January 19, 2022

Elizabeth Bisbey-Kuehn
New Mexico Environment Department
Air Quality Bureau
525 Camino de los Marquez, Suite 1
Santa Fe, New Mexico 87505-1816

Re: Application to Renew Title V Operating Permit Number P206-R3-M1
Harvest Four Corners, LLC – Rosa#1 Compressor Station

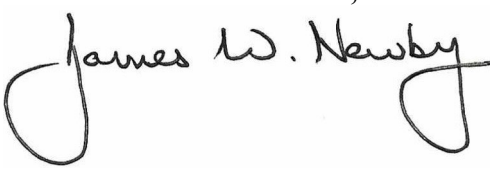
Dear Ms. Bisbey-Kuehn,

On behalf of Harvest Four Corners, LLC (Harvest), Cirrus Consulting, LLC submits the enclosed application to renew the Title V operating permit for the Rosa#1 Compressor Station.

Thank you for your assistance. If you have questions or need any additional information, please contact Oakley Hayes of Harvest at (505) 632-4421.

Sincerely,

CIRRUS CONSULTING, LLC



James W. Newby

Attachment
Rosa#1 Compressor Station Title V Operating Permit Application

c: Oakley Hayes, Harvest

Cirrus Consulting, LLC
11139 Crisp Air Drive
Colorado Springs, Colorado 80908
Phone: (801) 294-3024
jnewby@cirrusllc.com

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NEW MEXICO 20.2.70 NMAC
APPLICATION TO RENEW
TITLE V OPERATING PERMIT NUMBER P206-R3-M1

ROSA #1 COMPRESSOR STATION

Submitted By:

Harvest Four Corners, LLC

1755 Arroyo Drive
Bloomfield, New Mexico 87413

Prepared By:

Cirrus Consulting, LLC
11139 Crisp Air Drive
Colorado Springs, CO 80908
(801) 294-3024

January 2022

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Introduction

Application Summary

The Harvest Rosa #1 Compressor Station (Rosa #1) currently operates under Title V operating permit, P206-R3, issued January 26, 2018 as revised through -M1 (December 27, 2018), and construction permit 2004-M4, issued March 23, 2011, as revised through -R7 (June 9, 2021).

A list of the equipment currently approved for use at the facility by the Title V operating permit can be found in Tables 2-A and 2-B of Section 2 of this application.

This Title V renewal application is submitted under section 20.2.70.300.B(2) of the New Mexico Administrative Code (NMAC). The renewal application is due 12 months prior to the expiration of the current Title V Operating Permit on January 26, 2023.

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Mail Application To:		**For Department use only:**
New Mexico Environment Department Air Quality Bureau Permits Section 525 Camino de los Marquez, Suite 1 Santa Fe, New Mexico, 87505 Phone: (505) 476-4300 Fax: (505) 476-4375 www.env.nm.gov/aqb		AIRS No.:

Universal Air Quality Permit Application

Use this application for NOI, NSR, or Title V sources.

Use this application for: the initial application, modifications, technical revisions, and renewals. For technical revisions, complete Sections, 1-A, 1-B, 2-E, 3, 9 and any other sections that are relevant to the requested action; coordination with the Air Quality Bureau permit staff prior to submittal is encouraged to clarify submittal requirements and to determine if more or less than these sections of the application are needed. Use this application for streamline permits as well. See Section 1-I for submittal instructions for other permits.

This application is submitted as (check all that apply)**:** ☐ Request for a No Permit Required Determination (no fee)
☒ **Updating an application currently under NMED review**. Include this page and all pages that are being updated (no fee required).
Construction Status: ☐ Not Constructed ☒ Existing Permitted (or NOI) Facility ☐ Existing Non-permitted (or NOI) Facility
Minor Source: ☐ a NOI 20.2.73 NMAC ☐ 20.2.72 NMAC application or revision ☐ 20.2.72.300 NMAC Streamline application
Title V Source: ☐ Title V (new) ☒ Title V renewal ☐ TV minor mod. ☐ TV significant mod. TV Acid Rain: ☐ New ☐ Renewal
PSD Major Source: ☐ PSD major source (new) ☐ minor modification to a PSD source ☐ a PSD major modification

Acknowledgements:

☒ I acknowledge that a pre-application meeting is available to me upon request. ☐ Title V Operating, Title IV Acid Rain, and NPR applications have no fees.

☐ $500 NSR application Filing Fee enclosed OR ☐ The full permit fee associated with 10 fee points (required w/ streamline applications).

☐ Check No.: in the amount of

☒ I acknowledge the required submittal format for the hard copy application is printed double sided 'head-to-toe', 2-hole punched (except the Sect. 2 landscape tables is printed 'head-to-head'), numbered tab separators. Incl. a copy of the check on a separate page.

☐ This facility qualifies to receive assistance from the Small Business Environmental Assistance program (SBEAP) and qualifies for 50% of the normal application and permit fees. Enclosed is a check for 50% of the normal application fee which will be verified with the Small Business Certification Form for your company.

☐ This facility qualifies to receive assistance from the Small Business Environmental Assistance Program (SBEAP) but does not qualify for 50% of the normal application and permit fees. To see if you qualify for SBEAP assistance and for the small business certification form go to https://www.env.nm.gov/aqb/sbap/small_business_criteria.html).

Citation: Please provide the **low level citation** under which this application is being submitted: **20.2.70.300.C(2) NMAC**
(e.g. application for a new minor source would be 20.2.72.200.A NMAC, one example for a Technical Permit Revision is 20.2.72.219.B.1.b NMAC, a Title V acid rain application would be: 20.2.70.200.C NMAC)

Section 1 – Facility Information

Section 1-A: Company Information

		AI # if known (see 1st 3 to 5 #s of permit IDEA ID No.): **1367**	Updating Permit/NOI #: **P206-R3-M1 (Application P206-R4)**
1	Facility Name: Rosa #1 Compressor Station	Plant primary SIC Code (4 digits): 1389	
		Plant NAIC code (6 digits): 213112	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): See Section 1-D.4.		
2	Plant Operator Company Name: Harvest Four Corners, LLC	Phone/Fax: 505-632-4600 / 505-632-4782	
a	Plant Operator Address: 1755 Arroyo Drive, Bloomfield, NM 87413		

b	Plant Operator's New Mexico Corporate ID or Tax ID: 76-0451075	
3	Plant Owner(s) name(s): Same as #2 above	Phone/Fax: Same as #2 above
a	Plant Owner(s) Mailing Address(s): Same as #2a above	
4	Bill To (Company): Same as #2 above	Phone/Fax: Same as #2 above
a	Mailing Address: Same as #2a above	E-mail: N/A
5	☐ Preparer: ☑ Consultant: Lisa Killion, Cirrus Consulting, LLC	Phone/Fax: 505-466-1790
a	Mailing Address: c/o 11139 Crisp Air Drive, Colorado Springs, Colorado 80908	E-mail: lkillion@cirrusllc.com
6	Plant Operator Contact: Oakley Hayes	Phone/Fax: 505-632-4421 / (505) 632-4782
a	Address: Same as #2a above	E-mail: Oakley.Hayes@harvestmidstream.com
7	Air Permit Contact: Same as #6 above	Title: Environmental Specialist
a	E-mail: Same as #6a above	Phone/Fax: Same as #6 above
b	Mailing Address: Same as #2a above	
c	The designated Air permit Contact will receive all official correspondence (i.e. letters, permits) from the Air Quality Bureau.	

Section 1-B: Current Facility Status

1.a	Has this facility already been constructed? ☒ Yes ☐ No	1.b If yes to question 1.a, is it currently operating in New Mexico? ☒ Yes ☐ No
2	If yes to question 1.a, was the existing facility subject to a Notice of Intent (NOI) (20.2.73 NMAC) before submittal of this application? ☐ Yes ☒ No	If yes to question 1.a, was the existing facility subject to a construction permit (20.2.72 NMAC) before submittal of this application? ☒ Yes ☐ No
3	Is the facility currently shut down? ☐ Yes ☒ No	If yes, give month and year of shut down (MM/YY):
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? ☐ Yes ☒ No	
5	If Yes to question 3, has this facility been modified (see 20.2.72.7.P NMAC) or the capacity increased since 8/31/1972? ☐Yes ☐No ☒ N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☒ Yes ☐ No	If yes, the permit No. is: P-206-R3
7	Has this facility been issued a No Permit Required (NPR)? ☐ Yes ☒ No	If yes, the NPR No. is:
8	Has this facility been issued a Notice of Intent (NOI)? ☐ Yes ☒ No	If yes, the NOI No. is:
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ☒ Yes ☐ No	If yes, the permit No. is: 2004-M4-R7
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes ☒ No	If yes, the register No. is:

Section 1-C: Facility Input Capacity & Production Rate

1	What is the facility's maximum input capacity, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: 3,333 mcfh[(a)]	Daily: 80 mmcfd[(a)]	Annually: 29,200 mmcfy[(a)]
b	Proposed	Hourly: 3,333 mcfh[(a)]	Daily: 80 mmcfd[(a)]	Annually: 29,200 mmcfy[(a)]
2	What is the facility's maximum production rate, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: 3,333 mcfh[(a)]	Daily: 80 mmcfd[(a)]	Annually: 29,200 mmcfy[(a)]
b	Proposed	Hourly: 3,333 mcfh[(a)]	Daily: 80 mmcfd[(a)]	Annually: 29,200 mmcfy[(a)]

[a] Station capacity is a direct function of available horsepower. The throughput is therefore dependent on atmospheric temperature, gas temperature, atmospheric pressure, gas pressure, relative humidity and gas quality, as well as other factors. The "capacity" expressed in the application is a nominal quantity, neither an absolute maximum nor an average. The actual throughput will vary from the nominal amount.

Section 1-D: Facility Location Information

1	Section: 7&8	Range: 06W	Township: 31N	County: San Juan	Elevation (ft): 6,320
2	UTM Zone: ☐ 12 or ☒ 13			Datum: ☐ NAD 27 ☐ NAD 83 ☒ WGS 84	
a	UTM E (in meters, to nearest 10 meters): 277,700 m			UTM N (in meters, to nearest 10 meters): 4,088,575 m	
b	**AND** Latitude (deg., min., sec.): 36° 55' 1.3"			Longitude (deg., min., sec.): -107° 29' 43.8"	
3	Name and zip code of nearest New Mexico town: Aztec, NM 87410				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): Drive north from Aztec on Hwy 550 to Colorado 318 and turn right. Drive to "T" Junction 172 (approx. 15 miles). Turn left and drive into Ignacio. Turn right on 151 to mile marker 11.9 and turn right on CR 330. Drive 1.9 miles to NM line. Turn right on 4020. Drive 4 miles and turn left 1.8 miles. Stay right 2.1 miles. Stay left 0.3 miles to location.				
5	The facility is ~ 25.4 (distance) miles northeast (direction) of Aztec, NM (nearest town).				
6	Status of land at facility (check one): ☐ Private ☐ Indian/Pueblo ☒ Federal BLM ☐ Federal Forest Service ☐ Other (specify)				
7	List all municipalities, Indian tribes, and counties within a ten (10) mile radius (20.2.72.203.B.2 NMAC) of the property on which the facility is proposed to be constructed or operated: None; So. Ute; San Juan Co., Rio Arriba Co.				
8	**20.2.72** NMAC applications **only**: Will the property on which the facility is proposed to be constructed or operated be closer than 50 km (31 miles) to other states, Bernalillo County, or a Class I area (see www.env.nm.gov/aqb/modeling/class1areas.html)? ☒ Yes ☐ No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers: Colorado, 9.2 km				
9	Name nearest Class I area: Weminuche Wilderness				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): 56.01 km				
11	Distance (meters) from the perimeter of the Area of Operations (AO is defined as the plant site inclusive of all disturbed lands, including mining overburden removal areas) to nearest residence, school or occupied structure: ~9,800 m				
12	Method(s) used to delineate the Restricted Area: Fencing "**Restricted Area**" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area.				
13	Does the owner/operator intend to operate this source as a portable stationary source as defined in 20.2.72.7.X NMAC? ☐ Yes ☒ No A portable stationary source is not a mobile source, such as an automobile, but a source that can be installed permanently at one location or that can be re-installed at various locations, such as a hot mix asphalt plant that is moved to different job sites.				
14	Will this facility operate in conjunction with other air regulated parties on the same property? ☒ No ☐ Yes If yes, what is the name and permit number (if known) of the other facility?				

Section 1-E: Proposed Operating Schedule (The 1-E.1 & 1-E.2 operating schedules may become conditions in the permit.)

1	Facility **maximum** operating ($\frac{\text{hours}}{\text{day}}$): 24	($\frac{\text{days}}{\text{week}}$): 7	($\frac{\text{weeks}}{\text{year}}$): 52	($\frac{\text{hours}}{\text{year}}$): 8,760			
2	Facility's maximum daily operating schedule (if less than 24 $\frac{\text{hours}}{\text{day}}$)? Start: N/A	AM PM	End: N/A	AM PM			
3	Month and year of anticipated start of construction: N/A						
4	Month and year of anticipated construction completion: N/A						
5	Month and year of anticipated startup of new or modified facility: N/A						
6	Will this facility operate at this site for more than one year? ☒ Yes ☐ No						

Section 1-F: Other Facility Information

1	Are there any current Notice of Violations (NOV), compliance orders, or any other compliance or enforcement issues related to this facility? ☐ Yes ☒ No If yes, specify:		
a	If yes, NOV date or description of issue: N/A		NOV Tracking No: N/A
b	Is this application in response to any issue listed in 1-F, 1 or 1a above? ☐ Yes ☒ No If Yes, provide the 1c & 1d info below:		
c	Document Title: N/A	Date: N/A	Requirement # (or page # and paragraph #): N/A
d	Provide the required text to be inserted in this permit: N/A		
2	Is air quality dispersion modeling or modeling waiver being submitted with this application? ☐ Yes ☒ No		
3	Does this facility require an "Air Toxics" permit under 20.2.72.400 NMAC & 20.2.72.502, Tables A and/or B? ☐ Yes ☒ No		
4	Will this facility be a source of federal Hazardous Air Pollutants (HAP)? ☒ Yes ☐ No		
a	If Yes, what type of source? ☒ **Major** (☒ ≥10 tpy of any single HAP **OR** ☐ ≥25 tpy of any combination of HAPS) **OR** ☐ **Minor** (☐ <10 tpy of any single HAP **AND** ☐ <25 tpy of any combination of HAPS)		
5	Is any unit exempt under 20.2.72.202.B.3 NMAC? ☐ Yes ☒ No		
a	If yes, include the name of company providing commercial electric power to the facility: Not applicable. Commercial power is purchased from a commercial utility company, which specifically does not include power generated on site for the sole purpose of the user.		

Section 1-G: Streamline Application

(This section applies to 20.2.72.300 NMAC Streamline applications only)

1	☐ I have filled out Section 18, "Addendum for Streamline Applications."	☒ N/A (This is not a Streamline application.)

Section 1-H: Current Title V Information - Required for all applications from TV Sources

(Title V-source required information for all applications submitted pursuant to 20.2.72 NMAC (Minor Construction Permits), or 20.2.74/20.2.79 NMAC (Major PSD/NNSR applications), and/or 20.2.70 NMAC (Title V))

1	Responsible Official (R.O.) (20.2.70.300.D.2 NMAC): Travis Jones		Phone: 713-289-2630
a	R.O. Title: EH&S Manager	R.O. e-mail: trjones@harvestmidstream.com	
b	R. O. Address: 1111 Travis Street, Houston, TX 77002		
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC): TBD		Phone: TBD
a	A. R.O. Title: TBD	A. R.O. e-mail: TBD	
b	A. R. O. Address: TBD		
3	Company's Corporate or Partnership Relationship to any other Air Quality Permittee (List the names of any companies that have operating (20.2.70 NMAC) permits and with whom the applicant for this permit has a corporate or partnership relationship): N/A		
4	Name of Parent Company ("Parent Company" means the primary name of the organization that owns the company to be permitted wholly or in part.): Harvest Midstream		
a	Address of Parent Company: 1111 Travis Street, Houston, TX 77002		
5	Names of Subsidiary Companies ("Subsidiary Companies" means organizations, branches, divisions or subsidiaries, which are owned, wholly or in part, by the company to be permitted.): N/A		
6	Telephone numbers & names of the owners' agents and site contacts familiar with plant operations: N/A		
7	Affected Programs to include Other States, local air pollution control programs (i.e. Bernalillo) and Indian tribes: Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B)? If yes, state which ones and provide the distances in kilometers: Yes. Colorado, ~9.2 km; Navajo Nation Air Quality Control Program, ~36.1 km; Southern Ute Tribe, ~9.2 km; Jicarilla Apache Tribe, ~26.5 km; Ute Mountain Ute Tribe, ~67.3 km.		

Section 1-I – Submittal Requirements

Each 20.2.73 NMAC (**NOI**), a 20.2.70 NMAC (**Title V**), a 20.2.72 NMAC (**NSR** minor source), or 20.2.74 NMAC (**PSD**) application package shall consist of the following:

Hard Copy Submittal Requirements:

1) One hard copy **original signed and notarized application package** **printed double sided** **'head-to-toe'** **2-hole punched** as we bind the document on top, not on the side; except Section 2 (landscape tables), which should be head-to-head. Please use **numbered tab separators** in the hard copy submittal(s) as this facilitates the review process. For NOI submittals only, hard copies of UA1, Tables 2A, 2D & 2F, Section 3 and the signed Certification Page are required. Please include a copy of the check on a separate page.

2) If the application is for a minor NSR, PSD, NNSR, or Title V application, include one working hard **copy** for Department use. This copy should be printed in book form, 3-hole punched, and **must be double sided**. Note that this is in addition to the head-to-to 2-hole punched copy required in 1) above. Minor NSR Technical Permit revisions (20.2.72.219.B NMAC) only need to fill out Sections 1-A, 1-B, 3, and should fill out those portions of other Section(s) relevant to the technical permit revision. TV Minor Modifications need only fill out Sections 1-A, 1-B, 1-H, 3, and those portions of other Section(s) relevant to the minor modification. NMED may require additional portions of the application to be submitted, as needed.

3) The entire NOI or Permit application package, including the full modeling study, should be submitted electronically. Electronic files for applications for NOIs, any type of General Construction Permit (GCP), or technical revisions to NSRs must be submitted with compact disk (CD) or digital versatile disc (DVD). For these permit application submittals, **two** CD copies are required (in sleeves, not crystal cases, please), with additional CD copies as specified below. NOI applications require only a single CD submittal. Electronic files for other New Source Review (construction) permits/permit modifications or Title V permits/permit modifications can be submitted on CD/DVD or sent through AQB's secure file transfer service.

Electronic files sent by (check one):

☒ **CD/DVD attached to paper application**

☐ secure electronic transfer. Air Permit Contact Name_____

Email_____

Phone number _____

a. If the file transfer service is chosen by the applicant, after receipt of the application, the Bureau will email the applicant with instructions for submitting the electronic files through a secure file transfer service. Submission of the electronic files through the file transfer service needs to be completed within 3 business days after the invitation is received, so the applicant should ensure that the files are ready when sending the hard copy of the application. The applicant will not need a password to complete the transfer. **Do not use the file transfer service for NOIs, any type of GCP, or technical revisions to NSR permits.**

4) Optionally, the applicant may submit the files with the application on compact disk (CD) or digital versatile disc (DVD) following the instructions above and the instructions in 5 for applications subject to PSD review.

5) If **air dispersion modeling** is required by the application type, include the **NMED Modeling Waiver** and/or electronic air dispersion modeling report, input, and output files. The dispersion modeling ***summary report only*** should be submitted as hard copy(ies) unless otherwise indicated by the Bureau.

6) If the applicant submits the electronic files on CD and the application is subject to PSD review under 20.2.74 NMAC (PSD) or NNSR under 20.2.79 NMC include,
   a. one additional CD copy for US EPA,
   b. one additional CD copy for each federal land manager affected (NPS, USFS, FWS, USDI) and,
   c. one additional CD copy for each affected regulatory agency other than the Air Quality Bureau.

   If the application is submitted electronically through the secure file transfer service, these extra CDs do not need to be submitted.

