PERMIT BY RULE

OXYROCK OPERATING, LLC

GUITAR GALUSHA 2220 N. FACILITY #1

BIG SPRING, HOWARD COUNTY, TEXAS

MAY 2025

COMM ENGINEERING

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Permit By Rule Application for Approval of Emissions

Oxyrock Operating, LLC
Guitar Galusha 2220 N. Facility #1

APPLICATION

Section 1	Core Data Form
Section 2	Form PI-7 CERT Registration
Section 3	Application Summary and Proposed Actions
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Section 5	Facility Map and Driving Directions
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APPENDIX

Section 1	Emissions Calculations
Section 2	Facility Compositional Analyses

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 606319077		**RN**

SECTION II: Customer Information

4. General Customer Information	**5. Effective Date for Customer Information Updates** (mm/dd/yyyy)	4/1/2025

☐ 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:

Oxyrock Operating, LLC

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*
805570320			

11. Type of Customer:

☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited

Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other ☐ Sole Proprietorship ☒ Other: Limited Liability Company

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:

1600 Gehrig Drive

City	Midland	**State**	TX	**ZIP**	79706	**ZIP + 4**	

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

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(432) 818-0303		( ) -

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.)*

Guitar Galusha 2220 N. Facility #1

23. Street Address of the Regulated Entity: ***(No PO Boxes)***								
	City		**State**		**ZIP**		**ZIP + 4**	
24. County	Howard							

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

25. Description to Physical Location:	From Intersection of N CR15 and W CR32: Lease road is at the intersection. Travel 1.24 miles. Turn right for 280 ft. Arrive at facility.				
26. Nearest City			**State**	**Nearest ZIP Code**	
Big Spring			TX	79720	

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:	32.31305		**28. Longitude (W) In Decimal:**	101.61130	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
32	18	47	101	36	40.7

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 & Oil Production

34. Mailing Address:	**1600 Gehrig Drive**							
	City	**Midland**	**State**	**TX**	**ZIP**	**79706**	**ZIP + 4**	
35. E-Mail Address:	**tyler_timmons@oxy.com**							

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(432) 818-0303		( ) -

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: PBR
				106.352, 359, 492

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:	Oxyrock Operating, LLC	**Job Title:**	Facility Manager
Name *(In Print):*	Tyler Timmons	**Phone:**	**(** 432 **)** 818- **0303**
Signature:		**Date:**	

Application - Section 2

Certification and Registration for Permits by Rule
Form PI-7-CERT
Page 1
Texas Commission on Environmental Quality

I. Registrant Information
A. Company or Other Legal Customer Name
Company Official Contact Information (☒ Mr. ☐ Mrs. ☐ Ms. ☐ Other: _____)
Name: Tyler Timmons
Title: Facility Manager
Mailing Address: 1600 Gehrig Drive
City: Midland
State: Texas
ZIP Code: 79706
Phone: (432) 818-0303
Fax:
Email Address: tyler_timmons@oxy.com
All PBR registration responses will be sent via email.
A. Technical Contact Information (☒ Mr. ☐ Mrs. ☐ Ms. ☐ Other: _____)
Name: Tyler Timmons
Title: Facility Manager
Company Name: Oxyrock Operating, LLC
Mailing Address: 1600 Gehrig Drive
City: Midland
State: Texas
ZIP Code: 79706
Phone Number: (832) 818-0303
Fax Number:
Email Address: tyler_timmons@oxy.com

Certification and Registration for Permits by Rule
Form PI-7-CERT
Page 2
Texas Commission on Environmental Quality

II. Facility and Site Information
A. Name and Type of Facility
Facility Name: Guitar Galusha 2220 N. Facility #1
Facility Type: ☒ Permanent ☐ Temporary
For portable units, please provide the serial number of the equipment being authorized below.
Serial No(s):
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 N CR15 and W CR32: Lease road is at the intersection. Travel 1.24 miles.
Turn right for 280 ft. Arrive at facility.
City: Big Spring
County: Howard
ZIP Code: 79720
C. TCEQ Core Data Form
Is the Core Data Form (TCEQ Form Number 10400) attached? ☒ YES ☐ NO
If "NO," provide customer reference number (CN) and regulated entity number (RN) below.
Customer Reference Number (CN): 606319077
Regulated Entity Number (RN):
D. TCEQ Account Identification Number (if known):
E. Type of Action
☒ Initial Application ☐ Change to Registration
For Change to Registration provide the Registration Number:
F. PBR number(s) claimed under 30 TAC Chapter 106
(List all the individual rule number(s) that are being claimed.)
106. 352
106. 359
106. 492
106.

II. Facility and Site Information *(continued)*	
G. Historical Standard Exemption or PBR	
Are you claiming a historical standard exemption or PBR?	☐ YES ☒ NO
If "YES," enter rule number(s) and associated effective date in the spaces provided below.	
Rule Number:	Effective Date:
Rule Number:	Effective Date:
H. 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 dates in the spaces provided below.	
Standard Exemption or PBR Registration Number:	
Effective Date:	
I. 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:	
Standard Exemption, PBR Registration, and Standard Permit Registration Number(s):	
Effective Date:	
Standard Exemption, PBR Registration, and Standard Permit Registration Number(s):	
Effective Date:	
J. 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.	
K. Affected Air Preconstruction Permits	
Does the PBR being claimed directly affect any permitted facility?	☐ YES ☒ NO

II. Facility and Site Information *(continued)*			
If "YES," enter the permit number(s) in the spaces provided below.			
L. Federal Operating Permit (FOP) Requirements (30 TAC Chapter 122 Applicability)			
1. Is this facility located at a site that is required to obtain an 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 certification is accepted. *(check all that apply)*			
☐ Initial Application for a FOP	☐ Significant Revision for an SOP	☐ Minor Revision for an SOP	
☐ Operational Flexibility/Off Permit Notification for an SOP		☐ Revision for a GOP	
☐ To Be Determined	☐ None		
2. 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 (*See Section VII. for address to send fee or go to www.tceq.texas.gov/epay to pay online.)*			
A. Fee Requirements			
Is a fee required per Title 30 TAC § 106.50?	☒ YES	☐ NO	
If "NO," specify the exception. There are three exceptions to paying a PBR fee. (*check all that apply*)			
1. Registration is solely to establish a federally enforceable emission limit.	☐		
2. Registration is within six months of an initial PBR review, and it is addressing deficiencies, administrative changes, or other allowed changes.	☐		
3. Registration is for a remediation project (30 TAC § 106.533).	☐		
B. Fee Amount			
1. A $100 fee is required if *any* of the answers in III.B.1 are "YES."			
This business has less than 100 employees.	☐ YES	☒ NO	
This business has less than $6 million dollars in annual gross receipts.	☐ YES	☒ NO	
This registration is submitted by a governmental entity with a population of less than 10,000.	☐ YES	☒ NO	
This registration is submitted by a non-profit organization.	☐ YES	☒ NO	

III.	**Fee Information (***See Section VII. for address to send fee or go to www.tceq.texas.gov/epay to pay online.) (continued)*
2.	A $450 fee is required for all other registrations
A.	Payment Information
Check/money order/transaction or voucher number:	
Individual or company name on check:	
Fee Amount: $ 450.00	
Was the fee paid online?	☒ YES ☐ NO
IV.	**Technical Information Including State aAnd Federal Regulatory Requirements** **Check the appropriate box to indicate what is included in your submittal.** **NOTE:** *Any technical or essential information needed to confirm that facilities are meeting the requirements of the PBR must be provided. Not providing key information could result in a deficiency of the project.*
A.	PBR 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 § 106.4 are met?	☒ YES ☐ NO
Did you demonstrate that the individual requirements of the specific PBR are met?	☒ YES ☐ NO
B	Confidential Information Included (If confidential information is submitted with this registration, all confidential pages must be properly marked “CONFIDENTIAL.”) ☐ YES ☒ NO
C.	Process Flow Diagram: ☐ YES ☒ NO
D.	Process Description: ☒ YES ☐ NO
E.	Maximum Emissions Data and Calculations: ☒ YES ☐ NO
Note: *If the facilities listed in this registration are subject to the Mass Emissions Cap & Trade program under* ***30 TAC Chapter 101, Subchapter H, Division 3,*** *the owner/operator of these facilities must possess NO_x allowances equivalent to the actual NO_x, emissions from these facilities.*	
F.	Is this certification being submitted to certify the emissions for the entire site? ☒ YES ☐ NO
If “NO,” include a summary of the specific facilities and emissions being certified.	
G.	Table 1(a) (Form 10153) Emission Point Summary: ☒ YES ☐ NO
H.	Distances from Property Line and Nearest Off-Property Structure
Distance from this facility’s emission release point to the nearest property line: 2490	feet
Distance from this facility’s emission release point to the nearest off-property structure: 5245	feet

IV. Technical Information Including State and Federal Regulatory Requirements **Check the appropriate box to indicate what is included in your submittal.** **NOTE:** *Any technical or essential information needed to confirm that facilities are meeting the requirements of the PBR must be provided. Not providing key information could result in a deficiency of the project.*
I. Project Status
Has the company implemented the project or waiting on a response from TCEQ? ☒ Implemented ☐ Waiting
J. Projected Start of Construction and Projected Start of Operation Dates:
Projected Start of Construction (provide date):
Projected Start of Operation (provide date):
V. Delinquent Fees
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 is 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.
VI. Signature For Registration and Certification
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 this 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.
Tyler Timmons
Name (printed)
Signature (original signature required)
Date

Application - Section 3

Oxyrock Operating, LLC
Guitar Galusha 2220 N. Facility #1

Permit by Rule Summary

The Guitar Galusha 2220 N. Facility #1 is a sweet natural gas and condensate/crude oil production facility located in Howard County, Texas. This Form PI-7 CERT is being submitted to establish enforceable emission rates. All requirements under Permit by Rule sections 30 TAC § 106.352 (Oil & Gas), § 106.359 (Maintenance, Start-up and Shutdown) and § 106.492 (Combustion Flares) are met. Separate checklists and supporting documentation are enclosed.

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. Emissions of PM_{10}, SO_2 and VOCs are each less than 25 tpy. Therefore, emissions do not exceed limits of the general requirements in 30 TAC § 106.4(a).

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 OOOOa) is applicable and requirements are met for the applicable sources. The facility will comply with all registration and reporting requirements as necessary, as well as comply with all emissions standards. The facility does not need to meet the requirements of 40 CFR Part 60, Subpart OOOO or Subpart OOOOb.

Emission Totals

Criteria Pollutant	Tons/Year
NO_X	3.8188
CO	7.4323
SO_2	0.0107
PM_{10}	0.1493
$PM_{2.5}$	0.1152
VOC	24.0276
HAPs	0.4914
H_2S	0.0000
Methane	14.4318

Proposed Actions

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

Application - Section 4

Oxyrock Operating, LLC
Guitar Galusha 2220 N. Facility #1

Process Description

The Guitar Galusha 2220 N. Facility #1 is a crude oil production facility in Howard County, Texas, which handles sweet natural gas (less than 24 ppm H_2S) and condensate/crude oil. The facility handles all stages of production. Based on a 30-day average, the facility annually processes approximately:

1,000	million standard cubic feet of natural gas,
114,975	barrels of condensate/crude oil, and
219,000	barrels of produced water.

Separation
Production from the nearby wells flows through a series of separators and one (1) 0.5 MMBTU/hr Heater Treater (EPN: HT-01). The natural gas from the separators and heater treater is either utilized for facility fuel or routed to a sales pipeline. Separated liquids (condensate/crude oil and produced water) are routed through a series of Vapor Recovery Towers and Vapor Recovery Units prior to storage. Condensate/crude oil flows to the Oil Storage Tanks. Produced water flows to the Water Storage Tanks.

Condensate/Crude Oil Storage and Load Out
Condensate/crude oil is stored in one (1) 1,000 bbl Gunbarrel Tank, two (2) 800 bbl Oil Storage Tanks, and four (4) 500 bbl Oil Storage Tanks (EPNs: GB-01, OST-01 thru OST-06). Flash, standing, and working losses are controlled by two (2) Combustor Units (EPNs: CU-01, CU-02). The combustor units achieve a destruction efficiency of 95%. 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) 800 bbl Water Storage Tanks (EPNs: WST-01, WST-02). Flash, standing, and working losses are vented to the atmosphere.

The stored produced water is then shipped via pipeline to disposal wells.

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 the component count methodology in 40 CFR 98, Subpart W (GHG Rule) 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 being certified under Permit by Rule §106.359; 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.

