no longer than: vacuum truck emissions: after 20 loads have been pulled through the lVRU, for tanks: Produced Water – Monthly, Crude – Bi-Monthly, Condensate – Weekly. This testing needs to be performed and results recorded to receive 98% control efficiency no longer than: vacuum truck emissions: after 15 loads have been pulled through the lVRU, for tanks: Produced Water – 3 weeks, Crude – 10 days, Condensate – 5 days. All valves must be designed and maintained to prevent leaks. All hatches and openings must be properly gasketed and sealed with the unit properly connected. Downtime is limited to a rolling 12 month average of 5% or 432 hr/per rolling 12 months and waste vents shall be redirected to an appropriate control device if possible during down time unless otherwise registered for alternate operating hours.			X
Cooling Tower	Design data	Records shall be kept of maximum cooling water circulation rate and basis, maximum total dissolved solids allowed as maintained through blowdown, and towers design drift rate. These records are only required if the cooling system is used to cool process VOC streams or control from drift eliminators or minimizing solids content is needed to meet particulate matter emission limits.			X
	Particulate Monitoring, Maintenance and Repair	Inspect and record integrity of drift eliminators annually, repairing as necessary. If a maximum solids content must be maintained through blowdowns to meet particulate emission rate limits, cooling water shall be sampled for total dissolved solids (TDS) once a month at prior to any periodic blow downs and maintain records of the monitoring results and all corrective actions.			X
		Cooling water VOC concentrations above 0.08 parts per million by volume (ppmv) indicate faulty equipment. Equipment shall be maintained so as to minimize VOC emissions into the cooling water. Faulty equipment shall be repaired at the earliest opportunity but no later than the next scheduled shutdown of the process unit in which the leak occurs. Records must be maintained of all monitoring data and equipment repairs.			X
Planned Maintenance, Start-up, and Shutdown (MSS)	Alternate Operational Scenaris and Redirection of Vent Streams	Records of redirection of vent streams during primary operational unit or control downtime, including associated alternate controls, releases and compliance with emission limitations.	X		
Planned Maintenance, Start-up, and Shutdown (MSS)	Pigging, Purging, and Blowdowns	Pigging records, including catcher design, date, emission estimate to atmosphere and to control, and when controlled, the control device. Note where a control device is necessary to meet emission limitations the device is subject to the requirements of standard permit (e) and record requirements of this table. Purging and blowdown records, including the volume and pressure and a description of the piping and equipment involved, the date, emission estimate to atmosphere and to control, and when controlled, the control device. Where purging to control to meet a lower concentration before purging to atmosphere is conducted the concentrations of VOC, BTEX or H_2S as appropriate must be measured and recorded prior to purging to atmosphere. Note where a control device is necessary to meet emission limitations the device is subject to the requirements of standard permit (e) and record requirements of this table.	X		

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Category	Description	Specifications and Expectations	Applicability		
			Yes	No	N/A
Planned Maintenance, Start-up, and Shutdown (MSS)	Temporary Facilities for Bypass, and Degassing and Purghing	Temporary facility records, including a description and estimate of potential fugitive emissions from temporary piping, size and design of facilities (eg. tanks or pan volume, fill method, and throughput; engine horse power, fuel and usage time, flare tip area, ignition method, and heating value assurance method; etc.) and the date and emission estimate to atmosphere and to control for their use			X
Planned Maintenance, Start-up, and Shutdown (MSS)	Management of Sludge from Pits, Ponds, Sumps and Water Conveyances	Records including the source identification, removal plan, emission estimate direct to atmosphere and through control. Note where a control device is necessary to meet emission limitations the device is subject to the requirements of standard permit (e) and record requirements of this table.			X
Planned Maintenance, Start-up, and Shutdown (MSS)	Degassing of Purging of Tanks, Vessels, or Other Facilities	Records including: a) the EPN and description of vessels and equipment degassed or purged; b) the material, volume and pressure (if applicable); c) the volume of purge gas used; d) a description of the piping and equipment involved; e) clarifying estimates for a coated surface or heel; f) the date; g) emission estimate to atmosphere and to control; h) when controlled, the control device; and i) where purging to a control device to reduce concentrations before purging to atmosphere, the concentrations of VOC, BTEX or H2S as appropriate must be measured and recorded prior to purging to atmosphere	X		
Planned Maintenance, Start-up, and Shutdown (MSS)	Records	Records or copies of work orders, contracts, or billing by contractors for the following activities shall be kept at the site, or nearest manned site, and made available upon request: • Routine engine component maintenance including filter changes, oxygen sensor replacements, compression checks, overhauls, lubricant changes, spark plug changes, and emission control system maintenance; • Boiler refractory replacements and cleanings; • Heater and heat exchanger cleanings; • Turbine hot standard permit swaps; • Pressure relief valve testing, calibration of analytical equipment; instrumentation/analyzer maintenance; replacement of analyzer filters and screens	X		
Control Devices	Flare Monitoring	Basic monitoring requires the flare and pilot flame to be continuously monitored by a thermocouple or an infrared monitor. Where an automatic ignition system is employed, the system shall ensure ignition when waste gas is present. The time, date, and duration of any loss of flare, pilot flame, or auto-ignition shall be recorded. Each monitoring device shall be accurate to, and shall be calibrated at a frequency in accordance with, the manufacturer's specifications. A temporary, portable or backup flare used less than 480 hours per year is not required to be monitored. Records of hours of use are required for all units and on-line time must be considered when emission estimates and actual emissions inventories are calculated.			X
Control Devices	Thermal Oxidation and Vapor Combustion Performance Monitoring Basic	Control device monitoring and records are required only where the device is necessary for the site to meet emission rate limits. Basic monitoring is a thermocouple or infrared monitor that indicates the device is working. Records of hours of use are required for all units and on-line time must be considered when emission estimates and actual emissions inventories are calculated.			X
	Intermediate	Intermediate monitoring and records include continuously monitoring and recording temperature to insure the control device is working when waste gas can be directed to the device and showing compliance with the 1400 degrees Fahrenheit if applicable.			X
	Enhanced	Enhanced monitoring requires continuous temperature and oxygen or carbon monoxide monitoring on the exhaust with six minute averages recorded to show compliance with the temperature requirement and the design oxygen range or a CO limit of 100 ppmv. Some indication of waste gas flow to the control device, like a differential pressure, flow monitoring or valve position indicator, must also be continuously recorded, if the flow to the control device can be intermittent.			X
	Alternate Monitoring	Records of stack testing and the monitored parameters during the testing shall be maintained to allow alternate monitoring parameters and limits.			X

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Table 8 Monitoring and Records Demonstrations

Category	Description	Specifications and Expectations	Applicability		
			Yes	No	N/A
Control Devices	Control process with combustion or heating devices (e.g. reboilers, heaters & furnaces)	Basic monitoring is any continuous monitor that indicates when the flame in the device is on or off (other than partial operational use). The following are effective basic options: a fire box temperature monitor, rising or steady process temperature monitor, CO monitor, primary fuel flow monitor, fire box pressure monitor or equivalent. Enhanced monitoring for 91 to 99% control, where waste gas is not introduced as the primary fuel, must include the following monitors: continuous fire box or fire box exhaust temperature, and CO and O2 monitoring, with at least 6 minute averages recorded. Additionally, enhanced monitoring where the waste gas may be flowing when the control device is not firing must show continuous disposition of the waste gas streams, including continuous monitoring of flow or valve position through any potential by-pass to the control where more than 50% run time of control is claimed. [Basic monitoring is any continuous monitor that indicates when the flame in the device is on or off (other than partial operational use). The following are effective basic options: a fire box temperature monitor, rising or steady process temperature monitor, CO monitor, primary fuel flow monitor, fire box pressure monitor or equivalent. Enhanced monitoring for 91 to 99% control, where waste gas is not the primary fuel, must include the following monitors: continuous fire box or fire box exhaust temperature monitoring; and CO and O2 monitoring, with at least 6 minute averages recorded. Additionally, enhanced monitoring where the waste gas may be flowing when the control device is not firing must show continuous disposition of the waste gas streams. This includes continuous monitoring of flow or valve position through any potential by-pass to the control where more than 50% run time of the control is claimed.]			X

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Table 9 Fugitive Component LDAR BACT Table Monitoring and Records Demonstrations

Exceptions	Additional Details	Applicability		
		Yes	No	N/A
Total uncontrolled potential to emit from all components ≤ 10 tpy		X		
Minimum Design, Monitoring, Technique or Control for all fugitive components with uncontrolled potential to emit of ≥ 10 tpy VOC or ≥ 1 tpy H_2S				
Requirements	**Additional Details**	**Applicability**		
		Yes	**No**	**N/A**
Construction of new and reworked piping, valves, pump systems, and compressor systems shall conform to applicable American National Standards Institute (ANSI), American Petroleum Institute (API), American Society of Mechanical Engineers (ASME), or equivalent codes.	To the extent that good engineering practice will permit, new and reworked valves and piping connections shall be so located to be reasonably accessible for leak-checking during plant operation.			X
New and reworked underground process pipelines shall contain no buried valves such that fugitive emission monitoring is rendered impractical. New and reworked piping connections shall be welded or flanged. Screwed connections are permissible only on piping smaller than two-inch diameter. Gas or hydraulic testing of the new and reworked piping connections at no less than operating pressure shall be performed prior to returning the components to service or they shall be monitored for leaks using an approved gas analyzer within 15 days of the components being returned to service. Where technically feasible new and reworked components may be screened for leaks with a soap bubble test within 8 hours of being returned to service in lieu of instrument testing. Adjustments shall be made as necessary to obtain leak-free performance.				X
Each open-ended valve or line shall be equipped with an appropriately sized cap, blind flange, plug, or a second valve to seal the line so that no leakage occurs. Except during sampling, both valves shall be closed.	If the removal of a component for repair or replacement results in an open ended line or valve, it is exempt from the requirement to install a cap, blind flange, plug, or second valve for 72 hours. If the repair or replacement is not completed within 72 hours, the permit holder must complete either of the following actions within that time period: the line or valve must have a cap, blind flange, plug, or second valve installed; or the open-ended valve or line shall be monitored once for leaks above background for a plant or unit turnaround lasting up to 45 days with an approved gas analyzer and the results recorded. For all other situations, the open-ended valve or line shall be monitored once at the end of the 72 hour period following the creation of the open ended line and monthly thereafter with an approved gas analyzer and the results recorded. For turnarounds and all other situations, leaks are indicated by readings 20 ppmv above background and must be repaired within 24 hours or a cap, blind flange, plug, or second valve must be installed on the line or valve.			X
Components shall be inspected by visual, audible, and/or olfactory means at least weekly by operating personnel walk-through.				X
Accessible valves shall be monitored by leak-checking for fugitive emissions quarterly using an approved gas analyzer. Sealless/leakless valves (including, but not limited to, welded bonnet bellows and diaphragm valves) and relief valves equipped with a rupture disc upstream or venting to a control device are not required to be monitored. If an unsafe-to-monitor valve is not considered safe to monitor within a calendar year, then it shall be monitored as soon as possible during safe-to-monitor times. A difficult-to-monitor component for which quarterly monitoring is specified may instead be monitored annually.	Sealless/leakless valves and relief valves equipped with rupture disc or venting to a control device and exempted from instrument monitoring are not counted in the fugitive emissions estimates. See Table 7 Sampling and Demonstrations of Compliance for Fugitive and LDAR Analyzer requirements. See Table 8, Monitoring and Records Demonstrations to identify Difficult-to-monitor and unsafe-to-monitor valves.			X
For valves equipped with rupture discs, a pressure-sensing device shall be installed between the relief valve and rupture disc to monitor disc integrity.	All leaking discs shall be replaced at the earliest opportunity but no later than the next process shutdown.			X

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Table 9 Fugitive Component LDAR BACT Table Monitoring and Records Demonstrations

Exceptions	Additional Details	Applicability		
		Yes	No	N/A
All pump, compressor and agitator seals shall be monitored quarterly with an approved gas analyzer or be equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal. Seal systems designed and operated to prevent emissions or seals equipped with an automatic seal failure detection and alarm system need not be instrument monitored. Seal systems that prevent emissions may include (but are not limited to) dual pump seals with barrier fluid at higher pressure than process pressure or seals degassing to vent control systems kept in good working order. Submerged pumps or sealless pumps (including, but not limited to, diaphragm, canned, or magnetic-driven pumps) may be used to satisfy the requirements of this condition and need not be monitored.	Pumps compressor and agitator seals that prevent leaks or direct emissions from the seals to control and are exempt from instrument monitoring are not counted in the fugitive emissions estimates. Equipment equipped with alarms would still be counted. See Table 7 Sampling and Demonstrations of Compliance for Fugitive and LDAR Analyzer requirements.			X
For a site where the total uncontrolled potential to emit from all components is < 25 tpy; Components found to be emitting VOC in excess of 10,000 parts per million by volume (ppmv) using EPA Method 21, found by visual inspection to be leaking (e.g. whistling, dripping or blowing process fluids or emitting hydrocarbon or H_2S odors) or found leaking using the Alternative Work Practice in 40 CFR §60.18(g) - (i) shall be considered to be leaking and shall be repaired, replaced, or tagged as specified. A first attempt to repair the leak must be made within 5 days. A leaking component shall be repaired as soon as practicable, but no later than 15 days after the leak is found. If the repair of a component would require a unit shutdown, the repair may be delayed until the next scheduled shutdown. All leaking components which cannot be repaired until a scheduled shutdown shall be identified for such repair by tagging.	Components subject to routine instrument monitoring with an approved gas analyzer under this leak definition my claim a 75% emission reduction credit when evaluating controlled fugitive emission estimates. This reduction credit does not apply when evaluating uncontrolled emission or to any component not measured with an instrument quarterly, but is allowed for all components monitored by the Alternative Work Practice. See Table 7 Sampling and Demonstrations of Compliance for Fugitive and LDAR Analyzer requirements			X
Components not subject to an instrument monitoring program but found to be emitting VOC in excess of 10,000 ppmv using EPA Method 21, found by audio, visual or olfactory inspection to be leaking (e.g. whistling, dripping or blowing process fluids or emitting hydrocarbon or H_2S odors) shall be considered to be leaking and shall be repaired, replaced, or tagged as specified. All components are subject to monitoring when using the Alternative Work Practice in 40 CFR §60.18(g) - (i)	At the discretion of the TCEQ Executive Director or designated representative, early unit shutdown or other appropriate action may be required based on the number and severity of tagged leaks awaiting shutdown.			X

Minimum Design, Monitoring, Technique or Control for all fugitive components with uncontrolled potential to emit of ≥ 25 tpy VOC or ≥ 5 tpy H_2S

Requirements	Additional Details	Applicability		
		Yes	No	N/A
For a site where the total uncontrolled potential to emit from all components is ≥ 25 tpy; All the requirements for < 25tpy VOC above apply, except valves found to be emitting VOC in excess of 500 ppmv using EPA Method 21, found by audio, visual or olfactory inspection to be leaking (e.g. whistling, dripping or blowing process fluids or emitting hydrocarbon or H_2S odors) or found leaking using the Alternative Work Practice in 40 CFR §60.18(g) - (i) shall be considered to be leaking and shall be repaired, replaced, or tagged as specified and Pump, compressor, and agitator seals found to be emitting VOC in excess of 2,000 ppmv using EPA Method 21, found by audio, visual or olfactory inspection to be leaking (e.g. whistling, dripping or blowing process fluids or emitting hydrocarbon or H2S odors) or found leaking using the Alternative Work Practice in 40 CFR §60.18(g) - (i) shall be considered to be leaking and shall be repaired, replaced, or tagged as specified	Components subject to routine instrument monitoring under this leak definition my claim a 97% emission reduction credit for valves and an 85% emission reduction credit for pump, compressor and agitator seals when evaluating controlled fugitive emission estimates. This reduction credit does not apply when evaluating uncontrolled emission or to any component not measured with an instrument quarterly. See Table 7 Sampling and Demonstrations of Compliance for Fugitive and LDAR Analyzer requirements.			X

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Table 9 Fugitive Component LDAR BACT Table Monitoring and Records Demonstrations