Electronic Submittal Requirements [in addition to the required hard copy(ies)]:

1) All required electronic documents shall be submitted as 2 separate CDs or submitted through the AQB secure file transfer service. Submit a single PDF document of the entire application as submitted and the individual documents comprising the application.

2) The documents should also be submitted in Microsoft Office compatible file format (Word, Excel, etc.) allowing us to access the text and formulas in the documents (copy & paste). Any documents that cannot be submitted in a Microsoft Office compatible

format shall be saved as a PDF file from within the electronic document that created the file. If you are unable to provide Microsoft office compatible electronic files or internally generated PDF files of files (items that were not created electronically: i.e. brochures, maps, graphics, etc,), submit these items in hard copy format. We must be able to review the formulas and inputs that calculated the emissions.

3) It is preferred that this application form be submitted as 4 electronic files (3 MSWord docs: Universal Application section 1 [UA1], Universal Application section 3-19 [UA3], and Universal Application 4, the modeling report [UA4]) and 1 Excel file of the tables (Universal Application section 2 [UA2]). Please include as many of the 3-19 Sections as practical in a single MS Word electronic document. Create separate electronic file(s) if a single file becomes too large or if portions must be saved in a file format other than MS Word.

4) The electronic file names shall be a maximum of 25 characters long (including spaces, if any). The format of the electronic Universal Application shall be in the format: "A-3423-FacilityName". The "A" distinguishes the file as an application submittal, as opposed to other documents the Department itself puts into the database. Thus, all electronic application submittals should begin with "A-". Modifications to existing facilities should use the core permit number (i.e. '3423') the Department assigned to the facility as the next 4 digits. Use 'XXXX' for new facility applications. The format of any separate electronic submittals (additional submittals such as non-Word attachments, re-submittals, application updates) and Section document shall be in the format: "A-3423-9-description", where "9" stands for the section # (in this case Section 9-Public Notice). Please refrain, as much as possible, from submitting any scanned documents as this file format is extremely large, which uses up too much storage capacity in our database. Please take the time to fill out the header information throughout all submittals as this will identify any loose pages, including the Application Date (date submitted) & Revision number (0 for original, 1, 2, etc.; which will help keep track of subsequent partial update(s) to the original submittal. Do not use special symbols (#, @, etc.) in file names. The footer information should not be modified by the applicant.

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Table 2-A: Regulated Emission Sources

Unit and stack numbering must correspond throughout the application package. If applying for a NOI under 20.2.73 NMAC, equipment exemptions under 2.72.202 NMAC do not apply.

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
1	Reciprocating I.C. Engine	Waukesha	7042 GL	C-10664/4 (Pkg. x00103)	1,478 hp	1,376 hp	8/17/1992 8/17/1992	N/A 1	20200202	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
2	Reciprocating I.C. Engine	Waukesha	7042 GL	C-61618/1 (Pkg. x00028)	1,478 hp	1,376 hp	9/24/1998 9/24/1998	N/A 2	20200202	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
4	Reciprocating I.C. Engine	Waukesha	7042 GL	TBD	1,478 hp	1,376 hp	TBD TBD	N/A 4	20200202	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
5	Reciprocating I.C. Engine	Waukesha	7042 GL	C11448/1 (Pkg. x00095)	1,478 hp	1,376 hp	10/10/1994 10/10/1994	N/A 5	20200202	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
6	Reciprocating I.C. Engine	Waukesha	7042 GL	TBD	1,478 hp	1,376 hp	TBD TBD	N/A 6	20200202	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
7[5]	Reciprocating I.C. Engine	Waukesha	7042 GL	N/A	N/A	N/A	N/A N/A	N/A N/A	20200202	☐ Existing (unchanged) X To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
8[5]	Reciprocating I.C. Engine	Waukesha	7042 GL	N/A	N/A	N/A	N/A N/A	N/A N/A	20200202	☐ Existing (unchanged) X To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
SSM	Compressors & Associated Piping	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	31000299	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
3a	TEG Dehydrator Still Vent	InFab	N/A	6132C	20 mmscfd	20 mmscfd	10/1/1998 10/1/1998	N/A 17a	31000227	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
3b	TEG Dehydrator Reboiler	InFab	N/A	6132C	1,648 scfh	1,648 scfh	10/1/1998 10/1/1998	NA 17b	31000228	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
9a	TEG Dehydrator Still Vent	InFab	N/A	6166C	20 mmscfd	20 mmscfd	12/1/1998 12/1/1998	N/A 17a	31000227	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
9b	TEG Dehydrator Reboiler	InFab	N/A	6166C	1,648 scfh	1,648 scfh	TBD TBD	NA 17b	31000228	X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
10a[5]	TEG Dehydrator Still Vent	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	31000227	☐ Existing (unchanged) X To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
10b[5]	TEG Dehydrator Reboiler	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	31000228	☐ Existing (unchanged) X To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
11a[5]	TEG Dehydrator Still Vent	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	31000227	☐ Existing (unchanged) X To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
11b[5]	TEG Dehydrator Reboiler	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	31000228	☐ Existing (unchanged) X To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
12a[6]	Fuel Gas Dehydrator Still Vent	Olman Heath	4 mmcfd	42380	4 mmscfd	4 mmscfd	3/1/1981 3/1/1981	N/A 12a	31000227	☐ Existing (unchanged) ☐ To be Removed X **New/Additional** ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
12b[6]	Fuel Gas Dehydrator Reboiler	Olman Heath	43.1 scfh	31718	43.1 scfh	43.1 scfh	3/1/1981 3/1/1981	N/A 12b	31000228	☐ Existing (unchanged) ☐ To be Removed X **New/Additional** ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
									--	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
									--	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
										☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		

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

[2] Specify dates required to determine regulatory applicability.

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

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

[5] RICE units 7 & 8 and TEG dehydrator units 10a/b & 11a/b were removed from the permit (NSR construction permit 2004-M4-R6, April 12, 2019).

[6] The unit 12a/b fuel gas dehydrator was authorized under NSR construction permit 2004-M4-R7 (June 9, 2021).

Table 2-B: Insignificant Activities[1] (20.2.70 NMAC) OR Exempted Equipment (20.2.72 NMAC)

All 20.2.70 NMAC (Title V) applications must list all Insignificant Activities in this table. All 20.2.72 NMAC applications must list Exempted Equipment in this table. If equipment listed on this table is exempt under 20.2.72.202.B.5, include emissions calculations and emissions totals for 202.B.5 "similar functions" units, operations, and activities in Section 6, Calculations. Equipment and activities exempted under 20.2.72.202 NMAC may not necessarily be Insignificant under 20.2.70 NMAC (and vice versa). Unit & stack numbering must be consistent throughout the application package. Per Exemptions Policy 02-012.00 (see http://www.env.nm.gov/aqb/permit/aqb_pol.html), 20.2.72.202.B NMAC Exemptions do not apply, but 20.2.72.202.A NMAC exemptions do apply to NOI facilities under 20.2.73 NMAC. List 20.2.72.301.D.4 NMAC Auxiliary Equipment for Streamline applications in Table 2-A. The List of Insignificant Activities (for TV) can be found online at http://www.env.nm.gov/aqb/forms/InsignificantListTitleV.pdf . TV sources may elect to enter both TV Insignificant Activities and Part 72 Exemptions on this form.

Unit Number	Source Description	Manufacturer	Model No. / Serial No.	Max Capacity / Capacity Units	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5) / Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Manufacture /Reconstruction[2] / Date of Installation /Construction[2]	For Each Piece of Equipment, Check Onc
T-1	Produced Water Storage Tank			300	20.2.72.202.B(5) NMAC		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			T-2112	bbl	Insignificant Activity List Item #5		
T-3	Waste Water Storage Tank (Below-grade tank)			40	20.2.72.202.B(2) NMAC		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			8045007	bbl	Insignificant Activity List Item #5		
T-4	Waste Water Storage Tank (Below-grade tank)			40	20.2.72.202.B(2) NMAC		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			80450	bbl	Insignificant Activity List Item #5		
T-5 - T-11	Lube Oil Storage Tank (each)			500	20.2.72.202.B(2) NMAC		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	Insignificant Activity List Item #5		
T-12 - T-18	Used Oil Storage Tank (each)			500	20.2.72.202.B(2) NMAC		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	Insignificant Activity List Item #5		
T-19 - T-22	Glycol Storage Tank (each)			100	20.2.72.202.B(2) NMAC		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	Insignificant Activity List Item #5		
T-23 - T-26	Glycol Storage Tank (each)			125	20.2.72.202.B(2) NMAC		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	Insignificant Activity List Item #5		
T-27	Glycol Storage Tank (each)			500	20.2.72.202.B(2) NMAC		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	Insignificant Activity List Item #5		
T-28	Antifreeze Storage Tank			500	20.2.72.202.B(2) NMAC		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	Insignificant Activity List Item #5		
T-29	Produced Water Storage Tank			120	20.2.72.202.B(5) NMAC		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			T-5178	bbl	Insignificant Activity List Item #5		
T-30, T-31	Lube Oil Storage Tank (each)			500	20.2.72.202.B(2) NMAC		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	Insignificant Activity List Item #1		
L-1	Truck Loading			- -	20.2.72.202.B(5) NMAC		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				- -	Insignificant Activity List Item #1		
F-1	Fugitive Emissions			- -	20.2.72.202.B(5) NMAC		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				- -	Insignificant Activity List Item #1		
PR1	Pig Receiver				20.2.72.202.B(5) NMAC		X Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
					Insignificant Activity List Item #1		

[1] Insignificant activities exempted due to size or production rate are defined in 20.2.70.300.D.6, 20.2.70.7.Q NMAC, and the NMED/AQB List of Insignificant Activities, dated September 15, 2008. Emissions from these insignificant activities do not need to be reported, unless specifically requested.

[2] Specify date(s) required to determine regulatory applicability.

Table 2-C: Emissions Control Equipment

Unit and stack numbering must correspond throughout the application package. Only list control equipment for TAPs if the TAP's maximum uncontrolled emissions rate is over its respective threshold as listed in 20.2.72 NMAC, Subpart V, Tables A and B. In accordance with 20.2.72.203.A(3) and (8) NMAC, 20.2.70.300.D(5)(b) and (e) NMAC, and 20.2.73.200.B(7) NMAC, the permittee shall report all control devices and list each pollutant controlled by the control device regardless if the applicant takes credit for the reduction in emissions.

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
N/A						

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

Table 2-D: Maximum Emissions (under normal operating conditions)

X This Table was intentionally left blank because it would be identical to Table 2-E.

Maximum Emissions are the emissions at maximum capacity and prior to (in the absence of) pollution control, emission-reducing process equipment, or any other emission reduction. Calculate the hourly emissions using the worst case hourly emissions for each pollutant. For each pollutant, calculate the annual emissions as if the facility were operating at maximum plant capacity without pollution controls for 8760 hours per year, unless otherwise approved by the Department. List Hazardous Air Pollutants (HAP) & Toxic Air Pollutants (TAPs) in Table 2-I. Unit & stack numbering must be consistent throughout the application package. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or 1.41E-4).

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Totals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	0	0

[1]**Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source. Do not include condensable particulate matter for PM unless PM is set equal to PM10 and PM2.5. Particulate matter (PM) is not subject to an ambient air quality standard, but PM is a regulated air pollutant under PSD (20.2.74 NMAC) and Title V (20.2.70 NMAC).

[2] The VOC emission rates are carried forward from Operating Permit P027-R4.

Table 2-E: Requested Allowable Emissions

Unit & stack numbering must be consistent throughout the application package. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or $1.41E^{-4}$).

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	4.55	19.92	8.03	35.19	3.03	13.28	6.0E-03	2.6E-02	0.10	0.44	0.10	0.44	0.10	0.44	-	-	-	-
2	4.55	19.92	8.03	35.19	3.03	13.28	6.0E-03	2.6E-02	0.10	0.44	0.10	0.44	0.10	0.44	-	-	-	-
4	4.55	19.92	8.03	35.19	3.03	13.28	6.0E-03	2.6E-02	0.10	0.44	0.10	0.44	0.10	0.44	-	-	-	-
5	4.55	19.92	8.03	35.19	3.03	13.28	6.0E-03	2.6E-02	0.10	0.44	0.10	0.44	0.10	0.44	-	-	-	-
6	4.55	19.92	8.03	35.19	3.03	13.28	6.0E-03	2.6E-02	0.10	0.44	0.10	0.44	0.10	0.44	-	-	-	-
SSM	-	-	-	-	not specified	1.30	-	-	-	-	-	-	-	-	-	-	-	-
3a[2]	-	-	-	-	4.77	20.90	-	-	-	-	-	-	-	-	-	-	-	-
3b	4.29E-02	0.19	4.46E-02	0.20	6.46E-03	2.83E-02	8.3E-04	3.7E-03	1.25E-02	5.49E-02	1.25E-02	5.49E-02	1.25E-02	5.49E-02	-	-	-	-
9a[2]	-	-	-	-	4.77	20.90	-	-	-	-	-	-	-	-	-	-	-	-
9b	4.29E-02	0.19	4.46E-02	0.20	6.46E-03	2.83E-02	8.3E-04	3.7E-03	1.25E-02	5.49E-02	1.25E-02	5.49E-02	1.25E-02	5.49E-02	-	-	-	-
12a	-	-	-	-	0.15	0.64	-	-	-	-	-	-	-	-	-	-	-	-
12b	4.83E-03	2.12E-02	9.58E-04	4.20E-03	2.37E-04	1.04E-03	2.59E-05	1.13E-04	3.28E-04	1.43E-03	3.28E-04	1.43E-03	3.28E-04	1.43E-03	-	-	2.2E-08	9.4E-08
Totals	22.83	99.99	40.26	176.34	24.86	110.20	0.03	0.14	0.53	2.33	0.53	2.33	0.53	2.33	-	-	2.16E-08	9.44E-08

[1] **Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source. Do not include condensable particulate matter for PM unless PM is set equal to PM10 and PM2.5. Particulate matter (PM) is not subject to an ambient air quality standard, but it is a regulated air pollutant under PSD (20.2.74 NMAC) and Title V (20.2.70 NMAC).

[2] The Requested Allowable Emissions for units 3a and 9a are carried forward from the current permit (P206-R3); no changes to the existing permitted emission rates are proposed. Any emission calculations presented in section 6 that are lower than the above emission rates demonstrate compliance with the current permit limits.

Table 2-F: Additional Emissions during Startup, Shutdown, and Routine Maintenance (SSM)

☐ This table is intentionally left blank since all emissions at this facility due to routine or predictable startup, shutdown, or scehduled maintenance are no higher than those listed in Table 2-E and a malfunction emission limit is not already permitted or requested. If you are required to report GHG emissions as described in Section 6a, include any GHG emissions during Startup, Shutdown, and/or Scheduled Maintenance (SSM) in Table 2-P. Provide an explanations of SSM emissions in Section 6 and 6a.

All applications for facilities that have emissions during routine our predictable startup, shutdown or scheduled maintenance (SSM)[1], including NOI applications, must include in this table the Maximum Emissions during routine or predictable startup, shutdown and scheduled maintenance (20.2.7 NMAC, 20.2.72.203.A.3 NMAC, 20.2.73.200.D.2 NMAC). In Section 6 and 6a, provide emissions calculations for all SSM emissions reported in this table. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (https://www.env.nm.gov/aqb/permit/aqb_pol.html) for more detailed instructions. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or 1.41E-4).

Unit No.	NOx		CO		VOC		SOx		PM[2]		PM10[2]		PM2.5[2]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
SSM	-	-	-	-	unspecified	1.30	-	-	-	-	-	-	-	-	-	-	-	-
Totals	-	-	-	-	not specified	1.30	-	-	-	-	-	-	-	-	-	-	-	-

[1] **For instance**, if the short term steady-state Table 2-E emissions are 5 lb/hr and the SSM rate is 12 lb/hr, enter 7 lb/hr in this table. If the annual steady-state Table 2-E emissions are 21.9 TPY, and the number of scheduled SSM events result in annual emissions of 31.9 TPY, enter 10.0 TPY in the table below.

[2] **Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source. Do not include condensable particulate matter for PM unless PM is set equal to PM10 and PM2.5. Particulate matter (PM) is not subject to an ambient air quality standard, but it is a regulated air pollutant under PSD (20.2.74 NMAC) and Title V (20.2.70 NMAC).

Table 2-G: Stack Exit and Fugitive Emission Rates for Special Stacks

X I have elected to leave this table blank because this facility does not have any stacks/vents that split emissions from a single source or combine emissions from more than one source listed in table 2-A. Additionally, the emission rates of all stacks match the Requested allowable emission rates stated in Table 2-E.

Use this table to list stack emissions (requested allowable) from split and combined stacks. List Toxic Air Pollutants (TAPs) and Hazardous Air Pollutants (HAPs) in Table 2-I. List all fugitives that are associated with the normal, routine, and non-emergency operation of the facility. Unit and stack numbering must correspond throughout the application package. Refer to Table 2-E for instructions on use of

Stack No.	Serving Unit Number(s) from Table 2-A	NOx		CO		VOC		SOx		PM		PM10		PM2.5		□ H_2S or □ Lead	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Totals:																	

Table 2-H: Stack Exit Conditions

Unit and stack numbering must correspond throughout the application package. Include the stack exit conditions for each unit that emits from a stack, including blowdown venting parameters and tank emissions. If the facility has multiple operating scenarios, complete a separate Table 2-H for each scenario and, for each, type scenario name here:

Stack Number	Serving Unit Number(s) from Table 2-A	Orientation (H-Horizontal V=Vertical)	Rain Caps (Yes or No)	Height Above Ground (ft)	Temp. (F)	Flow Rate		Moisture by Volume (%)	Velocity (ft/sec)	Inside Diameter (ft)
						(acfs)	(dscfs)			
1	1	V	N	22	702	127.5	-	-	155.8	1.02
2	2	V	N	22	702	127.5	-	-	155.8	1.02
4	4	V	N	22	702	127.5	-	-	155.8	1.02
5	5	V	N	22	702	127.5	-	-	155.8	1.02
6	6	V	N	22	702	127.5	-	-	155.8	1.02
3b	3b	V	N	10	600	4.8	-	-	6.1	1.0
9b	9b	V	N	10	600	4.8	-	-	6.1	1.0
12b	12b	V	N	11	800	1.0	-	-	5.1	0.5

Table 2-I: Stack Exit and Fugitive Emission Rates for HAPs and TAPs

In the table below, report the Potential to Emit for each HAP from each regulated emission unit listed in Table 2-A, only if the entire facility emits the HAP at a rate greater than or equal to one (1) ton per year For each such emission unit, HAPs shall be reported to the nearest 0.1 tpy. Each facility-wide Individual HAP total and the facility-wide Total HAPs shall be the sum of all HAP sources calculated to the nearest 0.1 ton per year. Per 20.2.72.403.A.1 NMAC, facilities not exempt [see 20.2.72.402.C NMAC] from TAP permitting shall report each TAP that has an uncontrolled emission rate in excess of its pounds per hour screening level specified in 20.2.72.502 NMAC. TAPs shall be reported using one more significant figure than the number of significant figures shown in the pound per hour threshold corresponding to the substance. Use the HAP nomenclature as it appears in Section 112 (b) of the 1990 CAAA and the TAP nomenclature as it listed in 20.2.72.502 NMAC. Include tank-flashing emissions estimates of HAPs in this table. For each HAP or TAP listed, fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected or the pollutant is emitted in a quantity less than the threshold amounts described above.