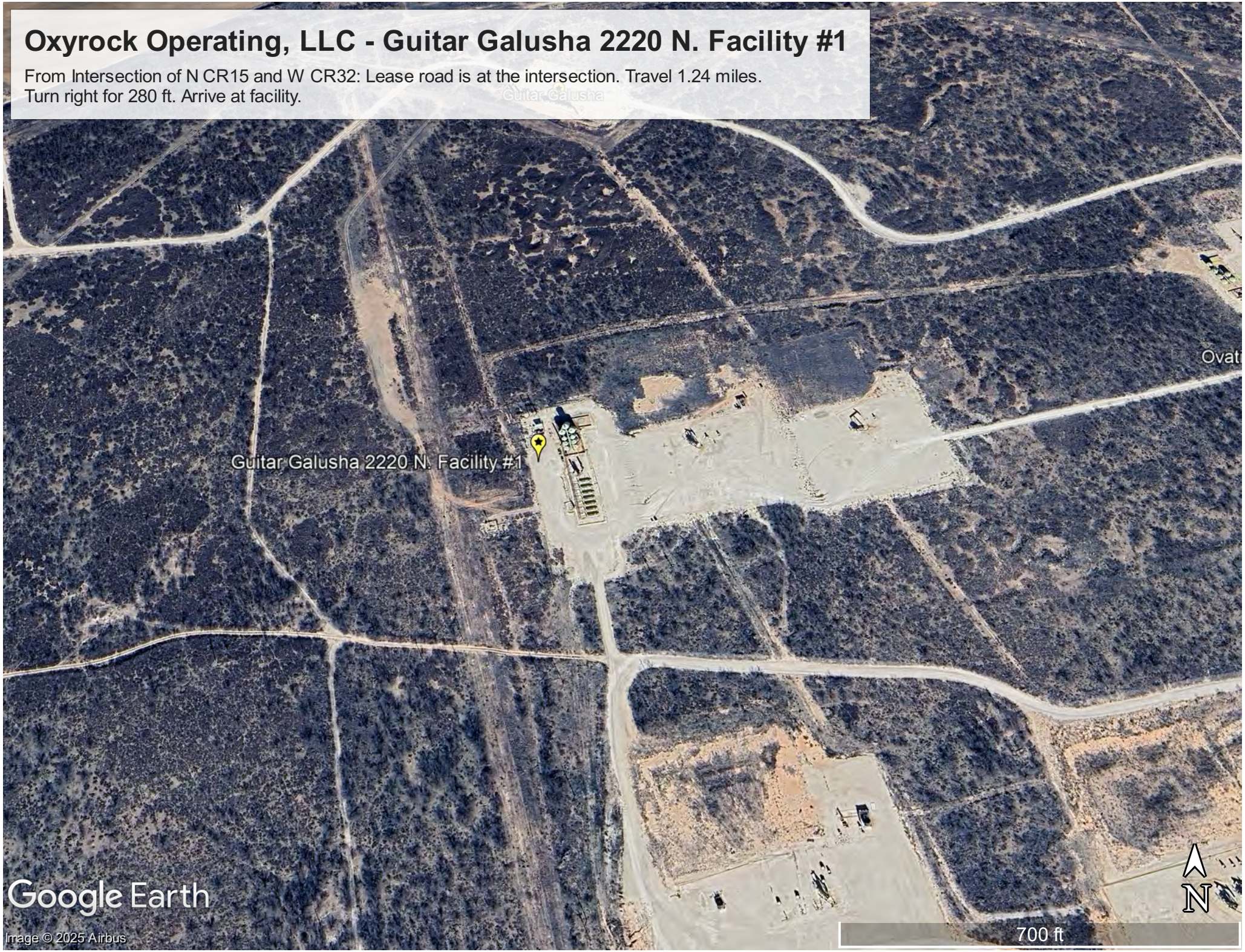
An emergency flare (EPN: FL-01) is located on-site for destructing emissions from planned and non-routine events. The flare achieves a destruction efficiency of 98%.

A representative natural gas and oil analyses were utilized for the application. The representative analyses are from a nearby Oxyrock Operating, LLC facility and were chosen due to the area, reservoir conditions, API gravity and operating conditions of the facility. The GOR and flash gas analysis analyzed in the laboratory are utilized for the storage tank emissions. The representative analyses comply with all of the requirements of TCEQ.

Application - Section 5

Oxyrock Operating, LLC - Guitar Galusha 2220 N. Facility #1

From Intersection of N CR15 and W CR32: Lease road is at the intersection. Travel 1.24 miles.
Turn right for 280 ft. Arrive at facility.



Application - Section 6

Texas Commission on Environmental Quality
Permit by Rule Applicability Checklist
Title 30 Texas Administrative Code § 106.4

The following checklist was developed by the Texas Commission on Environmental Quality (TCEQ), **Air Permits Division**, to assist applicants in determining whether or not a facility meets all of the applicable requirements. Before claiming a specific Permit by Rule (PBR), a facility must first meet all of the requirements of **Title 30 Texas Administrative Code § 106.4** (30 TAC § 106.4), "Requirements for Permitting by Rule." Only then can the applicant proceed with addressing requirements of the specific Permit by Rule being claimed.

The use of this checklist is not mandatory; however, it is the responsibility of each applicant to show how a facility being claimed under a PBR meets the general requirements of 30 TAC § 106.4 and also the specific requirements of the PBR being claimed. If all PBR requirements cannot be met, a facility will not be allowed to operate under the PBR and an application for a construction permit may be required under 30 TAC § 116.110(a).

Registration of a facility under a PBR can be performed by completing **Form PI-7** (Registration for Permits by Rule) or **Form PI-7-CERT** (Certification and Registration for Permits by Rule). The appropriate checklist should accompany the registration form. Check the most appropriate answer and include any additional information in the spaces provided. If additional space is needed, please include an extra page and reference the question number. The PBR forms, tables, checklists, and guidance documents are available from the TCEQ, Air Permits Division website at: www.tceq.texas.gov/permitting/air/nav/air_pbr.html.

1. 30 TAC § 106.4(a)(1) and (4): Emission Limits	**Answer**
List emissions in tpy for **each** facility (add additional pages or table if needed):	
Are the SO_2, PM_{10}, VOC, or other air contaminant emissions claimed for **each** facility in this PBR submittal less than 25 tpy?	☒ YES ☐ NO
Are the NO_x and CO emissions claimed for each facility in this PBR submittal less than 250 tpy?	☒ YES ☐ NO
*If the answer to both is "Yes," continue to the question below. If the answer to either question is "No," a **PBR cannot be claimed**.*	
Has any facility at the property had public notice and opportunity for comment under 30 TAC Section 116 for a regular permit or permit renewal? (This does not include public notice for voluntary emission reduction permits, grandfathered existing facility permits, or federal operating permits.)	☐ YES ☒ NO
If "Yes," skip to Section 2. If "No," continue to the questions below.	
If the site has had no public notice, please answer the following:	
Are the SO_2, PM_{10}, VOC, or other emissions claimed for **all** facilities in this PBR submittal less than 25 tpy?	☒ YES ☐ NO
Are the NO_x and CO emissions claimed for all facilities in this PBR submittal less than 250 tpy?	☒ YES ☐ NO
If the answer to both questions is "Yes," continue to Section 2.	
*If the answer to either question is "No," **a PBR cannot be claimed**. A permit will be required under Chapter 116.*	

Texas Commission on Environmental Quality
Permit by Rule Applicability Checklist
Title 30 Texas Administrative Code § 106.4

2. 30 TAC § 106.4(a)(2): Nonattainment Check	Answer
Are the facilities to be claimed under this PBR located in a designated ozone nonattainment county?	☐ YES ☒ NO
If "Yes," please indicate which county by checking the appropriate box to the right.	
(Moderate) - Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller counties:	☐ HGB
(Moderate) - Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, Tarrant, and Wise counties:	☐ DFW
If "Yes," to any of the above, continue to the next question. If "No," continue to Section 3.	
Does this project trigger a nonattainment review?	☐ YES ☐ NO
Is the project's potential to emit (PTE) for emissions of VOC or NO_x increasing by 100 tpy or more?	☐ YES ☐ NO
PTE is the maximum capacity of a stationary source to emit any air pollutant under its worst-case physical and operational design unless limited by a permit, rules, or made federally enforceable by a certification.	
Is the site an existing major nonattainment site and are the emissions of VOC or NO_x increasing by 40 tpy or more?	☐ YES ☐ NO
If needed, attach contemporaneous netting calculations per nonattainment guidance.	
Additional information can be found at: www.tceq.texas.gov/permitting/air/forms/newsourcereview/tables/nsr_table8.html and www.tceq.texas.gov/permitting/air/nav/air_docs_newsource.html	
*If "Yes," to any of the above, the project is a major source or a major modification and **a PBR may not be used**. A Nonattainment Permit review must be completed to authorize this project. If "No," continue to Section 3.*	
3. 30 TAC § 106.4(a)(3): Prevention of Significant Deterioration (PSD) check	
Does this project trigger a review under PSD rules?	
To determine the answer, review the information below:	
Are emissions of any regulated criteria pollutant increasing by 100 tpy of any criteria pollutant at a named source?	☐ YES ☒ NO
Are emissions of any criteria pollutant increasing by 250 tpy of any criteria pollutant at an unnamed source?	☐ YES ☒ NO
Are emissions increasing above significance levels at an existing major site?	☐ YES ☒ NO
PSD information can be found at: www.tceq.texas.gov/assets/public/permitting/air/Forms/NewSourceReview/Tables/10173tbl.pdf and www.tceq.texas.gov/permitting/air/nav/air_docs_newsource.html	
*If "Yes," to any of the above, **a PBR may not be used**. A PSD Permit review must be completed to authorize the project.*	
If "No," continue to Section 4.	

Texas Commission on Environmental Quality
Permit by Rule Applicability Checklist
Title 30 Texas Administrative Code § 106.4

4. 30 TAC § 106.4(a)(6): Federal Requirements	Answer
Will all facilities under this PBR meet applicable requirements of Title 40 Code of Federal Regulations (40 CFR) Part 60, New Source Performance Standards (NSPS)?	☒ YES ☐ NO ☐ NA
If "Yes," which Subparts are applicable? *(answer below.)*	
Subpart OOOOa	
Will all facilities under this PBR meet applicable requirements of 40 CFR Part 63, Hazardous Air Pollutants Maximum Achievable Control Technology (MACT) standards?	☐ YES ☐ NO ☒ NA
If "Yes," which Subparts are applicable? *(answer below.)*	
Will all facilities under this PBR meet applicable requirements of 40 CFR Part 61, National Emissions Standards for Hazardous Air Pollutants (NESHAPs)?	☐ YES ☐ NO ☒ NA
If "Yes," which Subparts are applicable? *(answer below.)*	
If "Yes" to any of the above, please attach a discussion of how the facilities will meet any applicable standards.	
5. 30 TAC § 106.4(a)(7): PBR prohibition check	
Are there any air permits at the site containing conditions which prohibit or restrict the use of PBRs?	☐ YES ☒ NO
If "Yes," PBRs may not be used or their use must meet the restrictions of the permit. A new permit or permit amendment may be required.	
List permit number(s):	
6. 30 TAC § 106.4(a)(8): NO_x Cap and Trade	
Is the facility located in Harris, Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery, or Waller County?	☐ YES ☒ NO
If "Yes," answer the question below.	
If "No," continue to Section 7.	
Will the proposed facility or group of facilities obtain required allowances for NO_x if they are subject to 30 TAC Chapter 101, Subchapter H, Division 3 (relating to the Mass Emissions Cap and Trade Program)?	☐ YES ☐ NO

Texas Commission on Environmental Quality
Permit by Rule Applicability Checklist
Title 30 Texas Administrative Code § 106.4

7. Highly Reactive Volatile Organic Compounds (HRVOC) check		
Is the facility located in Harris County?		☐ YES ☒ NO
If "Yes," answer the next question. If "No," skip to the box below.		
Will the project be constructed after June 1, 2006?		☐ YES ☐ NO
If "Yes," answer the next question.		
If "No," skip to the box below.		
Will one or more of the following HRVOC be emitted as a part of this project?		☐ YES ☐ NO
If "Yes," complete the information below:		
Information	**lb/hr**	**tpy**
► 1,3-butadiene		
► all isomers of butene (e.g., isobutene [2-methylpropene or isobutylene])		
► alpha-butylene (ethylethylene)		
► beta-butylene (dimethylethylene, including both cis- and trans-isomers)		
► ethylene		
► propylene		
Is the facility located in Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery, or Waller County?		☐ YES ☒ NO
If "Yes," answer the next question. If "No," the checklist is complete.		
Will the project be constructed after June 1, 2006?		☐ YES ☐ NO
If "Yes," answer the next question. If "No," the checklist is complete.		
Will one or more of the following HRVOC be emitted as a part of this project?		☐ YES ☐ NO
If "Yes," complete the information below:		
Information	**lb//hr**	**tpy**
► ethylene		
► propylene		