Exceptions	Additional Details	Applicability		
		Yes	No	N/A
LDAR Monitoring Options				
Any site may reduce the controlled fugitive emission estimates by including components not required to be monitored in the quarterly instrument monitoring program or applying the lower leak definition of the more stringent program as appropriate.	Quarterly monitoring at a leak definition of 10,000 ppmv would equate to a 75% emission reduction credit when evaluating controlled fugitive emission estimates for the component. Quarterly monitoring at a leak definition of 500 ppmv would equate to a 97% emission reduction credit for valves, flanges and connectors, a 93% emission reduction credit for pumps, and a 95% emission reduction credit for compressor, agitator seals and other component groups when evaluating controlled fugitive emission estimates. This reduction credit does not apply when evaluating uncontrolled emission or to any component not measured with an instrument quarterly. See Table 7 Sampling and Demonstrations of Compliance for Fugitive and LDAR Analyzer requirements.			X
After completion of the required quarterly inspections for a period of at least two years, the operator of the OGS facility may change the monitoring schedule as follows:(i)After two consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than 2.0%, an owner or operator may begin to skip one of the quarterly leak detection periods for the valves in gas/vapor and light liquid service.(ii)After five consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than 2.0%, an owner or operator may begin to skip three of the quarterly leak detection periods for the valves in gas/vapor and light liquid service. If the owner or operator is using the Alternative Work Practice in 40 CFR §60.18(g) - (i), the alternative frequencies specified in this standard permit are not allowed.				X
Shutdown prior to Maintenance of Fugitive Components	**Start-up after Maintenance of components**			
All components shall be kept in good repair. During repair or replacement, emission releases from the emptying of associated piping, equipment, and vessels must meet the emission limits and control requirements listed under pipeline or compressor blowdowns.	When returning associated equipment and piping to service after repair or replacement of fugitive components, appropriate leak detection shall occur and correction, maintenance or repair shall be immediately performed if fugitive components are not in good working order.	X		

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Table 10 Monitoring and Records Demonstrations

Source or Facility	Air Containment	Minimum Acceptable Design, Control or Technique, Control Efficiencies, and Other Details during Production Operations	Applicability		
			Yes	No	N/A
Combined Control Requirements	<25 tpy VOC	No add on control is required if the continuous and periodic vents from all units, vessels and equipment (including normal operation process blow downs) is less than 25 tons of VOC per year.	X		
	≥ 25 tpy VOC	All continuous and periodic vents on process vessels and equipment with potential emissions containing ≥ 1% VOC at any time must be captured and directed to a control device listed in the Control Device BACT Table with a minimum design control efficiency of at least 95%, if the sum of the uncontrolled PTE of the vents at the site will equal or exceed 25 tons of VOC per year. A site total potential to emit of 1 tpy of VOC from vent gas streams may be exempted from this control requirement.			X
Glycol Dehydration Unit	Uncontrolled PTE <10 tpy VOC VOC, BTEX, H_2S	No control is required. Condensers included in the equipment constructed must be maintained and operated as specified by the manufacturer or design engineering.			X
	Uncontrolled PTE ≥ 10 tpy and < 50 tpy VOC VOC, BTEX, H_2S	All non-combustion VOC emissions shall be routed to a vapor recovery unit (VRU), the unit reboiler, or to an appropriate control device listed in the Control Device BACT Table. This includes the emissions from the condenser vent. Liquid waste or product material captured by a condenser must be enclosed and transferred to a unit compliant with the requirements of this table and the condenser must meet the requirements listed in the Control Device BACT Table with a minimum design control efficiency of 80%. For condensers, greater efficiencies may be claimed where enhanced monitoring and testing are applied following Table 7. If the unit reboiler is used to control the VOC emissions from the dehydrator (e.g. to control the condenser vent and the flash tank if one is present) the unit must be designed to efficiently combust those vented VOCs at least 50% of the time the unit is operated.			X
	Uncontrolled PTE ≥ 50 tpy VOC VOC, BTEX, H_2S	All non-combustion VOC emissions shall be captured and directed to an appropriate control device listed in the Control Device BACT Table with a minimum design control efficiency of at least 95%.			X
Atmospheric Oil/Water separators	VOC with partial pressure < 0.5 psia at maximum liquid temperature or 95 F whichever is greater. VOC, BTEX, H_2S	May vent to atmosphere through vent no larger than 3 inch diameter. If H_2S can exceed 24 ppmv in the vapor space the separator vent shall be captured and directed to a control device listed in the Control Device BACT Table with a minimum design control efficiency of at least 95%.	X		
	VOC with partial pressure ≥ 0.5 psia at maximum liquid surface temperature or 95 F whichever is greater VOC, BTEX, H_2S	The oil layer must have a floating cover over the entire liquid surface with a conservation vent to atmosphere or the vents must be captured and directed to a control device listed in the Control Device BACT Table with a minimum design control efficiency of at least 95%. If H_2S can exceed 24 ppmv in the vapor space the separator vent shall be captured and directed to a control device listed in the Control Device BACT Table with a minimum design control efficiency of at least 95%. If the separator operates with more than 25,000 gallons (595 barrels) of liquid contained or is used as an oil storage tank, it shall be treated as a storage tank and meet those requirements.			X
	Oil water separators where the material entering the separator may flash. VOC, BTEX, H_2S	These separators must be treated as process separators with a gas stream and follow those requirements.	X		

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Table 10 Monitoring and Records Demonstrations

Source or Facility	Air Containment	Minimum Acceptable Design, Control or Technique, Control Efficiencies, and Other Details during Production Operations	Applicability		
			Yes	No	N/A
Fuel Combustion Units including auxiliary fuel for combustion control devices	H_2S	Fuel for all combustion units at the site shall be sweet natural gas or liquid petroleum gas, fuel gas containing no more than ten grains of total sulfur per 100 dry standard cubic feet (dscf), or field gas.			X
Boilers, Reboilers, Heater Treaters, and Process Heaters	NO_X, CO, $PM_{10/2.5}$, VOC, HCHO, SO_2	If any unit has a designed maximum firing rate of < 40 MMBTU/hr and greater than 10 MMBtu/hr, it must be designed and operated for good combustion and meet 0.10 lb/MMBtu for NO_X. For boilers and reboilers greater than or equal to 40 MMBtu/hr, emission shall not exceed 0.036 lb/MMBtu for NO_X. For heaters and heater treaters greater than or equal to 40 MMBtu/hr but less than 100 MMBtu/hr, emissions shall not exceed 0.06 lb/MMBtu for NO_X. Heaters and heater treaters greater than or equal to 100 MMBtu/hr shall not exceed 0.036 lb/MMBtu for NO_X. For boilers, reboilers, process heaters, and heater treaters with heat inputs equal to or greater than 10 MMBtu/hr, the emission limit for CO is 0.074 lb CO/MMBtu			X
Gas Fired Turbines	NO_X, CO, $PM_{10/2.5}$, VOC, HCHO, SO_2	Units shall be designed and operate with low NOx combustors and meet 25 ppmvd @ 15% O2 for NOX and 50 ppmvd @ 15% O2 for CO.			X
All Tanks	Uncontrolled PTE of < 1.0 tpy VOC or < 0.1 tpy H2S	Open-topped tanks or ponds containing VOCs or H_2S are allowed.			X
All Tanks	Uncontrolled PTE of ≥ 1.0 tpy VOC or ≥ 0.1 tpy H_2S	Open-topped tanks or ponds containing VOCs or H_2S are not allowed. Tank hatches and valves, which emit to the atmosphere, shall remain closed except for sampling or planned maintenance activities. All pressure relief devices (PRD) shall be designed and operated to ensure that proper pressure in the vessel is maintained and shall stay closed except in upset or malfunction conditions. If the PRD does not automatically reset, it must be reset within 24 hours at a manned site and within one week if located at an unmanned site.			X
Process Separators, Crude oil, Condensate, Treatment chemicals, Produced water, Fuel, Slop/Sump Oil and any other storage tanks or vessels that contain a VOC or a film of VOC on the surface of water.	VOC with partial pressure < 0.5 psia at maximum liquid surface temperature or 95 F whichever is greater, or with uncontrolled PTE of < 5 tpy VOC from working and breathing losses, including flash emissions VOC, BTEX,	All storage tanks with a storage capacity greater than 500 gallons must be submerged fill. Existing tanks and vessels (including temporary liquid storage tanks) which are not increasing emissions at an OGS shall also meet this requirement no later than 180 days after a registration renewal as of January 1, 2016	X		

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Table 10 Monitoring and Records Demonstrations

Source or Facility	Air Containment	Minimum Acceptable Design, Control or Technique, Control Efficiencies, and Other Details during Production Operations	Applicability		
			Yes	No	N/A
(Cont'd)	VOC with partial pressure ≥ 0.5 psia at maximum liquid surface temperature or 95 F (whichever is greater), and with uncontrolled PTE of < 5 tpy from working and breathing losses, including flash emissions VOC, BTEX,	All storage tanks with a storage capacity greater than 500 gallons must be submerged fill. Un-insulated tank exterior surfaces exposed to the sun shall be of a color that minimizes the effects of solar heating (including, but not limited to, white or luminum). To meet this requirement the solar absorptance should be 0.43 or less, as referenced in Table 7.1-6 in AP-42. Paint shall be maintained in good condition. If a new or modified tank cannot be painted white or other reflective color, then another control device may be used to control emissions. Exceptions to the color requirement include the following: (A) Up to 10% of the external surface area of the roof or walls of the tank or vessel may be painted with other colors to allow for identifying information or aesthetic purposes; and (B) If a local, state or federal law or ordinance or private contract which predates this standard permit's effective date establishes in writing tank and vessel colors other than white. If applicable, a copy of this documentation must be provided to the commission upon registration. (C) Tanks and vessels purposefully darkened to create the process reaction and help condense liquids from being entrained in the vapor. Existing tanks and vessels (including temporary liquid storage tanks) which are not increasing emissions at an OGS using shall also meet this requirement no later than 180 days after a registration renewal as of January 1, 2016.			X
	VOC with uncontrolled PTE of ≥ 5 tpy	Vents shall be captured and directed to an appropriate control device as listed in standard permit (e) BMP and BACT. Un-insulated tank exterior surfaces exposed to the sun shall be of a color that minimizes the effects of solar heating (including, but not limited to, white or aluminum). To meet this requirement the solar absorptance should be 0.43 or less, as referenced in Table 7.1-6 in AP-42. Paint shall be maintained in good condition. Exceptions to the color requirement include the following: (A) Up to 10% of the external surface area of the roof or walls of the tank or vessel may be painted with other colors to allow for identifying information or aesthetic purposes; and (B) If a local, state or federal law or ordinance or private contract which predates this standard permit's effective date establishes in writing tank and vessel colors other than white. If applicable, a copy of this documentation must be provided to the commission upon registration. (C) Tanks and vessels purposefully darkened to create the process reaction and help condense liquids from being entrained in the vapor. Existing tanks and vessels (including temporary liquid storage tanks) which are not increasing emissions at an OGS using shall also meet this requirement no later than 180 days after a registration renewal as of January 1, 2016.			
Truck Loading	VOC with partial pressure < 0.5 psia at maximum liquid surface temperature or 95 F whichever is greater, or with uncontrolled PTE of < 5 tpy VOC VOC, BTEX,	Loading is recommended to be performed with submerged filling, or vapor balancing back to the tank and any subsequent recovery or control device.	X		

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Table 10 Monitoring and Records Demonstrations

Source or Facility	Air Containment	Minimum Acceptable Design, Control or Technique, Control Efficiencies, and Other Details during Production Operations	Applicability		
			Yes	No	N/A
(Cont'd)	VOC with partial pressure ≥ 0.5 psia at maximum liquid surface temperature or 95 F whichever is greater VOC, BTEX, H2S	Splash loading and uncontrolled vacuum truck loading is not allowed. Loading shall be performed with a control effectiveness of at least 42% as compared to splash loading. Loading may occur by submerged filling or equivalent prevention or recovery technique as listed in Table 10.			X
	VOC with uncontrolled PTE of ≥ 5 tpy of VOC VOC, BTEX, H2S	Loading vapors shall be captured and directed to an appropriate control device listed in the Control Device BACT Table with a minimum design control efficiency of at least 98%, routed to a vapor recovery unit (VRU) with a control effectiveness of at least 95%, or vapor balanced back to the delivering storage tank equipped with a VRU, or connected to a control device listed in the Control Device BACT Table with a minimum design control efficiency of at least 95%.			X
	Controlled Loading	Where loading control is required, the collection or capture system must be connected to the tank truck so all displaced vapors are directed to the control device and the control device is operational before loading is commenced. When properly connected the capture efficiency will be assumed to be 70% efficient at capturing the displaced truck vapors. The capture efficiency may be assumed to be 98.7 percent efficient when the tanker truck has certification that the tank has passed vapor-tightness testing within the last 12 months using the methods described in 40 CFR 60, Subpart XX. The capture efficiency may be assumed to be 99.2 percent efficient when the tanker truck has certification that the tank has passed vapor-tightness testing within the last 12 months using the methods described in 40 CFR 63, Subpart R. Loading shall be discontinued when liquid or gas leaks from the loading or collection system are observed.			X
Cooling Tower Heat Exchange System	VOC, BTEX, H2S	Heat exchange systems must be non-contact design (i.e. designed and operated to avoid direct contact with gaseous or liquid process streams containing VOC, H2S, halogens or halogen compounds, cyanide compounds, inorganic acids, or acid gases). Systems with heat exchangers that cool a fluid with VOC shall meet the following: The cooling water must be at a higher pressure than the process fluid in the heat exchangers or the cooling tower water must be monitored monthly for VOC emissions using TCEQ Sampling Procedures Manual, Appendix P dated January 2003 or a later edition. Equipment shall be maintained so as to minimize VOC emissions into the cooling water. Cooling water VOC concentrations greater than 0.08 ppmw indicate faulty equipment. If the repair of a heat exchanger would require a unit shutdown that would create more emissions than the repair would eliminate, the repair may be delayed until the next planned shutdown or 180 days if no shutdowns are scheduled. Cooling towers shall be designed and operated with properly functioning drift eliminators. New cooling towers shall be designed with drift eliminators designed to meet ≤ 0.001% drift.			X

Appendix - Section 1

Oil and Gas Emissions Spreadsheet with Impacts Analysis

Revised 10/2/2014

General Notes

***** Before beginning, make sure to enable macros, so that this spreadsheet will run properly. *** See the links below for more information on creating a trusted location and enabling macros for this spreadsheet.**

Enable Macro Link

Trusted Location Link

See comments in individual cells and other written notes. Cells with red corners contain comments; place cursor anywhere in a cell which has a red corner, to view comment. These were added to guide you through using this spreadsheet and make it as easy as possible to use.

This spreadsheet should be used as follows: (1) Enter information into this Facility Information spreadsheet tab, (2) after running the macro (which is explained below), fill out the emission calculation tabs, (3) populate the Emissions Summary table (you press a button on the Emissions Summary tab and the macro will populate the table with the values from the emission calculation tabs), and (4) go through the impacts review tabs (if applicable). This basically means estimate what each of the individual source emissions are, then summarize them in a table, then evaluate the impact of the emissions (if impacts review is applicable).

If you want to use any of the impacts review tabs, you will need to have answered "Yes" to the initial question of "Are you using this to meet the new Barnett Shale area rule requirements?". You can press the "Reset" button at the bottom of this tab to have the question pop up again.

Yellow cells require information to be entered. Red cells contain calculated values.

Worst case emissions must be estimated on both an hourly and annual basis for air permitting purposes.

Hourly emissions must be based on worst case maximum parameters realistically expected to occur over the course of any one hour. As an example, where ambient temperature is used as a parameter to estimate hourly emissions, the maximum temperature from the hottest day of the year must be used.

Annual emissions can be based on average parameters. As an example, where ambient temperature is used as a parameter to estimate annual emissions, the average ambient temperature may be used.

Planned Maintenance, Start-up, and Shutdown (MSS) : As of January 5, 2014, all planned emissions from oil and gas facilities must be authorized. This includes planned MSS emissions.
Planned MSS emissions may be authorized under 30 TAC § 106.359, 30 TAC § 106.352(a)-(k), or the non-rule standard permit if:
1. the emissions are the direct result of a planned maintenance activity, or
2. the root cause of the emissions is from a planned maintenance activity.