Stack No.	Unit No.(s)	Total HAPs		Benzene X HAP or ☐ TAP		Formaldehyde X HAP or ☐ TAP		Toluene X HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	1	0.5	2.3	-	0.1	0.5	2.2	-	-										
2	2	0.5	2.3	-	0.1	0.5	2.2	-	-										
4	4	0.5	2.3	-	0.1	0.5	2.2	-	-										
5	5	0.5	2.3	-	0.1	0.5	2.2	-	-										
6	6	0.5	2.3	-	0.1	0.5	2.2	-	-										
SSM	SSM	-	-	-	-	-	-	-	-										
3a	3a	0.3	1.2	0.1	0.4	-	-	0.1	0.2										
3b	3b	-	-	-	-	-	-	-	-										
9a	9a	0.3	1.2	0.1	0.4	-	-	0.1	0.2										
9b	9b	-	-	-	-	-	-	-	-										
12a	12a	0.1	0.4	-	0.1	-	-	0.1	0.2										
12b	12b	-	-	-	-	-	-	-	-										
Totals:		3.4	14.6	0.3	1.2	2.5	11.2	0.4	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 2-J: Fuel

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

Unit No.	Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, …)	Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other	Specify Units				
			Lower Heating Value	Hourly Usage	Annual Usage	% Sulfur	% Ash
1	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11,250 scfh	98.60 MMscfy	-	-
3	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11,250 scfh	98.60 MMscfy	-	-
4	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11,250 scfh	98.60 MMscfy	-	-
5	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11,250 scfh	98.60 MMscfy	-	-
6	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11,250 scfh	98.60 MMscfy	-	-
3b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	1,648 scfh	14.44 MMscfy	-	-
9b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	1,648 scfh	14.44 MMscfy	-	-
12b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	43.1 scfh	0.38 MMscfy	-	-

Table 2-K: Liquid Data for Tanks Listed in Table 2-L

For each tank, list the liquid(s) to be stored in each tank. If it is expected that a tank may store a variety of hydrocarbon liquids, enter "mixed hydrocarbons" in the Composition column for that tank and enter the corresponding data of the most volatile liquid to be stored in the tank. If tank is to be used for storage of different materials, list all the materials in the "All Calculations" attachment, run the newest version of TANKS on each, and use the material with the highest emission rate to determine maximum uncontrolled and requested allowable emissions rate. The permit will specify the most volatile category of liquids that may be stored in each tank. Include appropriate tank-flashing modeling input data. Use additional sheets if necessary. Unit and stack numbering must correspond throughout the application package.

Tank No.	SCC Code	Material Name	Composition	Liquid Density (lb/gal)	Vapor Molecular Weight (lb/lb*mol)	Average Storage Conditions		Max Storage Conditions	
						Temperature (°F)	True Vapor Pressure (psia)	Temperature (°F)	True Vapor Pressure (psia)
T-1	40400315	Produced Water	Water; <1% hydrocarbon liquids	Insignificant source					
T-3, T-4	40400315	Waste water	Water; <1% hydrocarbon liquids	Insignificant source					
T-5 - T-11	40400313	Lube Oil	Lube Oil	Insignificant source					
T-12 - T-18	40400313	Used Oil	Used Oil	Insignificant source					
T-19 - T-22	31000299	Triethylene Glycol	Glycol	Insignificant source					
T-23 - T-26	31000299	Triethylene Glycol	Glycol	Insignificant source					
T-27	31000299	Triethylene Glycol	Glycol	Insignificant source					
T-29	40400315	Produced Water	Water; <1% hydrocarbon liquids	Insignificant source					

Table 2-L: Tank Data

Include appropriate tank-flashing modeling input data. Use an addendum to this table for unlisted data categories. Unit and stack numbering must correspond throughout the application package. Use additional sheets if necessary. See reference Table 2-L2. Note: 1.00 bbl = 10.159 M3 = 42.0 gal

Tank No.	Date Installed	Materials Stored	Seal Type (refer to Table 2-LR below)	Roof Type (refer to Table 2-LR below)	Capacity		Diameter (M)	Vapor Space (M)	Color (from Table VI-C)		Paint Condition (from Table VI-C)	Annual Throughput (gal/yr)	Turn-overs (per year)
					(bbl)	(M^3)			Roof	Shell			
T-1		Produced Water	N/A	FX	300	47.7	Insignificant source						
T-3, T-4		Waste water	N/A	FX	40	6.4	Insignificant source						
T-5 - T-11		Lube Oil	N/A	FX	12	1.9	Insignificant source						
T-12 - T-18		Used Oil	N/A	FX	12	1.9	Insignificant source						
T-19 - T-22		Triethylene Glycol	N/A	FX	2.4	0.4	Insignificant source						
T-23 - T-26		Triethylene Glycol	N/A	FX	3.0	0.5	Insignificant source						
T-27		Triethylene Glycol	N/A	FX	12	1.9	Insignificant source						
T-29		Produced Water	N/A	FX	120	19.1	Insignificant source						

Table 2-L2: Liquid Storage Tank Data Codes Reference Table

Roof Type	Seal Type, Welded Tank Seal Type		Seal Type, Riveted Tank Seal Type		Roof, Shell Color	Paint Condition
FX: Fixed Roof	**Mechanical Shoe Seal**	**Liquid-mounted resilient seal**	**Vapor-mounted resilient seal**	**Seal Type**	**WH**: White	Good
IF: Internal Floating Roof	**A**: Primary only	**A**: Primary only	**A**: Primary only	**A**: Mechanical shoe, primary only	**AS**: Aluminum (specular)	Poor
EF: External Floating Roof	**B**: Shoe-mounted secondary	**B**: Weather shield	**B**: Weather shield	**B**: Shoe-mounted secondary	**AD**: Aluminum (diffuse)	
P: Pressure	**C**: Rim-mounted secondary	**C**: Rim-mounted secondary	**C**: Rim-mounted secondary	**C**: Rim-mounted secondary	**LG**: Light Gray	
					MG: Medium Gray	
					BL: Black	
					OT: Other (specify)	

Note: 1.00 bbl = 0.159 M^3 = 42.0 gal

Table 2-M: Materials Processed and Produced (Use additional sheets as necessary.)

Material Processed				Material Produced			
Description	**Chemical Composition**	**Phase (Gas, Liquid, or Solid)**	**Quantity (specify units)**	**Description**	**Chemical Composition**	**Phase**	**Quantity (specify units)**
Low pressure natural gas, primarily methane	C1-C6+	Gas	Throughput = 80.0 mmcfd[1]	High pressure natural gas, primarily methane	C1-C6+	Gas	Throughput = 80.0 mmcfd[1]
Produced water	H2O + trace of HC	Liquid	917,280 gal/yr	Produced water	H2O + trace of HC	Liquid	917,280 gal/yr

[1] The material processed and material produced are both a direct function of available horsepower. The material processing and production rates are therefore dependent on atmospheric temperature and pressure, gas temperature and pressure, relative humidity and gas quality, was well as other factors. The values expressed above are a nominal quantities (with a safety factor), neither an absolute maximum, nor an average. Actual values will vary from the nominal amount.

Table 2-N: CEM Equipment

Enter Continuous Emissions Measurement (CEM) Data in this table. If CEM data will be used as part of a federally enforceable permit condition, or used to satisfy the requirements of a state or federal regulation, include a copy of the CEM's manufacturer specification sheet in the Information Used to Determine Emissions attachment. Unit and stack numbering must correspond throughout the application package. Use additional sheets if necessary.

Stack No.	Pollutant(s)	Manufacturer	Model No.	Serial No.	Sample Frequency	Averaging Time	Range	Sensitivity	Accuracy
N/A									

Table 2-O: Parametric Emissions Measurement Equipment

Unit and stack numbering must correspond throughout the application package. Use additional sheets if necessary.

Unit No.	Parameter/Pollutant Measured	Location of Measurement	Unit of Measure	Acceptable Range	Frequency of Maintenance	Nature of Maintenance	Method of Recording	Averaging Time
N/A								

Table 2-P: Green House Gas Emissions

Applications submitted under 20.2.70, 20.2.72, & 20.2.74 NMAC are required to complete this Table. Power plants, Title V major sources, and PSD major sources must report and calculate all GHG emissions for each unit. Applicants must report potential emission rates in short tons per year (see Section 6.a for assistance). Include GHG emissions during Startup, Shutdown, and Scheduled Maintenance in this table. For minor source facilities that are not power plants, are not Title V, or are not PSD, there are three options for reporting GHGs 1) report GHGs for each individual piece of equipment; 2) report all GHGs from a group of unit types, for example report all combustion source GHGs as a single unit and all venting GHG as a second separate unit; OR 3) check the following box:

☐ By checking this box, the applicant acknowledges the total CO2e emissions are less than 75,000 tons per year.

Unit No.		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]					Total GHG Mass Basis ton/yr[4]	Total CO_2e ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**22,800**	**footnote 3**						
1	**mass GHG**	6,010.5	0.0113	0.1133							6010.6	-
	CO_2e	6,010.5	3.4	2.8							-	6016.66
2	**mass GHG**	6,010.5	0.0113	0.1133							6010.6	-
	CO_2e	6,010.5	3.4	2.8							-	6016.7
4	**mass GHG**	6,010.5	0.0113	0.1133							6010.6	-
	CO_2e	6,010.5	3.4	2.8							-	6016.66
5	**mass GHG**	6,010.5	0.0113	0.1133							6010.58	-
	CO_2e	6,010.5	3.4	2.8							-	6016.7
6	**mass GHG**	6,010.5	0.0113	0.1133							6010.58	-
	CO_2e	6,010.5	3.4	2.8							-	6016.7
SSM	**mass GHG**	33.8	-	230.4		SSM includes reciprocating compressor blowdowns and pigging.					264.2	-
	CO_2e	33.8	-	5,760.9							-	5794.7
3a	**mass GHG**	29.8	-	1.11							30.9	-
	CO_2e	29.8	-	27.9							-	57.7
3b	**mass GHG**	842.6	0.0016	0.0159							842.6	-
	CO2e	842.6	0.5	0.4							-	843.5
9a	**mass GHG**	29.8	-	1.11							30.9	-
	CO_2e	29.8	-	27.9							-	57.7
9b	**mass GHG**	842.6	0.0016	0.0159							842.6	-
	CO2e	842.6	0.5	0.4							-	843.5
12a	**mass GHG**	10.6	-	16.6							27.2	-
	CO_2e	10.6	-	414.8							-	425.5
12b	**mass GHG**	22.0	4.15E-05	4.15E-04							22.0	-
	CO2e	22.0	1.24E-02	1.04E-02							-	22.1

Unit No.		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]					Total GHG Mass Basis ton/yr[4]	Total CO_2e ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**22,800**	**footnote 3**						
F1	**mass GHG**	3.5	-	15.3							18.9	-
	CO2e	3.5	-	383.2							-	386.8
Storage tanks	**mass GHG**	0.0	-	0.0							0.0	-
	CO2e	0.0	-	0.0							-	0.0
L1	**mass GHG**	0.0	-	0.0							0.0	-
	CO2e	0.0	-	0.0							-	0.0
Recip Comp Venting	**mass GHG**	68.6	-	296.3							364.9	-
	CO2e	68.6	-	7,407.3							-	7475.9
Pneum Dev Venting	**mass GHG**	14.7	-	63.4							78.2	-
	CO2e	14.7	-	1,585.8							-	1600.5
Pneum Pump Venting	**mass GHG**	0.5	-	2.2							2.8	-
	CO2e	0.5	-	56.1							-	56.6
	mass GHG										0.0	-
	CO2e										-	0.0
Total[6]	**mass GHG**	31,951.0	0.1	627.2							32,578.17	-
	CO_2e	31,951.0	17.8	15,678.9							-	47,647.65

[1] **GWP** (Global Warming Potential): Applicants must use the most current GWPs codified in Table A-1 of 40 CFR part 98. GWPs are subject to change, therefore, applicants need to check 40 CFR 98 to confirm GWP values.

[2] For **HFCs** or **PFCs** describe the specific HFC or PFC compound and use a separate column for each individual compound.

[3] For each new compound, enter the appropriate GWP for each HFC or PFC compound from Table A-1 in 40 CFR 98.

[4] Green house gas emissions on a **mass basis** is the ton per year green house gas emission before adjustment with its GWP.

[5] **CO_2e** means Carbon Dioxide Equivalent and is calculated by multiplying the TPY mass emissions of the green house gas by its GWP.

Section 3

Application Summary

The **Application Summary** shall include a brief description of the facility and its process, the type of permit application, the applicable regulation (i.e. 20.2.72.200.A.X, or 20.2.73 NMAC) under which the application is being submitted, and any air quality permit numbers associated with this site. If this facility is to be collocated with another facility, provide details of the other facility including permit number(s). In case of a revision or modification to a facility, provide the lowest level regulatory citation (i.e. 20.2.72.219.B.1.d NMAC) under which the revision or modification is being requested. Also describe the proposed changes from the original permit, how the proposed modification will affect the facility's operations and emissions, de-bottlenecking impacts, and changes to the facility's major/minor status (both PSD & Title V).

The **Process Summary** shall include a brief description of the facility and its processes.

Startup, Shutdown, and Maintenance (SSM) routine or predictable emissions: Provide an overview of how SSM emissions are accounted for in this application. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) for more detailed instructions on SSM emissions.

Application Summary

The Harvest Rosa #1 Compressor Station (Rosa #1) currently operates under Title V operating permit, P206-R3, issued January 26, 2018 as revised through -M1 (December 27, 2018), and construction permit 2004-M4, issued March 23, 2011, as revised through -R7 (June 9, 2021).

A list of the equipment currently approved for use at the facility by the Title V operating permit can be found in Tables 2-A and 2-B of Section 2 of this application. The footnotes to Table 2-A provide permit revision information for specified equipment additions and subtractions.

This Title V renewal application was submitted under section 20.2.70.300.B(2) of the New Mexico Administrative Code (NMAC). The application was submitted within 12 months prior to the expiration of the current Title V Operating Permit. The application was assigned number P206-R4 by the NMAQB.

This application update is being submitted to incorporate recent NMAQB guidance on SSM blowdowns and the removal of malfunction emissions from the permit.

The facility remains a minor source under the 20.2.74 NMAC Prevention of Significant Deterioration (PSD) program.

There are no modifications in this application that would de-bottleneck impacts or change the facility's major/minor status under either the Prevention of Significant Deterioration [PSD] or Title V permitting programs.

Process Description

Rosa #1 is a production gathering field compressor station that pressurizes and dehydrates natural gas for transport through natural gas pipelines. The facility is authorized to operate continuously.

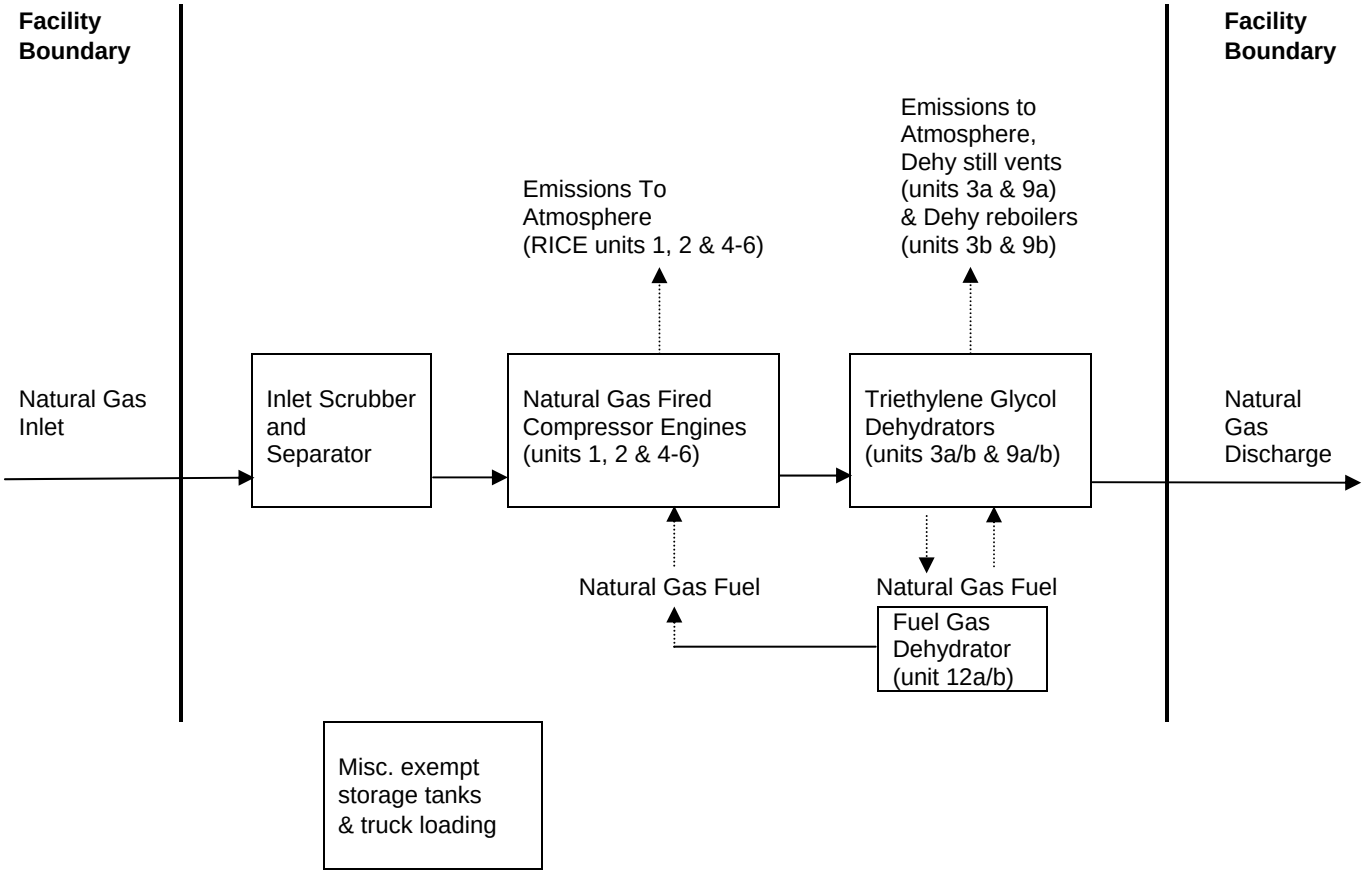
Startup, Shutdown and Maintenance (SSM) Emissions

Except for emissions of VOC from SSM blowdown events, it is concluded there are no SSM emissions in excess of those identified for steady-state operation as seen in Table 2-E of Section 2. Discussions justifying this conclusion are provided in Section 6, including calculations of SSM emissions from blowdown events involving facility compressors and piping.

Section 4

Process Flow Sheet

A **process flow sheet** and/or block diagram indicating the individual equipment, all emission points and types of control applied to those points. The unit numbering system should be consistent throughout this application.



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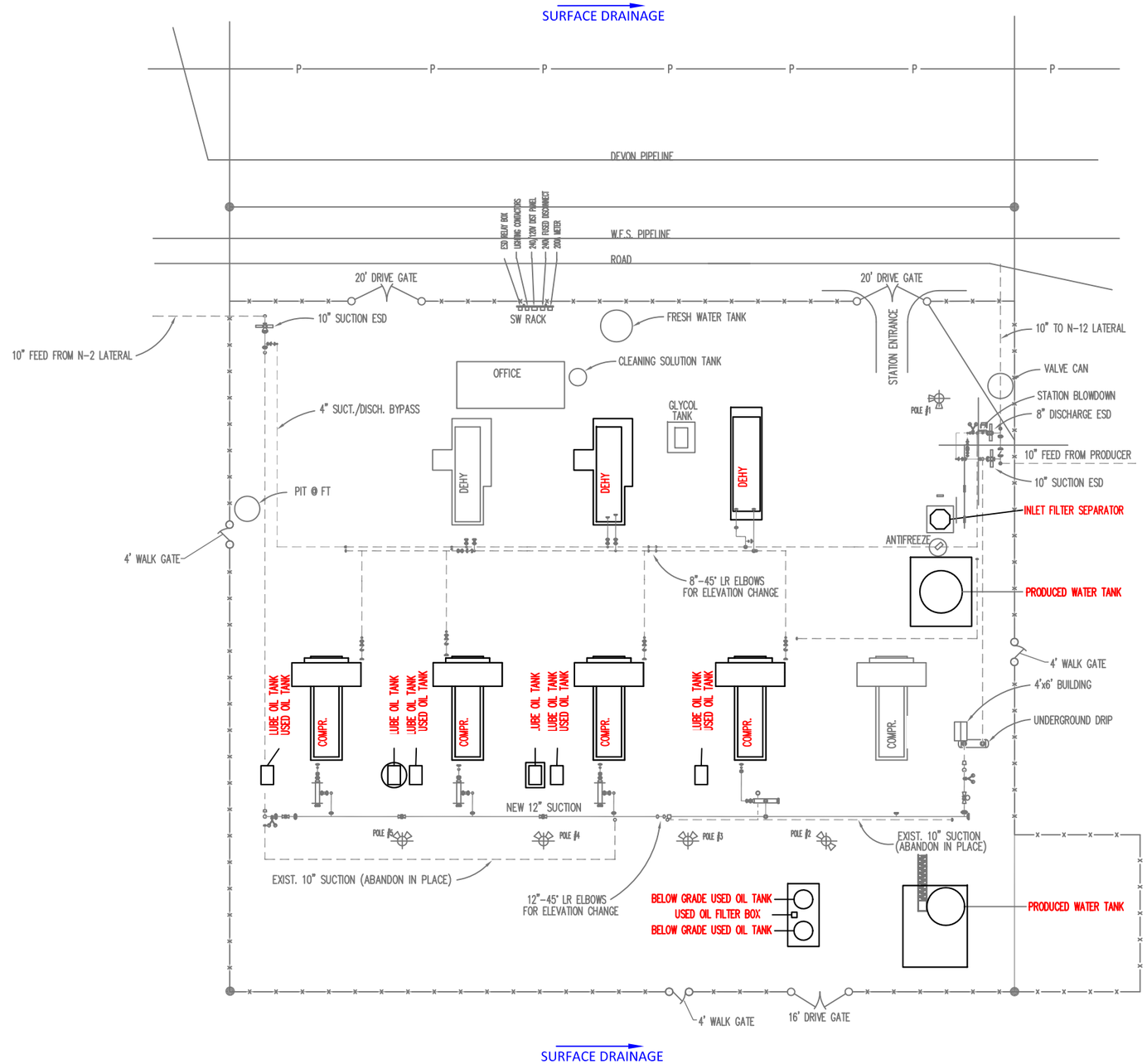
Section 5

Plot Plan Drawn To Scale

A **plot plan drawn to scale** showing emissions points, roads, structures, tanks, and fences of property owned, leased, or under direct control of the applicant. This plot plan must clearly designate the restricted area as defined in UA1, Section 1-D.12. The unit numbering system should be consistent throughout this application.