Save Form Reset Form

Company: Oxyrock Operating, LLC
Facility: Guitar Galusha 2220 N. Facility #1

Total Emissions

EPN	Description	NOx		CO		PM_{10}		$PM_{2.5}$		SO2		VOC		HAPs		H_2S		Methane	
		lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
CU-01	Combustor Unit	0.0494	0.2164	0.0986	0.4320	0.0009	0.0040	0.0007	0.0030	0.0001	0.0003	0.7718	3.3803	0.0408	0.1785	0.0000	0.0000	0.0173	0.0755
CU-02	Combustor Unit	0.0494	0.2164	0.0986	0.4320	0.0009	0.0040	0.0007	0.0030	0.0001	0.0003	0.7718	3.3803	0.0408	0.1785	0.0000	0.0000	0.0173	0.0755
FE-01	Fugitive Emissions	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.8480	3.7160	0.0000	0.0000	0.0000	0.0000	0.3600	1.5760
FL-01	Emergency Flare (Alternate Operating Scenario)	0.7352	3.2200	1.4677	6.4284	0.0293	0.1283	0.0220	0.0962	0.0023	0.0101	1.4911	6.5310	0.0000	0.0000	0.0000	0.0000	2.3684	10.3736
GB-01	Gunbarrel Tank (Controlled by Combustors at 95%)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
HT-01	Heater Treater Burner	0.0380	0.1660	0.0320	0.1400	0.0003	0.0130	0.0030	0.0130	0.0000	0.0000	0.0020	0.0090	0.0010	0.0040	0.0000	0.0000	0.0010	0.0040
MSS-01	Maintenance, Start-Up, and Shutdown Emissions	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0437	4.5714	0.0000	0.0000	0.0000	0.0000	0.5295	2.3194
OST-01	Oil Storage Tank (Controlled by Combustor at 95%)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
OST-02	Oil Storage Tank (Controlled by Combustor at 95%)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
OST-03	Oil Storage Tank (Controlled by Combustor at 95%)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
OST-04	Oil Storage Tank (Controlled by Combustor at 95%)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
OST-05	Oil Storage Tank (Controlled by Combustor at 95%)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
OST-06	Oil Storage Tank (Controlled by Combustor at 95%)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
WST-01	Water Storage Tank	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2785	1.2198	0.0149	0.0652	0.0000	0.0000	0.0009	0.0039
WST-02	Water Storage Tank	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2785	1.2198	0.0149	0.0652	0.0000	0.0000	0.0009	0.0039
	TOTAL EMISSIONS	0.8720	3.8188	1.6969	7.4323	0.0314	0.1493	0.0264	0.1152	0.0024	0.0107	5.4853	24.0276	0.1123	0.4914	0.0000	0.0000	3.2952	14.4318

Application - Section 7

Texas Commission on Environmental Quality
Oil and Gas Handling and Production Facilities
Air Permits by Rule (PBR) Checklist
Title 30 Texas Administrative Code § 106.352(l)

Check the most appropriate answer and include any technical information in the spaces provided. If additional space is needed, please include an extra page that references this checklist. The forms, checklists, and guidance documents are available from the Texas Commission on Environmental Quality (TCEQ), Air Permits Division Web site at: www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-o/oil_and_gas.html. If you have any questions, or need additional assistance, please contact the Air Permits Division at (512) 239-1250.

The facility can register by submitting this application and any supporting documentation. Below is a checklist to ensure you have provided all appropriate documentation. For sites that require registration or if the company chooses to register the site with the TCEQ, a Core Data Form is required with this checklist.
For additional assistance with your application, including resources to help calculate your emissions, please visit the Small Business and Local Government Assistance (SBLGA) webpage at the following link: www.TexasEnviroHelp.org.

This checklist is for use by the operator to ensure a complete application.		
Have you included each of the following items in the application?		
☒	Process Description.	
☒	Plot plan or area map.	
☒	TCEQ Oil and Gas Emission Calculation Spreadsheet (or equivalent).	
☒	Detailed summary of maximum emissions estimates with supporting documentation, such as result reports from any emission estimation computer program.	
☒	Gas and Liquid analyses. If a site specific analysis is not submitted, please provide justification as to why a representative site was used.	
☒	Technical documents (manufacturer's specification sheet, operational design sheets)	
☒	State and Federal applicability.	
☒	Core Data Form (for new sites that have never been registered with the TCEQ).	
1	Is the project located in one of the Barnett Shale counties and did the start of construction or modification begin on or after April 1, 2011?	☐ Yes ☒ No
Note: *Counties included in the Barnett Shale area: Cooke, , Dallas, Denton, , Ellis, Erath, Hill, Hood, Jack, Johnson, Montague, Palo Pinto, Parker, Somervell, Tarrant, and Wise counties.*		
For what is considered start of construction see: www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/factsheet-const.pdf		
*If **"Yes,"** do not complete this checklist. The project is subject to the requirements of §106.352(a)-(k). Additional information for Barnett Shale area projects can be found at:* www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-o/oil_and_gas.html.		

Texas Commission on Environmental Quality
Oil and Gas Handling and Production Facilities
Air Permits by Rule (PBR) Checklist
Title 30 Texas Administrative Code § 106.352(l)

General Information and Questions/Descriptions *(continued)*		
2	Are the total site-wide emissions from all facilities claimed under 30 TAC §106.352(l) less than 25 tpy VOC, 250 tpy NOx, 250 tpy CO, and 25 tpy SO_2?	☒ Yes ☐ No
3.	Are there flares, engines, or turbines at the site?	☒ Yes ☐ No
*If **"Yes,"** attach supporting documentation to demonstrate compliance with the requirements.*		
Additional information and checklists can be found at: *§106.492 Flares:* www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-v/flares.html *§106.512 Stationary Engines and turbines:* www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-w/stationary_eng_turb.html		
4.	Does any facility at the site handle a stream with more than 24 ppm hydrogen sulfide (H_2S)?	☐ Yes ☒ No
*If **"Yes,"** proceed to question (4)(a) and (4)(b) and then proceed to questions 5 and 6 .*		
*If **"No,"** continue to questions 5 and 6.*		
4a.	What is the actual H_2S content of the stream? ……..	ppm
Site specific H_2S analysis is required.		
4b.	Indicate the actual distance from the nearest emissions point to the nearest offsite receptor:	_____ ft.
Note: *An offsite receptor includes any recreational area, residence, or other structure not occupied or used solely by the owner or operator of the facility. A facility handling sour gas must be located at least 1/4 mile from the nearest offsite receptor.*		
5.	Indicate the total actual emission rate of sulfur compounds, excluding sulfur oxides, from all vents	0.0000 lb/hr.
6.	Does the height of all vents at the site emitting sulfur compounds meet the minimum required height based on the H_2S emission rate in 106.352(l)(4)?	☒ Yes ☐ No
Note: *Truck loading and fugitive sources are not considered vents.*		

Recordkeeping: To demonstrate compliance with the requirements of the PBR, sufficient records must be maintained at all times. The records must be made available immediately upon request to the commission or any air pollution control program having jurisdiction. If you have any questions about the recordkeeping requirements, contact the Air Permits Division or the Air Program in the TCEQ Regional Office for the region in which the site is located.

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Application - Section 8

Exemption § 106.492 Checklist
(Previously Standard Exemption 80)
Smokeless Gas Flares

You must submit a PI-7 with required attachments before construction or operation if the gas burned in the flare has a sulfur or chlorine concentration greater than 24 ppmv.

The following checklist is designed to help you confirm that you meet Exemption § 106.492, previously standard exemption 80, requirements. **Any "NO" answers indicate that the claim of exemption may not meet all requirements for the use of Exemption § 106.492, previously standard exemption 80.** If you do not meet all the requirements, you may alter the project design/operation in such a way that all the requirements of the exemption are met, or obtain a construction permit.

Question/Description	Response
Have you included a description of how this exemption claim meets the general rule for the use of exemptions (§ 106.4 checklist is available)?	☒ YES ☐ NO ☐ NA
Is the flare equipped with a tip designed to provide good mixing with air, flame stability and a tip velocity less than 60 ft/sec for gases having a lower heating value less than 1,000 BTU/ft^3, or less than 400 ft/sec for gases with a LHV greater than 1,000 BTU/ft^3?	☒ YES ☐ NO ☐ NA
Attach a description including BTU content and tip velocity (Table 8 is available).	
Is the flare equipped with a continuously burning pilot or other automatic ignition system that assures gas ignition whenever vents are directed to the flare?	☒ YES ☐ NO ☐ NA
Attach a description of the system.	
If the flare emits more than 4 lb/hr of reduced sulfur compounds, excluding sulfur oxides, is it equipped with an alarm system that immediately notifies appropriate personnel when the ignition system ceases functioning?	☐ YES ☐ NO ☒ NA
Attach a description of the system.	
If the flare emits less than 4 lb/hr of reduced sulfur compounds and is not equipped with an alarm system, does the stack height meet the requirements of condition (d) of §106.352, previously standard exemption STDX 66?	☒ YES ☐ NO ☐ NA
Required Height: 20 ft	Actual Height: 20 ft
If the flare burns gases containing more than 24 ppmv of sulfur, chlorine or compounds containing either element, is it located at least 1/4 mile from any recreational area, residence, or other structure not occupied or used solely by the owner or operator of the flare or owner of the property where the flare is located?	☐ YES ☐ NO ☒ NA
Attach a scaled map.	

Exemption § 106.492 Checklist
(Previously Standard Exemption 80)
Smokeless Gas Flares

Question/Description	Response
If the flare emits HCI, does the heat release (BRU/hr based on lower heating value) equal or exceed 2.73 x 10E5 x HCI emission rate (lb/hr)?	☐ YES ☐ NO ☒ NA
Attach calculations.	
If the flare emits SO2, does the heat release (BTU/hr based on lower heating value) equal or exceed 0.53 x 10E5 x SO2 emission rates (lb/hr)?	☒ YES ☐ NO ☐ NA
Attach calculations.	
Will you limit the flare to burning only combustible mixtures of gases containing only carbon, hydrogen, nitrogen, oxygen, sulfur, chlorine, or compounds derived from these elements?	☒ YES ☐ NO ☐ NA
Will the gas mixture always have a net or lower heating value of at least 200 BTU/ft3 prior to addition of air?	☒ YES ☐ NO ☐ NA
Do you understand and will you ensure that liquids shall never be burned in the flare?	☒ YES ☐ NO ☐ NA

Company Name: Oxyrock Operating, LLC
Facility: Guitar Galusha 2220 N. Facility #1
EPN: FL-01
FIN: FL-01
CIN: FL-01
Source Description: Emergency Flare (Alternate Operating Scenario)

Determination of Compliance - 106.492 Smokeless Gas Flares

(1)(A): Flare Stack Exit Velocity Calculation

Lower Heating Value:	1331	Btu/SCF
Volumetric Fuel Rate:	4005.00	SCF/hr
Stack Diameter:	20	in
Stack Temperature:	1600	^{o} F
Exhaust Exit Velocity:	**21.25**	ft/sec

Compliant: Exit velocity less than 400 ft/sec for gases having a lower heating value greater than 1,000 BTU/SCF.

Note: Calculation for Exit Velocity for Flare, ft/sec:

$$\frac{\text{(Volumetric Flow Rate, SCFH)}*[(10.52\ \text{SCF Exhaust Gas/SCF Fuel})*(1\ \text{hr}/3600\ \text{sec})*((460 + \text{Exit Temperature, deg F})/520)]}{3.1416*[(\text{Stack Diameter, in}/12)*0.5]^2}$$

---

(1)(D): Heat Release

Does flare emit HCl?	No
Does flare emit SO_2?	Yes

If flare emits SO2, does the heat release (BTU/hr based on lower heating value) equal or exceed 0.53 x 10E5 x SO2 emission rate (lb/hr)?

Actual Heat Release:	5.3273	MMBtu/hr
Actual Heat Release:	5327278.165	Btu/hr
SO2 Emission Rate:	0.002	lb/hr
Heat Release Calculated:	123.000	Btu/hr

Compliant: Actual heat release equals or exceeds the SO_2 emission rate.