What is Different About Estimating Emissions for the Barnett Shale Area Rule Requirements?

There are level limits (or caps) for the different levels of authorization, which are: PBR Level 1, PBR Level 2, and Standard Permit. The level limits are emission limits of the following air pollutants: Total VOC, Total crude oil or condensate VOC, Total natural gas VOC, benzene, hydrogen sulfide (H_2S), sulfur dioxide (SO_2), nitrogen oxides (NOx), carbon monoxide (CO), and particulate matter (PM_{10} and $PM_{2.5}$). There are different level limits for hourly and annual emissions and within hourly emissions there are different level limits for steady state emissions versus periodic emissions.

There is an impacts review for both the Permit by Rule (PBR) and Standard Permit for the following air pollutants: benzene, H_2S, SO_2, and NOx.

VOC emissions need to be separated into (1) Crude Oil or Condensate VOC and (2) Natural Gas VOC.

Hourly and annual emissions need to be estimated. There are potentially three hourly emission types that need to be estimated (1) steady state hourly, (2) low pressure periodic, and (3) high pressure periodic. These are described in detail on the Emissions Summary tab.

Benzene emissions need to be speciated for all sources.

Oil and Gas Site General Information	
Administrative Information	
Company Name	Texland Petroleum, LP
Facility/Well Name	Lif-Lubheirs
Field Name	Edmisson (Clearfork)
Nearest City/Town	Lubbock
API Number/SIC Code	API #303-31148 / SIC Code 1311
Latitude/Longitude	33.61129 / -101.80115
County	Lubbock
Are you using a Form PI-7, PI-7-CERT, APD-CERT, PI-7 and APD-CERT, or are you using ePermits?	ePermits
Customer Number, CNxxxxxxxxx (if known)	CN602816852
Regulated Entity Number, RNxxxxxxxxx (if known)	RN102597648
Technical Information	
Natural Gas Site Throughput (MMSCF/day):	1
Oil/Condensate Site Throughput (bbl/day):	102
Produced Water Site Throughput (bbl/day):	2185
Are there any sour gas streams at this site?	Yes
Is this site currently operational/producing?	Yes
What is the date of the site start of construction or the date that the project changes were implemented (whichever is applicable to this project, anticipated date if in the future)?	5/1/2024
Has this site been registered before?	No

Equipment/Processes at Site		
Before entering any numbers into the Equipment/Processes section of the table below, please make sure to review all of the comments in the cells of the table. These should make it clear what numbers need to be entered and where they need to be entered.		
Equipment/Process Types	**How many for this project?**	**How many for this site?**
Fugitives	1	1
IC Engines		
Turbines		
Diesel Engines		
Heaters-Boilers	3	3
Oil / Condensate Tanks	6	6
Produced Water Tanks	5	5
Miscellaneous Tanks		
Loading Jobs		
Glycol Units		
Amine Units		
Vapor Recovery Units		
Flares-Vapor Combustors		
Thermal Oxidizers		
MSS Blowdowns		
MSS FLR Tank Landing Loss		
MSS Tank Non Forced Vent		
MSS Tank Forced Vent Degas		
MSS Defaults		
MSS Paint Blast		
MSS Other	1	1
Other		

When you are finished entering information on this tab, press the "Run" button below. When it is pressed, the spreadsheet tabs needed will be added and the "Emissions Summary" tab will also be added with the number of rows corresponding to the number of emission points in this registration.

Before pressing "Run", please make sure to review all of the comments in the cells of the table above. These should make it clear what numbers need to be entered and where they need to be entered.

The spreadsheet can be reset if needed by pressing the "Reset" button below. If the "Reset" button is pressed, everything will be cleared and you can start over (the added sheets will disappear along with any data entered into the sheets). When the "Reset" button is pressed and there is anything to clear, a question will pop up asking "Delete all macro created worksheets?". Then if you click "Yes", the question will pop back up asking "Are you using this to meet the new Barnett Shale area requirements?".

If the "Run" button is pressed a second time, everything will be cleared and you can start over (the added sheets will disappear along with any data entered into the sheets). When the "Run" button is pressed a second time, a question will pop up asking "Delete all macro created worksheets?". The question will not pop back up asking "Are you using this to meet the new Barnett Shale area requirements?".

Do not press "Run" again or "Reset", unless you intend to clear all of the added sheets (and any data entered into the sheets). This means that it is important to make sure the right numbers of each equipment/process type are entered. If it is possible that an extra piece of equipment could be included, include it because it is better to have too many entered than not enough.

Run

Reset

Next Tab

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Gas and Liquid Analyses

A) Enter information into the yellow boxes.

B) The purpose of this tab is to extract information from a lab analysis that will be used in emission calculations. Unlike the other other tabs which calculate emissions, nothing from this tab gets pulled to the Emissions Summary table. The big pieces of information needed for emissions estimates are the VOC, benzene, and H_2S weight percents. Sampling of gas and liquid streams from appropriate process sampling points is required in order to determine composition or other properties needed to estimate emissions such as heat content, specific gravity, and vapor pressure. It is essential that stream lab analyses/reports include a measurement of H_2S, individual HAPs, and at least all those hydrocarbons up to at least 10 carbon atoms per molecule (C10+).

C) There are two boxes on the left, for gas and liquid analyses, which take component weight percent inputs and there are two boxes on the right, for gas and liquid analyses, which take component mole percent inputs. You can either fill out the weight percent box <u>OR</u> the mole percent box, depending on what informaton you have available to you.

The boxes are set up in the following arrangement:

Gas Analysis Wt% Inputs	Gas Analysis Mol% Inputs
Liquid Analysis Wt% Inputs	Liquid Analysis Mol% Inputs

D) <u>If weight percents are provided on the lab report, use the boxes on the left.</u> If only mole percents are provided on the lab report, use the boxes on the right.

E) Make sure to select whether you are inputting weight percents or mole percents from the pull down menus below.

F) If you are using the weight percent boxes (left two), in addition to the component weight percents, you need to enter the gas molecular weight (molecular weight of the total sample) and the gas and liquid H_2S content in parts per million by volume (H_2S ppmv). This will allow for the calcultion of the gas specific gravity and the long tons of sulfur per day in the gas, and the determination of sweet versus sour gas.

G) If you are using the mole percent boxes (right two), in addition to the component mole percents, you need to enter a real value, specific to this sample, for the molecular weight of the deacnes plus (C10+) fraction. You may use the default values listed below for the moleclar weights of the other hexanes (C6), other heptanes (C7), other ocatnes (C8), and nonanes (C9) fractions, unless you have a more accurate number. If you enter number other than the default, you need to explain where the number came from and why it is appropriate to use.

H) What is expected to be inlcuded on these tables is the the inlet gas and liquid streams (the liquid would most likely be sampled from a separator if there is separation at the site). These tables can also be used for any sampled gas and liquid streams as needed. If needed, make a copy of this tab.

I) Use the box provided below for entering any notes necessary.

For the gas sample, I am inputting (pick from list):	mole percents	**Select whether weight percents or mole percents are being entered for this gas sample.**

Then fill out this table **OR** fill out this table.

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

Gas Analysis - Use if the Inputs are Mole Percents	
Analysis Identifier/Name	2016-ELDF-000082
Where was the sample taken?	West Lee
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).	A representative gas analysis was chosen due to the area, reservoir conditions, API gravity and operating conditions of the facility. Site Specific H2S reading were used.
Where in the process was the sample taken?	Separator - Spot Gas
What is the temperature and pressure of the sample (include units)?	70 F; 10 psig
Who analyzed the sample?	Intertek
Date of sample:	4/13/2016

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	12.9240	28.01340	362	14.2666
CO2	0.6080	44.00950	27	1.0544
H2S	0.0350	34.08188	1	0.0470
methane (C1)	61.8920	16.04246	993	39.1259
ethane (C2)	7.8330	30.06904	236	9.2812
propane (C3)	8.6820	44.09562	383	15.0860
butanes (C4)	4.8200	58.12220	280	11.0395
pentanes (C5)	2.0710	72.14878	149	5.8880
benzene	0.1690	78.110000	13	0.5202
other hexanes (C6)	0.5640	86.18000	49	1.9153
toluene	0.0620	92.140000	6	0.2251
other heptanes (C7)	0.2460	100.20000	25	0.9713
ethylbenzene	0.0280	106.170000	3	0.1171
xylenes (o, m, p)	0.0070	106.170000	1	0.0293
other octanes (C8)	0.0780	114.23000	9	0.3511
nonanes (C9)	0.0140	128.26000	2	0.0708
decanes plus (C10+)	0.0020	142.28000	0	0.0112
Totals:	100.0350	25.38	2538	100.00

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!

Constants:

Gas Molecular Weight =	
Gas Specific Gravity =	0.00

28.97 air mw

385.48 scf/lb-mol

Gas Throughput (MMscf/day)=	1
Long Tons Sulfur Compounds per Day =	0

VOC (Non-methane, Non-ethane hydrocarbons)

VOC content of total sample

VOC weight% =	36.2249
VOC weight fraction =	0.3622

VOC content of hydrocarbon fraction only

VOC weight% =	42.8028
VOC weight fraction =	0.4280

Hydrogen Sulfide

H2S weight% =	0.0470
H2S weight fraction =	4.70E-04
H2S ppm_V =	349.6
H2S ppm_{WT}=	469.52
H_2S grains/100 SCF =	21.6366

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% =	0.5202
Benzene weight fraction =	0.0052

Benzene content of hydrocarbon fraction only

Benzene weight% =	0.6146
Benzene weight fraction =	0.0061

Constants:

Gas Molecular Weight =	25.38
Gas Specific Gravity =	0.88

28.97 air mw

385.48 scf/lb-mol

Gas Throughput (MMscf/day)=	1
Long Tons Sulfur Compounds per Day =	0.0137988

For the liquid sample, I am inputting (pick from list):	mole percents

Select whether weight percents or mole percents are being entered for this liquid sample.

Then fill out this table **OR** fill out this table.

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

Liquid Analysis - Use if the Inputs are Mole Percents	
Analysis Identifier/Name	2016-ELDF-000082
What site is the sample from?	West Lee
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).	A representative oil analysis was chosen due to the area, reservoir conditions, API gravity and operating conditions of the facility. Site Specific H2S reading were used.
Where in the process was the sample taken?	Separator - Spot Oil
What is the temperature and pressure of the sample (include units)?	90 F; 10 psig
Who analyzed the sample?	Intertek
Date of sample:	4/13/2016

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	0.0290	28.01340	1	0.0065
CO2	0.0180	44.00950	1	0.0064
H2S	0.0350	34.08188	1	0.0096
methane (C1)	0.6080	16.04246	10	0.0783
ethane (C2)	0.6080	30.06904	18	0.1468
propane (C3)	2.4090	44.09562	106	0.8533
butanes (C4)	4.2530	58.12220	247	1.9856
pentanes (C5)	5.9060	72.14878	426	3.4227
benzene	1.4606	78.110000	114	0.9164
other hexanes (C6)	4.3394	86.18000	374	3.0039
toluene	1.3294	92.140000	122	0.9839
other heptanes (C7)	2.2740	100.20000	228	1.8302
ethylbenzene	1.2523	106.170000	133	1.0680
xylenes (o, m, p)	0.1804	106.170000	19	0.1538
other octanes (C8)	1.7106	114.23000	195	1.5696
nonanes (C9)	1.5490	128.26000	199	1.5958
decanes plus (C10+)	72.0733	142.28000	10255	82.3692
Totals:	100.0350	124.50	12449.5407	100.00

VOC (Non-methane, Non-ethane hydrocarbons)	**VOC (Non-methane, Non-ethane hydrocarbons)**
VOC content of total sample	VOC content of total sample
VOC weight% = 0.0000	VOC weight% = 99.7523
VOC weight fraction = 0.0000	VOC weight fraction = 0.9975
VOC content of hydrocarbon fraction only	VOC content of hydrocarbon fraction only
VOC weight% = #DIV/0!	VOC weight% = 99.7748
VOC weight fraction = #DIV/0!	VOC weight fraction = 0.9977
Hydrogen Sulfide	**Hydrogen Sulfide**
H2S weight% = 0.0000	H2S weight% = 0.0096
H2S weight fraction = 0.00E+00	H2S weight fraction = 9.57E-05
H2S ppm_V =	H2S ppm_V = 349.60
H2S ppm_{WT}= 0.00	H2S ppm_{WT}= 95.71
Benzene	**Benzene**
Benzene content of total sample	Benzene content of total sample
Benzene weight% = 0.0000	Benzene weight% = 0.9164
Benzene weight fraction = 0.0000	Benzene weight fraction = 0.0092
Benzene content of hydrocarbon fraction only	Benzene content of hydrocarbon fraction only
Benzene weight% = #DIV/0!	Benzene weight% = 0.9166
Benzene weight fraction = #DIV/0!	Benzene weight fraction = 0.0092

Enter any notes here:	

Texland Petroleum, LP
Lif-Lubheirs

Fugitives Emissions

EPN	FE-01
Name	Fugitive Emissions

A) Enter information into the yellow boxes.

B) VOC and H_2S control efficiencies may be entered (as applicable for reductions from leak detection and repair programs).

C) The vapor VOC, benzene, and H_2S weight percents may be entered. The weight percents from the Analyses tab are displayed below.

D) Use the box provided below for entering any notes necessary (such as the source/justification for any calculation inputs).

E) This sheet has five parts to it. Part (1) is for Gas Service, (2) is for Heavy Oil Service, (3) is for Light Oil Service, (4) is for Water/Oil Service, and (5) is for a combination of all the results. Fill out all applicable yellow cells in parts (1)-(4) and the final results will be in part (5).

The five parts are set up in this arrangement:

(1)	(2)
(3)	(4)
(5)	

F) Make sure to select the correct *VOC Type* and *Emission Type* from the pull down menus below in part (5).