Please see the following page(s).



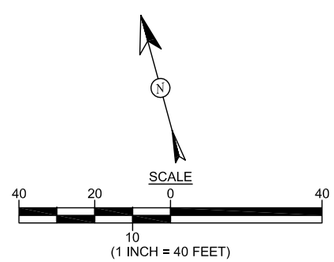
FACILITY LAYOUT
WILLIAMS FOUR CORNERS LLC
ROSA #1 CDP FACILITY
SE¼ NE¼, SECTION 7 AND
SW¼ NW¼, SECTION 8, T31N, R6W
SAN JUAN COUNTY, NEW MEXICO
N36.91709, W107.49532

animas environmental services
Farmington, NM • Durango, CO
animasenvironmental.com

DRAWN BY:	DATE DRAWN:
C. Lameman	December 5, 2013
REVISIONS BY:	**DATE REVISED:**
C. Lameman	December 30, 2015
CHECKED BY:	**DATE CHECKED:**
S. Hinds	December 30, 2015
APPROVED BY:	**DATE APPROVED:**
E. McNally	December 30, 2015

NOTE: SITE DIAGRAM OBTAINED FROM WILLIAMS.

SITE DIAGRAM EDITED APRIL 25, 2016, CIRRUS CONSULTING.



Section 6

All Calculations

Show all calculations used to determine both the hourly and annual controlled and uncontrolled emission rates. All calculations shall be performed keeping a minimum of three significant figures. Document the source of each emission factor used (if an emission rate is carried forward and not revised, then a statement to that effect is required). If identical units are being permitted and will be subject to the same operating conditions, submit calculations for only one unit and a note specifying what other units to which the calculations apply. All formulas and calculations used to calculate emissions must be submitted. The "Calculations" tab in the UA2 has been provided to allow calculations to be linked to the emissions tables. Add additional "Calc" tabs as needed. If the UA2 or other spread sheets are used, all calculation spread sheet(s) shall be submitted electronically in Microsoft Excel compatible format so that formulas and input values can be checked. Format all spread sheets and calculations such that the reviewer can follow the logic and verify the input values. Define all variables. If calculation spread sheets are not used, provide the original formulas with defined variables. Additionally, provide subsequent formulas showing the input values for each variable in the formula. All calculations, including those calculations are imbedded in the Calc tab of the UA2 portion of the application, the printed Calc tab(s), should be submitted under this section.

Tank Flashing Calculations: The information provided to the AQB shall include a discussion of the method used to estimate tank-flashing emissions, relative thresholds (i.e., NOI, permit, or major source (NSPS, PSD or Title V)), accuracy of the model, the input and output from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis. If Hysis is used, all relevant input parameters shall be reported, including separator pressure, gas throughput, and all other relevant parameters necessary for flashing calculation.

SSM Calculations: It is the applicant's responsibility to provide an estimate of SSM emissions or to provide justification for not doing so. In this Section, provide emissions calculations for Startup, Shutdown, and Routine Maintenance (SSM) emissions listed in the Section 2 SSM and/or Section 22 GHG Tables and the rational for why the others are reported as zero (or left blank in the SSM/GHG Tables). Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) for more detailed instructions on calculating SSM emissions. If SSM emissions are greater than those reported in the Section 2, Requested Allowables Table, modeling may be required to ensure compliance with the standards whether the application is NSR or Title V. Refer to the Modeling Section of this application for more guidance on modeling requirements.

Glycol Dehydrator Calculations: The information provided to the AQB shall include the manufacturer's maximum design recirculation rate for the glycol pump. If GRI-Glycalc is used, the full input summary report shall be included as well as a copy of the gas analysis that was used.

Road Calculations: Calculate fugitive particulate emissions and enter haul road fugitives in Tables 2-A, 2-D and 2-E for:

1. If you transport raw material, process material and/or product into or out of or within the facility and have PER emissions greater than 0.5 tpy.
2. If you transport raw material, process material and/or product into or out of the facility more frequently than one round trip per day.

Significant Figures:

A. All emissions standards are deemed to have at least two significant figures, but not more than three significant figures.

B. At least 5 significant figures shall be retained in all intermediate calculations.

C. In calculating emissions to determine compliance with an emission standard, the following rounding off procedures shall be used:

(1) If the first digit to be discarded is less than the number 5, the last digit retained shall not be changed;

(2) If the first digit discarded is greater than the number 5, or if it is the number 5 followed by at least one digit other than the number zero, the last figure retained shall be increased by one unit; **and**

(3) If the first digit discarded is exactly the number 5, followed only by zeros, the last digit retained shall be rounded upward if it is an odd number, but no adjustment shall be made if it is an even number.

(4) The final result of the calculation shall be expressed in the units of the standard.

Control Devices: In accordance with 20.2.72.203.A(3) and (8) NMAC, 20.2.70.300.D(5)(b) and (e) NMAC, and 20.2.73.200.B(7) NMAC, the permittee shall report all control devices and list each pollutant controlled by the control device

regardless if the applicant takes credit for the reduction in emissions. The applicant can indicate in this section of the application if they chose to not take credit for the reduction in emission rates. For notices of intent submitted under 20.2.73 NMAC, only uncontrolled emission rates can be considered to determine applicability unless the state or federal Acts require the control. This information is necessary to determine if federally enforceable conditions are necessary for the control device, and/or if the control device produces its own regulated pollutants or increases emission rates of other pollutants.

Engines

The NO_2, CO, and VOC emissions from the engines were calculated from manufacturer's data. The SO_2 and particulate emissions were calculated using AP-42 emission factors from Table 3.2-2. HAP emissions were calculated using GRI-HAPCalc 3.0. All emissions were calculated assuming each engine operates at full site capacity for 8,760 hours per year.

The engines startup with no load and a rich fuel mixture. As a result, emissions are minimized. Because the engines take only minutes to reach operating temperature, emissions during startup are not expected to exceed the steady-state allowable limits. Similarly, emissions during shutdown do not exceed the steady-state allowable limits, because fuel and air flow cease within seconds of shutdown. Emissions due to scheduled maintenance are negligible as the engines are not in operation during maintenance.

No modifications are being made to the engines or their operation. Permitted criteria pollutant and HAP emissions are carried forward and not revised.

Startup, Shutdown and Maintenance Emissions (SSM)

SSM blowdown emissions from the compressors and piping associated with the facility occur when high pressure gas is used to purge air from the system prior to startup. Also, after shutdowns, high pressure gas is released to atmosphere as a safety precaution.

SSM emissions of VOC and HAP from blowdowns of the compressors and piping associated with the station were calculated from the quantity of gas vented during each event, the composition of the gas, and the number of events. The quantity of gas vented during each event was determined by Harvest engineering. (Several pages of detailed engineering calculations of blowdown volumes are provided in the electronic Excel workbook. These engineering calculations are not printed, only the emission calculation worksheets.) As shown in the emission calculations, the unit 4 compressor has a smaller blowdown volume than the units 1, 2, 5 and 6 compressors. The composition of the gas was determined from a recent extended gas analysis. For each unit, the annual number of blowdown events were estimated based on historical operations. A safety factor was added because emissions from each blowdown event are dependent on the composition of the gas in the pipeline and because the number of blowdowns in a year may vary. Use of the safety factor is also designed to ensure an adequate emissions limit, which includes emissions from other miscellaneous startup, shutdown and maintenance activities.

The SSM emissions identified in this application are routine or predictable startup/shutdown and scheduled maintenance, and do not include malfunctions or upsets.

No modifications are being made to the SSM emissions. Permitted VOC emissions are carried forward and not revised.

Dehydrator Still Vents

VOC and HAP emissions from the dehydrator still vents were calculated using GRI-GLYCalc 4.0. All emissions were calculated assuming each dehydrator operates at full capacity for 8,760 hours per year. To allow for variability in the composition of the inlet gas stream, the dehydrator still vent VOC emission rates identified on the application forms (Table 2-E) are higher than the calculated emission rates in this section.

During startup, the dehydrator reboiler is brought up to temperature before allowing glycol into the absorber. This prevents excess VOC and HAP from collecting in the glycol stream and there are no excess startup emissions above those expected during steady-state operation. During shutdown, the reboiler is shut down in conjunction with the gas flow and glycol circulation. Again, this prevents excess VOC and HAP from collecting in the glycol stream and there are no excess shutdown emissions above those expected during steady-state operation. Emissions due to scheduled maintenance are negligible; either the unit will not be in operation during maintenance or maintenance is limited to tasks for which there are no excess emissions.

The PTE VOC emissions from the 4 million cubic feet per day (mmcfd) fuel gas dehydrator (unit 12a) shows a slight increase (~ ½ tpy) due to a change in the natural gas composition. Although the emissions from unit 12a remain below 1 tpy of VOC (the threshold for an insignificant source under Title V Insignificant Activities List item #1), the unit is subject to 40 CFR 63, Subpart HH and is therefore a regulated source.

For the two 20 mmcfd dehydrator unit still vents, there are no modifications being made to the dehydrators or their operation. The permitted VOC emissions from each of the unit 3a and 9a dehydrators are carried forward and not revised.

Dehydrator Reboilers

The NO_X and CO emission factors for the two 20 MMscfd dehydrator reboilers (units 3b and 9b) were identified from an Enertek letter dated August 19, 1994. The VOC and SO_2 emission factors were identified from an InFab letter dated July 22, 1998. The particulate and lead emissions were calculated using AP-42 emission factors from Table 1.4-2. HAP emissions were calculated using GRI-HAPCalc 3.0. All emissions were calculated assuming each reboiler operates 8,760 hours per year.

NO_X and CO emissions from the 4 mmscfd fuel gas dehydrator reboiler (unit 12b) were calculated from manufacturer-provided emission factors. VOC, SO_2, and particulate emissions were calculated using AP-42 emission factors from Table 1.4-2. The HAP emissions were calculated using GRI-HAPCalc 3.01 and the design heat capacity of the reboiler burner.

The dehydrator reboilers (uncontrolled) start up with less fuel input than during steady-state operation, so emissions are lower than during steady-state operation. During shutdown, the fuel supply stops quickly, but air flow may not, causing the continued formation of NO_X. Even so, with no fuel, NO_X formation should be less than during steady-state operation. Emissions due to scheduled maintenance are negligible as the units are not in operation.

No modifications are being made to the dehydrator reboilers or their operation. Permitted criteria pollutant and HAP emissions are carried forward and not revised.

Storage Tanks

All of the liquid storage tanks at the Rosa #1 facility are considered insignificant emission sources. No changes are being made to the storage tanks or their operation. Emissions from the tanks are carried forward and not revised.

Due to the nature of operations, startup and shutdown emissions from the storage tanks are assumed to be accounted for in the calculations discussed below. Emissions due to maintenance are negligible as the units are not in operation during maintenance.

There are no flash emissions associated with any of the storage tanks.

VOC and HAP emissions from the storage tanks are evaluated using the following assumptions. Where needed, working/breathing losses for the remaining tanks are calculated using TANKS 4.0.9d.

- TANKS 4.0.9d and the default natural gasoline composition from HAPCalc was used to calculate the emissions from the produced water storage storage tanks. The produced water is assumed to contain 1% hydrocarbons and 99% water. As the calculated VOC emission rate is less than 0.5 tpy, the aggregated emissions from the produced water tanks is a Title V insignificant source in accordance with Insignificant Activity Item #1, and an NSR exempt source under 20.2.72.202.B(5) NMAC.

- Wastewater storage tanks are assumed to contain 99% water and 1% residual oil. As the vapor pressure of residual oil is less than 0.2 psia, the tanks containing wastewater are Title V insignificant sources in accordance with Insignificant Activity Item #5, and NSR exempt sources under 20.2.72.202.B(2) NMAC.

- Residual oil #6 was used as an estimate for lubrication (lube) oil and used lube oil. As the vapor pressure of residual oil #6 is less than 0.2 psia, the storage tanks containing lube oil and used lube oil are Title V insignificant sources in accordance with Insignificant Activity Item #5, and NSR exempt sources under 20.2.72.202.B(2) NMAC.

- As the vapor pressure of TEG is less than 0.2 psia, the tanks containing TEG are Title V insignificant sources in accordance with Insignificant Activity Item #5, and NSR exempt sources under 20.2.72.202.B(2) NMAC.

- The anti-freeze is an inhibited ethylene glycol (EG) coolant containing 50 percent EG and 50 percent water. As the vapor pressure of EG is less than 0.2 psia, the tank containing antifreeze is a Title V insignificant source in accordance with Insignificant Activity Item #5, and an NSR exempt source under 20.2.72.202.B(2) NMAC.

- Jet kerosene was used as an estimate for the solvent. As the vapor pressure of jet kerosene is less than 0.2 psia, the storage tank containing solvent is a Title V insignificant source in accordance with Insignificant Activity Item #5, and an NSR exempt source under 20.2.72.202.B(2) NMAC.

Truck Loading (Produced Water)

The VOC emissions from produced water truck loading were calculated using the AP-42 emissions factor identified in Section 5.2-1. The data used to calculate the emission factor was obtained assuming the liquid was pure water.

Due to the nature of the source, it is estimated that SSM emissions from truck loading are accounted for in the calculations.

The produced water truck loading is a Title V insignificant source in accordance with Insignificant Activity Item #1, and an exempt source in accordance with 20.2.72.202.B(5) NMAC (VOC emissions are less than 0.5 tons per year).

Equipment Leak Emissions

VOC and HAP emissions from equipment leaks were calculated using emission factors from Table 2.4 of the 1995 Protocol for Equipment Leak Emission Estimates published by the Environmental Protection Agency (EPA) and the gas stream composition obtained from a recent extended gas analysis. Emissions were calculated assuming the equipment operates 8,760 hours per year.

Due to the nature of the source, it is estimated that SSM emissions from the equipment are accounted for in the calculations.

No modifications are being made to the equipment leak emissions. The fugitive equipment leaks are a Title V insignificant source in accordance with Insignificant Activity Item #1, as well as exempt under 20.2.72.202.B(5) NMAC (VOC emissions are less than 0.5 tons per year).

Pig Receiver SSM Emissions

VOC and HAP emissions from the pig receiver were calculated from the quantity of gas vented during each event, the composition of the gas, and the number of events. The quantity of gas vented during each event was determined by Harvest engineering. The composition of the gas was determined from a recent extended gas analysis. Experience indicates there will be a nominal variation in the composition of the gas.

Due to the nature of the source, SSM emissions from the pig receiver are accounted for in the calculations.

The pig receiver is an existing unit. No modifications are being made to the unit or its operation. As the calculated VOC emission rate is less than 0.5 tpy, the pig receiver is a Title V insignificant source in accordance with Insignificant Activity Item #1, and an NSR exempt source under 20.2.72.202.B(5) NMAC.

Compressor Blowdown Emissions Calculations

Unit Number: SSM (Units 1, 2, 5, 6)
Description: Compressor & Piping Associated With Station

Throughput

300	events/yr per compressor	events/yr per unit	Harvest Four Corners, LLC
4	compressors	compressor units	Harvest Four Corners, LLC
8,164	scf/event	Gas loss per blowdown	Harvest Four Corners, LLC
9,796,486	scf/yr	Total annual gas loss	events/yr per unit x # of units x scf/event

Emission Rates

Pollutants	Emission Factors, lb/scf	Emission Rates, tpy
VOC	2.232E-04	1.09
2,2,4-Trimethylpentane	0.000E+00	0.00E+00
Benzene	0.000E+00	0.00E+00
Ethylbenzene	0.000E+00	0.00E+00
n-Hexane	0.000E+00	0.00E+00
Toluene	0.000E+00	0.00E+00
Xylene	0.000E+00	0.00E+00

Emission factors calculated from gas composition (see table below)
Uncontrolled Emission Rates (tpy) per unit = (lb/scf x events/yr per compressor x scf/event) / 2,000 lb/ton
Uncontrolled Emission Rates (tpy) facility-wide = (lb/scf x scf/yr) / 2,000 lb/ton

Gas Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Emission Factors, lb/scf
Carbon dioxide	4.9907	44.01	5.789E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.0680	28.01	5.020E-05
Methane	93.4224	16.04	3.950E-02
Ethane	1.3381	30.07	1.061E-03
Propane	0.1455	44.09	1.691E-04
Isobutane	0.0213	58.12	3.263E-05
n-Butane	0.0140	58.12	2.145E-05
Isopentane	0.0000	72.15	0.000E+00
n-Pentane	0.0000	72.15	0.000E+00
Cyclopentane	0.0000	70.14	0.000E+00
n-Hexane	0.0000	86.17	0.000E+00
Cyclohexane	0.0000	84.16	0.000E+00
Other hexanes	0.0000	86.18	0.000E+00
Heptanes	0.0000	100.20	0.000E+00
Methylcyclohexane	0.0000	98.19	0.000E+00
2,2,4-Trimethylpentane	0.0000	100.21	0.000E+00
Benzene	0.0000	78.11	0.000E+00
Toluene	0.0000	92.14	0.000E+00
Ethylbenzene	0.0000	106.17	0.000E+00
Xylenes	0.0000	106.17	0.000E+00
C8+ Heavies	0.0000	110.00	0.000E+00
Total	100.0000		
Total VOC			2.232E-04

Gas stream composition obtained from the Rosa #1 CDP extended gas analysis dated Sept 18, 2019.
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

Compressor Blowdown Emissions Calculations

Unit Number: SSM (Unit 4)
Description: Compressor & Piping Associated With Station

Throughput

300	events/yr per compressor	events/yr per unit	Harvest Four Corners, LLC
1	compressor	compressor units	Harvest Four Corners, LLC
6,238	scf/event	Gas loss per blowdown	Harvest Four Corners, LLC
1,871,531	scf/yr	Total annual gas loss	events/yr per unit x # of units x scf/event

Emission Rates

Pollutants	Emission Factors, lb/scf	Emission Rates, tpy
VOC	2.232E-04	0.21
2,2,4-Trimethylpentane	0.000E+00	0.00E+00
Benzene	0.000E+00	0.00E+00
Ethylbenzene	0.000E+00	0.00E+00
n-Hexane	0.000E+00	0.00E+00
Toluene	0.000E+00	0.00E+00
Xylene	0.000E+00	0.00E+00