Appendix - Section 1

Company Name: Oxyrock Operating, LLC
Facility: Guitar Galusha 2220 N. Facility #1
EPN: CU-01, CU-02
FIN: CU-01, CU-02
CIN: CU-01, CU-02
Source Description: Combustor Units

Total Gas Burned (scf/hr): **20.00**
Mass Rate (lbs/hr): **1.223**

r = gas (ft^3/hr) x mw gas (lb/lb-mole) / 379.49 (ft3/lb-mole)

Waste Gas Streams

Component	Pilot Gas Mole %	**Combined Waste Gas Mole %**	Component Mole Wt.	Mole Fraction X Mole Wt	Weight Fraction	**Uncontrolled Gas to Combustors (Lbs/hr)**
Hydrogen Sulfide	0.0000%	0.0000%	34.0800	0.0000	0.0000	0.0000
Nitrogen	3.4920%	3.4920%	28.0130	0.9782	0.0422	0.0516
Carbon Dioxide	0.2550%	0.2550%	44.0100	0.1122	0.0048	0.0059
Methane	69.9460%	69.9460%	16.0430	11.2214	0.4835	0.5914
Ethane	12.7400%	12.7400%	30.0700	3.8309	0.1651	0.2019
Propane	8.4360%	8.4360%	44.0970	3.7200	0.1603	0.1961
iso-Butane	0.7510%	0.7510%	58.1230	0.4365	0.0188	0.0230
n-Butane	2.5640%	2.5640%	58.1230	1.4903	0.0642	0.0785
iso-Pentane	0.5010%	0.5010%	72.1500	0.3615	0.0156	0.0191
n-Pentane	0.5470%	0.5470%	72.1500	0.3947	0.0170	0.0208
i-Hexanes	0.7680%	0.7680%	86.1770	0.6618	0.0285	0.0349
*n-Hexane	0.0000%	0.0000%	86.1770	0.0000	0.0000	0.0000
*Benzene	0.0000%	0.0000%	78.1140	0.0000	0.0000	0.0000
*Toluene	0.0000%	0.0000%	92.1410	0.0000	0.0000	0.0000
*Ethylbenzene	0.0000%	0.0000%	106.1670	0.0000	0.0000	0.0000
*Xylenes	0.0000%	0.0000%	106.1670	0.0000	0.0000	0.0000
*Trimethylpentane	0.0000%	0.0000%	114.2310	0.0000	0.0000	0.0000
Heptanes	0.0000%	0.0000%	100.2720	0.0000	0.0000	0.0000
Octanes	0.0000%	0.0000%	114.2310	0.0000	0.0000	0.0000
Nonanes	0.0000%	0.0000%	128.2580	0.0000	0.0000	0.0000
Decanes +	0.0000%	0.0000%	142.2800	0.0000	0.0000	0.0000
	100.0%	100.00%	Mole weight	23.2075		

Gas flow rate (scf/hr):	20.0	**20.00**
Stream percentage	100.0%	100.0%
Heat Content, BTU/SCF	1330.5	**1330.5**

Calculation formula
Component lbs/hr = (HC lbs/hr)(Weight fraction of component)
Component tons/yr = (component lbs/hr)(8760 hrs/yr)(1 ton/2000 lbs)
Volume SO_2 = H_2S (lbs/hr) x [62.04 lbs SO_2 /34.08 lbs H2S]

Company Name: Oxyrock Operating, LLC
Facility: Guitar Galusha 2220 N. Facility #1

Combined Feed Rate to Combustor Units

Component	Pilot Gas Feed Rate, lb/hr	Gunbarrel & Oil Storage Tanks Feed Uncontrolled Rate, lb/hr	Water Storage Tank Feed Uncontrolled Rate, lb/hr	Combined Feed Rate, lb/hr
Hydrogen Sulfide	0.0000	0.0000	0.0000	0.0000
Nitrogen	0.0516	0.3565	0.0000	0.4081
Carbon Dioxide	0.0059	0.1941	0.0000	0.1999
Methane	0.5914	0.0982	0.0000	0.6896
Ethane	0.2019	1.8076	0.0000	2.0095
Propane	0.1961	8.5469	0.0000	8.7429
n-Butane	0.0230	1.8736	0.0000	1.8966
Iso-Butane	0.0785	8.6320	0.0000	8.7105
N-Pentane	0.0191	3.7211	0.0000	3.7402
Iso-Pentane	0.0208	3.7373	0.0000	3.7581
Iso-Hexanes	0.0349	1.0863	0.0000	1.1212
*N-Hexane	0.0000	0.4483	0.0000	0.4483
*Benzene	0.0000	0.2675	0.0000	0.2675
*Toluene	0.0000	0.3457	0.0000	0.3457
*Ethylbenzene	0.0000	0.0605	0.0000	0.0605
*Xylenes	0.0000	0.1275	0.0000	0.1275
*Trimethylpentane	0.0000	0.3805	0.0000	0.3805
Heptanes	0.0000	0.8516	0.0000	0.8516
Octanes	0.0000	0.0996	0.0000	0.0996
Nonanes	0.0000	0.2769	0.0000	0.2769
Decanes +	0.0000	0.0426	0.0000	0.0426

Company Name: Oxyrock Operating, LLC
Facility: Guitar Galusha 2220 N. Facility #1
EPN: CU-01, CU-02
FIN: CU-01, CU-02
CIN: CU-01, CU-02
Source Description: Combustor Units

Combustor Units Emissions:

Pollutant	Emission Factor lb/MMBTU	Emission Rate lbs/hr	TPY	Source
NOx	0.138	0.0988	0.4328	TCEQ Guidance - Non-steam assisted, high BTU
CO	0.2755	0.1972	0.8639	TCEQ Guidance - Non-steam assisted, high BTU
	% Residual			
VOC	5.00	1.5435	6.7606	Manufacturer Data
	lb/MMSCF			
PM_{10}	7.6	0.0018	0.0080	AP-42, Table 1.4-2
$PM_{2.5}$	5.7	0.0014	0.0060	AP-42, Table 1.4-2
SO_2 (Sweet waste gas)	0.6	0.0001	0.0006	AP-42, Table 1.4-2. See Note 2 below.

Gas to Combustor Units:

	Combined Gas to Combustor						Gas Emitted from Combustor	
Component	Combined Feed Rate, lb/hr	Weight %	Component Specific Volume, ft3/lb	Volumetric Flow Rate, MMSCF/hr	Component Heating Value, BTU/ft3	Component Heat Rate, MMBTU/hr	Combustor Emissions, lb/hr	Combustor Emissions, tpy
Hydrogen Sulfide	0.0000	0.0000%	11.136	0.00E+00	637	0.0000	0.0000	0.0000
Nitrogen	0.4081	1.1940%	13.547	5.53E-06	0.0	0.0000	0.0204	0.0894
Carbon Dioxide	0.1999	0.5850%	8.623	1.72E-06	0.0	0.0000	0.1999	0.8757
Methane	0.6896	2.0176%	23.650	1.63E-05	1009.7	0.0165	**0.0345**	0.1510
Ethane	2.0095	5.8798%	12.620	2.54E-05	1768.7	0.0449	**0.1005**	0.4401
Propane	8.7429	25.5811%	8.606	7.52E-05	2517.2	0.1894	0.4371	1.9147
n-Butane	1.8966	5.5492%	6.529	1.24E-05	3262.0	0.0404	0.0948	0.4153
Iso-Butane	8.7105	25.4862%	6.529	5.69E-05	3252.6	0.1850	0.4355	1.9076
N-Pentane	3.7402	10.9436%	5.260	1.97E-05	4008.7	0.0789	0.1870	0.8191
Iso-Pentane	3.7581	10.9959%	5.260	1.98E-05	3999.7	0.0791	0.1879	0.8230
Iso-Hexanes	1.1212	3.2805%	4.404	4.94E-06	4756.1	0.0235	0.0561	0.2455
***N-Hexane**	0.4483	1.3116%	4.404	1.97E-06	4756.1	0.0094	**0.0224**	0.0982
***Benzene**	0.2675	0.7827%	4.858	1.30E-06	3741.9	0.0049	**0.0134**	0.0586
***Toluene**	0.3457	1.0115%	4.119	1.42E-06	4474.8	0.0064	**0.0173**	0.0757
***Ethylbenzene**	0.0605	0.1771%	3.574	2.16E-07	5222.1	0.0011	**0.0030**	0.0133
***Xylenes**	0.1275	0.3731%	3.574	4.56E-07	5209.7	0.0024	**0.0064**	0.0279
***Trimethylpentane**	0.3805	1.1133%	3.322	1.26E-06	6248.9	0.0079	**0.0190**	0.0833
Heptanes	0.8516	2.4917%	3.787	3.22E-06	5502.8	0.0177	0.0426	0.1865
Octanes	0.0996	0.2915%	3.322	3.31E-07	6248.9	0.0021	0.0050	0.0218
Nonanes	0.2769	0.8102%	2.959	8.19E-07	6996.3	0.0057	0.0138	0.0606
Decanes +	0.0426	0.1246%	2.667	1.14E-07	7743.1	0.0009	0.0021	0.0093
Total Gas	34.1773		**Total Vol. Rate**	2.49E-04	**Total Heat**	0.7160	**1.8988**	**8.3168**
Total VOC	30.8702		**AP-42 Vol. Rate**	2.42E-04	**AP-42 Heat**	0.7160		

Feed gas, Btu/scf	**2876**	Total Non-toxic VOCs	1.4620	6.4036
		Total Toxic VOCs	0.0815	0.3570
		Total VOCs (including TAPs)	**1.5435**	**6.7606**

Company Name: Oxyrock Operating, LLC
Facility: Guitar Galusha 2220 N. Facility #1
EPN: FE-01
FIN: None
CIN: None
Source Description: Fugitive Emissions
Based on: Typical Facility Component counts

Gas

number	component	emission factor (kg/hr per component)*	emission factor (lb/hr of TOC per component)	lb/hr	tpy	VOC content* (wt %)	Control Efficiency (%)	lb/hr	tpy	H_2S content* (wt %)	Control Efficiency (%)	lb/hr	tpy	CH_4 content* (wt %)	Control Efficiency (%)	lb/hr	tpy
56	Valve	0.0045	0.00992	0.555567804	2.433386979	30.44	0	0.169	0.741	0.0000	0	0.000	0.000	48.3500	0	0.269	1.177
0	Pump Seal	0.0024	0.00529	0	0	30.44	0	0.000	0.000	0.0000	0	0.000	0.000	48.3500	0	0.000	0.000
204	Connector	0.0002	0.00044	0.089949073	0.39397694	30.44	0	0.027	0.120	0.0000	0	0.000	0.000	48.3500	0	0.043	0.190
0	Flange	0.00039	0.00086	0	0	30.44	0	0.000	0.000	0.0000	0	0.000	0.000	48.3500	0	0.000	0.000
4	Open-ended Line	0.002	0.00441	0.017637073	0.07725038	30.44	0	0.005	0.024	0.0000	0	0.000	0.000	48.3500	0	0.009	0.037
4	Other	0.0088	0.01940	0.077603122	0.339901673	30.44	0	0.024	0.103	0.0000	0	0.000	0.000	48.3500	0	0.038	0.164

Light Oil

number	component	emission factor (kg/hr per component)	emission factor (lb/hr of TOC per component)	lb/hr	tpy	VOC content* (wt %)	Control Efficiency (%)	lb/hr	tpy	H_2S content* (wt %)	Control Efficiency (%)	lb/hr	tpy	CH_4 content* (wt %)	Control Efficiency (%)	lb/hr	tpy
78	Valve	0.0025	0.00551	0.429903657	1.88297802	98.906	0	0.425	1.862	0.0000	0	0.000	0.000	0.2500	0	0.001	0.005
0	Pump Seal	0.013	0.02866	0	0	98.906	0	0.000	0.000	0.0000	0	0.000	0.000	0.2500	0	0.000	0.000
102	Connector	0.00021	0.00046	0.047223263	0.206837893	98.906	0	0.047	0.205	0.0000	0	0.000	0.000	0.2500	0	0.000	0.001
152	Flange	0.00011	0.00024	0.036861483	0.161453295	98.906	0	0.036	0.160	0.0000	0	0.000	0.000	0.2500	0	0.000	0.000
0	Open-ended Line	0.0014	0.00309	0	0	98.906	0	0.000	0.000	0.0000	0	0.000	0.000	0.2500	0	0.000	0.000
7	Other	0.0075	0.01653	0.115743292	0.506955621	98.906	0	0.114	0.501	0.0000	0	0.000	0.000	0.2500	0	0.000	0.001

	lb/hr	tpy
Uncontrolled THC emissions:	1.3705	6.0027

	lb/hr	tpy
	0.848	**3.716**

	lb/hr	tpy
H_2S emissions:	**0.0000**	**0.0000**

	lb/hr	tpy
CH_4 emissions:	**0.360**	**1.576**

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

Company Name: Oxyrock Operating, LLC
Facility: Guitar Galusha 2220 N. Facility #1
EPN: FL-01
FIN: FL-01
CIN: FL-01
Source Description: Emergency Flare (Alternate Operating Scenario)