Gas Weight Percents From Analyses Tab:	
VOC wt %	42.8028
Benzene wt %	0.6146
H_2S wt %	0.0470

(1)

Gas

number	component	emission factor (lb/hr of TOC per component)	lb/hr	tpy
82	Valve	0.009920	0.81344	3.5628672
0	Pump Seal	0.005290	0	0
246	Connector	0.000440	0.10824	0.4740912
82	Flange	0.000860	0.07052	0.3088776
8	Open-ended Line	0.004410	0.03528	0.1545264
4	Other	0.019400	0.0776	0.339888
		Total:	1.10508	4.8402504

	VOC content (wt %)	Benzene content (wt%)	H_2S content (wt%)	Control Efficiency (%)
Valves	42.8028	0.6146	0.0470	0.0000
Pump Seal	42.8028	0.6146	0.0470	0.0000
Connector	42.8028	0.6146	0.0470	0.0000
Flange	42.8028	0.6146	0.0470	0.0000
Open-ended Line	42.8028	0.6146	0.0470	0.0000
Other	42.8028	0.6146	0.0470	0.0000

	VOC Emissions		H_2S Emissions		Benzene Emissions	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Valves	0.35	1.53	0.00	0.00	0.00	0.02
Pump Seal	0.00	0.00	0.00	0.00	0.00	0.00
Connector	0.05	0.20	0.00	0.00	0.00	0.00
Flange	0.03	0.13	0.00	0.00	0.00	0.00
Open-ended Line	0.02	0.07	0.00	0.00	0.00	0.00
Other	0.03	0.15	0.00	0.00	0.00	0.00
Total:	0.47	2.07	0.00	0.00	0.01	0.03

Liquid Weight Percents From Analyses Tab:	
VOC wt %	99.7748
Benzene wt %	0.9166
H_2S wt %	0.0096

(2)

Heavy Oil

number	component	emission factor (lb/hr of TOC per component)	lb/hr	tpy
	Valve	0.0000185	0	0
	Pumps	0.0011300	0	0
	Connector	0.0000165	0	0
	Flange	0.00000086	0	0
	Open-ended Line	0.0003090	0	0
	Other	0.0000683	0	0
	Total:		0	0

	VOC content (wt%)	Benzene content (wt%)	H_2S content (wt%)	Control Efficiency (%)
Valves				
Pump Seal				
Connector				
Flange				
Open-ended Line				
Other				

	VOC Emissions		H_2S Emissions		Benzene Emissions	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Valves	0.00	0.00	0.00	0.00	0.00	0.00
Pump Seal	0.00	0.00	0.00	0.00	0.00	0.00
Connector	0.00	0.00	0.00	0.00	0.00	0.00
Flange	0.00	0.00	0.00	0.00	0.00	0.00
Open-ended Line	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00
Total:	0.00	0.00	0.00	0.00	0.00	0.00

Liquid Weight Percents From Analyses Tab:	
VOC wt %	99.7748
Benzene wt %	0.9166
H_2S wt %	0.0096

(3)

Light Oil

number	component	emission factor (lb/hr of TOC per component)	lb/hr	tpy
290	Valve	0.005500	1.595	6.9861
0	Pump Seal	0.028660	0	0
870	Connector	0.000463	0.40281	1.7643078
290	Flange	0.000243	0.07047	0.3086586
29	Open-ended Line	0.003090	0.08961	0.3924918
15	Other	0.016500	0.2475	1.08405
		Total:	2.40539	10.5356082

	VOC content (wt%)	Benzene content (wt%)	H_2S content (wt%)	Control Efficiency (%)
Valves	99.7748	0.9166	0.0096	0.0000
Pump Seal	99.7748	0.9166	0.0096	0.0000
Connector	99.7748	0.9166	0.0096	0.0000
Flange	99.7748	0.9166	0.0096	0.0000
Open-ended Line	99.7748	0.9166	0.0096	0.0000
Other	99.7748	0.9166	0.0096	0.0000

	VOC Emissions		H_2S Emissions		Benzene Emissions	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Valves	1.59	6.97	0.00	0.00	0.01	0.06
Pump Seal	0.00	0.00	0.00	0.00	0.00	0.00
Connector	0.40	1.76	0.00	0.00	0.00	0.02
Flange	0.07	0.31	0.00	0.00	0.00	0.00
Open-ended Line	0.09	0.39	0.00	0.00	0.00	0.00
Other	0.25	1.08	0.00	0.00	0.00	0.01
Total:	2.40	10.51	0.00	0.00	0.02	0.10

(4)

Water/Oil

number	component	emission factor (lb/hr of TOC per component)	lb/hr	tpy
15	Valve	0.000216	0.00324	0.0141912
0	Pump Seal	0.000052	0	0
45	Connector	0.000243	0.010935	0.0478953
15	Flange	0.000006	0.00009	0.0003942
2	Open-ended Line	0.000550	0.0011	0.004818
1	Other	0.030900	0.0309	0.135342
		Total:	0.046265	0.2026407

	VOC content (wt%)	Benzene content (wt%)	H_2S content (wt%)	Control Efficiency (%)
Valves	99.7748	0.9166	0.0096	0.0000
Pump Seal	99.7748	0.9166	0.0096	0.0000
Connector	99.7748	0.9166	0.0096	0.0000
Flange	99.7748	0.9166	0.0096	0.0000
Open-ended Line	99.7748	0.9166	0.0096	0.0000
Other	99.7748	0.9166	0.0096	0.0000

	VOC Emissions		H_2S Emissions		Benzene Emissions	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Valves	0.00	0.01	0.00	0.00	0.00	0.00
Pump Seal	0.00	0.00	0.00	0.00	0.00	0.00
Connector	0.01	0.05	0.00	0.00	0.00	0.00
Flange	0.00	0.00	0.00	0.00	0.00	0.00
Open-ended Line	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.03	0.14	0.00	0.00	0.00	0.00
Total:	0.05	0.20	0.00	0.00	0.00	0.00

(5)

Fugitive Total Emissions

	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
VOC	2.92	12.79
benzene	0.03	0.13
H_2S	0.00	0.00

VOC Type: (pick from list)
Crude Oil or Condensate VOC

Emission Type: (pick from list)
Steady State (continuous)

Notes:

Reference to Emission factors used:

1. Emission factors are for oil and gas production facilities (not refineries) come from the EPA's "Protocol for Equipment Leak Emission Estimates" November 1995, EPA 4531, R-95-017, Table 2-4.

2. Emission factors that are not based on the EPA document are from the TCEQ "Air Permit Technical Guidance for Chemical Source Equipment Leak Fugitives (Draft October 2000)

3. For fugitive calculations, VOC content should be VOC content of total hydrocarbons, not of total sample.

Enter any notes here:

Texland Petroleum, LP
Lif-Lubheirs

Heaters-Boilers Emissions

A) Enter information into the yellow boxes.

B) Use the box provided below for entering any notes necessary (such as the source/justification for any calculation inputs).

C) Make sure to select the correct *Emission Type* from the pull down menus below. A *VOC type* does not need to be selected here; see the note in the comment for more explanation.

Heater and Boiler Emission Calculations (fueled by natural gas)

EPN	HT-01
Name	Heater Treater
Heater/Boiler rating (MMBtu/hr):	1
Rating above is **(select from list)**:	below 100 MMBtu/hr, uncontrolled
Operating hours/year:	8760
Fuel Heat Value (Btu/SCF):	1278.8

(assume uncontrolled, unless specifically stated otherwise)

Pollutant	Emission Factor (lb/MMCF)	lb/hr	tpy
VOC	5.5	0.004	0.019
NOx	100	0.078	0.343
CO	84	0.066	0.288
PM_{10}	7.6	0.006	0.026
$PM_{2.5}$	5.7	0.004	0.020
SO_2	0.6	0.046	0.203

If the heater/boiler is fueled by Sour Gas, <u>cannot</u> use emission factors above to calculate SO_2 emissions, must use SO_2 mass balance:

SO_2 Mass Balance calculation:	
Fuel H_2S content (mol %) =	**0.0350**
SO_2 produced (lb/hr) =	**0.0463**
SO_2 produced (tpy) =	**0.2026**

assumptions:

SO2 MW	64.06	lb/lb-mole
Ideal Gas Law	378.61	SCF/lb-mole

<u>Emission Type:</u> (pick from list)

Steady State (continuous)

Enter any notes here:

Next Tab

Texland Petroleum, LP
Lif-Lubheirs

Heaters-Boilers Emissions

A) Enter information into the yellow boxes.

B) Use the box provided below for entering any notes necessary (such as the source/justification for any calculation inputs).

C) Make sure to select the correct *Emission Type* from the pull down menus below. A *VOC type* does not need to be selected here; see the note in the comment for more explanation.

Heater and Boiler Emission Calculations (fueled by natural gas)

EPN	HT-02
Name	Heater Treater
Heater/Boiler rating (MMBtu/hr):	0.5
Rating above is **(select from list)**:	below 100 MMBtu/hr, uncontrolled
Operating hours/year:	8760
Fuel Heat Value (Btu/SCF):	1278.8

(assume uncontrolled, unless specifically stated otherwise)

Pollutant	Emission Factor (lb/MMCF)	lb/hr	tpy
VOC	5.5	0.002	0.009
NOx	100	0.039	0.171
CO	84	0.033	0.144
PM_{10}	7.6	0.003	0.013
$PM_{2.5}$	5.7	0.002	0.010
SO_2	0.6	0.023	0.101

If the heater/boiler is fueled by Sour Gas, <u>cannot</u> use emission factors above to calculate SO_2 emissions, must use SO_2 mass balance:

SO_2 Mass Balance calculation:	
Fuel H_2S content (mol %) =	**0.0350**
SO_2 produced (lb/hr) =	**0.0231**
SO_2 produced (tpy) =	**0.1013**

assumptions:

SO2 MW	64.06	lb/lb-mole
Ideal Gas Law	378.61	SCF/lb-mole

<u>Emission Type:</u> (pick from list)
Steady State (continuous)

Enter any notes here:	

Next Tab

Texland Petroleum, LP
Lif-Lubheirs

Heaters-Boilers Emissions

A) Enter information into the yellow boxes.

B) Use the box provided below for entering any notes necessary (such as the source/justification for any calculation inputs).

C) Make sure to select the correct *Emission Type* from the pull down menus below. A *VOC type* does not need to be selected here; see the note in the comment for more explanation.

Heater and Boiler Emission Calculations (fueled by natural gas)

EPN	HT-03
Name	Heater Treater
Heater/Boiler rating (MMBtu/hr):	0.5
Rating above is **(select from list)**:	below 100 MMBtu/hr, uncontrolled
Operating hours/year:	8760
Fuel Heat Value (Btu/SCF):	1278.8

(assume uncontrolled, unless specifically stated otherwise)

Pollutant	Emission Factor (lb/MMCF)	lb/hr	tpy
VOC	5.5	0.002	0.009
NOx	100	0.039	0.171
CO	84	0.033	0.144
PM_{10}	7.6	0.003	0.013
$PM_{2.5}$	5.7	0.002	0.010
SO_2	0.6	0.023	0.101

If the heater/boiler is fueled by Sour Gas, <u>cannot</u> use emission factors above to calculate SO_2 emissions, must use SO_2 mass balance:

SO_2 Mass Balance calculation:	
Fuel H_2S content (mol %) =	**0.0350**
SO_2 produced (lb/hr) =	**0.0231**
SO_2 produced (tpy) =	**0.1013**

assumptions:

SO2 MW	64.06	lb/lb-mole
Ideal Gas Law	378.61	SCF/lb-mole

<u>Emission Type:</u> (pick from list)
Steady State (continuous)

Enter any notes here:	

Next Tab

Texland Petroleum, LP
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Tank Emissions - Lab Gas Oil Ratio (GOR) Method

A) Enter information into the yellow boxes.

B) VOC and H_2S control efficiencies may be entered (if applicable).

C) A reduction for produced water tank emissions calculated as oil/condensate may be entered.

D) The tank vapor VOC, benzene, and H_2S weight percents may be entered.

E) Use the box provided below for entering any notes necessary (such as the source/justification for any calculation inputs).

F) The table below can be used to calculate the flash gas molecular weight and the component weight percents if needed.

G) Make sure to answer the control device question.

H) Make sure to select the correct *VOC Type* and *Emission Type* from the pull down menus below.

GOR [FOR ESTIMATING FLASH LOSSES FROM STORAGE TANKS]

EPN	Tank Identifier	Flash Initial Press. (psig)	Flash Initial Temp. (°F)	Flash Final Press. (psig)	Flash Final Temp. (°F)	GOR (scf of flash gas/bbl of oil/cond. produced)	Barrels of Oil or Condensate per day (bbl/day)	Flash Gas Molecular Weight	Flash Gas VOC wt%	Flash Gas Benzene wt%	Flash Gas H_2S wt%	Percent Reduction for Produced Water Tank Calc. as Oil/Cond. (%)	Are tank vapors (A) uncontrolled; (B) controlled by a flare, vapor combustor, thermal oxidizer, or vapor recovery unit (VRU); or (C) controlled by another type of control device?	VOC Control Efficiency (%)	H_2S Control Efficiency (%)	VOC Results (lb/hr)	VOC Results (tpy)	Benzene Results (lb/hr)	Benzene Results (tpy)	H_2S Results (lb/hr)	H_2S Results (tpy)
OST-01	Oil Storage Tank - Flash	10	90	0	60	1.52	17	31.8509	58.5377	0.5224	0.0374	0	(A) uncontrolled			0.05	0.23	0.00	0.00	0.00	0.00
OST-02	Oil Storage Tank - Flash	10	90	0	60	1.52	17	31.8509	58.5377	0.5224	0.0374	0	(A) uncontrolled			0.05	0.23	0.00	0.00	0.00	0.00
OST-03	Oil Storage Tank - Flash	10	90	0	60	1.52	17	31.8509	58.5377	0.5224	0.0374	0	(A) uncontrolled			0.05	0.23	0.00	0.00	0.00	0.00
OST-04	Oil Storage Tank - Flash	10	90	0	60	1.52	17	31.8509	58.5377	0.5224	0.0374	0	(A) uncontrolled			0.05	0.23	0.00	0.00	0.00	0.00
OST-05	Oil Storage Tank - Flash	10	90	0	60	1.52	17	31.8509	58.5377	0.5224	0.0374	0	(A) uncontrolled			0.05	0.23	0.00	0.00	0.00	0.00
OST-06	Oil Storage Tank - Flash	10	90	0	60	1.52	17	31.8509	58.5377	0.5224	0.0374	0	(A) uncontrolled			0.05	0.23	0.00	0.00	0.00	0.00
															Totals:	**0.32**	**1.39**	**0.00**	**0.01**	**0.00**	**0.00**

VOC Type: (pick from list)
Crude Oil or Condensate VOC

Emission Type: (pick from list)
Steady State (continuous)

Enter any notes here:	

Company Name: Texland Petroleum, L.P.

Facility Name: Lif-Lubheirs

EPN: OST-01 thru OST-06

FIN: OST-01 thru OST-06

CIN: None

Source Description: Oil Storage Tanks

Oil API Gravity	25.4
Measured/Calculated Gas Specific Gravity	1.098
Separator Pressure (PSIG)	10
Separator Temperature (F)	90
Site Elevation (Feet above Mean Sea Level)	0
Calculated Atmospheric Pressure @ Site Elevation:	14.70

Analytical GOR (Gas-Oil Ratio) in standard cubic feet per bbl (SCF/BBL)	1.5200

Oil Production Rate (BOPD):	17.00
Hours Operated per Year:	8760

Flash Losses

Total cubic ft. hydrocarbons/hour:	1.077
Flash lbs/hr hydrocarbons:	0.090
Flash tons/yr hydrocarbons:	0.394

Total Hydrocarbon Emissions

lbs/hr hydrocarbons:	0.090
tons/yr hydrocarbons:	0.394

Speciation Of Estimated VOCs from Flash, Standing & Working Losses

					Uncontrolled	
Component	Mole Percent	Component Molecular Weight	Mole Fraction X Mole Wt	Weight Fraction	Lbs/hr	Tons/yr
Hydrogen Sulfide	0.0350%	34.080	0.0119	0.0004	0.0000	0.0001
Nitrogen	2.7568%	28.013	0.7723	0.0242	0.0022	0.0096
Carbon Dioxide	0.7203%	44.010	0.3170	0.0100	0.0009	0.0039
Methane	44.8781%	16.043	7.1998	0.2260	0.0203	0.0891
Ethane	16.3137%	30.070	4.9055	0.1540	0.0139	0.0607
Propane	19.8281%	44.097	8.7436	0.2745	0.0247	0.1082
iso-Butane	3.6265%	58.123	2.1078	0.0662	0.0060	0.0261
n-Butane	6.6903%	58.123	3.8886	0.1221	0.0110	0.0481
iso-Pentane	2.5375%	72.150	1.8308	0.0575	0.0052	0.0227
n-Pentane	1.5974%	72.150	1.1525	0.0362	0.0033	0.0143
Other Hexanes	0.2079%	86.178	0.1792	0.0056	0.0005	0.0022
***n-Hexane**	0.4163%	86.178	0.3588	0.0113	0.0010	0.0044
***Benzene**	0.2130%	78.114	0.1664	0.0052	0.0005	0.0021
***Toluene**	0.0504%	92.141	0.0464	0.0015	0.0001	0.0006
***Ethylbenzene**	0.0142%	106.167	0.0151	0.0005	0.0000	0.0002
***Xylenes**	0.0017%	106.167	0.0018	0.0001	0.0000	0.0000
***Trimethylpentane**	0.0000%	114.231	0.0000	0.0000	0.0000	0.0000
Heptanes	0.1108%	100.272	0.1111	0.0035	0.0003	0.0014
Octanes	0.0311%	114.231	0.0355	0.0011	0.0001	0.0004
Nonanes	0.0051%	128.258	0.0065	0.0002	0.0000	0.0001
Decanes +	0.0008%	142.280	0.0011	0.0000	0.0000	0.0000
Total	100.035%	Molecular Wt =	31.85	1.0000		

Air Toxics	0.0017	0.0073
VOC (Including HAP)	0.0527	0.2308

Calculation formula

Component lbs/hr = (HC lbs/hr)(Weight fraction of component)

Component tons/yr = (component lbs/hr)(hrs/yr)(1 ton/2000 lbs)

Texland Petroleum, LP
Lif-Lubheirs

Tank Emissions - Tanks 4.0

A) Enter information into the yellow boxes.