Emission factors calculated from gas composition (see table below)
Uncontrolled Emission Rates (tpy) per unit = (lb/scf x events/yr per compressor x scf/event) / 2,000 lb/ton
Uncontrolled Emission Rates (tpy) facility-wide = (lb/scf x scf/yr) / 2,000 lb/ton

Gas Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Emission Factors, lb/scf
Carbon dioxide	4.9907	44.01	5.789E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.0680	28.01	5.020E-05
Methane	93.4224	16.04	3.950E-02
Ethane	1.3381	30.07	1.061E-03
Propane	0.1455	44.09	1.691E-04
Isobutane	0.0213	58.12	3.263E-05
n-Butane	0.0140	58.12	2.145E-05
Isopentane	0.0000	72.15	0.000E+00
n-Pentane	0.0000	72.15	0.000E+00
Cyclopentane	0.0000	70.14	0.000E+00
n-Hexane	0.0000	86.17	0.000E+00
Cyclohexane	0.0000	84.16	0.000E+00
Other hexanes	0.0000	86.18	0.000E+00
Heptanes	0.0000	100.20	0.000E+00
Methylcyclohexane	0.0000	98.19	0.000E+00
2,2,4-Trimethylpentane	0.0000	100.21	0.000E+00
Benzene	0.0000	78.11	0.000E+00
Toluene	0.0000	92.14	0.000E+00
Ethylbenzene	0.0000	106.17	0.000E+00
Xylenes	0.0000	106.17	0.000E+00
C8+ Heavies	0.0000	110.00	0.000E+00
Total	100.0000		
Total VOC			2.232E-04

Gas stream composition obtained from the Rosa #1 CDP extended gas analysis dated Sept 18, 2019.
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

Pig Receiver Emissions Calculations

Unit Number: PR1
Description: Pig Receiver

Pipe Volume

Outside Diameter, in	Wall Thickness, in	Pipe Length, ft	Pipe Volume, ft^3
12	0.375	4	2.761

Pipe Volume
3.1416 x (((Outside Diameter - (2 x Wall Thickness)) / 12 / 2) ^2) x Pipeline Length

Blowdown Volume (Per Event)

Blowdown Pressure, psig	Atmospheric Pressure, psi	Blowdown Gas Loss, scf	Number of Purges, #	Purge Pressure, psig	Purge Gas Loss, mscf	Total Gas Loss, scf
40	11.97	10	2	30	16	25.5

Blowdown Gas Loss
Pipe Volume x ((Blowdown Pressure + Atmospheric Pressure) / 14.7)
Purge Gas Loss
Number of Purges x Pipe Volume x ((Purge Pressure + Atmospheric Pressure) / 14.7)

Throughput

26	events/yr	Blowdowns per year	Harvest Four Corners, LLC
26	scf/event	Gas loss per blowdown	Calculated (see table above)
664	scf/yr	Annual gas loss	events/yr x scf/event

Emission Rates

Pollutants	Emission Factors, lb/scf	Uncontrolled, Emission Rates, tpy
VOC	2.232E-04	7.41E-05
Benzene	0.000E+00	0.00E+00
Ethylbenzene	0.000E+00	0.00E+00
n-Hexane	0.000E+00	0.00E+00
Isooctane	0.000E+00	0.00E+00
Toluene	0.000E+00	0.00E+00
Xylene	0.000E+00	0.00E+00

Emission factors calculated from gas composition (see table below)
Uncontrolled Emission Rates (tpy) = scf/yr x lb/scf / 2,000 lb/ton

Gas Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Emission Factors, lb/scf
Carbon dioxide	4.9907	44.01	5.789E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.0680	28.01	5.020E-05
Methane	93.4224	16.04	3.950E-02
Ethane	1.3381	30.07	1.061E-03
Propane	0.1455	44.09	1.691E-04
Isobutane	0.0213	58.12	3.263E-05
n-Butane	0.0140	58.12	2.145E-05
Isopentane	0.0000	72.15	0.000E+00
n-Pentane	0.0000	72.15	0.000E+00
Cyclopentane	0.0000	70.14	0.000E+00
n-Hexane	0.0000	86.17	0.000E+00
Cyclohexane	0.0000	84.16	0.000E+00
Other hexanes	0.0000	86.18	0.000E+00
Heptanes	0.0000	100.20	0.000E+00
Methylcyclohexane	0.0000	98.19	0.000E+00
Isooctane	0.0000	100.21	0.000E+00
Benzene	0.0000	78.11	0.000E+00
Toluene	0.0000	92.14	0.000E+00
Ethylbenzene	0.0000	106.17	0.000E+00
Xylenes	0.0000	106.17	0.000E+00
C8+ Heavies	0.0000	110.00	0.000E+00
Total	100.0000		
Total VOC			2.232E-04

Gas stream composition obtained from the Rosa #1 CDP extended gas analysis dated Sept 18, 2019.
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

Engine Exhaust Emissions Calculations

Unit Number: 1, 2, 4, 5, & 6
Description: Waukesha L7042GL

Note: The data on this worksheet applies to each individual emissions unit identified above.

Horsepower Calculations

6,320	ft above MSL	Elevation	
1,478	hp	Nameplate hp	Mfg. data
1,375	hp	NMAQB Site-rated hp	NMAQB Procedure # 02.002-00 (loss of 3% for every 1,000 ft over 4,000 ft)
1,336	hp	Mfg. Site-rated hp	Mfg. product bulletin Power Derate, S8154-6, April 2001 (loss of 2% for every 1,000 ft over 1,500 ft)

Engine Specifications

1200	rpm	Engine rpm	Mfg. data
7040	cu in	Engine displacement	Mfg. data
128.92	psi	BMEP	Mfg. data (+[(792,000 x NMAQB Site-rated hp) / (rpm * in^3)])

Fuel Consumption

7363	Btu/hp-hr	Brake specific fuel consumption	Mfg. data
10.12	MMBtu/hr	Hourly fuel consumption	Btu/hp-hr x NMAQB site-rated hp / 1,000,000
11,250	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC
88,692	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
98.55	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000
900	Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutants	Emission Factors, g/hp-hr	Uncontrolled Emission Rates, pph	tpy
NOX	1.5	4.55	19.92
CO	2.65	8.03	35.19
VOC	1.0	3.03	13.28

NOX, CO & VOC emissions taken from Reference Document S 8483-5, for VHP engine, 'GL'.
Uncontrolled Emission Rates (pph) = g/hp-hr x NMAQB Site-rated hp / 453.59 g/lb
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates, pph	tpy
SO2	5.88E-04	5.95E-03	2.61E-02
PM	9.99E-03	1.01E-01	4.43E-01
PM10	9.99E-03	1.01E-01	4.43E-01
PM2.5	9.99E-03	1.01E-01	4.43E-01

Emission factors taken from AP-42, Table 3.2-2
Particulate factors include both filterable and condensible emissions
Uncontrolled Emission Rates (pph) = lb/MMBtu x MMBtu/hr
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Exhaust Parameters

702	°F		Stack exit temperature	Mfg. data
7649	acfm	127.4799397	Stack flowrate	Mfg. data
1.02	ft		Stack exit diameter	Harvest Four Corners, LLC
0.82	ft^2		Stack exit area	3.1416 x ((ft / 2) ^2)
155.75	fps		Stack exit velocity	acfm / ft^2 / 60 sec/min
22.00	ft		Stack height	Harvest Four Corners, LLC

GRI-HAPCalc ® 3.01
Engines Report

Facility ID:	**ROSA #1 COMP. STN.**	**Notes:**
Operation Type:	**COMPRESSOR STATION**	
Facility Name:	**ROSA #1 COMPRESSOR STATION**	
User Name:	**Cirrus**	
Units of Measure:	**U.S. STANDARD**	

Note: Emissions less than 5.00E-09 tons (or tonnes) per year are considered insignificant and are treated as zero. These emissions are indicated on the report with a "0". Emissions between 5.00E-09 and 5.00E-05 tons (or tonnes) per year are represented on the report with "0.0000".

Engine Unit

Unit Name: 7042 GL

Hours of Operation:	8,760	Yearly
Rate Power:	1,375	hp
Fuel Type:	FIELD GAS	
Engine Type:	4-Stroke, Lean Burn	
Emission Factor Set:	FIELD > EPA > LITERATURE	
Additional EF Set:	-NONE-	

Calculated Emissions (ton/yr)

Chemical Name	Emissions	Emission Factor	Emission Factor Set
HAPs			
Formaldehyde	2.2326	0.16830000 g/bhp-hr	GRI Literature
Benzene	0.0690	0.00520000 g/bhp-hr	GRI Literature
Toluene	0.0279	0.00210000 g/bhp-hr	GRI Literature
Xylenes(m,p,o)	0.0186	0.00140000 g/bhp-hr	GRI Literature
Total	2.3481		

Compressor Blowdown Emissions Calculations

Unit Number: SSM
Description: Compressor & Piping Associated With Station

Throughput

300	events/yr per compressor	events/yr per unit	Harvest Four Corners, LLC
5	compressors	compressor units	Harvest Four Corners, LLC
10,332	scf/event	Gas loss per blowdown	Harvest Four Corners, LLC
15,498,000	scf/yr	Total annual gas loss	events/yr per unit x # of units x scf/event

Emission Rates

Pollutants	Emission Factors, lb/scf	Emission Rates, tpy
VOC	1.541E-04	1.19
2,2,4-Trimethylpentane	0.000E+00	0.00E+00
Benzene	1.647E-06	1.28E-02
Ethylbenzene	0.000E+00	0.00E+00
n-Hexane	1.817E-06	1.41E-02
Toluene	1.700E-06	1.32E-02
Xylene	2.798E-07	2.17E-03

Emission factors calculated from gas composition (see table below)
Uncontrolled Emission Rates (tpy) per unit = (lb/scf x events/yr per compressor x scf/event) / 2,000 lb/ton
Uncontrolled Emission Rates (tpy) facility-wide = (lb/scf x scf/yr) / 2,000 lb/ton

Gas Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Emission Factors, lb/scf
Carbon dioxide	7.7018	44.01	8.934E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.0635	28.01	4.688E-05
Methane	91.1400	16.04	3.853E-02
Ethane	0.9777	30.07	7.749E-04
Propane	0.0847	44.09	9.843E-05
Isobutane	0.0133	58.12	2.037E-05
n-Butane	0.0098	58.12	1.501E-05
Isopentane	0.0031	72.15	5.895E-06
n-Pentane	0.0000	72.15	0.000E+00
Cyclopentane	0.0002	70.14	3.697E-07
n-Hexane	0.0008	86.17	1.817E-06
Cyclohexane	0.0003	84.16	6.655E-07
Other hexanes	0.0017	86.18	3.862E-06
Heptanes	0.0005	100.20	1.321E-06
Methylcyclohexane	0.0007	98.19	1.812E-06
2,2,4-Trimethylpentane	0.0000	100.21	0.000E+00
Benzene	0.0008	78.11	1.647E-06
Toluene	0.0007	92.14	1.700E-06
Ethylbenzene	0.0000	106.17	0.000E+00
Xylenes	0.0001	106.17	2.798E-07
C8+ Heavies	0.0003	110.00	8.698E-07
Total	100.0000		
Total VOC			1.541E-04

Gas stream composition obtained from the Rosa #1 CDP extended gas analysis dated June 22, 2021.
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Rosa #1 PTE 20 mmcfd EU 03 & 09 (Gas 2021-06-22)
File Name: C:\Users\user\Documents\Cirrus\Permit applications\New Mexico\Harvest Four Corners\0 0 Rosa #1 (WFC)\Title V\2021-01 Title V Renewal\Analyses & Info\GLYCalc\Rosa #1 PTE 20 mmcfd EU 03 & 09 (Gas 2021-06-22).ddf
Date: January 07, 2022

DESCRIPTION:

Description: Rosa #1 PTE 20 mmcfd EU 03 & 09
Gas Sample date 2021-06-22
DPT data 8/28 & 10/29/2021

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 107.00 deg. F
Pressure: 225.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	7.7018
Nitrogen	0.0635
Methane	91.1400
Ethane	0.9777
Propane	0.0847
Isobutane	0.0133
n-Butane	0.0098
Isopentane	0.0031
Cyclopentane	0.0002
n-Hexane	0.0008
Cyclohexane	0.0003
Other Hexanes	0.0017
Heptanes	0.0005
Methylcyclohexane	0.0007
Benzene	0.0008
Toluene	0.0007
Xylenes	0.0001
C8+ Heavies	0.0003

DRY GAS:

Flow Rate: 20.0 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.3 wt% H2O
Flow Rate: 3.3 gpm

PUMP:

Glycol Pump Type: Gas Injection
Gas Injection Pump Volume Ratio: 0.080 acfm gas/gpm glycol

FLASH TANK:

Flash Control: Recycle/recompression
Temperature: 107.0 deg. F
Pressure: 36.0 psig

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Rosa #1 PTE 20 mmcfd EU 03 & 09 (Gas 2021-06-22)
File Name: C:\Users\user\Documents\Cirrus\Permit applications\New Mexico\Harvest Four Corners\0 0 Rosa #1 (WFC)\Title V\2021-01 Title V Renewal\Analyses & Info\GLYCalc\Rosa #1 PTE 20 mmcfd EU 03 & 09 (Gas 2021-06-22).ddf
Date: January 07, 2022

DESCRIPTION:

Description: Rosa #1 PTE 20 mmcfd EU 03 & 09
Gas Sample date 2021-06-22
DPT data 8/28 & 10/29/2021

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.2544	6.107	1.1145
Ethane	0.0203	0.487	0.0889
Propane	0.0093	0.223	0.0407
Isobutane	0.0034	0.081	0.0148
n-Butane	0.0037	0.089	0.0163
Isopentane	0.0017	0.042	0.0076
Cyclopentane	0.0008	0.019	0.0035
n-Hexane	0.0017	0.040	0.0073
Cyclohexane	0.0031	0.075	0.0137
Other Hexanes	0.0024	0.057	0.0104
Heptanes	0.0029	0.070	0.0128
Methylcyclohexane	0.0113	0.271	0.0495
Benzene	0.0823	1.976	0.3606
Toluene	0.1352	3.245	0.5922
Xylenes	0.0563	1.351	0.2465
C8+ Heavies	0.0333	0.799	0.1457
Total Emissions	0.6221	14.932	2.7250
Total Hydrocarbon Emissions	0.6221	14.932	2.7250
Total VOC Emissions	0.3474	8.338	1.5216
Total HAP Emissions	0.2755	6.611	1.2066
Total BTEX Emissions	0.2738	6.572	1.1993

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	11.0467	265.122	48.3847
Ethane	0.2746	6.590	1.2027

Propane	0.0437	1.050	0.1916
Isobutane	0.0105	0.253	0.0461
n-Butane	0.0086	0.207	0.0379
Isopentane	0.0035	0.085	0.0155
Cyclopentane	0.0004	0.010	0.0018
n-Hexane	0.0015	0.036	0.0065
Cyclohexane	0.0008	0.020	0.0037
Other Hexanes	0.0029	0.069	0.0126
Heptanes	0.0013	0.032	0.0058
Methylcyclohexane	0.0023	0.055	0.0101
Benzene	0.0021	0.050	0.0092
Toluene	0.0022	0.054	0.0098
Xylenes	0.0003	0.008	0.0015
C8+ Heavies	0.0016	0.039	0.0072
Total Emissions	11.4033	273.679	49.9465
Total Hydrocarbon Emissions	11.4033	273.679	49.9465
Total VOC Emissions	0.0820	1.968	0.3591
Total HAP Emissions	0.0062	0.148	0.0269
Total BTEX Emissions	0.0047	0.112	0.0205

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.2544	6.107	1.1145
Ethane	0.0203	0.487	0.0889
Propane	0.0093	0.223	0.0407
Isobutane	0.0034	0.081	0.0148
n-Butane	0.0037	0.089	0.0163
Isopentane	0.0017	0.042	0.0076
Cyclopentane	0.0008	0.019	0.0035
n-Hexane	0.0017	0.040	0.0073
Cyclohexane	0.0031	0.075	0.0137
Other Hexanes	0.0024	0.057	0.0104
Heptanes	0.0029	0.070	0.0128
Methylcyclohexane	0.0113	0.271	0.0495
Benzene	0.0823	1.976	0.3606
Toluene	0.1352	3.245	0.5922
Xylenes	0.0563	1.351	0.2465
C8+ Heavies	0.0333	0.799	0.1457
Total Emissions	0.6221	14.932	2.7250
Total Hydrocarbon Emissions	0.6221	14.932	2.7250
Total VOC Emissions	0.3474	8.338	1.5216
Total HAP Emissions	0.2755	6.611	1.2066
Total BTEX Emissions	0.2738	6.572	1.1993

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Methane	49.4992	1.1145	97.75
Ethane	1.2916	0.0889	93.12
Propane	0.2323	0.0407	82.47

Isobutane	0.0609	0.0148	75.73
n-Butane	0.0542	0.0163	69.90
Isopentane	0.0231	0.0076	67.11
Cyclopentane	0.0053	0.0035	33.52
n-Hexane	0.0137	0.0073	47.17
Cyclohexane	0.0174	0.0137	21.19
Other Hexanes	0.0230	0.0104	54.65
Heptanes	0.0186	0.0128	31.08
Methylcyclohexane	0.0596	0.0495	16.93
Benzene	0.3698	0.3606	2.48
Toluene	0.6020	0.5922	1.63
Xylenes	0.2480	0.2465	0.60
C8+ Heavies	0.1529	0.1457	4.70
Total Emissions	52.6715	2.7250	94.83
Total Hydrocarbon Emissions	52.6715	2.7250	94.83
Total VOC Emissions	1.8807	1.5216	19.09
Total HAP Emissions	1.2335	1.2066	2.18
Total BTEX Emissions	1.2198	1.1993	1.68

EQUIPMENT REPORTS:

ABSORBER

Calculated Absorber Stages:	5.77
Specified Dry Gas Dew Point:	7.00 lbs. H2O/MMSCF
Temperature:	107.0 deg. F
Pressure:	225.0 psig
Dry Gas Flow Rate:	20.0000 MMSCF/day
Glycol Losses with Dry Gas:	0.1593 lb/hr
Wet Gas Water Content:	Saturated
Calculated Wet Gas Water Content:	245.68 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	1.01 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	2.83%	97.17%
Carbon Dioxide	99.94%	0.06%
Nitrogen	100.00%	0.00%
Methane	100.00%	0.00%
Ethane	99.99%	0.01%
Propane	99.97%	0.03%
Isobutane	99.95%	0.05%
n-Butane	99.93%	0.07%
Isopentane	99.92%	0.08%
Cyclopentane	99.64%	0.36%
n-Hexane	99.82%	0.18%
Cyclohexane	99.32%	0.68%
Other Hexanes	99.87%	0.13%
Heptanes	99.65%	0.35%
Methylcyclohexane	99.13%	0.87%
Benzene	93.88%	6.12%
Toluene	90.33%	9.67%
Xylenes	75.74%	24.26%
C8+ Heavies	96.92%	3.08%

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 107.0 deg. F
Flash Pressure: 36.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.96%	0.04%
Carbon Dioxide	25.52%	74.48%
Nitrogen	1.98%	98.02%
Methane	2.25%	97.75%
Ethane	6.88%	93.12%
Propane	17.53%	82.47%
Isobutane	24.27%	75.73%
n-Butane	30.10%	69.90%
Isopentane	33.13%	66.87%
Cyclopentane	66.64%	33.36%
n-Hexane	53.03%	46.97%
Cyclohexane	79.46%	20.54%
Other Hexanes	45.79%	54.21%
Heptanes	69.06%	30.94%
Methylcyclohexane	83.73%	16.27%
Benzene	97.64%	2.36%
Toluene	98.50%	1.50%
Xylenes	99.48%	0.52%
C8+ Heavies	95.86%	4.14%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	10.73%	89.27%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	1.07%	98.93%
Cyclopentane	0.69%	99.31%
n-Hexane	0.80%	99.20%
Cyclohexane	3.86%	96.14%
Other Hexanes	1.77%	98.23%
Heptanes	0.67%	99.33%
Methylcyclohexane	4.62%	95.38%
Benzene	5.10%	94.90%
Toluene	8.00%	92.00%
Xylenes	12.99%	87.01%
C8+ Heavies	12.43%	87.57%