Total Gas Burned (scf/hr): **4005.00**
Mass Rate (lbs/hr): **244.924**

r = gas (ft^3/hr) x mw gas (lb/lb-mole) / 379.49 (ft3/lb-mole)

	Waste Gas Streams						
Component	Pilot Gas Mole %	Misc Gas Mole %	**Combined Waste Gas Mole %**	Component Mole Wt.	Mole Fraction X Mole Wt	Weight Fraction	**Uncontrolled Gas to Flare (Lbs/hr)**
Hydrogen Sulfide	0.0000%	0.0000%	0.0000%	34.0800	0.0000	0.0000	0.0000
Nitrogen	3.4920%	3.4920%	3.4920%	28.0130	0.9782	0.0422	10.3358
Carbon Dioxide	0.2550%	0.2550%	0.2550%	44.0100	0.1122	0.0048	1.1756
Methane	69.9460%	69.9460%	69.9460%	16.0430	11.2214	0.4835	118.4205
Ethane	12.7400%	12.7400%	12.7400%	30.0700	3.8309	0.1651	40.4369
Propane	8.4360%	8.4360%	8.4360%	44.0970	3.7200	0.1603	39.2612
iso-Butane	0.7510%	0.7510%	0.7510%	58.1230	0.4365	0.0188	4.6046
n-Butane	2.5640%	2.5640%	2.5640%	58.1230	1.4903	0.0642	15.7241
iso-Pentane	0.5010%	0.5010%	0.5010%	72.1500	0.3615	0.0156	3.8208
n-Pentane	0.5470%	0.5470%	0.5470%	72.1500	0.3947	0.0170	4.1637
i-Hexanes	0.7680%	0.7680%	0.7680%	86.1770	0.6618	0.0285	6.9803
*n-Hexane	0.0000%	0.0000%	0.0000%	86.1770	0.0000	0.0000	0.0000
*Benzene	0.0000%	0.0000%	0.0000%	78.1140	0.0000	0.0000	0.0000
*Toluene	0.0000%	0.0000%	0.0000%	92.1410	0.0000	0.0000	0.0000
*Ethylbenzene	0.0000%	0.0000%	0.0000%	106.1670	0.0000	0.0000	0.0000
*Xylenes	0.0000%	0.0000%	0.0000%	106.1670	0.0000	0.0000	0.0000
*Trimethylpentane	0.0000%	0.0000%	0.0000%	114.2310	0.0000	0.0000	0.0000
Heptanes	0.0000%	0.0000%	0.0000%	100.2720	0.0000	0.0000	0.0000
Octanes	0.0000%	0.0000%	0.0000%	114.2310	0.0000	0.0000	0.0000
Nonanes	0.0000%	0.0000%	0.0000%	128.2580	0.0000	0.0000	0.0000
Decanes +	0.0000%	0.0000%	0.0000%	142.2800	0.0000	0.0000	0.0000
	100.0%	100.00%	100.00%	Mole weight	23.2075		

Gas flow rate (scf/hr):	5.0	4000.0	**4005.00**
Stream percentage	0.1%	99.9%	100.0%
Heat Content, BTU/SCF	1330.5	1330.5	**1330.5**

Calculation formula
Component lbs/hr = (HC lbs/hr)(Weight fraction of component)
Component tons/yr = (component lbs/hr)(8760 hrs/yr)(1 ton/2000 lbs)
Volume SO_2 = H_2S (lbs/hr) x [62.04 lbs SO_2 /34.08 lbs H2S]

Company Name: Oxyrock Operating, LLC
Facility: Guitar Galusha 2220 N. Facility #1
EPN: FL-01
FIN: FL-01
CIN: FL-01
Source Description: Emergency Flare (Alternate Operating Scenario)

Flare Emissions:

Pollutant	Emission Factor lb/MMBTU	Emission Rate lbs/hr	TPY	Source
NOx	0.138	0.7352	3.2200	TCEQ Guidance - Non-steam assisted, high BTU
CO	0.2755	1.4677	6.4284	TCEQ Guidance - Non-steam assisted, high BTU
	% Residual			
VOC	2.00	1.4911	6.5310	Manufacturer Data
	lb/MMSCF			
PM_{10}	7.6	0.0293	0.1283	AP-42, Table 1.4-2
$PM_{2.5}$	5.7	0.0220	0.0962	AP-42, Table 1.4-2
SO_2 (Sweet waste gas)	0.6	0.0023	0.0101	AP-42, Table 1.4-2. See Note 2 below.

Gas to Flare:

	Combined Gas to Flare						Gas Emitted from Flare	
Component	Combined Feed Rate, lb/hr	Weight %	Component Specific Volume, ft3/lb	Volumetric Flow Rate, MMSCF/hr	Component Heating Value, BTU/ft3	Component Heat Rate, MMBTU/hr	Flare Emissions, lb/hr	Flare Emissions, tpy
Hydrogen Sulfide	0.0000	0.0000%	11.136	0.00E+00	637	0.0000	0.0000	0.0000
Nitrogen	10.3358	4.2200%	13.547	1.40E-04	0.0	0.0000	0.2067	0.9054
Carbon Dioxide	1.1756	0.4800%	8.623	1.01E-05	0.0	0.0000	1.1756	5.1493
Methane	118.4205	48.3500%	23.650	2.80E-03	1009.7	2.8278	2.3684	10.3736
Ethane	40.4369	16.5100%	12.620	5.10E-04	1768.7	0.9026	0.8087	3.5423
Propane	39.2612	16.0300%	8.606	3.38E-04	2517.2	0.8505	0.7852	3.4393
n-Butane	4.6046	1.8800%	6.529	3.01E-05	3262.0	0.0981	0.0921	0.4034
Iso-Butane	15.7241	6.4200%	6.529	1.03E-04	3252.6	0.3339	0.3145	1.3774
N-Pentane	3.8208	1.5600%	5.260	2.01E-05	4008.7	0.0806	0.0764	0.3347
Iso-Pentane	4.1637	1.7000%	5.260	2.19E-05	3999.7	0.0876	0.0833	0.3647
Iso-Hexanes	6.9803	2.8500%	4.404	3.07E-05	4756.1	0.1462	0.1396	0.6115
***N-Hexane**	0.0000	0.0000%	4.404	0.00E+00	4756.1	0.0000	0.0000	0.0000
***Benzene**	0.0000	0.0000%	4.858	0.00E+00	3741.9	0.0000	0.0000	0.0000
***Toluene**	0.0000	0.0000%	4.119	0.00E+00	4474.8	0.0000	0.0000	0.0000
***Ethylbenzene**	0.0000	0.0000%	3.574	0.00E+00	5222.1	0.0000	0.0000	0.0000
***Xylenes**	0.0000	0.0000%	3.574	0.00E+00	5209.7	0.0000	0.0000	0.0000
***Trimethylpentane**	0.0000	0.0000%	3.322	0.00E+00	6248.9	0.0000	0.0000	0.0000
Heptanes	0.0000	0.0000%	3.787	0.00E+00	5502.8	0.0000	0.0000	0.0000
Octanes	0.0000	0.0000%	3.322	0.00E+00	6248.9	0.0000	0.0000	0.0000
Nonanes	0.0000	0.0000%	2.959	0.00E+00	6996.3	0.0000	0.0000	0.0000
Decanes +	0.0000	0.0000%	2.667	0.00E+00	7743.1	0.0000	0.0000	0.0000
Total Gas	244.9235		**Total Vol. Rate**	4.00E-03	**Total Heat**	5.3273	**6.0506**	**26.5016**
Total VOC	74.5547		**AP-42 Vol. Rate**	3.85E-03	**AP-42 Heat**	5.3273		

Feed gas, Btu/scf	**1330**	Total Non-toxic VOCs	1.4911	6.5310
		Total Toxic VOCs	0.0000	0.0000
		Total VOCs (including TAPs)	**1.4911**	**6.5310**

Company Name: Oxyrock Operating, LLC
Facility Name: Guitar Galusha 2220 N. Facility #1
EPN: GB-01
FIN: GB-01
CIN: CU-01, CU-02
Source Description: Gunbarrel Tank (Controlled by Combustors)

Oil API Gravity	40.35
Measured/Calculated Gas Specific Gravity	1.884
Separator Pressure (PSIG)	16.8
Separator Temperature (F)	103.8
Site Elevation (Feet above Mean Sea Level)	0
Calculated Atmospheric Pressure @ Site Elevation:	14.70

Measured Cubic Feet Tank Vapor per Barrel Oil Produced (GOR):	16.3200
Flow Rate (ACFM)	0.038

Oil Production Rate (BOPD):	45.00
Hours Operated per Year:	8760

Flash Losses

Total cubic ft. hydrocarbons/hour:	30.600
Flash lbs/hr hydrocarbons:	4.405
Flash tons/yr hydrocarbons:	19.294

Total Hydrocarbon Emissions

lbs/hr hydrocarbons:	4.723
tons/yr hydrocarbons:	20.689

Speciation Of Estimated VOCs from Flash, Standing & Working Losses

Component	Mole Percent	Component Molecular Weight	Mole Fraction X Mole Wt	Weight Fraction	Lbs/hr	Tons/yr
Hydrogen Sulfide	0.0000%	34.080	0.0000	0.0000	0.0000	0.0000
Nitrogen	2.1095%	28.013	0.5909	0.0108	0.0511	0.2238
Carbon Dioxide	0.7310%	44.010	0.3217	0.0059	0.0278	0.1218
Methane	1.0147%	16.043	0.1628	0.0030	0.0141	0.0616
Ethane	9.9655%	30.070	2.9966	0.0549	0.2591	1.1348
Propane	32.1310%	44.097	14.1688	0.2594	1.2250	5.3657
iso-Butane	5.3438%	58.123	3.1060	0.0569	0.2685	1.1762
n-Butane	24.6200%	58.123	14.3099	0.2619	1.2372	5.4191
iso-Pentane	8.5500%	72.150	6.1688	0.1129	0.5334	2.3361
n-Pentane	8.5871%	72.150	6.1956	0.1134	0.5357	2.3463
Other Hexanes	2.0897%	86.178	1.8009	0.0330	0.1557	0.6820
***n-Hexane**	0.8623%	86.178	0.7431	0.0136	0.0642	0.2814
***Benzene**	0.5677%	78.114	0.4435	0.0081	0.0383	0.1679
***Toluene**	0.6220%	92.141	0.5731	0.0105	0.0496	0.2170
***Ethylbenzene**	0.0945%	106.167	0.1003	0.0018	0.0087	0.0380
***Xylenes**	0.1991%	106.167	0.2114	0.0039	0.0183	0.0800
***Trimethylpentane**	0.5522%	114.231	0.6308	0.0115	0.0545	0.2389
Heptanes	1.4079%	100.272	1.4117	0.0258	0.1221	0.5346
Octanes	0.1446%	114.231	0.1652	0.0030	0.0143	0.0626
Nonanes	0.3579%	128.258	0.4590	0.0084	0.0397	0.1738
Decanes +	0.0496%	142.280	0.0706	0.0013	0.0061	0.0267
Total	100.00%	Molecular Wt =	54.63	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	0.2336	1.0233
VOC (Including HAP)	4.3713	19.1464

Company Name: Oxyrock Operating, LLC
Facility Name: Guitar Galusha 2220 N. Facility #1
EPN: GB-01
FIN: GB-01
CIN: CU-01, CU-02
Source Description: Gunbarrel Tank (Controlled by Combustors)

Tank Standing and Working Loss Calculations for Fixed Roof Storage Tanks - Based on AP-42, Chapter 7, November 2019.