B) VOC and H_2S control efficiencies may be entered (if applicable).

C) A reduction for produced water tank emissions calculated as oil/condensate may be entered.

D) The tank vapor VOC, benzene, and H_2S weight percents may be entered.

E) Use the box provided below for entering any notes necessary (such as the source/justification for any calculation inputs).

F) Make sure to answer the control device question.

G) Make sure to select the correct *VOC Type* and *Emission Type* from the pull down menus below.

Tanks 4.0 Software TANKS 4.0 SOFTWARE [FOR ESTIMATING WORKING AND BREATHING LOSSES FROM STORAGE TANKS]

EPN	Tank Identifier	Throughput (gal/year)	Turnovers per year	Mixture/Component	Basis for VP Calculations	Vapor MW	Total Uncontrolled Emissions (lb/hr)	Total Uncontrolled Emissions (ton/yr)	Tank Vapor VOC wt%	Tank Vapor Benzene wt%	Tank Vapor H_2S wt%	Percent Reduction for Produced Water Tank Calc. as Oil/Cond. (%)	Are tank vapors (A) uncontrolled; (B) controlled by a flare, vapor combustor, thermal oxidizer, or vapor recovery unit (VRU); or (C) controlled by another type of control device?	VOC Control Efficiency (%)	H_2S Control Efficiency (%)	VOC Results (lb/hr)	VOC Results (tpy)	Benzene Results (lb/hr)	Benzene Results (tpy)	H_2S Results (lb/hr)	H_2S Results (tpy)
OST-01	Oil Storage Tank - Breathing & Working	260610	30	Crude Oil	Option 4: RVP = 5	50	0.2062	0.9033	58.5377	0.5224	0.0374	0	(A) uncontrolled			0.12	0.53	0.00	0.00	0.00	0.00
OST-02	Oil Storage Tank - Breathing & Working	260610	30	Crude Oil	Option 4: RVP = 5	50	0.2062	0.9033	58.5377	0.5224	0.0374	0	(A) uncontrolled			0.12	0.53	0.00	0.00	0.00	0.00
OST-03	Oil Storage Tank - Breathing & Working	260610	30	Crude Oil	Option 4: RVP = 5	50	0.2062	0.9033	58.5377	0.5224	0.0374	0	(A) uncontrolled			0.12	0.53	0.00	0.00	0.00	0.00
OST-04	Oil Storage Tank - Breathing & Working	260610	30	Crude Oil	Option 4: RVP = 5	50	0.2062	0.9033	58.5377	0.5224	0.0374	0	(A) uncontrolled			0.12	0.53	0.00	0.00	0.00	0.00
OST-05	Oil Storage Tank - Breathing & Working	260610	12	Crude Oil	Option 4: RVP = 5	50	0.362	1.5857	58.5377	0.5224	0.0374	0	(A) uncontrolled			0.21	0.93	0.00	0.01	0.00	0.00
OST-06	Oil Storage Tank - Breathing & Working	260610	12	Crude Oil	Option 4: RVP = 5	50	0.362	1.5857	58.5377	0.5224	0.0374	0	(A) uncontrolled			0.21	0.93	0.00	0.01	0.00	0.00
															Totals:	**0.91**	**3.97**	**0.01**	**0.04**	**0.00**	**0.00**

VOC Type: (pick from list)
Crude Oil or Condensate VOC

Emission Type: (pick from list)
Steady State (continuous)

Enter any notes here:	

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

Identification

User Identification:	OST-01 thru OST-04
City:	Lubbock
State:	Texas
Company:	Texland Petroleum, LP
Type of Tank:	Vertical Fixed Roof Tank
Description:	Oil Storage Tanks

Tank Dimensions

Shell Height (ft):	15.00
Diameter (ft):	10.00
Liquid Height (ft) :	15.00
Avg. Liquid Height (ft):	7.50
Volume (gallons):	8,812.81
Turnovers:	29.57
Net Throughput(gal/yr):	260,610.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	Red/Primer
Shell Condition	Good
Roof Color/Shade:	Red/Primer
Roof Condition:	Good

Roof Characteristics

Type:	Dome
Height (ft)	0.06
Radius (ft) (Dome Roof)	10.00

Breather Vent Settings

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

Meterological Data used in Emissions Calculations: Lubbock, Texas (Avg Atmospheric Pressure = 13.11 psia)

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

OST-01 thru OST-04 - Vertical Fixed Roof Tank
Lubbock, 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	73.94	59.07	88.82	64.47	3.7572	2.8254	4.9197	50.0000			207.00	Option 4: RVP=5

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

OST-01 thru OST-04 - Vertical Fixed Roof Tank
Lubbock, Texas

Annual Emission Calcaulations	
Standing Losses (lb):	932.3564
Vapor Space Volume (cu ft):	591.4049
Vapor Density (lb/cu ft):	0.0328
Vapor Space Expansion Factor:	0.3291
Vented Vapor Saturation Factor:	0.4001
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	591.4049
Tank Diameter (ft):	10.0000
Vapor Space Outage (ft):	7.5300
Tank Shell Height (ft):	15.0000
Average Liquid Height (ft):	7.5000
Roof Outage (ft):	0.0300
Roof Outage (Dome Roof)	
Roof Outage (ft):	0.0300
Dome Radius (ft):	10.0000
Shell Radius (ft):	5.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0328
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.7572
Daily Avg. Liquid Surface Temp. (deg. R):	533.6114
Daily Average Ambient Temp. (deg. F):	60.1333
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	524.1433
Tank Paint Solar Absorptance (Shell):	0.8900
Tank Paint Solar Absorptance (Roof):	0.8900
Daily Total Solar Insulation Factor (Btu/sqft day):	1,618.2092
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.3291
Daily Vapor Temperature Range (deg. R):	59.5018
Daily Vapor Pressure Range (psia):	2.0943
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.7572
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.8254
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	4.9197
Daily Avg. Liquid Surface Temp. (deg R):	533.6114
Daily Min. Liquid Surface Temp. (deg R):	518.7359
Daily Max. Liquid Surface Temp. (deg R):	548.4868
Daily Ambient Temp. Range (deg. R):	26.6333
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.4001
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	3.7572
Vapor Space Outage (ft):	7.5300
Working Losses (lb):	874.2558
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.7572
Annual Net Throughput (gal/yr.):	260,610.0000
Annual Turnovers:	29.5717
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	8,812.8086
Maximum Liquid Height (ft):	15.0000
Tank Diameter (ft):	10.0000
Working Loss Product Factor:	0.7500
Total Losses (lb):	1,806.6122

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

Emissions Report for: Annual

OST-01 thru OST-04 - Vertical Fixed Roof Tank
Lubbock, Texas

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Crude oil (RVP 5)	874.26	932.36	1,806.61

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

Identification

User Identification:	OST-05 thru OST-06
City:	Lubbock
State:	Texas
Company:	Texland Petroleum, LP
Type of Tank:	Vertical Fixed Roof Tank
Description:	Oil Storage Tanks

Tank Dimensions

Shell Height (ft):	16.00
Diameter (ft):	15.50
Liquid Height (ft) :	16.00
Avg. Liquid Height (ft):	8.00
Volume (gallons):	21,172.77
Turnovers:	12.31
Net Throughput(gal/yr):	260,610.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	Red/Primer
Shell Condition	Good
Roof Color/Shade:	Red/Primer
Roof Condition:	Good

Roof Characteristics

Type:	Dome
Height (ft)	0.06
Radius (ft) (Dome Roof)	15.50

Breather Vent Settings

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

Meterological Data used in Emissions Calculations: Lubbock, Texas (Avg Atmospheric Pressure = 13.11 psia)

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

OST-05 thru OST-06 - Vertical Fixed Roof Tank
Lubbock, 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	73.94	59.07	88.82	64.47	3.7572	2.8254	4.9197	50.0000			207.00	Option 4: RVP=5

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

OST-05 thru OST-06 - Vertical Fixed Roof Tank
Lubbock, Texas

Annual Emission Calcaulations	
Standing Losses (lb):	2,297.2141
Vapor Space Volume (cu ft):	1,515.1961
Vapor Density (lb/cu ft):	0.0328
Vapor Space Expansion Factor:	0.3291
Vented Vapor Saturation Factor:	0.3848
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,515.1961
Tank Diameter (ft):	15.5000
Vapor Space Outage (ft):	8.0300
Tank Shell Height (ft):	16.0000
Average Liquid Height (ft):	8.0000
Roof Outage (ft):	0.0300
Roof Outage (Dome Roof)	
Roof Outage (ft):	0.0300
Dome Radius (ft):	15.5000
Shell Radius (ft):	7.7500
Vapor Density	
Vapor Density (lb/cu ft):	0.0328
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.7572
Daily Avg. Liquid Surface Temp. (deg. R):	533.6114
Daily Average Ambient Temp. (deg. F):	60.1333
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	524.1433
Tank Paint Solar Absorptance (Shell):	0.8900
Tank Paint Solar Absorptance (Roof):	0.8900
Daily Total Solar Insulation Factor (Btu/sqft day):	1,618.2092
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.3291
Daily Vapor Temperature Range (deg. R):	59.5018
Daily Vapor Pressure Range (psia):	2.0943
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.7572
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.8254
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	4.9197
Daily Avg. Liquid Surface Temp. (deg R):	533.6114
Daily Min. Liquid Surface Temp. (deg R):	518.7359
Daily Max. Liquid Surface Temp. (deg R):	548.4868
Daily Ambient Temp. Range (deg. R):	26.6333
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.3848
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	3.7572
Vapor Space Outage (ft):	8.0300
Working Losses (lb):	874.2558
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.7572
Annual Net Throughput (gal/yr.):	260,610.0000
Annual Turnovers:	12.3087
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	21,172.7726
Maximum Liquid Height (ft):	16.0000
Tank Diameter (ft):	15.5000
Working Loss Product Factor:	0.7500
Total Losses (lb):	3,171.4699

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

Emissions Report for: Annual

OST-05 thru OST-06 - Vertical Fixed Roof Tank
Lubbock, Texas

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Crude oil (RVP 5)	874.26	2,297.21	3,171.47

Texland Petroleum, LP
Lif-Lubheirs

Tank Emissions - Lab Gas Oil Ratio (GOR) Method

A) Enter information into the yellow boxes.

B) VOC and H_2S control efficiencies may be entered (if applicable).

C) A reduction for produced water tank emissions calculated as oil/condensate may be entered.

D) The tank vapor VOC, benzene, and H_2S weight percents may be entered.

E) Use the box provided below for entering any notes necessary (such as the source/justification for any calculation inputs).

F) The table below can be used to calculate the flash gas molecular weight and the component weight percents if needed.

G) Make sure to answer the control device question.

H) Make sure to select the correct *VOC Type* and *Emission Type* from the pull down menus below.

GOR [FOR ESTIMATING FLASH LOSSES FROM STORAGE TANKS]

EPN	Tank Identifier	Flash Initial Press. (psig)	Flash Initial Temp. (°F)	Flash Final Press. (psig)	Flash Final Temp. (°F)	GOR (scf of flash gas/bbl of oil/cond. produced)	Barrels of Oil or Condensate per day (bbl/day)	Flash Gas Molecular Weight	Flash Gas VOC wt%	Flash Gas Benzene wt%	Flash Gas H_2S wt%	Percent Reduction for Produced Water Tank Calc. as Oil/Cond. (%)	Are tank vapors (A) uncontrolled; (B) controlled by a flare, vapor combustor, thermal oxidizer, or vapor recovery unit (VRU); or (C) controlled by another type of control device?	VOC Control Efficiency (%)	H_2S Control Efficiency (%)	VOC Results (lb/hr)	VOC Results (tpy)	Benzene Results (lb/hr)	Benzene Results (tpy)	H_2S Results (lb/hr)	H_2S Results (tpy)
WST-01	Water Storage Tank - Flash	10	90	0	60	1.52	437	31.8509	58.5377	0.5224	0.0374	99	(A) uncontrolled			0.01	0.06	0.00	0.00	0.00	0.00
WST-02	Water Storage Tank - Flash	10	90	0	60	1.52	437	31.8509	58.5377	0.5224	0.0374	99	(A) uncontrolled			0.01	0.06	0.00	0.00	0.00	0.00
WST-03	Water Storage Tank - Flash	10	90	0	60	1.52	437	31.8509	58.5377	0.5224	0.0374	99	(A) uncontrolled			0.01	0.06	0.00	0.00	0.00	0.00
WST-04	Water Storage Tank - Flash	10	90	0	60	1.52	437	31.8509	58.5377	0.5224	0.0374	99	(A) uncontrolled			0.01	0.06	0.00	0.00	0.00	0.00
WST-05	Water Storage Tank - Flash	10	90	0	60	1.52	437	31.8509	58.5377	0.5224	0.0374	99	(A) uncontrolled			0.01	0.06	0.00	0.00	0.00	0.00
															Totals:	**0.07**	**0.30**	**0.00**	**0.00**	**0.00**	**0.02**

VOC Type: (pick from list)
Crude Oil or Condensate VOC

Emission Type: (pick from list)
Steady State (continuous)

Enter any notes here:	

Company Name: Texland Petroleum, L.P.

Facility Name: Lif-Lubheirs

EPN: WST-01 thru WST-05

FIN: WST-01 thru WST-05

CIN: None

Source Description: Water Storage Tanks

Oil API Gravity	25.4
Measured/Calculated Gas Specific Gravity	1.098
Separator Pressure (PSIG)	10
Separator Temperature (F)	90
Site Elevation (Feet above Mean Sea Level)	0
Calculated Atmospheric Pressure @ Site Elevation:	14.70

Analytical GOR (Gas-Oil Ratio) in standard cubic feet per bbl (SCF/BBL)	1.5200

Oil Production Rate (BOPD):	437.00
Hours Operated per Year:	8760

Flash Losses

Total cubic ft. hydrocarbons/hour:	27.677
Flash lbs/hr hydrocarbons:	2.323
Flash tons/yr hydrocarbons:	10.175

Total Hydrocarbon Emissions

lbs/hr hydrocarbons:	2.323
tons/yr hydrocarbons:	10.175

Per guidance from the Texas Commission of Environmental Quality, water storage tank emissions were calculated using crude oil/condensate properties and water production rate. Emissions are then estimated at one percent of the calculated value.

Speciation Of Estimated VOCs from Flash, Standing & Working Losses

					Uncontrolled		Uncontrolled @ 1% Total	
Component	Mole Percent	Component Molecular Weight	Mole Fraction X Mole Wt	Weight Fraction	Lbs/hr	Tons/yr	Lbs/hr	Tons/yr
Hydrogen Sulfide	0.0350%	34.080	0.0119	0.0004	0.0009	0.0038	0.0000	0.0000
Nitrogen	2.7568%	28.013	0.7723	0.0242	0.0563	0.2467	0.0006	0.0025
Carbon Dioxide	0.7203%	44.010	0.3170	0.0100	0.0231	0.1013	0.0002	0.0010
Methane	44.8781%	16.043	7.1998	0.2260	0.5251	2.2999	0.0053	0.0230
Ethane	16.3137%	30.070	4.9055	0.1540	0.3578	1.5670	0.0036	0.0157
Propane	19.8281%	44.097	8.7436	0.2745	0.6377	2.7931	0.0064	0.0279
iso-Butane	3.6265%	58.123	2.1078	0.0662	0.1537	0.6733	0.0015	0.0067
n-Butane	6.6903%	58.123	3.8886	0.1221	0.2836	1.2422	0.0028	0.0124
iso-Pentane	2.5375%	72.150	1.8308	0.0575	0.1335	0.5848	0.0013	0.0058
n-Pentane	1.5974%	72.150	1.1525	0.0362	0.0841	0.3682	0.0008	0.0037
Other Hexanes	0.2079%	86.178	0.1792	0.0056	0.0131	0.0572	0.0001	0.0006
***n-Hexane**	0.4163%	86.178	0.3588	0.0113	0.0262	0.1146	0.0003	0.0011
***Benzene**	0.2130%	78.114	0.1664	0.0052	0.0121	0.0531	0.0001	0.0005
***Toluene**	0.0504%	92.141	0.0464	0.0015	0.0034	0.0148	0.0000	0.0001
***Ethylbenzene**	0.0142%	106.167	0.0151	0.0005	0.0011	0.0048	0.0000	0.0000
***Xylenes**	0.0017%	106.167	0.0018	0.0001	0.0001	0.0006	0.0000	0.0000
***Trimethylpentane**	0.0000%	114.231	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Heptanes	0.1108%	100.272	0.1111	0.0035	0.0081	0.0355	0.0001	0.0004
Octanes	0.0311%	114.231	0.0355	0.0011	0.0026	0.0113	0.0000	0.0001
Nonanes	0.0051%	128.258	0.0065	0.0002	0.0005	0.0021	0.0000	0.0000
Decanes +	0.0008%	142.280	0.0011	0.0000	0.0001	0.0004	0.0000	0.0000
Total	100.035%	Molecular Wt =	31.85	1.0000				

Calculation formula

Component lbs/hr = (HC lbs/hr)(Weight fraction of component)

Component tons/yr = (component lbs/hr)(hrs/yr)(1 ton/2000 lbs)

Air Toxics	0.0429	0.1880	0.0004	0.0019
VOC (Including HAP)	1.3598	5.9561	0.0136	0.0596

Texland Petroleum, LP
Lif-Lubheirs

Tank Emissions - Tanks 4.0

A) Enter information into the yellow boxes.