STREAM REPORTS:

WET GAS STREAM

Temperature: 107.00 deg. F
Pressure: 239.70 psia
Flow Rate: 8.38e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	5.18e-001	2.06e+002
Carbon Dioxide	7.66e+000	7.44e+003
Nitrogen	6.32e-002	3.91e+001
Methane	9.07e+001	3.21e+004
Ethane	9.73e-001	6.46e+002
Propane	8.43e-002	8.20e+001
Isobutane	1.32e-002	1.70e+001
n-Butane	9.75e-003	1.25e+001
Isopentane	3.08e-003	4.91e+000
Cyclopentane	1.99e-004	3.08e-001
n-Hexane	7.96e-004	1.51e+000
Cyclohexane	2.98e-004	5.55e-001
Other Hexanes	1.69e-003	3.22e+000
Heptanes	4.97e-004	1.10e+000
Methylcyclohexane	6.96e-004	1.51e+000
Benzene	7.96e-004	1.37e+000
Toluene	6.96e-004	1.42e+000
Xylenes	9.95e-005	2.33e-001
C8+ Heavies	2.98e-004	1.12e+000
Total Components	100.00	4.06e+004

DRY GAS STREAM

Temperature: 107.00 deg. F
Pressure: 239.70 psia
Flow Rate: 8.33e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.47e-002	5.83e+000
Carbon Dioxide	7.70e+000	7.44e+003
Nitrogen	6.35e-002	3.91e+001
Methane	9.11e+001	3.21e+004
Ethane	9.77e-001	6.46e+002
Propane	8.47e-002	8.20e+001
Isobutane	1.33e-002	1.70e+001
n-Butane	9.79e-003	1.25e+001
Isopentane	3.10e-003	4.91e+000
Cyclopentane	1.99e-004	3.07e-001
n-Hexane	7.99e-004	1.51e+000
Cyclohexane	2.98e-004	5.51e-001
Other Hexanes	1.70e-003	3.21e+000
Heptanes	4.98e-004	1.10e+000
Methylcyclohexane	6.94e-004	1.50e+000

Component	Conc. (wt%)	Loading (lb/hr)
Benzene	7.51e-004	1.29e+000
Toluene	6.32e-004	1.28e+000
Xylenes	7.57e-005	1.77e-001
C8+ Heavies	2.91e-004	1.09e+000
Total Components	100.00	4.04e+004

LEAN GLYCOL STREAM

Temperature: 107.00 deg. F
Flow Rate: 3.33e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.87e+001	1.85e+003
Water	1.28e+000	2.40e+001
Carbon Dioxide	2.39e-011	4.48e-010
Nitrogen	7.84e-015	1.47e-013
Methane	2.28e-018	4.28e-017
Ethane	2.34e-009	4.40e-008
Propane	5.94e-011	1.12e-009
Isobutane	1.37e-011	2.58e-010
n-Butane	1.12e-011	2.10e-010
Isopentane	1.00e-006	1.88e-005
Cyclopentane	3.01e-007	5.64e-006
n-Hexane	7.13e-007	1.34e-005
Cyclohexane	6.68e-006	1.25e-004
Other Hexanes	2.28e-006	4.29e-005
Heptanes	1.04e-006	1.96e-005
Methylcyclohexane	2.91e-005	5.47e-004
Benzene	2.36e-004	4.42e-003
Toluene	6.26e-004	1.18e-002
Xylenes	4.48e-004	8.40e-003
C8+ Heavies	2.52e-004	4.72e-003
Total Components	100.00	1.88e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 107.00 deg. F
Pressure: 239.70 psia
Flow Rate: 3.75e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	8.84e+001	1.84e+003
Water	1.07e+001	2.24e+002
Carbon Dioxide	3.26e-001	6.81e+000
Nitrogen	6.55e-004	1.37e-002
Methane	5.41e-001	1.13e+001
Ethane	1.41e-002	2.95e-001
Propane	2.54e-003	5.30e-002
Isobutane	6.66e-004	1.39e-002
n-Butane	5.93e-004	1.24e-002
Isopentane	2.54e-004	5.30e-003
Cyclopentane	5.87e-005	1.22e-003
n-Hexane	1.51e-004	3.15e-003
Cyclohexane	1.96e-004	4.09e-003

Other Hexanes	2.54e-004	5.29e-003
Heptanes	2.04e-004	4.26e-003
Methylcyclohexane	6.78e-004	1.41e-002
Benzene	4.26e-003	8.88e-002
Toluene	7.15e-003	1.49e-001
Xylenes	3.12e-003	6.50e-002
C8+ Heavies	1.90e-003	3.96e-002
Total Components	100.00	2.09e+003

FLASH TANK OFF GAS STREAM

Temperature: 107.00 deg. F
Pressure: 50.70 psia
Flow Rate: 3.11e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	6.12e-001	9.04e-002
Carbon Dioxide	1.41e+001	5.07e+000
Nitrogen	5.84e-002	1.34e-002
Methane	8.40e+001	1.10e+001
Ethane	1.11e+000	2.75e-001
Propane	1.21e-001	4.37e-002
Isobutane	2.21e-002	1.05e-002
n-Butane	1.81e-002	8.64e-003
Isopentane	5.99e-003	3.55e-003
Cyclopentane	7.10e-004	4.09e-004
n-Hexane	2.09e-003	1.48e-003
Cyclohexane	1.22e-003	8.40e-004
Other Hexanes	4.06e-003	2.87e-003
Heptanes	1.60e-003	1.32e-003
Methylcyclohexane	2.86e-003	2.30e-003
Benzene	3.27e-003	2.10e-003
Toluene	2.96e-003	2.23e-003
Xylenes	3.90e-004	3.40e-004
C8+ Heavies	1.18e-003	1.64e-003
Total Components	100.00	1.66e+001

FLASH TANK GLYCOL STREAM

Temperature: 107.00 deg. F
Flow Rate: 3.72e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)	(ppm)
TEG	8.91e+001	1.84e+003	890673.
Water	1.08e+001	2.24e+002	108173.
Carbon Dioxide	8.39e-002	1.74e+000	839.
Nitrogen	1.31e-005	2.70e-004	0.
Methane	1.23e-002	2.54e-001	123.
Ethane	9.80e-004	2.03e-002	10.
Propane	4.49e-004	9.30e-003	4.
Isobutane	1.63e-004	3.37e-003	2.
n-Butane	1.80e-004	3.72e-003	2.
Isopentane	8.48e-005	1.76e-003	1.
Cyclopentane	3.94e-005	8.16e-004	0.

n-Hexane	8.07e-005	1.67e-003	1.
Cyclohexane	1.57e-004	3.25e-003	2.
Other Hexanes	1.17e-004	2.42e-003	1.
Heptanes	1.42e-004	2.94e-003	1.
Methylcyclohexane	5.72e-004	1.18e-002	6.
Benzene	4.19e-003	8.67e-002	42.
Toluene	7.10e-003	1.47e-001	71.
Xylenes	3.12e-003	6.47e-002	31.
C8+ Heavies	1.83e-003	3.80e-002	18.
Total Components	100.00	2.07e+003	1000001.

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 4.24e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.95e+001	2.00e+002
Carbon Dioxide	3.54e-001	1.74e+000
Nitrogen	8.65e-005	2.70e-004
Methane	1.42e-001	2.54e-001
Ethane	6.05e-003	2.03e-002
Propane	1.89e-003	9.30e-003
Isobutane	5.20e-004	3.37e-003
n-Butane	5.74e-004	3.72e-003
Isopentane	2.16e-004	1.74e-003
Cyclopentane	1.04e-004	8.10e-004
n-Hexane	1.72e-004	1.66e-003
Cyclohexane	3.33e-004	3.12e-003
Other Hexanes	2.47e-004	2.38e-003
Heptanes	2.61e-004	2.92e-003
Methylcyclohexane	1.03e-003	1.13e-002
Benzene	9.44e-003	8.23e-002
Toluene	1.31e-002	1.35e-001
Xylenes	4.75e-003	5.63e-002
C8+ Heavies	1.75e-003	3.33e-002
Total Components	100.00	2.02e+002

Dehydrator Reboiler Exhaust Emissions Calculations

Unit Number: 3b, 9b
Description: Dehydrator Reboiler (20 mmscfd)

Note: The data on this worksheet applies to each individual emissions unit identified above.

Fuel Consumption

1.483	MMBtu/hr	Capacity	scf/hr x Btu/scf / 1,000,000
1,648	scf/hr	Hourly fuel consumption	Mfg. data (Enertek)
8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC
12,993	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
14.44	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000
900	Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutants	Emission Factors, lb/day	Uncontrolled Emission Rates, pph	tpy
NOX	1.03	4.29E-02	0.188
CO	1.07	4.46E-02	0.195
VOC	0.16	6.46E-03	2.83E-02
SO2	0.02	8.33E-04	3.65E-03

NOX emission factor taken from August 1994 Enertek Letter
CO, TOC and SO2 emission factors taken from July 1998 InFab Letter
50% of TOC emissions are assumed to be VOC emissions, consistent with AP-42, Table 1.4-2
Uncontrolled Emission Rates (pph) = lb/day / 24 hr/day
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Pollutants	Emission Factors, lb/MMscf	Uncontrolled Emission Rates, pph	tpy
PM	7.60	1.25E-02	5.49E-02
PM10	7.60	1.25E-02	5.49E-02
PM2.5	7.60	1.25E-02	5.49E-02
Lead	5.00E-04	8.24E-07	3.61E-06

Emission factors taken from AP-42, Table 1.4-2
Uncontrolled Emission Rates (pph) = lb/MMscf x (scf/hr / 1,000,000)
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Exhaust Parameters

600	°F	Exhaust temperature	Mfg. data (Enertek & InFab)
287.46	cfm	Stack flowrate	fps x ft^2 x 60 sec/min
1.00	ft	Stack diameter	Mfg. data (InFab)
0.79	ft^2	Stack exit area	3.1416 x ((ft / 2) ^2)
6.1	fps	Stack velocity	Mfg. data (Enertek & InFab)
10.0	ft	Stack height	Mfg. data (InFab)

GRI-HAPCalc ® 3.01
External Combustion Devices Report

Facility ID:	**ROSA #1 COMP. STN.**	**Notes:**
Operation Type:	**COMPRESSOR STATION**	
Facility Name:	**ROSA #1 COMPRESSOR STATION**	
User Name:	**Cirrus**	
Units of Measure:	**U.S. STANDARD**	

Note: Emissions less than 5.00E-09 tons (or tonnes) per year are considered insignificant and are treated as zero. These emissions are indicated on the report with a "0". Emissions between 5.00E-09 and 5.00E-05 tons (or tonnes) per year are represented on the report with "0.0000".

External Combustion Devices

Unit Name: REBOILER

Hours of Operation:	8,760	Yearly
Heat Input:	*********	MMBtu/hr
Fuel Type:	NATURAL GAS	
Device Type:	BOILER	
Emission Factor Set:	FIELD > EPA > LITERATURE	
Additional EF Set:	-NONE-	

Calculated Emissions (ton/yr)

Chemical Name	Emissions	Emission Factor	Emission Factor Set
HAPs			
3-Methylcholanthrene	0.0000	0.0000000018 lb/MMBtu	EPA
7,12-Dimethylbenz(a)anthracene	0.0000	0.0000000157 lb/MMBtu	EPA
Formaldehyde	0.0023	0.0003522500 lb/MMBtu	GRI Field
Methanol	0.0028	0.0004333330 lb/MMBtu	GRI Field
Acetaldehyde	0.0019	0.0002909000 lb/MMBtu	GRI Field
1,3-Butadiene	0.0000	0.0000001830 lb/MMBtu	GRI Field
Benzene	0.0000	0.0000062550 lb/MMBtu	GRI Field
Toluene	0.0000	0.0000053870 lb/MMBtu	GRI Field
Ethylbenzene	0.0000	0.0000000720 lb/MMBtu	GRI Field
Xylenes(m,p,o)	0.0000	0.0000010610 lb/MMBtu	GRI Field
2,2,4-Trimethylpentane	0.0002	0.0000323000 lb/MMBtu	GRI Field
n-Hexane	0.0021	0.0003214790 lb/MMBtu	GRI Field
Phenol	0.0000	0.0000000950 lb/MMBtu	GRI Field
Naphthalene	0.0000	0.0000002950 lb/MMBtu	GRI Field
2-Methylnaphthalene	0.0000	0.0000000700 lb/MMBtu	GRI Field
Acenaphthylene	0.0000	0.0000000550 lb/MMBtu	GRI Field
Biphenyl	0.0000	0.0000011500 lb/MMBtu	GRI Field
Acenaphthene	0.0000	0.0000000800 lb/MMBtu	GRI Field
Fluorene	0.0000	0.0000000700 lb/MMBtu	GRI Field
Anthracene	0.0000	0.0000000750 lb/MMBtu	GRI Field
Phenanthrene	0.0000	0.0000000550 lb/MMBtu	GRI Field
Fluoranthene	0.0000	0.0000000800 lb/MMBtu	GRI Field
Pyrene	0.0000	0.0000000750 lb/MMBtu	GRI Field
Benz(a)anthracene	0.0000	0.0000000750 lb/MMBtu	GRI Field
Chrysene	0.0000	0.0000001000 lb/MMBtu	GRI Field

Benzo(a)pyrene	0.0000	0.0000000600	lb/MMBtu	GRI Field
Benzo(b)fluoranthene	0.0000	0.0000001350	lb/MMBtu	GRI Field
Benzo(k)fluoranthene	0.0000	0.0000004400	lb/MMBtu	GRI Field
Benzo(g,h,i)perylene	0.0000	0.0000001500	lb/MMBtu	GRI Field
Indeno(1,2,3-c,d)pyrene	0.0000	0.0000001000	lb/MMBtu	GRI Field
Dibenz(a,h)anthracene	0.0000	0.0000000950	lb/MMBtu	GRI Field
Lead	0.0000	0.0000004902	lb/MMBtu	EPA
Total	0.0093			

Criteria Pollutants

VOC	0.0350	0.0053921569	lb/MMBtu	EPA
PM	0.0483	0.0074509804	lb/MMBtu	EPA
PM, Condensible	0.0362	0.0055882353	lb/MMBtu	EPA
PM, Filterable	0.0121	0.0018627451	lb/MMBtu	EPA
CO	0.1992	0.0307275000	lb/MMBtu	GRI Field
NMHC	0.0553	0.0085294118	lb/MMBtu	EPA
NOx	0.5721	0.0882553330	lb/MMBtu	GRI Field
SO2	0.0038	0.0005880000	lb/MMBtu	EPA

Other Pollutants

Dichlorobenzene	0.0000	0.0000011765	lb/MMBtu	EPA
Methane	0.0381	0.0058790650	lb/MMBtu	GRI Field
Acetylene	0.0346	0.0053314000	lb/MMBtu	GRI Field
Ethylene	0.0034	0.0005264000	lb/MMBtu	GRI Field
Ethane	0.0109	0.0016804650	lb/MMBtu	GRI Field
Propylene	0.0061	0.0009333330	lb/MMBtu	GRI Field
Propane	0.0078	0.0012019050	lb/MMBtu	GRI Field
Butane	0.0090	0.0013866350	lb/MMBtu	GRI Field
Cyclopentane	0.0003	0.0000405000	lb/MMBtu	GRI Field
Pentane	0.0134	0.0020656400	lb/MMBtu	GRI Field
n-Pentane	0.0130	0.0020000000	lb/MMBtu	GRI Field
Cyclohexane	0.0003	0.0000451000	lb/MMBtu	GRI Field
Methylcyclohexane	0.0011	0.0001691000	lb/MMBtu	GRI Field
n-Octane	0.0003	0.0000506000	lb/MMBtu	GRI Field
n-Nonane	0.0000	0.0000050000	lb/MMBtu	GRI Field
CO2	762.6353	117.6470588235	lb/MMBtu	EPA

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Rosa No.1 Fuel Gas 4 mmcfd - PTE Gas 2021-06-22 4015PV
File Name: C:\Users\user\Documents\Cirrus\Permit applications\New Mexico\Harvest Four Corners\0 0 Rosa #1 (WFC)\Title V\2021-01 Title V Renewal\Analyses & Info\GLYCalc\Rosa No.1 Fuel Gas 4 mmcfd - PTE Gas 2021-06-22_4015PV.ddf
Date: January 07, 2022

DESCRIPTION:

Description: Rosa No.1 Fuel Gas 4 mmcfd - PTE GAS 2020-06-22 gas analysis 4015PV 40 gph (0.667 gpm). No flash tank, vented

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 92.44 deg. F
Pressure: 384.69 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	7.7018
Nitrogen	0.0635
Methane	91.1400
Ethane	0.9777
Propane	0.0847
Isobutane	0.0133
n-Butane	0.0098
Isopentane	0.0031
Cyclopentane	0.0002
n-Hexane	0.0008
Cyclohexane	0.0003
Other Hexanes	0.0017
Heptanes	0.0005
Methylcyclohexane	0.0007
Benzene	0.0008
Toluene	0.0007
Xylenes	0.0001
C8+ Heavies	0.0003

DRY GAS:

Flow Rate: 4.0 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 0.7 gpm

PUMP:

Glycol Pump Type: Gas Injection
Gas Injection Pump Volume Ratio: 0.080 acfm gas/gpm glycol

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Rosa No.1 Fuel Gas 4 mmcfd - PTE Gas 2021-06-22 4015PV
File Name: C:\Users\user\Documents\Cirrus\Permit applications\New Mexico\Harvest Four Corners\0 0 Rosa #1 (WFC)\Title V\2021-01 Title V Renewal\Analyses & Info\GLYCalc\Rosa No.1 Fuel Gas 4 mmcfd - PTE Gas 2021-06-22_4015PV.ddf
Date: January 07, 2022

DESCRIPTION:

Description: Rosa No.1 Fuel Gas 4 mmcfd - PTE GAS 2020-06-22 gas analysis 4015PV 40 gph (0.667 gpm). No flash tank, vented

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	3.7885	90.924	16.5937
Ethane	0.1014	2.433	0.4440
Propane	0.0176	0.423	0.0771
Isobutane	0.0047	0.112	0.0205
n-Butane	0.0042	0.101	0.0184
Isopentane	0.0018	0.043	0.0079
Cyclopentane	0.0005	0.011	0.0020
n-Hexane	0.0011	0.027	0.0048
Cyclohexane	0.0015	0.036	0.0066
Other Hexanes	0.0018	0.044	0.0080
Heptanes	0.0015	0.037	0.0068
Methylcyclohexane	0.0051	0.123	0.0224
Benzene	0.0312	0.748	0.1366
Toluene	0.0502	1.204	0.2197
Xylenes	0.0168	0.404	0.0737
C8+ Heavies	0.0091	0.218	0.0397
Total Emissions	4.0369	96.887	17.6818
Total Hydrocarbon Emissions	4.0369	96.887	17.6818
Total VOC Emissions	0.1471	3.530	0.6441
Total HAP Emissions	0.0993	2.382	0.4348
Total BTEX Emissions	0.0982	2.356	0.4299

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	3.7885	90.924	16.5937
Ethane	0.1014	2.433	0.4440
Propane	0.0176	0.423	0.0771
Isobutane	0.0047	0.112	0.0205
n-Butane	0.0042	0.101	0.0184
Isopentane	0.0018	0.043	0.0079

Cyclopentane	0.0005	0.011	0.0020
n-Hexane	0.0011	0.027	0.0048
Cyclohexane	0.0015	0.036	0.0066
Other Hexanes	0.0018	0.044	0.0080
Heptanes	0.0015	0.037	0.0068
Methylcyclohexane	0.0051	0.123	0.0224
Benzene	0.0312	0.748	0.1366
Toluene	0.0502	1.204	0.2197
Xylenes	0.0168	0.404	0.0737
C8+ Heavies	0.0091	0.218	0.0397
Total Emissions	4.0369	96.887	17.6818
Total Hydrocarbon Emissions	4.0369	96.887	17.6818
Total VOC Emissions	0.1471	3.530	0.6441
Total HAP Emissions	0.0993	2.382	0.4348
Total BTEX Emissions	0.0982	2.356	0.4299