Tank Type =	Cone	
Tank Color =	Tan	
Paint Condition =	New	
Paint Factor, α =	0.43	dimensionless (Table 7.1-6)
Nearest City:	Midland, TX	
Insolation Factor, I =	1698	Btu/ft^2-day (Table 7.1-7)
Pressure Setting, P_{BP} =	0	ounces (Welded Tanks = 0.03; Bolted or Riveted Tanks = 0)
Vacuum setting, P_{BV} =	0	ounces (Welded Tanks = -0.03; Bolted or Riveted Tanks = 0)
Throughput, Q =	45	BOPD

Input Variables			Calculated Variables		
Tank Diameter, D =	15.5	ft	Vapor Space Volume, V_V =	2860.8591	ft^3
Shell Height, H_S =	30	ft	Tank Volume =	1008	bbls
Max. Liquid Height, H_{LX} =	30	ft	Roof Height, H_R =	0.4844	ft
Avg. Liquid Height, H_L =	15	ft			
Cone Roof Slope, S_R =	0.0625	ft/ft	Roof Outage, H_{RO} =	0.1615	ft
default S_R = 0.0625			Vapor Space Outage, H_{VO} =	15.1615	ft
Shell radius, Rs =	7.75	ft			
Vapor Mole Wt, M_V =	54.63	lb/lb mole	Vapor Density, W_V =	0.0328	lb/ft^3
Vapor Press at Avg Liq. Liquid Temp, P_{VA} =	3.5	psia	Avg. Liquid Temp, T_{LA} =	543.6507	° R
Delta Amb. Air Temp, T_A =	25.3	° R			
Daily Amb. Air Temp, T_{AA} =	80	° F	Vapor Space Expansion		
Tank Product Temp, T_B =	80	° F	Factor, K_E =	0.058	dimensionless
Flow Rate =	0.038	ACFM	Vented Vapor Sat. Factor, K_S =	0.2623	dimensionless
Stack Diameter=	3	inches	Number of Turnovers, N =	16.29	dimensionless
Velocity=	0.00020	ft/sec	Turnover Factor, K_N =	1	dimensionless

Calculation of Standing Losses

$L_S = 365 * V_V * W_V * K_E * K_S$

L_S = Standing losses, lbs hydrocarbons/yr
V_V = Vapor space volume, ft^3
W_V = Stock vapor density, lb/ft^3
K_E = Vapor space expansion factor, dimensionless
K_S = Vented vapor saturation factor, dimensionless
365 = constant, days/year
HC = hydrocarbons (includes C1, C2 and higher molecular wt HC)

L_S =	521.06	lbs HC/year
	0.0595	lbs HC/hr
	0.261	tons HC/year

Calculation of Working Losses

$L_W = V_Q * K_N * K_P * W_V * K_B$

L_W = Working losses, lbs hydrocarbons/yr
V_Q = Net working losses, ft^3/yr; V_Q = 5.614Q
K_N = Turnover factor, dimensionless
K_P = Working loss product factor, dimensionless. K_P = 0.75 crude oils; K_P = 1 other organic liquids
W_V = Vapor densiity, lb/ft^3
K_B = Vent setting correction factor. K_B = 1 for vent setting range +/- 0.03 psig.
HC = hydrocarbons (includes C1, C2 and higher molecular wt HC)

L_W =	2268.36	lbs HC/year
	0.2589	lbs HC/hr
	1.134	tons HC/year

Total Tank Standing and Working Losses of VOC's

(Assumes all Hydrocarbons are VOC's)

$L_T = L_S + L_W$

2789.42	lbs/year
0.3184	lbs/hr
1.3946	tons/year

Company Name: Oxyrock Operating, LLC
Facility: Guitar Galusha 2220 N. Facility #1
EPN: HT-01
FIN: HT-01
CIN: None
Source Description: Heater Treater

Emission Calculations:

Heat Rating of Unit:	0.50	MMBtu/hr
Btu Value of Fuel Gas:	1330.5	Btu/scf
Fuel Use of Unit:	376	scf/hr-avg
	3.29	MMscf/yr
Hours Operated for Year:	8760	hrs
Percent Operation for Year:	100.00	%

	Pollutant	Factor lb/MMscf fuel	Avg. lbs/hr	Total tons/yr	Source of Factor
CRITERIA	NOx	100	0.038	0.166	AP-42, Table 1.4-1 (7/98)
	CO	84	0.032	0.140	AP-42, Table 1.4-1 (7/98)
	PM_{10}	7.6	0.003	0.013	AP-42, Table 1.4-2 (7/98)
	SO_2	0.938	0.000	0.000	AP-42, Table 1.4-2 (7/98)-Adjusted [1]
	VOC	5.5	0.002	0.009	AP-42, Table 1.4-2 (7/98)
TOXIC AIR POLLUTANTS	N-Hexanes	1.800	0.001	0.004	AP-42, Table 1.4-3 (7/98)
	Acetaldehyde		0.000	0.000	No emission factor
	Formaldehyde	0.075	0.000	0.000	AP-42, Table 1.4-3 (7/98)
	Benzene	0.002	0.000	0.000	AP-42, Table 1.4-3 (7/98)
	Toluene	3.40E-03	0.000	0.000	AP-42, Table 1.4-3 (7/98)
	Ethylbenzene		0.000	0.000	No emission factor
	Xylenes		0.000	0.000	No emission factor
	Total TAP		0.001	0.004	
OTHER	Methane	2.3	0.001	0.004	AP-42, Table 1.4-2 (7/98)
	Ethane	3.1	0.001	0.004	AP-42, Table 1.4-3 (7/98)
	Non-toxic VOC (Heptane+)		0.001	0.005	= VOC - Total TAPs

Additional Notes:

1. The AP-42 factor for SO_2 is based on a fuel content of 2000 gr $H_2S/10^6$ scf (3.2 ppmv). This calculation adjusts the factor for 5 ppm(v) H_2S.

Company: Oxyrock Operating, LLC
Facility: Guitar Galusha 2220 N. Facility #1
Description: Maintenance, Start-Up and Shutdown Emissions
EPN: MSS-01
FIN: MSS-01
CIN: N/A

Equipment Maintenance/Shutdown Emissions

Source ID	Description	Vessel Dimensions			Vessel Conditions			Blowdown Conditions		Actual	Std. T&P	Piping	Vol./Event	Total	Total Volume
		OD, in.	L, ft.	Wall, in.	psig	°F	LL %	psig	°F	Ft^3	MSCF	%	MSCF	Occurances	MSCF
HT-01	Heater Treater	48	20	0.375	40	110	10	0	80	247.95	0.603	33.300	0.804	12.00	9.64
S-01	Separator	30	10	0.375	40	80	10	0	80	48.82	0.128	33.300	0.171	12.00	2.05
S-02	Separator	48	10	0.375	250	80	10	0	80	138.36	2.266	33.300	3.020	12.00	36.25
S-03	Separator	48	10	0.375	250	80	10	0	80	138.36	2.266	33.300	3.020	12.00	36.25
S-04	Separator	48	10	0.375	250	80	10	0	80	138.36	2.266	33.300	3.020	12.00	36.25
S-05	Separator	48	10	0.375	250	80	10	0	80	138.36	2.266	33.300	3.020	12.00	36.25
														Subtotal (MSCF)	156.67

VOC mole %	13.567%
Molecular Weight	23.208

lb/hr VOC	1.0437
tons/yr VOC	4.5714

lb/hr H_2S	0.00000
tons/yr H_2S	0.0000

lb/hr CH_4	0.5295
tons/yr CH_4	2.3194

Company Name: Oxyrock Operating, LLC
Facility Name: Guitar Galusha 2220 N. Facility #1
EPN: OST-01, OST-02
FIN: OST-01, OST-02
CIN: CU-01, CU-02
Source Description: Oil Storage Tanks (Controlled by Combustors)

Oil API Gravity	40.35
Measured/Calculated Gas Specific Gravity	1.884
Separator Pressure (PSIG)	16.8
Separator Temperature (F)	103.8
Site Elevation (Feet above Mean Sea Level)	0
Calculated Atmospheric Pressure @ Site Elevation:	14.70

Measured Cubic Feet Tank Vapor per Barrel Oil Produced (GOR):	16.3200
Flow Rate (ACFM)	0.038

Oil Production Rate (BOPD):	45.00
Hours Operated per Year:	8760

Flash Losses

Total cubic ft. hydrocarbons/hour:	30.600
Flash lbs/hr hydrocarbons:	4.405
Flash tons/yr hydrocarbons:	19.294

Total Hydrocarbon Emissions

lbs/hr hydrocarbons:	4.720
tons/yr hydrocarbons:	20.673

Speciation Of Estimated VOCs from Flash, Standing & Working Losses

Component	Mole Percent	Component Molecular Weight	Mole Fraction X Mole Wt	Weight Fraction	Lbs/hr	Tons/yr
Hydrogen Sulfide	0.0000%	34.080	0.0000	0.0000	0.0000	0.0000
Nitrogen	2.1095%	28.013	0.5909	0.0108	0.0511	0.2236
Carbon Dioxide	0.7310%	44.010	0.3217	0.0059	0.0278	0.1217
Methane	1.0147%	16.043	0.1628	0.0030	0.0141	0.0616
Ethane	9.9655%	30.070	2.9966	0.0549	0.2589	1.1339
Propane	32.1310%	44.097	14.1688	0.2594	1.2241	5.3616
iso-Butane	5.3438%	58.123	3.1060	0.0569	0.2683	1.1753
n-Butane	24.6200%	58.123	14.3099	0.2619	1.2363	5.4150
iso-Pentane	8.5500%	72.150	6.1688	0.1129	0.5330	2.3343
n-Pentane	8.5871%	72.150	6.1956	0.1134	0.5353	2.3445
Other Hexanes	2.0897%	86.178	1.8009	0.0330	0.1556	0.6815
***n-Hexane**	0.8623%	86.178	0.7431	0.0136	0.0642	0.2812
***Benzene**	0.5677%	78.114	0.4435	0.0081	0.0383	0.1678
***Toluene**	0.6220%	92.141	0.5731	0.0105	0.0495	0.2169
***Ethylbenzene**	0.0945%	106.167	0.1003	0.0018	0.0087	0.0380
***Xylenes**	0.1991%	106.167	0.2114	0.0039	0.0183	0.0800
***Trimethylpentane**	0.5522%	114.231	0.6308	0.0115	0.0545	0.2387
Heptanes	1.4079%	100.272	1.4117	0.0258	0.1220	0.5342
Octanes	0.1446%	114.231	0.1652	0.0030	0.0143	0.0625
Nonanes	0.3579%	128.258	0.4590	0.0084	0.0397	0.1737
Decanes +	0.0496%	142.280	0.0706	0.0013	0.0061	0.0267
Total	100.00%	Molecular Wt =	54.63	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	0.2335	1.0225
VOC (Including HAP)	4.3680	19.1318

Company Name: Oxyrock Operating, LLC
Facility Name: Guitar Galusha 2220 N. Facility #1
EPN: OST-01, OST-02
FIN: OST-01, OST-02
CIN: CU-01, CU-02
Source Description: Oil Storage Tanks (Controlled by Combustors)

Tank Standing and Working Loss Calculations for Fixed Roof Storage Tanks - Based on AP-42, Chapter 7, November 2019.