B) VOC and H_2S control efficiencies may be entered (if applicable).

C) A reduction for produced water tank emissions calculated as oil/condensate may be entered.

D) The tank vapor VOC, benzene, and H_2S weight percents may be entered.

E) Use the box provided below for entering any notes necessary (such as the source/justification for any calculation inputs).

F) Make sure to answer the control device question.

G) Make sure to select the correct *VOC Type* and *Emission Type* from the pull down menus below.

Tanks 4.0 Software TANKS 4.0 SOFTWARE [FOR ESTIMATING WORKING AND BREATHING LOSSES FROM STORAGE TANKS]

EPN	Tank Identifier	Throughput (gal/year)	Turnovers per year	Mixture/Component	Basis for VP Calculations	Vapor MW	Total Uncontrolled Emissions (lb/hr)	Total Uncontrolled Emissions (ton/yr)	Tank Vapor VOC wt%	Tank Vapor Benzene wt%	Tank Vapor H_2S wt%	Percent Reduction for Produced Water Tank Calc. as Oil/Cond. (%)	Are tank vapors (A) uncontrolled; (B) controlled by a flare, vapor combustor, thermal oxidizer, or vapor recovery unit (VRU); or (C) controlled by another type of control device?	VOC Control Efficiency (%)	H_2S Control Efficiency (%)	VOC Results (lb/hr)	VOC Results (tpy)	Benzene Results (lb/hr)	Benzene Results (tpy)	H_2S Results (lb/hr)	H_2S Results (tpy)
WST-01	Water Storage Tank - Breathing & Working	6699210	330	Produced Water	Option 4: RVP = 5	50	0.8411	3.684	58.5377	0.5224	0.0374	99	(A) uncontrolled			0.00	0.02	0.00	0.00	0.00	0.00
WST-02	Water Storage Tank - Breathing & Working	6699210	791	Produced Water	Option 4: RVP = 5	50	0.9493	4.158	58.5377	0.5224	0.0374	99	(A) uncontrolled			0.01	0.02	0.00	0.00	0.00	0.00
WST-03	Water Storage Tank - Breathing & Working	6699210	791	Produced Water	Option 4: RVP = 5	50	0.6853	3.002	58.5377	0.5224	0.0374	99	(A) uncontrolled			0.00	0.02	0.00	0.00	0.00	0.00
WST-04	ater Storage Tank - Breathing & Worki	6699210	791	Produced Water	Option 4: RVP = 5	50	0.6853	3.002	58.5377	0.5224	0.0374	99	(A) uncontrolled			0.00	0.02	0.00	0.00	0.00	0.00
WST-05	ater Storage Tank - Breathing & Worki	6699210	791	Produced Water	Option 4: RVP = 5	50	0.6853	3.002	58.5377	0.5224	0.0374	99	(A) uncontrolled			0.00	0.02	0.00	0.00	0.00	0.00
															Totals:	**0.02**	**0.10**	**0.00**	**0.00**	**0.00**	**0.01**

VOC Type: (pick from list)
Crude Oil or Condensate VOC

Emission Type: (pick from list)
Steady State (continuous)

Enter any notes here:	

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

Identification

User Identification:	WST-01
City:	Lubbock
State:	Texas
Company:	Texland Petroleum, LP
Type of Tank:	Vertical Fixed Roof Tank
Description:	Water Storage Tank

Tank Dimensions

Shell Height (ft):	24.00
Diameter (ft):	12.00
Liquid Height (ft) :	24.00
Avg. Liquid Height (ft):	12.00
Volume (gallons):	20,304.71
Turnovers:	329.93
Net Throughput(gal/yr):	6,699,210.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	Red/Primer
Shell Condition	Good
Roof Color/Shade:	Red/Primer
Roof Condition:	Good

Roof Characteristics

Type:	Dome
Height (ft)	0.06
Radius (ft) (Dome Roof)	12.00

Breather Vent Settings

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

Meterological Data used in Emissions Calculations: Lubbock, Texas (Avg Atmospheric Pressure = 13.11 psia)

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

WST-011111111 - Vertical Fixed Roof Tank
Lubbock, 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	73.94	59.07	88.82	64.47	3.7572	2.8254	4.9197	50.0000			207.00	Option 4: RVP=5

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

WST-011111111 - Vertical Fixed Roof Tank
Lubbock, Texas

Annual Emission Calcaulations	
Standing Losses (lb):	1,578.8860
Vapor Space Volume (cu ft):	1,360.5611
Vapor Density (lb/cu ft):	0.0328
Vapor Space Expansion Factor:	0.3291
Vented Vapor Saturation Factor:	0.2945
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,360.5611
Tank Diameter (ft):	12.0000
Vapor Space Outage (ft):	12.0300
Tank Shell Height (ft):	24.0000
Average Liquid Height (ft):	12.0000
Roof Outage (ft):	0.0300
Roof Outage (Dome Roof)	
Roof Outage (ft):	0.0300
Dome Radius (ft):	12.0000
Shell Radius (ft):	6.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0328
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.7572
Daily Avg. Liquid Surface Temp. (deg. R):	533.6114
Daily Average Ambient Temp. (deg. F):	60.1333
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	524.1433
Tank Paint Solar Absorptance (Shell):	0.8900
Tank Paint Solar Absorptance (Roof):	0.8900
Daily Total Solar Insulation Factor (Btu/sqft day):	1,618.2092
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.3291
Daily Vapor Temperature Range (deg. R):	59.5018
Daily Vapor Pressure Range (psia):	2.0943
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.7572
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.8254
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	4.9197
Daily Avg. Liquid Surface Temp. (deg R):	533.6114
Daily Min. Liquid Surface Temp. (deg R):	518.7359
Daily Max. Liquid Surface Temp. (deg R):	548.4868
Daily Ambient Temp. Range (deg. R):	26.6333
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.2945
Vapor Pressure at Daily Average Liquid:	
Surface Temperature (psia):	3.7572
Vapor Space Outage (ft):	12.0300
Working Losses (lb):	5,789.0433
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.7572
Annual Net Throughput (gal/yr.):	6,699,210.0000
Annual Turnovers:	329.9338
Turnover Factor:	0.2576
Maximum Liquid Volume (gal):	20,304.7110
Maximum Liquid Height (ft):	24.0000
Tank Diameter (ft):	12.0000
Working Loss Product Factor:	0.7500
Total Losses (lb):	7,367.9293

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

Emissions Report for: Annual

WST-011111111 - Vertical Fixed Roof Tank
Lubbock, Texas

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Crude oil (RVP 5)	5,789.04	1,578.89	7,367.93

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

Identification

User Identification:	WST-02
City:	Lubbock
State:	Texas
Company:	Texland Petroleum, LP
Type of Tank:	Vertical Fixed Roof Tank
Description:	Water Storage Tank

Tank Dimensions

Shell Height (ft):	16.00
Diameter (ft):	15.50
Liquid Height (ft) :	16.00
Avg. Liquid Height (ft):	8.00
Volume (gallons):	22,584.29
Turnovers:	296.63
Net Throughput(gal/yr):	6,699,210.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	Red/Primer
Shell Condition	Good
Roof Color/Shade:	Red/Primer
Roof Condition:	Good

Roof Characteristics

Type:	Dome
Height (ft)	0.06
Radius (ft) (Dome Roof)	15.50

Breather Vent Settings

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

Meterological Data used in Emissions Calculations: Lubbock, Texas (Avg Atmospheric Pressure = 13.11 psia)

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

WST-021 - Vertical Fixed Roof Tank
Lubbock, 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	73.94	59.07	88.82	64.47	3.7572	2.8254	4.9197	50.0000			207.00	Option 4: RVP=5

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

WST-021 - Vertical Fixed Roof Tank
Lubbock, Texas

Annual Emission Calcaulations	
Standing Losses (lb):	2,297.2141
Vapor Space Volume (cu ft):	1,515.1961
Vapor Density (lb/cu ft):	0.0328
Vapor Space Expansion Factor:	0.3291
Vented Vapor Saturation Factor:	0.3848
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,515.1961
Tank Diameter (ft):	15.5000
Vapor Space Outage (ft):	8.0300
Tank Shell Height (ft):	16.0000
Average Liquid Height (ft):	8.0000
Roof Outage (ft):	0.0300
Roof Outage (Dome Roof)	
Roof Outage (ft):	0.0300
Dome Radius (ft):	15.5000
Shell Radius (ft):	7.7500
Vapor Density	
Vapor Density (lb/cu ft):	0.0328
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.7572
Daily Avg. Liquid Surface Temp. (deg. R):	533.6114
Daily Average Ambient Temp. (deg. F):	60.1333
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	524.1433
Tank Paint Solar Absorptance (Shell):	0.8900
Tank Paint Solar Absorptance (Roof):	0.8900
Daily Total Solar Insulation Factor (Btu/sqft day):	1,618.2092
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.3291
Daily Vapor Temperature Range (deg. R):	59.5018
Daily Vapor Pressure Range (psia):	2.0943
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.7572
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.8254
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	4.9197
Daily Avg. Liquid Surface Temp. (deg R):	533.6114
Daily Min. Liquid Surface Temp. (deg R):	518.7359
Daily Max. Liquid Surface Temp. (deg R):	548.4868
Daily Ambient Temp. Range (deg. R):	26.6333
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.3848
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	3.7572
Vapor Space Outage (ft):	8.0300
Working Losses (lb):	6,018.4592
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.7572
Annual Net Throughput (gal/yr.):	6,699,210.0000
Annual Turnovers:	296.6314
Turnover Factor:	0.2678
Maximum Liquid Volume (gal):	22,584.2908
Maximum Liquid Height (ft):	16.0000
Tank Diameter (ft):	15.5000
Working Loss Product Factor:	0.7500
Total Losses (lb):	8,315.6733

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

Emissions Report for: Annual

WST-021 - Vertical Fixed Roof Tank
Lubbock, Texas

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Crude oil (RVP 5)	6,018.46	2,297.21	8,315.67

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

Identification

User Identification:	WST-03 thru WST-05
City:	Lubbock
State:	Texas
Company:	Texland Petroleum, LP
Type of Tank:	Vertical Fixed Roof Tank
Description:	Water Storage Tanks

Tank Dimensions

Shell Height (ft):	6.00
Diameter (ft):	15.50
Liquid Height (ft) :	6.00
Avg. Liquid Height (ft):	3.00
Volume (gallons):	8,469.11
Turnovers:	791.02
Net Throughput(gal/yr):	6,699,210.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	Red/Primer
Shell Condition	Good
Roof Color/Shade:	Red/Primer
Roof Condition:	Good

Roof Characteristics

Type:	Dome
Height (ft)	0.06
Radius (ft) (Dome Roof)	15.50

Breather Vent Settings

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

Meterological Data used in Emissions Calculations: Lubbock, Texas (Avg Atmospheric Pressure = 13.11 psia)

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

WST-02 thru WST-05 - Vertical Fixed Roof Tank
Lubbock, Texas

		Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp	Vapor Pressure (psia)			Vapor Mol.	Liquid Mass	Vapor Mass	Mol.	Basis for Vapor Pressure
Mixture/Component	Month	Avg.	Min.	Max.	(deg F)	Avg.	Min.	Max.	Weight.	Fract.	Fract.	Weight	Calculations
Crude oil (RVP 5)	All	73.94	59.07	88.82	64.47	3.7572	2.8254	4.9197	50.0000			207.00	Option 4: RVP=5

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

WST-02 thru WST-05 - Vertical Fixed Roof Tank
Lubbock, Texas

Annual Emission Calcaulations	
Standing Losses (lb):	1,405.0967
Vapor Space Volume (cu ft):	571.7366
Vapor Density (lb/cu ft):	0.0328
Vapor Space Expansion Factor:	0.3291
Vented Vapor Saturation Factor:	0.6237
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	571.7366
Tank Diameter (ft):	15.5000
Vapor Space Outage (ft):	3.0300
Tank Shell Height (ft):	6.0000
Average Liquid Height (ft):	3.0000
Roof Outage (ft):	0.0300
Roof Outage (Dome Roof)	
Roof Outage (ft):	0.0300
Dome Radius (ft):	15.5000
Shell Radius (ft):	7.7500
Vapor Density	
Vapor Density (lb/cu ft):	0.0328
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.7572
Daily Avg. Liquid Surface Temp. (deg. R):	533.6114
Daily Average Ambient Temp. (deg. F):	60.1333
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	524.1433
Tank Paint Solar Absorptance (Shell):	0.8900
Tank Paint Solar Absorptance (Roof):	0.8900
Daily Total Solar Insulation Factor (Btu/sqft day):	1,618.2092
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.3291
Daily Vapor Temperature Range (deg. R):	59.5018
Daily Vapor Pressure Range (psia):	2.0943
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.7572
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.8254
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	4.9197
Daily Avg. Liquid Surface Temp. (deg R):	533.6114
Daily Min. Liquid Surface Temp. (deg R):	518.7359
Daily Max. Liquid Surface Temp. (deg R):	548.4868
Daily Ambient Temp. Range (deg. R):	26.6333
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.6237
Vapor Pressure at Daily Average Liquid:	
Surface Temperature (psia):	3.7572
Vapor Space Outage (ft):	3.0300
Working Losses (lb):	4,597.9136
Vapor Molecular Weight (lb/lb-mole):	50.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	3.7572
Annual Net Throughput (gal/yr.):	6,699,210.0000
Annual Turnovers:	791.0171
Turnover Factor:	0.2046
Maximum Liquid Volume (gal):	8,469.1090
Maximum Liquid Height (ft):	6.0000
Tank Diameter (ft):	15.5000
Working Loss Product Factor:	0.7500
Total Losses (lb):	6,003.0103

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

Emissions Report for: Annual

WST-02 thru WST-05 - Vertical Fixed Roof Tank
Lubbock, Texas

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Crude oil (RVP 5)	4,597.91	1,405.10	6,003.01

Planned MSS - Other Emissions

Any other planned MSS activity or tank cleaning operation needs to be reported in this section. Please briefly explain all the calculations involved in the notes section. **Notes:**
1. Enter information into the yellow boxes. **2.**
Please provide a separate detailed calculation for these emissions; also include any necessary supplemental information and notes (such as the source/justification for any calculation inputs).

3. VOC, Benzene and H2S control efficiencies may be entered (if applicable).
4. Make sure to answer the control device question.
5. Make sure to select the correct VOC Type and Emission Type from the pull down menus below.