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Methane	16.5937	16.5937	0.00
Ethane	0.4440	0.4440	0.00
Propane	0.0771	0.0771	0.00
Isobutane	0.0205	0.0205	0.00
n-Butane	0.0184	0.0184	0.00
Isopentane	0.0079	0.0079	0.00
Cyclopentane	0.0020	0.0020	0.00
n-Hexane	0.0048	0.0048	0.00
Cyclohexane	0.0066	0.0066	0.00
Other Hexanes	0.0080	0.0080	0.00
Heptanes	0.0068	0.0068	0.00
Methylcyclohexane	0.0224	0.0224	0.00
Benzene	0.1366	0.1366	0.00
Toluene	0.2197	0.2197	0.00
Xylenes	0.0737	0.0737	0.00
C8+ Heavies	0.0397	0.0397	0.00
Total Emissions	17.6818	17.6818	0.00
Total Hydrocarbon Emissions	17.6818	17.6818	0.00
Total VOC Emissions	0.6441	0.6441	0.00
Total HAP Emissions	0.4348	0.4348	0.00
Total BTEX Emissions	0.4299	0.4299	0.00

EQUIPMENT REPORTS:

ABSORBER

Calculated Absorber Stages:	1.35
Specified Dry Gas Dew Point:	7.00 lbs. H2O/MMSCF
Temperature:	92.4 deg. F

Pressure:	384.7	psig
Dry Gas Flow Rate:	4.0000	MMSCF/day
Glycol Losses with Dry Gas:	0.0146	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	100.27	lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	2.57	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	6.97%	93.03%
Carbon Dioxide	99.89%	0.11%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.97%	0.03%
Propane	99.94%	0.06%
Isobutane	99.91%	0.09%
n-Butane	99.88%	0.12%
Isopentane	99.87%	0.13%
Cyclopentane	99.31%	0.69%
n-Hexane	99.69%	0.31%
Cyclohexane	98.69%	1.31%
Other Hexanes	99.77%	0.23%
Heptanes	99.35%	0.65%
Methylcyclohexane	98.35%	1.65%
Benzene	88.69%	11.31%
Toluene	82.35%	17.65%
Xylenes	63.99%	36.01%
C8+ Heavies	96.01%	3.99%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	26.54%	73.46%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.36%	99.64%
Cyclopentane	0.47%	99.53%
n-Hexane	0.43%	99.57%
Cyclohexane	3.08%	96.92%
Other Hexanes	0.82%	99.18%
Heptanes	0.46%	99.54%
Methylcyclohexane	3.88%	96.12%
Benzene	4.98%	95.02%
Toluene	7.88%	92.12%
Xylenes	12.90%	87.10%
C8+ Heavies	11.89%	88.11%

STREAM REPORTS:

WET GAS STREAM

Temperature: 92.44 deg. F
Pressure: 399.39 psia
Flow Rate: 1.67e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.11e-001	1.68e+001
Carbon Dioxide	7.69e+000	1.49e+003
Nitrogen	6.34e-002	7.81e+000
Methane	9.09e+001	6.42e+003
Ethane	9.76e-001	1.29e+002
Propane	8.45e-002	1.64e+001
Isobutane	1.33e-002	3.40e+000
n-Butane	9.78e-003	2.50e+000
Isopentane	3.09e-003	9.83e-001
Cyclopentane	2.00e-004	6.16e-002
n-Hexane	7.98e-004	3.03e-001
Cyclohexane	2.99e-004	1.11e-001
Other Hexanes	1.70e-003	6.44e-001
Heptanes	4.99e-004	2.20e-001
Methylcyclohexane	6.99e-004	3.02e-001
Benzene	7.98e-004	2.75e-001
Toluene	6.99e-004	2.83e-001
Xylenes	9.98e-005	4.66e-002
C8+ Heavies	2.99e-004	2.24e-001
Total Components	100.00	8.09e+003

DRY GAS STREAM

Temperature: 92.44 deg. F
Pressure: 399.39 psia
Flow Rate: 1.67e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.47e-002	1.17e+000
Carbon Dioxide	7.69e+000	1.49e+003
Nitrogen	6.35e-002	7.81e+000
Methane	9.11e+001	6.42e+003
Ethane	9.77e-001	1.29e+002
Propane	8.47e-002	1.64e+001
Isobutane	1.33e-002	3.39e+000
n-Butane	9.79e-003	2.50e+000
Isopentane	3.10e-003	9.81e-001
Cyclopentane	1.99e-004	6.12e-002
n-Hexane	7.98e-004	3.02e-001
Cyclohexane	2.96e-004	1.09e-001
Other Hexanes	1.70e-003	6.42e-001
Heptanes	4.97e-004	2.19e-001
Methylcyclohexane	6.88e-004	2.97e-001
Benzene	7.10e-004	2.43e-001
Toluene	5.76e-004	2.33e-001
Xylenes	6.40e-005	2.98e-002

Component	Conc. (wt%)	Loading (lb/hr)
C8+ Heavies	2.88e-004	2.16e-001
Total Components	100.00	8.07e+003

LEAN GLYCOL STREAM

Temperature: 92.44 deg. F
Flow Rate: 6.67e-001 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	3.70e+002
Water	1.50e+000	5.63e+000
Carbon Dioxide	4.41e-011	1.65e-010
Nitrogen	1.50e-014	5.64e-014
Methane	4.10e-018	1.54e-017
Ethane	4.32e-009	1.62e-008
Propane	9.87e-011	3.70e-010
Isobutane	2.33e-011	8.75e-011
n-Butane	1.91e-011	7.19e-011
Isopentane	1.72e-006	6.45e-006
Cyclopentane	5.65e-007	2.12e-006
n-Hexane	1.27e-006	4.77e-006
Cyclohexane	1.28e-005	4.79e-005
Other Hexanes	4.04e-006	1.52e-005
Heptanes	1.91e-006	7.18e-006
Methylcyclohexane	5.51e-005	2.07e-004
Benzene	4.35e-004	1.63e-003
Toluene	1.14e-003	4.29e-003
Xylenes	6.63e-004	2.49e-003
C8+ Heavies	3.26e-004	1.22e-003
Total Components	100.00	3.76e+002

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 92.44 deg. F
Pressure: 399.39 psia
Flow Rate: 7.12e-001 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.30e+001	3.70e+002
Water	5.34e+000	2.12e+001
Carbon Dioxide	6.11e-001	2.43e+000
Nitrogen	1.16e-003	4.62e-003
Methane	9.54e-001	3.79e+000
Ethane	2.55e-002	1.01e-001
Propane	4.43e-003	1.76e-002
Isobutane	1.18e-003	4.68e-003
n-Butane	1.06e-003	4.19e-003
Isopentane	4.53e-004	1.80e-003
Cyclopentane	1.15e-004	4.57e-004
n-Hexane	2.80e-004	1.11e-003
Cyclohexane	3.91e-004	1.56e-003
Other Hexanes	4.66e-004	1.85e-003
Heptanes	3.90e-004	1.55e-003

Methylcyclohexane	1.34e-003	5.33e-003
Benzene	8.26e-003	3.28e-002
Toluene	1.37e-002	5.45e-002
Xylenes	4.86e-003	1.93e-002
C8+ Heavies	2.59e-003	1.03e-002
Total Components	100.00	3.97e+002

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 4.41e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.45e+001	1.56e+001
Carbon Dioxide	4.74e+000	2.43e+000
Nitrogen	1.42e-002	4.62e-003
Methane	2.03e+001	3.79e+000
Ethane	2.90e-001	1.01e-001
Propane	3.44e-002	1.76e-002
Isobutane	6.92e-003	4.68e-003
n-Butane	6.21e-003	4.19e-003
Isopentane	2.14e-003	1.79e-003
Cyclopentane	5.57e-004	4.54e-004
n-Hexane	1.10e-003	1.11e-003
Cyclohexane	1.54e-003	1.51e-003
Other Hexanes	1.83e-003	1.83e-003
Heptanes	1.32e-003	1.54e-003
Methylcyclohexane	4.49e-003	5.13e-003
Benzene	3.43e-002	3.12e-002
Toluene	4.68e-002	5.02e-002
Xylenes	1.36e-002	1.68e-002
C8+ Heavies	4.58e-003	9.07e-003
Total Components	100.00	2.21e+001

Dehydrator Reboiler Exhaust Emissions Calculations

Unit Number: 12b
Description: 4 mmscfd Fuel Gas Dehy Reboiler -

Note: The data on this worksheet applies to each individual emissions unit identified above.

Fuel Consumption

43.10	scf/hr	Hourly fuel consumption	Design heat rate (Engineered Concepts, LLC)
900	Btu/scf	Field gas heating value	Nominal heat content
0.039	MMBtu/hr	Capacity	scf/hr x Btu/scf / 1,000,000
8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC
340	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
0.38	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000

Steady-State Emission Rates

Pollutants	Emission Factors, lb/day	Uncontrolled Emission Rates, pph	tpy
NOX	0.116	4.83E-03	0.021
CO	0.023	9.58E-04	4.20E-03

NOX and CO emission factors taken from mfg. data (Engineered Concepts, LLC)
Uncontrolled Emission Rates (pph) = lb/day / 24 hr/day
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Pollutants	Factors, lb/MMscf	Uncontrolled Emission Rates, pph	tpy
VOC	5.5	2.371E-04	1.04E-03
SO2	0.6	2.586E-05	1.13E-04
PM	7.6	3.276E-04	1.43E-03
PM10	7.6	3.276E-04	1.43E-03
PM2.5	7.6	3.276E-04	1.43E-03
Lead	5.00E-04	2.155E-08	9.44E-08

Emission factors taken from AP-42, Table 1.4-2
Uncontrolled Emission Rates (pph) = lb/MMscf x scf/hr / 1,000,000 scf/MMscf
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Exhaust Parameters

800	°F	Exhaust temperature	Mfg. data (Engineered Concepts, LLC)
60.08	cfm	Stack flowrate	fps x ft^2 x 60 sec/min
0.50	ft	Stack diameter	Mfg. data (Engineered Concepts, LLC)
0.20	ft^2	Stack exit area	3.1416 x ((ft / 2) ^2)
5.1	fps	Stack velocity	Mfg. data (Enertek & InFab)
11.0	ft	Stack height	Harvest Four Corners, LLC

GRI-HAPCalc ® 3.01
External Combustion Devices Report

Facility ID:	**ROSA #1 COMP. STN.**	**Notes:**	**4 mmcfd dehydrator reboiler 0.039 MMBtu/hr**
Operation Type:	**COMPRESSOR STATION**		
Facility Name:	**ROSA #1 COMPRESSOR STATION**		
User Name:	**Cirrus Consulting**		
Units of Measure:	**U.S. STANDARD**		

Note: Emissions less than 5.00E-09 tons (or tonnes) per year are considered insignificant and are treated as zero. These emissions are indicated on the report with a "0". Emissions between 5.00E-09 and 5.00E-05 tons (or tonnes) per year are represented on the report with "0.0000".

External Combustion Devices

Unit Name: REBOILER

Hours of Operation:	8,760	Yearly
Heat Input:	*********	MMBtu/hr
Fuel Type:	NATURAL GAS	
Device Type:	BOILER	
Emission Factor Set:	FIELD > EPA > LITERATURE	
Additional EF Set:	-NONE-	

Calculated Emissions (ton/yr)

Chemical Name	Emissions	Emission Factor	Emission Factor Set
HAPs			
Formaldehyde	0.0001	0.0003522500 lb/MMBtu	GRI Field
Methanol	0.0001	0.0004333330 lb/MMBtu	GRI Field
Acetaldehyde	0.0001	0.0002909000 lb/MMBtu	GRI Field
1,3-Butadiene	0.0000	0.0000001830 lb/MMBtu	GRI Field
Benzene	0.0000	0.0000062550 lb/MMBtu	GRI Field
Toluene	0.0000	0.0000053870 lb/MMBtu	GRI Field
Ethylbenzene	0.0000	0.0000000720 lb/MMBtu	GRI Field
Xylenes(m,p,o)	0.0000	0.0000010610 lb/MMBtu	GRI Field
2,2,4-Trimethylpentane	0.0000	0.0000323000 lb/MMBtu	GRI Field
n-Hexane	0.0001	0.0003214790 lb/MMBtu	GRI Field
Phenol	0.0000	0.0000000950 lb/MMBtu	GRI Field
Naphthalene	0.0000	0.0000002950 lb/MMBtu	GRI Field
2-Methylnaphthalene	0.0000	0.0000000700 lb/MMBtu	GRI Field
Acenaphthylene	0.0000	0.0000000550 lb/MMBtu	GRI Field
Biphenyl	0.0000	0.0000011500 lb/MMBtu	GRI Field
Acenaphthene	0.0000	0.0000000800 lb/MMBtu	GRI Field
Fluorene	0.0000	0.0000000700 lb/MMBtu	GRI Field
Anthracene	0.0000	0.0000000750 lb/MMBtu	GRI Field
Phenanthrene	0.0000	0.0000000550 lb/MMBtu	GRI Field
Fluoranthene	0.0000	0.0000000800 lb/MMBtu	GRI Field
Pyrene	0.0000	0.0000000750 lb/MMBtu	GRI Field
Benz(a)anthracene	0.0000	0.0000000750 lb/MMBtu	GRI Field
Chrysene	0.0000	0.0000001000 lb/MMBtu	GRI Field
Benzo(a)pyrene	0.0000	0.0000000600 lb/MMBtu	GRI Field
Benzo(b)fluoranthene	0.0000	0.0000001350 lb/MMBtu	GRI Field

Benzo(k)fluoranthene	0.0000	0.0000004400	lb/MMBtu	GRI Field
Benzo(g,h,i)perylene	0.0000	0.0000001500	lb/MMBtu	GRI Field
Indeno(1,2,3-c,d)pyrene	0.0000	0.0000001000	lb/MMBtu	GRI Field
Dibenz(a,h)anthracene	0.0000	0.0000000950	lb/MMBtu	GRI Field
Lead	0.0000	0.0000004902	lb/MMBtu	EPA
Total	0.0004			

Criteria Pollutants

VOC	0.0009	0.0053921569	lb/MMBtu	EPA
PM	0.0013	0.0074509804	lb/MMBtu	EPA
PM, Condensible	0.0010	0.0055882353	lb/MMBtu	EPA
PM, Filterable	0.0003	0.0018627451	lb/MMBtu	EPA
CO	0.0054	0.0307275000	lb/MMBtu	GRI Field
NMHC	0.0015	0.0085294118	lb/MMBtu	EPA
NOx	0.0155	0.0882553330	lb/MMBtu	GRI Field
SO2	0.0001	0.0005880000	lb/MMBtu	EPA

Other Pollutants

Dichlorobenzene	0.0000	0.0000011765	lb/MMBtu	EPA
Methane	0.0010	0.0058790650	lb/MMBtu	GRI Field
Acetylene	0.0009	0.0053314000	lb/MMBtu	GRI Field
Ethylene	0.0001	0.0005264000	lb/MMBtu	GRI Field
Ethane	0.0003	0.0016804650	lb/MMBtu	GRI Field
Propylene	0.0002	0.0009333330	lb/MMBtu	GRI Field
Propane	0.0002	0.0012019050	lb/MMBtu	GRI Field
Butane	0.0002	0.0013866350	lb/MMBtu	GRI Field
Cyclopentane	0.0000	0.0000405000	lb/MMBtu	GRI Field
Pentane	0.0004	0.0020656400	lb/MMBtu	GRI Field
n-Pentane	0.0004	0.0020000000	lb/MMBtu	GRI Field
Cyclohexane	0.0000	0.0000451000	lb/MMBtu	GRI Field
Methylcyclohexane	0.0000	0.0001691000	lb/MMBtu	GRI Field
n-Octane	0.0000	0.0000506000	lb/MMBtu	GRI Field
n-Nonane	0.0000	0.0000050000	lb/MMBtu	GRI Field
CO2	20.6118	117.6470588235	lb/MMBtu	EPA

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

Identification

User Identification:	Rosa #1 Produced Water (300 bbl) 52 turnovers
City:	San Juan Co., T31N, R07W, Sec. 10
State:	NM
Company:	Harvest Four Corners, LLC
Type of Tank:	Vertical Fixed Roof Tank
Description:	Produced Water storage tank 300 bbl (12,600 gal) capacity 52 turnovers per year (15,600 bpy / 655,200 gal/yr)

Tank Dimensions

Shell Height (ft):		13.00
Diameter (ft):		13.00
Liquid Height (ft) :		12.00
Avg. Liquid Height (ft):		6.50
Volume (gallons):		12,600.00
Turnovers:		52.00
Net Throughput(gal/yr):		655,200.00
Is Tank Heated (y/n):	N	

Paint Characteristics

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

Roof Characteristics

Type:	Dome	
Height (ft)		0.00
Radius (ft) (Dome Roof)		13.00

Breather Vent Settings

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

Meterological Data used in Emissions Calculations: Albuquerque, New Mexico (Avg Atmospheric Pressure = 12.15 psia)

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

Rosa #1 Produced Water (300 bbl) 52 turnovers - Vertical Fixed Roof Tank
San Juan Co., T31N, R07W, Sec. 10, NM

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Produced Water	All	67.36	53.93	80.79	59.23	0.3488	0.2187	0.5425	20.7704			18.15	
Benzene						1.4274	0.9846	2.0237	78.1100	0.0001	0.0002	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Butane						29.9323	23.3587	37.8099	58.1300	0.0008	0.0572	58.13	Option 1: VP60 = 26.098 VP70 = 31.306
Ethylbenzene						0.1396	0.0876	0.2162	106.1700	0.0000	0.0000	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.3100	1.6303	3.2059	86.1700	0.0042	0.0244	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Pentane (-n)						8.0308	5.9649	10.6537	72.1500	0.0049	0.0978	72.15	Option 3: A=27691, B=7.558
Toluene						0.4136	0.2726	0.6120	92.1300	0.0001	0.0001	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Water						0.3305	0.2049	0.5188	18.0200	0.9900	0.8202	18.02	Option 2: A=8.07131, B=1730.63, C=233.426
Xylenes (mixed isomers)						0.1165	0.0728	0.1813	106.1700	0.0000	0.0000	106.17	Option 2: A=7.009, B=1462.266, C=215.11

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

Rosa #1 Produced Water (300 bbl) 52 turnovers - Vertical Fixed Roof Tank
San Juan Co., T31N, R07W, Sec. 10, NM

Annual Emission Calcaulations

Standing Losses (lb):	50.1518
Vapor Space Volume (cu ft):	981.1141
Vapor Density (lb/cu ft):	0.0013
Vapor Space Expansion Factor:	0.1243
Vented Vapor Saturation Factor:	0.8798
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	981.1141
Tank Diameter (ft):	13.0000
Vapor Space Outage (ft):	7.3917
Tank Shell Height (ft):	13.0000
Average Liquid Height (ft):	6.5000
Roof Outage (ft):	0.8917
Roof Outage (Dome Roof)	
Roof Outage (ft):	0.8917
Dome Radius (ft):	13.0000
Shell Radius (ft):	6.5000
Vapor Density	
Vapor Density (lb/cu ft):	0.0013
Vapor Molecular Weight (lb/lb-mole):	20.7704
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3488
Daily Avg. Liquid Surface Temp. (deg. R):	527.0322
Daily Average Ambient Temp. (deg. F):	56.1542
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	518.9042
Tank Paint Solar Absorptance (Shell):	0.6800
Tank Paint Solar Absorptance (Roof):	0.6800
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.1243
Daily Vapor Temperature Range (deg. R):	53.7176
Daily Vapor Pressure Range (psia):	0.3238
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3488
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.2187
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.5425
Daily Avg. Liquid Surface Temp. (deg R):	527.0322
Daily Min. Liquid Surface Temp. (deg R):	513.6028
Daily Max. Liquid Surface Temp. (deg R):	540.4617
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.8798
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	0.3488
Vapor Space Outage (ft):	7.3917
Working Losses (lb):	84.0301
Vapor Molecular Weight (lb/lb-mole):	20.7704
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3488

Annual Net Throughput (gal/yr.):	655,200.0000
Annual Turnovers:	52.0000
Turnover Factor:	0.7436
Maximum Liquid Volume (gal):	12,600.0000
Maximum Liquid Height (ft):	12.0000
Tank Diameter (ft):	13.0000
Working Loss Product Factor:	1.0000