Tank Type =	Cone	
Tank Color =	Tan	
Paint Condition =	New	
Paint Factor, α =	0.43	dimensionless (Table 7.1-6)
Nearest City:	Midland, TX	
Insolation Factor, I =	1698	Btu/ft^2-day (Table 7.1-7)
Pressure Setting, P_{BP} =	0	ounces (Welded Tanks = 0.03; Bolted or Riveted Tanks = 0)
Vacuum setting, P_{BV} =	0	ounces (Welded Tanks = -0.03; Bolted or Riveted Tanks = 0)
Throughput, Q =	45	BOPD

Input Variables			Calculated Variables		
Tank Diameter, D =	15.5	ft	Vapor Space Volume, V_V =	2294.782	ft^3
Shell Height, H_S =	24	ft	Tank Volume =	807	bbls
Max. Liquid Height, H_{LX} =	24	ft	Roof Height, H_R =	0.4844	ft
Avg. Liquid Height, H_L =	12	ft			
Cone Roof Slope, S_R =	0.0625	ft/ft	Roof Outage, H_{RO} =	0.1615	ft
default S_R = 0.0625			Vapor Space Outage, H_{VO} =	12.1615	ft
Shell radius, Rs =	7.75	ft			
Vapor Mole Wt, M_V =	54.63	lb/lb mole	Vapor Density, W_V =	0.0328	lb/ft^3
Vapor Press at Avg Liq. Liquid Temp, P_{VA} =	3.5	psia	Avg. Liquid Temp, T_{LA} =	543.6507	° R
Delta Amb. Air Temp, T_A =	25.3	° R			
Daily Amb. Air Temp, T_{AA} =	80	° F	Vapor Space Expansion		
Tank Product Temp, T_B =	80	° F	Factor, K_E =	0.058	dimensionless
Flow Rate =	0.038	ACFM	Vented Vapor Sat. Factor, K_S =	0.3071	dimensionless
Stack Diameter=	3	inches	Number of Turnovers, N =	20.36	dimensionless
Velocity=	0.00020	ft/sec	Turnover Factor, K_N =	1	dimensionless

Calculation of Standing Losses

$L_S = 365 * V_V * W_V * K_E * K_S$

L_S = Standing losses, lbs hydrocarbons/yr
V_V = Vapor space volume, ft^3
W_V = Stock vapor density, lb/ft^3
K_E = Vapor space expansion factor, dimensionless
K_S = Vented vapor saturation factor, dimensionless
365 = constant, days/year
HC = hydrocarbons (includes C1, C2 and higher molecular wt HC)

L_S =	489.35	lbs HC/year
	0.0559	lbs HC/hr
	0.245	tons HC/year

Calculation of Working Losses

$L_W = V_Q * K_N * K_P * W_V * K_B$

L_W = Working losses, lbs hydrocarbons/yr
V_Q = Net working losses, ft^3/yr; V_Q = 5.614Q
K_N = Turnover factor, dimensionless
K_P = Working loss product factor, dimensionless. K_P = 0.75 crude oils; K_P = 1 other organic liquids
W_V = Vapor densiity, lb/ft^3
K_B = Vent setting correction factor. K_B = 1 for vent setting range +/- 0.03 psig.
HC = hydrocarbons (includes C1, C2 and higher molecular wt HC)

L_W =	2268.36	lbs HC/year
	0.2589	lbs HC/hr
	1.134	tons HC/year

Total Tank Standing and Working Losses of VOC's

(Assumes all Hydrocarbons are VOC's)

$L_T = L_S + L_W$

2757.71	lbs/year
0.3148	lbs/hr
1.3788	tons/year

Company Name: Oxyrock Operating, LLC
Facility Name: Guitar Galusha 2220 N. Facility #1
EPN: OST-03, OST-04, OST-05, OST-06
FIN: OST-03, OST-04, OST-05, OST-06
CIN: CU-01, CU-02
Source Description: Oil Storage Tanks (Controlled by Combustors)

Oil API Gravity	40.35
Measured/Calculated Gas Specific Gravity	1.884
Separator Pressure (PSIG)	16.8
Separator Temperature (F)	103.8
Site Elevation (Feet above Mean Sea Level)	0
Calculated Atmospheric Pressure @ Site Elevation:	14.70

Measured Cubic Feet Tank Vapor per Barrel Oil Produced (GOR):	16.3200
Flow Rate (ACFM)	0.035

Oil Production Rate (BOPD):	45.00
Hours Operated per Year:	8760

Flash Losses

Total cubic ft. hydrocarbons/hour:	30.600
Flash lbs/hr hydrocarbons:	4.405
Flash tons/yr hydrocarbons:	19.294

Total Hydrocarbon Emissions

lbs/hr hydrocarbons:	4.698
tons/yr hydrocarbons:	20.577

Speciation Of Estimated VOCs from Flash, Standing & Working Losses

Component	Mole Percent	Component Molecular Weight	Mole Fraction X Mole Wt	Weight Fraction	Lbs/hr	Tons/yr
Hydrogen Sulfide	0.0000%	34.080	0.0000	0.0000	0.0000	0.0000
Nitrogen	2.1095%	28.013	0.5909	0.0108	0.0508	0.2226
Carbon Dioxide	0.7310%	44.010	0.3217	0.0059	0.0277	0.1212
Methane	1.0147%	16.043	0.1628	0.0030	0.0140	0.0613
Ethane	9.9655%	30.070	2.9966	0.0549	0.2577	1.1287
Propane	32.1310%	44.097	14.1688	0.2594	1.2184	5.3366
iso-Butane	5.3438%	58.123	3.1060	0.0569	0.2671	1.1698
n-Butane	24.6200%	58.123	14.3099	0.2619	1.2305	5.3897
iso-Pentane	8.5500%	72.150	6.1688	0.1129	0.5305	2.3235
n-Pentane	8.5871%	72.150	6.1956	0.1134	0.5328	2.3335
Other Hexanes	2.0897%	86.178	1.8009	0.0330	0.1549	0.6783
***n-Hexane**	0.8623%	86.178	0.7431	0.0136	0.0639	0.2799
***Benzene**	0.5677%	78.114	0.4435	0.0081	0.0381	0.1670
***Toluene**	0.6220%	92.141	0.5731	0.0105	0.0493	0.2159
***Ethylbenzene**	0.0945%	106.167	0.1003	0.0018	0.0086	0.0378
***Xylenes**	0.1991%	106.167	0.2114	0.0039	0.0182	0.0796
***Trimethylpentane**	0.5522%	114.231	0.6308	0.0115	0.0542	0.2376
Heptanes	1.4079%	100.272	1.4117	0.0258	0.1214	0.5317
Octanes	0.1446%	114.231	0.1652	0.0030	0.0142	0.0622
Nonanes	0.3579%	128.258	0.4590	0.0084	0.0395	0.1729
Decanes +	0.0496%	142.280	0.0706	0.0013	0.0061	0.0266
Total	100.00%	Molecular Wt =	54.63	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	0.2324	1.0178
VOC (Including HAP)	4.3476	19.0426

Company Name: Oxyrock Operating, LLC
Facility Name: Guitar Galusha 2220 N. Facility #1
EPN: OST-03, OST-04, OST-05, OST-06
FIN: OST-03, OST-04, OST-05, OST-06
CIN: CU-01, CU-02
Source Description: Oil Storage Tanks (Controlled by Combustors)

Tank Standing and Working Loss Calculations for Fixed Roof Storage Tanks - Based on AP-42, Chapter 7, November 2019.

Tank Type =	Cone	
Tank Color =	Tan	
Paint Condition =	New	
Paint Factor, α =	0.43	dimensionless (Table 7.1-6)
Nearest City:	Midland, TX	
Insolation Factor, I =	1698	Btu/ft^2-day (Table 7.1-7)
Pressure Setting, P_{BP} =	0	ounces (Welded Tanks = 0.03; Bolted or Riveted Tanks = 0)
Vacuum setting, P_{BV} =	0	ounces (Welded Tanks = -0.03; Bolted or Riveted Tanks = 0)
Throughput, Q =	45	BOPD

Input Variables			Calculated Variables		
Tank Diameter, D =	12	ft	Vapor Space Volume, V_V =	1427.8572	ft^3
Shell Height, H_S =	25	ft	Tank Volume =	504	bbls
Max. Liquid Height, H_{LX} =	25	ft	Roof Height, H_R =	0.375	ft
Avg. Liquid Height, H_L =	12.5	ft			
Cone Roof Slope, S_R =	0.0625	ft/ft	Roof Outage, H_{RO} =	0.125	ft
default S_R = 0.0625			Vapor Space Outage, H_{VO} =	12.625	ft
Shell radius, Rs =	6	ft			
Vapor Mole Wt, M_V =	54.63	lb/lb mole	Vapor Density, W_V =	0.0328	lb/ft^3
Vapor Press at Avg Liq. Liquid Temp, P_{VA} =	3.5	psia	Avg. Liquid Temp, T_{LA} =	543.6507	° R
Delta Amb. Air Temp, T_A =	25.3	° R			
Daily Amb. Air Temp, T_{AA} =	80	° F	Vapor Space Expansion		
Tank Product Temp, T_B =	80	° F	Factor, K_E =	0.058	dimensionless
Flow Rate =	0.035	ACFM	Vented Vapor Sat. Factor, K_S =	0.2992	dimensionless
Stack Diameter=	3	inches	Number of Turnovers, N =	32.61	dimensionless
Velocity=	0.00019	ft/sec	Turnover Factor, K_N =	1	dimensionless

Calculation of Standing Losses

$L_S = 365 * V_V * W_V * K_E * K_S$

L_S = Standing losses, lbs hydrocarbons/yr
V_V = Vapor space volume, ft^3
W_V = Stock vapor density, lb/ft^3
K_E = Vapor space expansion factor, dimensionless
K_S = Vented vapor saturation factor, dimensionless
365 = constant, days/year
HC = hydrocarbons (includes C1, C2 and higher molecular wt HC)

L_S =	296.65	lbs HC/year
	0.0339	lbs HC/hr
	0.148	tons HC/year

Calculation of Working Losses

$L_W = V_Q * K_N * K_P * W_V * K_B$

L_W = Working losses, lbs hydrocarbons/yr
V_Q = Net working losses, ft^3/yr; V_Q = 5.614Q
K_N = Turnover factor, dimensionless
K_P = Working loss product factor, dimensionless. K_P = 0.75 crude oils; K_P = 1 other organic liquids
W_V = Vapor densiity, lb/ft^3
K_B = Vent setting correction factor. K_B = 1 for vent setting range +/- 0.03 psig.
HC = hydrocarbons (includes C1, C2 and higher molecular wt HC)

L_W =	2268.36	lbs HC/year
	0.2589	lbs HC/hr
	1.134	tons HC/year

Total Tank Standing and Working Losses of VOC's

(Assumes all Hydrocarbons are VOC's)

$L_T = L_S + L_W$

2565.01	lbs/year
0.2928	lbs/hr
1.2825	tons/year

Company Name: Oxyrock Operating, LLC
Facility Name: Guitar Galusha 2220 N. Facility #1
EPN: WST-01, WST-02
FIN: WST-01, WST-02
CIN: None
Source Description: Water Storage Tanks

Oil API Gravity	40.35
Measured/Calculated Gas Specific Gravity	1.884
Separator Pressure (PSIG)	16.8
Separator Temperature (F)	103.8
Site Elevation (Feet above Mean Sea Level)	0
Calculated Atmospheric Pressure @ Site Elevation:	14.70

Measured Cubic Feet Tank Vapor per Barrel Oil Produced (GOR):	16.3200
Flow Rate (ACFM)	0.087

Water Production Rate (BWPD):	300.00
Hours Operated per Year:	8760

Flash Losses

Total cubic ft. hydrocarbons/hour:	204.000
Flash lbs/hr hydrocarbons:	29.367
Flash tons/yr hydrocarbons:	128.627

Total Hydrocarbon Emissions

lbs/hr hydrocarbons:	30.092
tons/yr hydrocarbons:	131.803

Per guidance from the TCEQ, 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

Component	Mole Percent	Component Molecular Weight	Mole Fraction X Mole Wt	Weight Fraction	Lbs/hr	Tons/yr	1% Emissions Lbs/hr	1% Emissions Tons/yr
Hydrogen Sulfide	0.0000%	34.080	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Nitrogen	2.1095%	28.013	0.5909	0.0108	0.3255	1.4257	0.0033	0.0143
Carbon Dioxide	0.7310%	44.010	0.3217	0.0059	0.1772	0.7762	0.0018	0.0078
Methane	1.0147%	16.043	0.1628	0.0030	0.0897	0.3927	0.0009	0.0039
Ethane	9.9655%	30.070	2.9966	0.0549	1.6506	7.2298	0.0165	0.0723
Propane	32.1310%	44.097	14.1688	0.2594	7.8046	34.1841	0.0780	0.3418
iso-Butane	5.3438%	58.123	3.1060	0.0569	1.7109	7.4936	0.0171	0.0749
n-Butane	24.6200%	58.123	14.3099	0.2619	7.8823	34.5245	0.0788	0.3452
iso-Pentane	8.5500%	72.150	6.1688	0.1129	3.3980	14.8831	0.0340	0.1488
n-Pentane	8.5871%	72.150	6.1956	0.1134	3.4127	14.9477	0.0341	0.1495
Other Hexanes	2.0897%	86.178	1.8009	0.0330	0.9920	4.3448	0.0099	0.0434
***n-Hexane**	0.8623%	86.178	0.7431	0.0136	0.4093	1.7929	0.0041	0.0179
***Benzene**	0.5677%	78.114	0.4435	0.0081	0.2443	1.0699	0.0024	0.0107
***Toluene**	0.6220%	92.141	0.5731	0.0105	0.3157	1.3827	0.0032	0.0138
***Ethylbenzene**	0.0945%	106.167	0.1003	0.0018	0.0553	0.2421	0.0006	0.0024
***Xylenes**	0.1991%	106.167	0.2114	0.0039	0.1164	0.5100	0.0012	0.0051
***Trimethylpentane**	0.5522%	114.231	0.6308	0.0115	0.3475	1.5218	0.0035	0.0152
Heptanes	1.4079%	100.272	1.4117	0.0258	0.7776	3.4060	0.0078	0.0341
Octanes	0.1446%	114.231	0.1652	0.0030	0.0910	0.3985	0.0009	0.0040
Nonanes	0.3579%	128.258	0.4590	0.0084	0.2529	1.1075	0.0025	0.0111
Decanes +	0.0496%	142.280	0.0706	0.0013	0.0389	0.1703	0.0004	0.0017
Total	100.00%	Molecular Wt =	54.63	1.0000				

Air Toxics	1.4884	6.5194	0.0149	0.0652
VOC (Including HAP)	27.8492	121.9794	0.2785	1.2198

Calculation formula

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

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

Company Name: Oxyrock Operating, LLC
Facility Name: Guitar Galusha 2220 N. Facility #1
EPN: WST-01, WST-02
FIN: WST-01, WST-02
CIN: None
Source Description: Water Storage Tanks

Tank Standing and Working Loss Calculations for Fixed Roof Storage Tanks - Based on AP-42, Chapter 7, November 2019.