Company Name	Texland Petroleum, LP
EPN No:	MSS-01
Site name:	Lif-Lubheirs
Type of MSS activity	Routine MSS

VOC Wt%	36.22
H_2S Wt%	0.05
Benzene Wt%	0.52
Type of Control Device	None
Are tank vapors (A) uncontrolled; (B) controlled by a flare, vapor combustor, thermal oxidizer, or vapor recovery unit (VRU); or (C) controlled by another type of control device?	(A) uncontrolled

VOC Type: (pick from list)
Natural Gas VOC

Emission Type: (pick from list)
Low Pressure Periodic

Emissions before control and before wt% reduction		
Type of Losses	Max. hourly emissions lb/hr	Avg.Annual emissions tpy
Routine MSS	0.23	1.01

Planned MSS Emissions		
Air contaminant	**Max. hourly emissions lb/hr**	**Avg.Annual emissions tpy**
Total VOC	**0.08**	**0.37**
Total H_2S	**0.00**	**0.00**
Total Benzene	**0.00**	**0.01**

Notes:

Appendix - Section 2

Major Source determination

Major Source determination: A site is required to obtain an operating permit if it is considered to be a major source (per 30 TAC Section 122.10). A site's potential to emit is an important factor to determine if the site is a major source and is thus required to apply and obtain an FOP.

Company Name	Texland Petroleum, LP
Site Name	Lif-Lubheirs
County	Other

Annual Site Wide Emission Rates	
Air Contaminant Name (3)	TPY (4)
Total VOC	18.95
Benzene	0.18
Formaldehyde	0.00
SO_2	0.41
NO_X	0.69
CO	0.58
PM_{10}	0.05
$PM_{2.5}$	0.04

Major Source Determination	
Air Contaminant Name (3)	Major Source determination
Total VOC	**NA**
Benzene	**NA**
Formaldehyde	**NA**
SO_2	**NA**
NO_X	**NA**
CO	**NA**
PM_{10}	**NA**
$PM_{2.5}$	**NA**

Texland Petroleum, LP
Lif-Lubheirs

Authorization Level Determination

The level of authorization is determined by comparing the Registration Total Emission Rates (as shown on the previous tab) to the emission limits of the different authorization levels.

This table is an expanded explanation of how the authorization level shown on the Emissions Summary tab was determined. The table shows which authorization level each compound's emissions fall into, and then at the bottom of the chart it shows which authorization level the entire authorization falls under.

The possible authorization levels are:

PBR Level 1
PBR Level 2
Standard Permit
NSR Case-by-case Permit

Air Contaminant Name	Based on the Registration Total Emission Rates (on the previous tab), what Level of Authorization Does Each Emission Rate Fall Into?			
	Emission Rates			
	steady state lbs/hr	< 30 psig periodic lbs/hr	≥ 30 psig periodic lbs/hr	TPY
Total VOC	NA, no limit	NA, no limit	NA, no limit	PBR Level 2
Total Crude Oil or Condensate VOC	PBR Level 1	PBR Level 1	PBR Level 1	PBR Level 2
Total Natural Gas VOC	PBR Level 1	PBR Level 1	PBR Level 1	PBR Level 1
Benzene	PBR Level 1	PBR Level 1	PBR Level 1	PBR Level 1
Formaldehyde	NA, no limit	NA, no limit	NA, no limit	PBR Level 1
H_2S	PBR Level 1	PBR Level 1	PBR Level 1	PBR Level 1
SO_2	PBR Level 1	PBR Level 1	PBR Level 1	PBR Level 1
NO_X	PBR Level 1	PBR Level 1	PBR Level 1	PBR Level 1
CO	PBR Level 1	PBR Level 1	PBR Level 1	PBR Level 1
PM_{10}	PBR Level 1	PBR Level 1	PBR Level 1	PBR Level 1
$PM_{2.5}$	PBR Level 1	PBR Level 1	PBR Level 1	PBR Level 1
	What Level of Authorization Applies to this Registration? (If any of the registration emissions are equal to or greater than the limits of a level, then the whole registration falls into that level above.)			
	PBR Level 2			

Appendix - Section 3

Texland Petroleum, LP
Lif-Lubheirs

Is a Full Impacts Review Required?

and NO_2. A full impacts review involves showing protection of public health and welfare and compliance with applicable ambient air standards (state and federal) on a short term and long term basis.

A full impacts review is not required for a certain compound under these certain circumstances:

> **if there is no receptor (to be affected by benzene emissions) or property line (where compliance with NO_2, SO_2, and H_2S ambient air quality standards is required) within a certain distance of a registration (that is if there is no receptor or property line within a certain distance of any emitting source in the registration), or**
>
> **if the net project emission increases of that compound are very small.**

Based on these circumstances, the worksheet below determines whether or not a full impacts review is required for any of the four compounds (benzene, H_2S, SO_2, and NO_2).

If any of (1)-(3) below shows that a full impacts review is not required for a compound, then under (4) it will show that no further impacts review needs to be done and it will explain that "you are done" for that compound. If all of (1)-(3) show that a full impacts review is required, then (4) will explain that one of the three methods for doing a full impacts review (screening modeling, dispersion modeling, or the modeling tables from the rule) must be used.

If the modeling tables from the rule are used, then the spreadsheet tabs labeled for benzene, H_2S, SO_2, and NO_2 should be used. These tabs provide a way to use the modeling tables and perform the necessary calculations to show whether the impacts review is passed.

(1) **Based on receptor and property line distances, is a full impacts review required for any air contaminant? (Is there a receptor or property line within the specified distance of the registration? The distances are 1/4 mile for PBR Level 1, 1/2 mile for PBR Level 2, and 1 mile for Standard Permit.) First the level of authorization must be known.**

Based on the Registration Total Emission Rates, this authorization falls under:

PBR Level 2

What is the shortest distance in feet to any receptor from any facility/unit included in this registration?	1175	ft
What is the shortest distance in feet to any property line from any facility/unit included in this registration?	80	ft

Based on the nearest receptor distance:

A full impacts review is required for benzene.

Based on the nearest property line distance:

A full impacts review is required for H2S, SO2, and NO2.

(2) **Based on the net project emission increases, is a full impacts review required for any air contaminent? (Are the net project emission increases less than any of the de-minimis rates?)**

Net Project Emission Increases

Air Contaminant Name	Emission Rates			
	steady state lbs/hr	< 30 psig periodic lbs/hr	≥ 30 psig periodic lbs/hr	TPY
Benzene	0.04	0.04	0.04	0.18
H_2S	0.01	0.01	0.01	0.03
SO_2	0.09	0.09	0.09	0.41
NO_X	0.16	0.16	0.16	0.69

Please explain the logic behind the values here if any values are different than the Project Total Emission Rates from the Emissions Summary tab.	

De-minimis Rates

Air contaminant	lb/hr
Benzene	0.039
H_2S	0.025
SO_2	2
NO_X	4

Based on the net project emission increases:

A full impacts review is required for benzene.
A full impacts review is NOT required for H2S.
A full impacts review is NOT required for SO2.
A full impacts review is NOT required for NO2.

(3) **Based on the project maximum predicted concentrations, is a full impacts review required for any air contaminant? (Are the project maximum predicted benzene concentrations ≤ 10% of the applicable effects screening level (ESL) or ≤ 25% of the applicable ESL when combined with project increases over 60-month period after rule effective date? Are project maximum predicted H_2S, SO_2, and NO_X concentrations ≤ the significant impact level, SIL, also known as a de-minimis impact in Chapter 101 of 30 TAC, where the SIL = 4% of the applicable ambient air standard (AAQS)?)**

ESLs and AAQS needed for impacts review:	
ESLs and AAQSs	**(µg/m³)**
Benzene Short Term ESL	170
Benzene Long Term ESL	4.5
H_2S Hourly SAAQS	108
SO_2 Hourly NAAQS	196
NO_2 Hourly NAAQS	188

What is the project maximum predicted 1-hr concentration of benzene in micrograms per cubic meter?	NA	**(µg/m³)**
Based on this:		
A full impacts review is required for benzene on an hourly basis.		

What is the maximum predicted 1-hr concentration of benzene in micrograms per cubic meter for the project combined with previous project increases over a 60-month period after the effective date of the this rule?	NA	**(µg/m³)**
Based on this:		
A full impacts review is required for benzene on an hourly basis.		

What is the project maximum predicted annual concentration of benzene in micrograms per cubic meter?	NA	**(µg/m³)**
Based on this:		
A full impacts review is required for benzene on an annual basis.		

What is the maximum predicted annual concentration of benzene in micrograms per cubic meter for the project combined with previous project increases over a 60-month period after the effective date of the this rule?	NA	**(µg/m³)**
Based on this:		
A full impacts review is required for benzene on an annual basis.		

What is the project maximum predicted 1-hr concentration of H_2S in micrograms per cubic meter?	NA	**(µg/m³)**
Based on this:		
A full impacts review is required for H2S on an hourly basis.		

What is the project maximum predicted 1-hr concentration of SO_2 in micrograms per cubic meter?	NA	**(µg/m³)**
Based on this:		
A full impacts review is required for SO2 on an hourly basis.		

What is the project maximum predicted 1-hr concentration of NO_2 in micrograms per cubic meter?	NA	**(µg/m³)**
Based on this:		
A full impacts review is required for NO2 on an hourly basis.		

(4)	Based on the above assessment from (1) - (3):
	A full impacts review is required for benzene. Perform review on benzene impacts tab. Consider the Impacts Scope table on the next tab as additional emission points outside of the registration may need to be considered for the impacts review.
	A full impacts review is NOT required for H2S.
	A full impacts review is NOT required for SO2.
	A full impacts review is NOT required for NO2.

Press this button to make the impacts review tabs visible if needed, that is if you want to use the modeling tables from the rule for any of the four compounds.

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Emissions Summary Including Any Additional Impacts Scope Emissions

Registration emissions are included in the impacts scope totals.

The only air contaminents that potentially may need to be filled in are benzene H_2S, SO_2, and NO_X, because these are the four air contaminents that a full impacts review could potentially be required for (note that the impacts review is actually done on NO_2, not NO_X). Within those four contaminents, the only ones that absolutely need to be filled in are the ones which require a full impacts review. The rest can be filled in if chosen to be.

To change the number of rows in the charts below, click on the button to the right of the chart that says "Expand Table" and it will ask how many rows you need. You can press the button more than once to add or delete more rows; the rows will be added or deleted starting at the bottom.

Impacts Scope Emissions (This needs to include any other emission points not included in the Project Emissions Summary or the Registration Emissions Summary that are in the impacts review scope. The impacts review scope includes all units owned/operated by the same company, located on contigous or adjacent property, and designated under same two digit standard industrial classification (SIC) code, within 1/4 mile of any unit in the project for PBR Level 1, within 1/2 mile of any unit in the project for PBR Level 2, and within 1 mile of any unit in the project for the Standard Permit, regardless of the units being operationally dependent and regardless of the unit authorization type(s). It is possible that nothing needs to be entered here.)

Emission Point No.	Source Name	Air Contaminant Name	Emission Rates			
			steady state lbs/hr	< 30 psig periodic lbs/hr	≥ 30 psig periodic lbs/hr	TPY
		Total VOC				
		Total Crude Oil or Condensate VOC				
		Total Natural Gas VOC				
		Benzene				
		Formaldehyde				
		H_2S				
		SO_2				
		NO_X				
		CO				
		PM_{10}				
		$PM_{2.5}$				

Impacts Scope Total Emission Rates (Note that these periodic totals are NOT simply the sum of the periodic emission rates from each emission point. The periodic emission limits need to be compared to the sum of steady state and periodic emissions, that is the worst case combination of continously and periodically emitting sources that could occur in any one hour. The periodic emission rates shown here are the sum of all steady state and periodic emissions. If the worst case combination of continously and periodically emitting sources is less than this, then please input the values in this table to the right. **Please explain below which emission points are included in this worst case combination.**)

Air Contaminant Name	Emission Rates			
	steady state lbs/hr	< 30 psig periodic lbs/hr	≥ 30 psig periodic lbs/hr	TPY (4)
Total VOC	4.24	4.33	4.33	18.95
Total Crude Oil or Condensate VOC	4.23	4.23	4.23	18.54
Total Natural Gas VOC	0.00	0.08	0.08	0.37
Benzene	0.04	0.04	0.04	0.18
Formaldehyde	0.00	0.00	0.00	0.00
H_2S	0.01	0.01	0.01	0.03
SO_2	0.09	0.09	0.09	0.41
NO_X	0.16	0.16	0.16	0.69
CO	0.13	0.13	0.13	0.58
PM_{10}	0.01	0.01	0.01	0.05
$PM_{2.5}$	0.01	0.01	0.01	0.04

If the automated formulas for the impacts scope emission totals (which assume that it is possible for all steady state and periodic emissions in the impacts scope to occur in the same hour) have been overwritten, explain any changes made and list the impacts scope emission points that occur in the realistic worst case hour. (Leave this blank or put NA if none of the formulas have been overwritten.)

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Full Impacts Review

A full impacts review must be done for all of the following as applicable:

Benzene Hourly Steady State
Benzene Hourly Low Pressure Periodic
Benzene Hourly High Pressure Periodic
Benzene Annual

The maximum acceptable emission rate can be found on an hourly steady state basis, hourly periodic (low pressure) basis, hourly periodic (high pressure) basis, and annual basis, which can be expressed as $E_{max,hourly,steadystate}$, $E_{max,hourly,periodic(low\ pressure)}$, $E_{max,hourly,periodic(high\ pressure)}$, and $E_{max,annual,\ respectively}$.

The equations for Emax,hourly and Emax,annual are:

$$E_{max,hourly} = (WR_{EPN1}) * \left(\frac{\text{P or ESL}}{G_{hourly,EPN1}}\right) + \cdots + (WR_{EPNx}) * \left(\frac{\text{P or ESL}}{G_{hourly,EPNx}}\right)$$

$$E_{max,annual} = \left(\frac{8,760}{2,000}\right) * (WR_{EPN1}) * \left(\frac{\text{P or ESL}}{0.08 * G_{hourly,EPN1}}\right) + \cdots + \left(\frac{8,760}{2,000}\right) * (WR_{EPNx}) * \left(\frac{\text{P or ESL}}{0.08 * G_{hourly,EPNx}}\right)$$

The emissions must include all emissions in the impacts scope, which are contained in the Impacts Scope Emissions Totals box on the Impacts Scope Tab.

Impacts review is passed when the total estimated emission rate is less than the calculated maximum acceptable emission rate $E_{estimated,total} \leq E_{max,total}$.

The shortest distance from any emitting source to the nearest receptor can be used for each emitting source or the actual distance from the source to the nearest receptor.

The appropriate G factor can be found on the impact chart tabs based on the distance from the emission point to the nearest receptor, the height of the emission release point, and the type of emission point.

To change the number of rows in the charts below, click on the button to the right of the chart that says "Set Row Count" and it will ask how many rows you need. You can press the button more than once to add or delete more rows; the rows will be added or deleted starting at the bottom.