Tank Type =	Cone	
Tank Color =	Tan	
Paint Condition =	New	
Paint Factor, α =	0.43	dimensionless (Table 7.1-6)
Nearest City:	Midland, TX	
Insolation Factor, I =	1698	Btu/ft^2-day (Table 7.1-7)
Pressure Setting, P_{BP} =	0	ounces (Welded Tanks = 0.03; Bolted or Riveted Tanks = 0)
Vacuum setting, P_{BV} =	0	ounces (Welded Tanks = -0.03; Bolted or Riveted Tanks = 0)
Throughput, Q =	300	BWPD

Input Variables			Calculated Variables		
Tank Diameter, D =	15.5	ft	Vapor Space Volume, V_V =	2294.782	ft^3
Shell Height, H_S =	24	ft	Tank Volume =	807	bbls
Max. Liquid Height, H_{LX} =	24	ft	Roof Height, H_R =	0.4844	ft
Avg. Liquid Height, H_L =	12	ft			
Cone Roof Slope, S_R =	0.0625	ft/ft	Roof Outage, H_{RO} =	0.1615	ft
default S_R = 0.0625			Vapor Space Outage, H_{VO} =	12.1615	ft
Shell radius, Rs =	7.75	ft			
Vapor Mole Wt, M_V =	54.63	lb/lb mole	Vapor Density, W_V =	0.0328	lb/ft^3
Vapor Press at Avg Liq. Liquid Temp, P_{VA} =	3.5	psia	Avg. Liquid Temp, T_{LA} =	543.6507	° R
Delta Amb. Air Temp, T_A =	25.3	° R			
Daily Amb. Air Temp, T_{AA} =	80	° F	Vapor Space Expansion		
Tank Product Temp, T_B =	80	° F	Factor, K_E =	0.058	dimensionless
Flow Rate =	0.087	ACFM	Vented Vapor Sat. Factor, K_S =	0.3071	dimensionless
Stack Diameter=	3	inches	Number of Turnovers, N =	135.74	dimensionless
Velocity=	0.00046	ft/sec	Turnover Factor, K_N =	0.3877	dimensionless

Calculation of Standing Losses

$L_S = 365 * V_V * W_V * K_E * K_S$

L_S = Standing losses, lbs hydrocarbons/yr
V_V = Vapor space volume, ft^3
W_V = Stock vapor density, lb/ft^3
K_E = Vapor space expansion factor, dimensionless
K_S = Vented vapor saturation factor, dimensionless
365 = constant, days/year
HC = hydrocarbons (includes C1, C2 and higher molecular wt HC)

L_S =	489.35	lbs HC/year
	0.0559	lbs HC/hr
	0.245	tons HC/year

Calculation of Working Losses

$L_W = V_Q * K_N * K_P * W_V * K_B$

L_W = Working losses, lbs hydrocarbons/yr
V_Q = Net working losses, ft^3/yr; V_Q = 5.614Q
K_N = Turnover factor, dimensionless
K_P = Working loss product factor, dimensionless. K_P = 0.75 crude oils; K_P = 1 other organic liquids.
W_V = Vapor densiity, lb/ft^3
K_B = Vent setting correction factor. K_B = 1 for vent setting range +/- 0.03 psig.
HC = hydrocarbons (includes C1, C2 and higher molecular wt HC)

L_W =	5862.97	lbs HC/year
	0.6693	lbs HC/hr
	2.932	tons HC/year

Total Tank Standing and Working Losses of VOC's

(Assumes all Hydrocarbons are VOC's)

$L_T = L_S + L_W$

6352.32	lbs/year
0.7252	lbs/hr
3.1764	tons/year

Appendix - Section 2

Midland Basin

Crownquest Operating LLC
BA #: 2437
500 W. Texas Ave. Suite 500
Midland, TX 79710

Attention: Attn: Luke Dunn
Fax #: 432-682-3168

Meter #: 983032
Meter Name: GRATIS 1-1
Contract: GTH00243
Meter Split: 100

For Questions Contact
Name: Shavonda Nobles
Office: 469-308-4139
Email: PlantAccounting_Permian@enlink.com
Fax:

Accounting Date: Aug 1, 2021
Production Date: Jul 1, 2021
Pressure Base: 14.65

Physical Information

Analysis

Description	GPM	Mol
co2		0.2550
c1		69.9460
c2	3.4130	12.7400
c3	2.3281	8.4360
ic4	0.2462	0.7510
nc4	0.8097	2.5640
ic5	0.1835	0.5010
nc5	0.1986	0.5470
c6	0.3332	0.7680
nit		3.4920
Total	**7.5123**	**100.0000**

Settlement Information

Company:	**CrownQuest Operating**	***County:***	**Howard County**
Well:	**Abasin VRT**	***State:***	**Texas**
API #:			

SEPARATOR SHRINKAGE REPORT

Sampling Date:	26-Aug-21				
Sample Opening Pressure:	13.0	psig			
Separator Pressure:	16.8	psig			
Separator Temperature:	103.8	°F			
Separator Oil Bubble Point:	16.8	psig	@	103.8	°F
Separator Oil Shrinkage:	0.9719	STB / sep bbl			
Separator Oil Solution GOR:	16.32	SCF / STB			
Stock Tank Oil Gravity:	40.35	°API			

Note: Separator Oil measurement performed at Separator Conditions
Note: Stock Tank Oil measurement performed at Standard Conditions

SCAL, Inc.

SPECIAL CORE ANALYSIS LABORATORIES

Company: CrownQuest Operating
Well: Abasin VRT
County: Howard County
State: Texas

COMPOSITIONAL ANALYSIS BY GAS CHROMATOGRAPHY

GAS COMPOSITION MEASURED BY GC/TCD
OIL COMPOSITION MEASURED BY GC/FID

COMPONENT	FLASHED GAS	DEAD OIL	RECOMBINED OIL
	MOLE %	MOLE %	MOLE %
HYDROGEN SULFIDE	0.0000	0.0000	0.0000
NITROGEN	2.1095	0.0000	0.0361
OXYGEN	0.0000	0.0000	0.0000
METHANE	1.0147	0.0169	0.0339
CARBON DIOXIDE	0.7310	0.0000	0.0125
ETHANE	9.9655	0.2474	0.4136
PROPANE	32.1310	1.7743	2.2934
ISO-BUTANE	5.3438	3.1340	3.1718
N-BUTANE	24.6200	3.2446	3.6101
ISO-PENTANE	8.5500	2.1716	2.2807
N-PENTANE (C-5)	8.0898	3.0198	3.1065
2,2 DIMETHYL BUTANE	0.1301	0.0115	0.0113
CYCLOPENTANE	0.4973	0.3130	0.3081
2-METHYLPENTANE	0.2820	1.1341	1.1164
3-METHYLPENTANE	0.6452	2.0886	2.0559
N-HEXANE (C-6)	0.8623	2.0956	2.0628
METHYLCYCLOPENTANES	0.7835	0.0622	0.0612
BENZENE	0.5677	2.1110	2.0780
CYCLOHEXANE	0.2489	1.2973	1.2771
2-METHYLHEXANE	0.2103	0.5008	0.4930
3-METHYLHEXANE	0.0046	1.7564	1.7290
DIMETHYLCYCLOPENTANE	0.4167	1.0304	1.0143
HEPTANES	0.2105	0.7411	0.7295
N-HEPTANE (C-7)	0.1910	2.9809	2.9344
METHYLCYCLOHEXANE	0.3748	2.5693	2.5291
2-2-4 TRIMETHYLPENTANE	0.5522	54.6167	53.7633
TOLUENE	0.6220	0.8554	0.8420
OCTANES	0.0597	1.6170	1.5918
N-OCTANE (C-8)	0.0849	0.2910	0.2865
ETHYL BENZENE	0.0945	0.3247	0.3196
P-M-XYLENE	0.1581	1.1198	1.1023
O-XYLENE	0.0410	0.9796	0.9643
NONANES	0.1501	1.2136	1.1946
N-NONANE (C-9)	0.2079	0.5074	0.4995
DECANES+ (C10+)	0.0496	6.1741	6.0776
TOTAL	100.0000	100.0000	100.000

Molecular Weight (Flashed Gas) =	54.5 g/mol
Gross Heating Value (Flashed Gas) =	3,054 BTU/scf
Net Heating Value (Flashed Gas) =	2,818 BTU/scf
Molecular Weight (C10+ fraction) =	213.9 g/mol
Specific Gravity (C10+ fraction) =	0.8504

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SCAL, Inc.

SPECIAL CORE ANALYSIS LABORATORIES

Company: CrownQuest Operating
Well: Guitar Galusha 2220 North
County: Howard County
State: Texas

COMPOSITIONAL ANALYSIS BY GAS CHROMATOGRAPHY

GAS COMPOSITION MEASURED BY GC/TCD
OIL COMPOSITION MEASURED BY GC/FID

COMPONENT	FLASHED GAS	DEAD OIL	RECOMBINED OIL
	MOLE %	MOLE %	MOLE %
HYDROGEN SULFIDE	0.0000	0.0000	0.0000
NITROGEN	0.5818	0.0000	0.0481
OXYGEN	0.0000	0.0000	0.0000
METHANE	15.0209	0.1741	1.4011
CARBON DIOXIDE	0.2938	0.0000	0.0243
ETHANE	19.6408	0.8888	2.4385
PROPANE	33.8054	4.7572	7.1578
ISO-BUTANE	3.8831	1.2844	1.4992
N-BUTANE	14.5166	8.0424	8.5774
ISO-PENTANE	3.4093	4.2036	4.1380
N-PENTANE (C-5)	3.3760	6.3229	6.0794
2,2 DIMETHYL BUTANE	0.6202	1.7978	1.6602
CYCLOPENTANE	0.1095	1.1105	1.0255
2-METHYLPENTANE	0.1020	1.8523	1.7105
3-METHYLPENTANE	0.1544	3.7308	3.4452
N-HEXANE (C-6)	0.2648	4.1801	3.8601
METHYLCYCLOPENTANES	0.2679	0.0271	0.0250
BENZENE	0.2760	4.8861	4.5120
CYCLOHEXANE	0.0618	1.4134	1.3052
2-METHYLHEXANE	0.1433	4.7498	4.3862
3-METHYLHEXANE	0.1646	1.8744	1.7309
DIMETHYLCYCLOPENTANE	0.0870	1.4645	1.3524
HEPTANES	0.3767	2.6755	2.4706
N-HEPTANE (C-7)	0.7037	4.2535	3.9279
METHYLCYCLOHEXANE	0.0661	7.1054	6.5615
2-2-4 TRIMETHYLPENTANE	0.1101	4.3524	4.0192
TOLUENE	0.0905	2.8661	2.6466
OCTANES	0.2675	3.4593	3.1944
N-OCTANE (C-8)	0.3181	0.8462	0.7814
ETHYL BENZENE	0.0769	0.8854	0.8176
P-M-XYLENE	0.1657	1.6097	1.4865
O-XYLENE	0.3114	1.9781	1.8267
NONANES	0.3591	3.5098	3.2411
N-NONANE (C-9)	0.0741	0.3531	0.3261
DECANES+ (C10+)	0.3012	13.3454	12.3237
TOTAL	100.0000	100.0000	100.000

Molecular Weight (Flashed Gas) =	44.6 g/mol
Gross Heating Value (Flashed Gas) =	2556 BTU/scf
Net Heating Value (Flashed Gas) =	2352 BTU/scf
Molecular Weight (C10+ fraction) =	240.0 g/mol
Specific Gravity (C10+ fraction) =	0.9601

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