Benzene Short Term ESL ($\mu g/m^3$):	170
Benzene Long Term ESL ($\mu g/m^3$):	4.5

Benzene Hourly Steady State - Impact Review

EPN	Source Name	Which impacts table corresponds to this EPN?	Steady state hourly estimated emissions for each EPN (lbs/hr)	WR_{EPNx}	$ESL_{benzene,\ short\ term}$ ($\mu g/m^3$)	Distance from emission point to nearest receptor (ft)	Height of emission release point (ft)	G_{EPNx}	$E_{max,EPNx,\ hourly,steadystate}$ (lb/hr)
FE-01	Fugitive Emissions	Fugitive	0.0293	0.7146341	170	1175	3	135	0.89990967
HT-01	Heater Treater	Proc. Vessel Vent	0	0	170	1188	20	71	0
HT-02	Heater Treater	Proc. Vessel Vent	0	0	170	1209	20	70	0
HT-03	Heater Treater	Proc. Vessel Vent	0	0	170	1209	20	70	0
OST-01	Oil Storage Tank - Flash	Tank Hatch	0.0005	0.0121951	170	1145	15	120	0.01727642
OST-02	Oil Storage Tank - Flash	Tank Hatch	0.0005	0.0121951	170	1150	15	120	0.01727642
OST-03	Oil Storage Tank - Flash	Tank Hatch	0.0005	0.0121951	170	1155	15	119	0.0174216
OST-04	Oil Storage Tank - Flash	Tank Hatch	0.0005	0.0121951	170	1160	15	119	0.0174216
OST-05	Oil Storage Tank - Flash	Tank Hatch	0.0005	0.0121951	170	1101	16	125	0.01658537
OST-06	Oil Storage Tank - Flash	Tank Hatch	0.0005	0.0121951	170	1123	16	122	0.0169932
OST-01	Oil Storage Tank - Breathing & Working	Tank Hatch	0.0011	0.0268293	170	1145	15	120	0.03800813
OST-02	Oil Storage Tank - Breathing & Working	Tank Hatch	0.0011	0.0268293	170	1150	15	120	0.03800813
OST-03	Oil Storage Tank - Breathing & Working	Tank Hatch	0.0011	0.0268293	170	1155	15	119	0.03832753
OST-04	Oil Storage Tank - Breathing & Working	Tank Hatch	0.0011	0.0268293	170	1160	15	119	0.03832753
OST-05	Oil Storage Tank - Breathing & Working	Tank Hatch	0.0019	0.0463415	170	1101	16	125	0.06302439
OST-06	Oil Storage Tank - Breathing & Working	Tank Hatch	0.0019	0.0463415	170	1123	16	122	0.06457417
WST-01	Water Storage Tank - Flash	Tank Hatch	0.0001	0.002439	170	1185	24	116	0.00357443
WST-02	Water Storage Tank - Flash	Tank Hatch	0.0001	0.002439	170	1170	16	118	0.00351385
WST-03	Water Storage Tank - Flash	Tank Hatch	0.0001	0.002439	170	1145	6	120	0.00345528
WST-04	Water Storage Tank - Flash	Tank Hatch	0.0001	0.002439	170	1155	6	119	0.00348432
WST-05	Water Storage Tank - Flash	Tank Hatch	0.0001	0.002439	170	1148	6	120	0.00345528
WST-01	Water Storage Tank - Breathing & Working	Tank Hatch	0	0	170	1185	24	116	0
WST-02	Water Storage Tank - Breathing & Working	Tank Hatch	0	0	170	1170	16	118	0
WST-03	Water Storage Tank - Breathing & Working	Tank Hatch	0	0	170	1145	6	120	0
WST-04	Water Storage Tank - Breathing & Working	Tank Hatch	0	0	170	1155	6	119	0
WST-05	Water Storage Tank - Breathing & Working	Tank Hatch	0	0	170	1148	6	120	0

$E_{estimated,total,hourly,steadystate}$ (lb/hr)	Total		Passed	$E_{max,total,\ hourly,steadystate}$ (lb/hr)
0.041	1			1.30063733

Benzene Hourly Low Pressure Periodic - Impact Review									
EPN	**Source Name**	**Which impacts table corresponds to this EPN?**	**Periodic (low P) hourly estimated emissions for each EPN (lbs/hr)**	**WR_{EPNx}**	**$ESL_{benzene,\ short\ term}$ ($\mu g/m^3$)**	**Distance from emission point to nearest receptor (ft)**	**Height of emission release point (ft)**	**G_{EPNx}**	**$E_{max,EPNx,\ hourly,periodic(low\ pressure)}$ (lb/hr)**
MSS-01	Routine MSS	Proc. Vessel Vent	0.0012	1	170	1175	20	72	2.36111111
					170				
					170				
					170				
					170				
					170				
					170				
					170				
					170				
					170				
			$E_{estimated,total,hourly,periodic\ (low\ pressure)}$ (lb/hr)	**Total**		**Passed**			**$E_{max,total,\ hourly,periodic(low\ pressure)}$ (lb/hr)**
			0.0012	1					2.36111111

Benzene Hourly High Pressure Periodic - Impact Review									
EPN	Source Name	Which impacts table corresponds to this EPN?	Periodic (high P) hourly estimated emissions for each EPN (lbs/hr)	WR_{EPNx}	$ESL_{benzene,\ short\ term}$ ($\mu g/m^3$)	Distance from emission point to nearest receptor (ft)	Height of emission release point (ft)	G_{EPNx}	$E_{max,EPNx,\ hourly,periodic(high\ pressure)}$ (lb/hr)
					170				
					170				
					170				
					170				
					170				
					170				
					170				
					170				
					170				
					170				
			$E_{estimated,total,hourly,periodic\ (high\ pressure)}$ (lb/hr)	Total		Pass or Fail?			$E_{max,total,\ hourly,periodic(high\ pressure)}$ (lb/hr)
			0	0					0

Benzene Annual - Impact Review										
EPN	Source Name	What amount of time is this source is emitting? (hrs/yr)	Which impacts table corresponds to this EPN?	Annual estimated emissions for each EPN (tons/yr)	WR_{EPNx}	$ESL_{benzene,\ long\ term}$ ($\mu g/m^3$)	Distance from emission point to nearest receptor (ft)	Height of emission release point (ft)	G_{EPNx}	$E_{max,EPNx,\ annual}$ (tons/yr)
FE-01	Fugitive Emissions	8760	Fugitive	0.1282	0.692973	4.5	1175	3	10.8	15.80845
HT-01	Heater Treater	8760	Proc. Vessel Vent	0	0	4.5	1188	20	5.68	0
HT-02	Heater Treater	8760	Proc. Vessel Vent	0	0	4.5	1209	20	5.6	0
HT-03	Heater Treater	8760	Proc. Vessel Vent	0	0	4.5	1209	20	5.6	0
OST-01	Oil Storage Tank - Flash	8760	Tank Hatch	0.0021	0.0113514	4.5	1145	15	9.6	0.291322
OST-02	Oil Storage Tank - Flash	8760	Tank Hatch	0.0021	0.0113514	4.5	1150	15	9.6	0.291322
OST-03	Oil Storage Tank - Flash	8760	Tank Hatch	0.0021	0.0113514	4.5	1155	15	9.52	0.29377
OST-04	Oil Storage Tank - Flash	8760	Tank Hatch	0.0021	0.0113514	4.5	1160	15	9.52	0.29377
OST-05	Oil Storage Tank - Flash	8760	Tank Hatch	0.0021	0.0113514	4.5	1101	16	10	0.279669
OST-06	Oil Storage Tank - Flash	8760	Tank Hatch	0.0021	0.0113514	4.5	1123	16	9.76	0.286546
OST-01	Oil Storage Tank - Breathing & Working	8760	Tank Hatch	0.0047	0.0254054	4.5	1145	15	9.6	0.652006
OST-02	Oil Storage Tank - Breathing & Working	8760	Tank Hatch	0.0047	0.0254054	4.5	1150	15	9.6	0.652006
OST-03	Oil Storage Tank - Breathing & Working	8760	Tank Hatch	0.0047	0.0254054	4.5	1155	15	9.52	0.657485
OST-04	Oil Storage Tank - Breathing & Working	8760	Tank Hatch	0.0047	0.0254054	4.5	1160	15	9.52	0.657485
OST-05	Oil Storage Tank - Breathing & Working	8760	Tank Hatch	0.0083	0.0448649	4.5	1101	16	10	1.105358
OST-06	Oil Storage Tank - Breathing & Working	8760	Tank Hatch	0.0083	0.0448649	4.5	1123	16	9.76	1.132539
WST-01	Water Storage Tank - Flash	8760	Tank Hatch	0.0005	0.0027027	4.5	1185	24	9.28	0.071754
WST-02	Water Storage Tank - Flash	8760	Tank Hatch	0.0005	0.0027027	4.5	1170	16	9.44	0.070538
WST-03	Water Storage Tank - Flash	8760	Tank Hatch	0.0005	0.0027027	4.5	1145	6	9.6	0.069362
WST-04	Water Storage Tank - Flash	8760	Tank Hatch	0.0005	0.0027027	4.5	1155	6	9.52	0.069945
WST-05	Water Storage Tank - Flash	8760	Tank Hatch	0.0005	0.0027027	4.5	1148	6	9.6	0.069362
WST-01	Water Storage Tank - Breathing & Working	8760	Tank Hatch	0.0002	0.0010811	4.5	1185	24	9.28	0.028702
WST-02	Water Storage Tank - Breathing & Working	8760	Tank Hatch	0.0002	0.0010811	4.5	1170	16	9.44	0.028215
WST-03	Water Storage Tank - Breathing & Working	8760	Tank Hatch	0.0002	0.0010811	4.5	1145	6	9.6	0.027745
WST-04	Water Storage Tank - Breathing & Working	8760	Tank Hatch	0.0002	0.0010811	4.5	1155	6	9.52	0.027978
WST-05	Water Storage Tank - Breathing & Working	8760	Tank Hatch	0.0002	0.0010811	4.5	1148	6	9.6	0.027745
MSS-01	Routine MSS	20	Proc. Vessel Vent	0.0053	0.0286486	4.5	1175	20	5.68	0.002837
				$E_{estimated,total,annual}$ (tons/yr)	Total		Passed			$E_{max,total,annual}$ (tons/yr)
				0.185	1					22.89591

Appendix - Section 4

Comm Engineering
West Lee
2016-ELDF-000082

Pressurized Liquid Compositional Data			
Component	**Mol %**	**Weight %**	**ppm**
Carbon Dioxide	**0.0180**	**0.0037**	-
Nitrogen	**0.0290**	**0.0038**	-
Methane	**0.6080**	**0.0457**	-
Ethane	**0.6080**	**0.0856**	-
Propane	**2.4090**	**0.4976**	-
i-Butane	**1.1570**	**0.3150**	-
n-Butane	**3.0960**	**0.8428**	-
i-Pentane	**3.1530**	**1.0655**	-
n-Pentane	**2.7530**	**0.9303**	-
i-Hexane	**1.7412**	**0.6863**	-
n-Hexane	**2.5983**	**1.0487**	-
2,2,4 Trimethylpentane or IsoOctane	**0.0000**	**0.0000**	-
Benzene	**1.4606**	**0.5343**	-
Heptanes	**2.2740**	**1.0573**	-
Toluene	**1.3294**	**0.5737**	-
Octanes	**1.7106**	**0.9083**	-
E-Benzene	**1.2523**	**0.6227**	-
M-,O-,P- Xylene	**0.1804**	**0.0897**	-
Nonanes	**1.5490**	**0.9066**	-
Decanes+	**72.0733**	**89.7822**	-
Totals	**100.0000**	**100.0000**	

Pressurized Liquid Physical Data			
Property/Parameter	**Value**	**Units**	-
GOR or Flash Factor	**1.52**	ft3/bbl	-
Molecular Weight	**213.51**	-	-
Specific Gravity	**0.9020**	-	-
API Gravity	**25.4**	°	-
Separator Pressure	**10.0**	psi	-
Separator Temperature	**90.0**	F	-

Comm Engineering
West Lee
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Pressurized Gas Compositional Data			
Component	**Mol %**	**Weight %**	**ppm**
Carbon Dioxide	0.6080	1.0560	-
Nitrogen	12.9240	14.2890	-
Methane	61.8920	39.1900	-
Ethane	7.8330	9.2960	-
Propane	8.6820	15.1090	-
i-Butane	1.7120	3.9270	-
n-Butane	3.1080	7.1290	-
i-Pentane	1.2460	3.5480	-
n-Pentane	0.8250	2.3490	-
i-Hexane	0.3860	1.3130	-
n-Hexane	0.1780	0.6050	-
2,2,4 Trimethylpentane or IsoOctane	0.0000	0.0000	-
Benzene	0.1690	0.5210	-
Heptanes	0.2460	0.8970	-
Toluene	0.0620	0.2250	-
Octanes	0.0780	0.3270	-
E-Benzene	0.0280	0.1170	-
M-,O-,P- Xylene	0.0070	0.0290	-
Nonanes	0.0140	0.0630	-
Decanes+	0.0020	0.0100	-
Totals	100.0000	100.0000	

Pressurized Gas Physical Data			
Property/Parameter	**Value**	**Units**	-
Molecular Weight	25.34	-	-
Specific Gravity	0.8776	-	-
BTU Content (Real Dry)	1278.8	BTU/ft3	-
BTU Content (Real Sat)	1257.0	BTU/ft3	
Relative Density	0.4170	-	-
Sample Pressure	10.0	psi	-
Sample Temperature	70.0	F	-

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Flash Gas Compositional Data			
Component	**Mol %**	**Weight %**	**ppm**
Carbon Dioxide	0.7203	0.9958	-
Nitrogen	2.7568	2.4259	-
Methane	44.8781	22.6165	-
Ethane	16.3137	15.4097	-
Propane	19.8281	27.4661	-
i-Butane	3.6265	6.6214	-
n-Butane	6.6903	12.2154	-
i-Pentane	2.5375	5.7511	-
n-Pentane	1.5974	3.6205	-
i-Hexane	0.2079	0.5496	-
n-Hexane	0.4163	1.1269	-
2,2,4 Trimethylpentane or IsoOctane	0.0000	0.0000	-
Benzene	0.2130	0.5225	-
Heptanes	0.1108	0.3453	-
Toluene	0.0504	0.1458	-
Octanes	0.0311	0.1103	-
E-Benzene	0.0142	0.0473	-
M-,O-,P- Xylene	0.0017	0.0056	-
Nonanes	0.0051	0.0203	-
Decanes+	0.0008	0.0038	-
Totals	100.0000	100.0000	

Flash Gas Physical Data			
Property/Parameter	**Value**	**Units**	-
Molecular Weight	31.83	-	-
Specific Gravity	1.1115	-	-
BTU Content (Real Dry)	1810.9	BTU/ft3	-
BTU Content (Real Sat)	1779.2	BTU/ft3	
Relative Density	1.1115	-	-
Staged Pressure - INITIAL	10.0	psi	-
Staged Pressure - FINAL	0.0	psi	-
Staged Temperature - INITIAL	90.0	F	-
Staged Temperature - FINAL	60.0	F	-
Gas Oil Ratio	1.52	ft3/bbl	-

SAMPLE ID		COLLECTION DATA	
Operator	Texland Petroleum, LP	**Pressure**	17 psig
Location	Lif-Lubheirs	**Sample Temp**	81 F
Site	Central Tank Battery	**Atm Temp**	76 F
Site Type	Battery	**Collection Date**	06/13/2024
Sample Point	Gas Leg of Production Separator	**Collection Time**	9:35 AM
Spot/Comp	Spot	**Collection By**	Mike McKinney
Meter ID		**Pressure Base**	14.650 psi
Regulatory ID	65679	**Temperature Base**	60 F
Fluid	Gas	**Container(s)**	PL1017

GPA 2261-20 Gas Fractional Analysis

COMPOUND	FORMULA	MOL%	WT%	GPM
NITROGEN	N2	11.359	11.515	1.246
CARBON DIOXIDE	CO2	0.950	1.513	0.162
HYDROGEN SULFIDE	H2S	0.035	0.043	0.005
METHANE	C1	57.196	33.206	9.696
ETHANE	C2	9.053	9.851	2.422
PROPANE	C3	10.311	16.453	2.842
I-BUTANE	iC4	2.168	4.560	0.709
N-BUTANE	nC4	4.032	8.480	1.271
I-PENTANE	iC5	1.739	4.540	0.637
N-PENTANE	nC5	1.210	3.159	0.438
HEXANES PLUS	C6+	1.947	6.680	0.830
TOTALS:		**100.000**	**100.000**	**20.258**

Value of "0.000" in fractional interpreted as below detectable limit. Onsite H2S value is used in fractional table if performed.

LIQUID YIELD	C2+	C3+	C4+	C5+	26# Liquid	10# Liquid
GAL/MSCF (GPM)	9.149	6.727	3.885	1.905	2.871	1.587

GPA 2172/ASTM D3588 CALCULATED PROPERTIES

WATER CONTENT	BTU/CF, Gross	BTU/CF, Net	Specific Gr.	Z Factor	Mol Weight	Wobbe IDX
DRY	1,422.01	1,299.68	0.959	0.994	27.635	1,452.00
SATURATED	1,398.62	1,276.93	0.954	0.994	27.152	

Onsite Testing by Stain Tube

METHOD	TYPE	MOL%	GRAINS/100	PPMV	LB/MMSCF
GPA2377	hydrogen sulfide	0.0346	21.99	349.6	16.5

Mol%, Grains/100, PPMV are pressure and temperature corrected to base conditions.