Total Losses (lb):	134.1820

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

Emissions Report for: Annual

Rosa #1 Produced Water (300 bbl) 52 turnovers - Vertical Fixed Roof Tank
San Juan Co., T31N, R07W, Sec. 10, NM

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Produced Water	84.03	50.15	134.18
Butane	4.81	2.87	7.68
Pentane (-n)	8.22	4.91	13.12
Hexane (-n)	2.05	1.22	3.28
Benzene	0.02	0.01	0.03
Ethylbenzene	0.00	0.00	0.00
Toluene	0.01	0.00	0.01
Xylenes (mixed isomers)	0.00	0.00	0.00
Water	68.92	41.14	110.06

VOC =
Total (VOC + water) - Water
= 134.18 lbs/yr - 110.06 lbs/yr = 24.04 lbs/yr VOC
= 1.20E-02 tpy VOC

Truck Loading Emissions Calculations

Unit Number: L-1 (Insignificant source demonstration)
Description: Truck Loading - Produced Water

Emission Factor

0.6		Saturation factor, S	AP-42, Table 5.2-1 (submerged loading & dedicated service)
0.5454	psia	True vapor pressure of liquid, P	TANKS 4.0 output file
20.7191	lb/lb-mole	Molecular weight of vapors, M	TANKS 4.0 output file
80.79	°F	Temperature of liquid	TANKS 4.0 output file
540.46	°R	Temperature of liquid, T	°F + 459.67
0.16	lb/10^3 gal	Emission factor, L	AP-42, Section 5.2, Equation 1

$$L = 12.46 \frac{SPM}{T}$$

Production Rate

8.40	10^3 gal/hr	Maximum hourly production rate	Harvest Four Corners, LLC
211.68	10^3 gal/yr	Maximum annual production rate	Harvest Four Corners, LLC

Steady-State Emission Rates

Pollutant	Uncontrolled Emission Rates, pph	tpy
VOC	1.31	1.65E-02

Uncontrolled Emission Rate (pph) = lb/10^3 gal x 10^3 gal/hr
Uncontrolled Emission Rate (tpy) = lb/10^3 gal x 10^3 gal/yr / 2,000 lb/ton

Pollutants	Vapor Mass Fraction	Emission Rates, pph	tpy
Benzene	0.0002	2.63E-04	3.31E-06
Ethylbenzene	0.0000	0.00E+00	0.00E+00
n-Hexane	0.0242	3.18E-02	4.00E-04
Toluene	0.0001	1.31E-04	1.65E-06
m-Xylene	0.0000	0.00E+00	0.00E+00

Percent of VOC calculated from the TANKS 4.0 results
Percent of VOC (%) = 100 x Pollutant Emission Rate (lb/yr) / Total VOC Emission Rate (lb/yr)
Emission Rates (pph) = VOC Emission Rate (pph) x (% / 100)
Emission Rates (tpy) = VOC Emission Rate (tpy) x (% / 100)

Equipment Leaks Emissions Calculations

Unit Number: F-1
Description: Valves, Connectors, Seals & Open-Ended Lines

Steady-State Emission Rates

Equipment	Number of Components, # of sources	Emission Factors, kg/hr/source	Emission Factors, lb/hr/source	Uncontrolled TOC Emission Rates, pph	tpy
Valves	558	0.0045	0.0099	5.52	24.20
Connectors	551	0.0002	0.0004	0.24	1.06
Pump Seals	6	0.0024	0.0053	0.03	0.14
Compressor Seals	44	0.0088	0.0194	0.85	3.73
Pressure Relief Valves	46	0.0088	0.0194	0.89	3.90
Open-Ended Lines	160	0.0020	0.0044	0.70	3.08
Total				**8.24**	**36.11**

Number of components based on the numbers of compressors and dehydrators at the station (see next page)
Emission factors taken from the EPA "1995 Protocol for Equipment Leak Emission Estimates"
Emission factors (lb/hr/source) = Emission factors (kg/hr/source) x 2.2 lb/kg
Uncontrolled TOC Emission Rates (pph) = lb/hr/source x # of sources
Uncontrolled TOC Emission Rates (tpy) = Uncontrolled TOC Emission Rates (pph) x 8,760 hr/yr / 2,000 lb/ton

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight Percent of TOC, %	Uncontrolled Emission Rates, pph	tpy
Carbon dioxide	7.7018	44.010				
Hydrogen sulfide	0.0000	34.070				
Nitrogen	0.0635	28.013				
Methane	91.1400	16.043	1462.159	97.646		
Ethane	0.9777	30.070	29.399	1.963		
Propane	0.0847	44.097	3.735	0.249	2.06E-02	9.01E-02
Isobutane	0.0133	58.123	0.773	0.052	4.26E-03	1.86E-02
n-Butane	0.0098	58.123	0.570	0.038	3.14E-03	1.37E-02
Isopentane	0.0031	72.150	0.224	0.015	1.23E-03	5.39E-03
n-Pentane	0.0000	72.150	0.000	0.000	0.00E+00	0.00E+00
Cyclopentane	0.0002	70.134	0.014	0.001	7.72E-05	3.38E-04
n-Hexane	0.0008	86.177	0.069	0.005	3.80E-04	1.66E-03
Cyclohexane	0.0003	84.161	0.025	0.002	1.39E-04	6.09E-04
Other hexanes	0.0017	86.177	0.147	0.010	8.07E-04	3.53E-03
Heptanes	0.0005	100.204	0.050	0.003	2.76E-04	1.21E-03
Methylcyclohexane	0.0007	98.188	0.069	0.005	3.78E-04	1.66E-03
2,2,4-Trimethylpentane	0.0000	114.231	0.000	0.000	0.00E+00	0.00E+00
Benzene	0.0008	78.114	0.062	0.004	3.44E-04	1.51E-03
Toluene	0.0007	92.141	0.064	0.004	3.55E-04	1.56E-03
Ethylbenzene	0.0000	106.167	0.000	0.000	0.00E+00	0.00E+00
Xylenes	0.0001	106.167	0.011	0.001	5.85E-05	2.56E-04
C8+ Heavies	0.0003	114.231	0.034	0.002	1.89E-04	8.26E-04
Total	100.0000		1497.405			
Total VOC				0.390	3.22E-02	0.141

Gas stream composition obtained from the Rosa #1 CDP extended gas analysis dated June 22, 2021.
Component Weights (lb/lb-mole) = (% / 100) * Molecular Weights (lb/lb-mole)
Weight Percent of TOC (%) = 100 x Component Weights (lb/lb-mole) / Total Component Weight (lb/lb-mole)
Uncontrolled Emission Rates (pph) = Total Uncontrolled TOC Emission Rate (pph) x (% / 100)
Uncontrolled Emission Rates (tpy) = Total Uncontrolled TOC Emission Rate (tpy) x (% / 100)

Equipment Leaks Emissions Calculations

Unit Number: F-1
Description: Valves, Connectors, Seals & Lines

Number of Compression Units at the Facility: 5
Number of Dehydrators at the Facility: 3

Process Equipment Description	Equipment Count						Instrument Count		
	Valves	Connectors	Pump Seals	Compressor Seals	Pressure Relief Valves	Open-end	Flow	Level	Pressure
Station inlet, meter run to pulsation dampener	17	14	0	0	1	13	3	0	3
Pulsation dampener	12	8	0	0	0	2	0	4	1
Compressor suction header	7	4	0	0	0	3	0	0	1
Suction header feed to instrument gas header	3	1	0	0	0	1	0	0	0
Compressor discharge header and bypass to station discharge	6	5	0	0	0	3	0	1	1
Compressor discharge header and suction header bypass lines	4	2	0	0	0	2	0	0	1
Fuel gas header	2	2	0	0	1	2	0	0	1
Instrument gas header	2	2	0	0	1	2	0	0	0
Station discharge header	9	5	0	0	1	6	0	0	2
Fuel gas recovery header	2	2	0	0	1	2	0	0	0
Fuel gas feed and filter loop	15	9	0	0	0	1	0	4	1
Instrument gas feed and filter loop	9	11	0	0	0	3	0	0	0
Produced water storage tank	1	0	0	0	0	1	0	1	0
ESD panel	12	0	0	0	0	0	0	0	0
Starting gas header	6	2	0	0	1	3	0	0	0
Hot gas header	2	2	0	0	0	2	0	0	0
Volume bottle lop	12	4	0	24	1	2	0	0	1
Components from Compressors	220	295	0	20	30	55	0	20	45
Components from dehydrators	18	30	6	0	9	18	0	9	12
Total	359	398	6	44	46	121	3	39	69
Adjusted Total	558	551	6	44	46	160			

The following additions are included in the Adjusted Total:

1 valve is added for each open end line
2 connectors are added for each flow meter
2 valves, 2 connectors and 1 open end line are added for each level gauge
1 connector is added for each pressure gauge

The component count is based on an evaluation of the Sim Mesa Compressor Station (two stage compression)

Section 6.a

Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMAC)

Title V (20.2.70 NMAC), Minor NSR (20.2.72 NMAC), and PSD (20.2.74 NMAC) applicants must estimate and report greenhouse gas (GHG) emissions to verify the emission rates reported in the public notice, determine applicability to 40 CFR 60 Subparts, and to evaluate Prevention of Significant Deterioration (PSD) applicability. GHG emissions that are subject to air permit regulations consist of the sum of an aggregate group of these six greenhouse gases: carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

Calculating GHG Emissions:

1. Calculate the ton per year (tpy) GHG mass emissions and GHG CO_2e emissions from your facility.
2. GHG mass emissions are the sum of the total annual tons of greenhouse gases without adjusting with the global warming potentials (GWPs). GHG CO_2e emissions are the sum of the mass emissions of each individual GHG multiplied by its GWP found in Table A-1 in 40 CFR 98 Mandatory Greenhouse Gas Reporting.
3. Emissions from routine or predictable start up, shut down, and maintenance must be included.
4. Report GHG mass and GHG CO_2e emissions in Table 2-P of this application. Emissions are reported in **short** tons per year and represent each emission unit's Potential to Emit (PTE).
5. All Title V major sources, PSD major sources, and all power plants, whether major or not, must calculate and report GHG mass and CO2e emissions for each unit in Table 2-P.
6. For minor source facilities that are not power plants, are not Title V, and are not PSD there are three options for reporting GHGs in Table 2-P: 1) report GHGs for each individual piece of equipment; 2) report all GHGs from a group of unit types, for example report all combustion source GHGs as a single unit and all venting GHGs as a second separate unit; 3) or check the following ☐ By checking this box, the applicant acknowledges the total CO2e emissions are less than 75,000 tons per year.

Sources for Calculating GHG Emissions:

- Manufacturer's Data
- AP-42 Compilation of Air Pollutant Emission Factors at http://www.epa.gov/ttn/chief/ap42/index.html
- EPA's Internet emission factor database WebFIRE at http://cfpub.epa.gov/webfire/
- 40 CFR 98 Mandatory Green House Gas Reporting except that tons should be reported in short tons rather than in metric tons for the purpose of PSD applicability.
- API Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry. August 2009 or most recent version.
- Sources listed on EPA's NSR Resources for Estimating GHG Emissions at http://www.epa.gov/nsr/clean-air-act-permitting-greenhouse-gases:

Global Warming Potentials (GWP):
Applicants must use the Global Warming Potentials codified in Table A-1 of the most recent version of 40 CFR 98 Mandatory Greenhouse Gas Reporting. The GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to that of one unit mass of CO_2 over a specified time period.

"Greenhouse gas" for the purpose of air permit regulations is defined as the aggregate group of the following six gases: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. **(20.2.70.7 NMAC, 20.2.74.7 NMAC).** You may also find GHGs defined in 40 CFR 86.1818-12(a).

Metric to Short Ton Conversion:
Short tons for GHGs and other regulated pollutants are the standard unit of measure for PSD and title V permitting programs. 40 CFR 98 Mandatory Greenhouse Reporting requires metric tons.
1 metric ton = 1.10231 short tons (per Table A-2 to Subpart A of Part 98 – Units of Measure Conversions)

CO_2, CH_4, and N_2O exhaust emissions were calculated using emission factors from 40 Code of Federal Regulations (CFR), Part C, Tables C-1 & C-2 and the combustion source higher heating value (HHV) design heat rates.

The SSM emissions of CO_2 and CH_4 from blowdown events were calculated from the annual blowdown volumes and gas composition.

The reciprocating compressor CO_2 and CH_4 emissions were calculated using a combination of equations W-26 & W-36 (from Subpart W).

Dehydrator CO_2 and CH_4 emissions were calculated using GRI-GLYCalc.

CO_2 and CH_4 equipment leaks emissions were calculated using the TOC emission factors and gas stream composition. CH_4 gas-driven pneumatic device emissions and non-routine emissions were calculated from the facility CH_4 gas stream composition using the emission factors and baseline CH4 content from the API Compendium, Section 5.6.1, Table 5-15. CO_2 gas-driven pneumatic device emissions and non-routine emissions were calculated from the CH_4 emissions and facility CO_2 gas stream composition.

There are no GHG emissions associated with the truck loading operations.

Green House Gas Emissions Data and Calculations

Sources	Facility Total Emissions				
	CO2, tpy	N2O, tpy	CH4, tpy	GHG, tpy	CO2e, tpy
Engine & Turbine Exhaust Emissions	30,052.26	5.66E-02	5.66E-01	30,052.32	30083.30
SSM Emissions	33.78	--	230.44	33.78	5794.67
Reciprocating Compressor Venting Emissions	68.59	--	296.29	68.59	7475.89
Dehydrator Emissions	70.30	--	18.82	70.30	540.87
Reboiler Exhaust Emissions	1,707.24	3.22E-03	3.22E-02	1,707.24	1709.00
Equipment Leak Emissions	3.55	--	15.33	3.55	386.79
Natural Gas Pneumatic Device Venting Emissions	14.72	--	63.43	14.72	1600.55
Natural Gas Driven Pneumatic Pump Venting Emissions	0.52	--	2.24	0.52	56.59
Storage Tank Emissions	0.00	--	0.00	0.00	0.00
Total	31,950.96	5.99E-02	627.15	31,951.02	47,647.65

SSM Emissions

Unit Numbers	Description	Total Gas Losses, scf/yr	CO2 Emission Factors, lb/scf	CH4 Emission Factors, lb/scf	Emission Rates		
					CO2, tpy	N2O, tpy	CH4, tpy
SSM	SSM (Eng) (1)	9,796,486	0.0058	0.0395	28.36	-	193.46
SSM	SSM (Eng) (2)	1,871,531	0.0058	0.0395	5.42	-	36.96
PR1	Pig Receiver	664	0.0058	0.0395	0.00		0.01
	Total				33.78	-	230.44

The annual blowdown volumes are calculated from data provided by Harvest
The CO2 and CH4 emission factors are calculated from the facility extended gas analysis
Emission Rates (tpy) = scf/yr x lb/scf / 2,000 lb/ton

Gas Composition - SSM & Pig Receiver (Rev.1 update)

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight Percent of Total, %	Emission Factors, lb/scf
Carbon dioxide	4.9907	44.01	2.20	12.4179	5.789E-03
Hydrogen sulfide	0.0000	34.07	0.00	`	0.000E+00
Nitrogen	0.0680	28.01	0.02	0.1077	5.020E-05
Methane	93.4224	16.04	14.98	84.7209	3.950E-02
Ethane	1.3381	30.07	0.40	2.2749	1.061E-03
Propane	0.1455	44.09	0.06	0.3627	1.691E-04
Isobutane	0.0213	58.12	0.01	0.0700	3.263E-05
n-Butane	0.0140	58.12	0.01	0.0460	2.145E-05
Isopentane	0.0000	72.15	0.00	0.0000	0.000E+00
n-Pentane	0.0000	72.15	0.00	0.0000	0.000E+00
Cyclopentane	0.0000	70.14	0.00	0.0000	0.000E+00
n-Hexane	0.0000	86.17	0.00	0.0000	0.000E+00
Cyclohexane	0.0000	84.16	0.00	0.0000	0.000E+00
Other hexanes	0.0000	86.18	0.00	0.0000	0.000E+00
Heptanes	0.0000	100.20	0.00	0.0000	0.000E+00
Methylcyclohexane	0.0000	98.19	0.00	0.0000	0.000E+00
2,2,4-Trimethylpentane	0.0000	100.21	0.00	0.0000	0.000E+00
Benzene	0.0000	78.11	0.00	0.0000	0.000E+00
Toluene	0.0000	92.14	0.00	0.0000	0.000E+00
Ethylbenzene	0.0000	106.17	0.00	0.0000	0.000E+00
Xylenes	0.0000	106.17	0.00	0.0000	0.000E+00
C8+ Heavies	0.0000	110.00	0.00	0.0000	0.000E+00
Total	100.0000		17.69	100.0000	
Total VOC			0.08	--	2.232E-04

Gas stream composition obtained from the Rosa #1 CDP extended gas analysis dated Sept 18, 2019.
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

Green House Gas Emissions Data and Calculations

Sources	Facility Total Emissions				
	CO2, tpy	N2O, tpy	CH4, tpy	GHG, tpy	CO2e, tpy
Engine & Turbine Exhaust Emissions	30,052.26	5.66E-02	5.66E-01	30,052.32	30083.30
SSM Emissions	69.46	--	299.58	69.46	7558.86
Reciprocating Compressor Venting Emissions	68.59	--	296.29	68.59	7475.89
Dehydrator Emissions	70.30	--	18.82	70.30	540.87
Reboiler Exhaust Emissions	1,707.24	3.22E-03	3.22E-02	1,707.24	1709.00
Equipment Leak Emissions	3.55	--	15.33	3.55	386.79
Natural Gas Pneumatic Device Venting Emissions	14.72	--	63.43	14.72	1600.55
Natural Gas Driven Pneumatic Pump Venting Emissions	0.52	--	2.24	0.52	56.59
Malfunction Emissions	579.93	--	2501.17	579.93	63109.10
Storage Tank Emissions	0.00	--	0.00	0.00	0.00
Total	32,566.57	5.99E-02	3,197.46	32,566.63	112,520.95

Engine & Turbine Exhaust Emissions

Unit Numbers	Description	Emission Factors			Emission Rates		
		CO2, kg/MMBtu	N2O, kg/MMBtu	CH4, kg/MMBtu	CO2, tpy	N2O, tpy	CH4, tpy
1	7042GL engine	53.06	1.00E-04	1.00E-03	6,010.45	1.13E-02	1.13E-01
2	7042GL engine	53.06	1.00E-04	1.00E-03	6,010.45	1.13E-02	1.13E-01
4	7042GL engine	53.06	1.00E-04	1.00E-03	6,010.45	1.13E-02	1.13E-01
5	7042GL engine	53.06	1.00E-04	1.00E-03	6,010.45	1.13E-02	1.13E-01
6	7042GL engine	53.06	1.00E-04	1.00E-03	6,010.45	1.13E-02	1.13E-01
	Total				30,052.26	5.66E-02	0.57

The emissions factors are taken from 40 CFR 98, Subpart C, Tables C-1 & C-2
Emission Rates (tpy) = kg/MMBtu x 2.2 lb/kg x MMBtu/yr / 2,000 lb/ton

Unit Numbers	Description	Fuel Types	Operating Times, hr/yr	LHV Design Heat Rates, MMBtu/hr	HHV	
					Design Heat Rates, MMBtu/hr	Fuel Usages, MMBtu/yr
1	7042GL engine	Nat. Gas	8,760	10.58	11.76	102,979
2	7042GL engine	Nat. Gas	8,760	10.58	11.76	102,979
4	7042GL engine	Nat. Gas	8,760	10.58	11.76	102,979
5	7042GL engine	Nat. Gas	8,760	10.58	11.76	102,979
6	7042GL engine	Nat. Gas	8,760	10.58	11.76	102,979

The fuel types and operating times are provided by Harvest
The LHV design heat rates are taken from manufacturers data
HHV Design Heat Rates (MMBtu/hr) = LHV Design Heat Rates (MMBtu/hr) / 0.9 LHV/HHV
HHV Fuel Usages (MMBtu/yr) = HHV Design Heat Rates (MMBtu/hr) x hr/yr

Green House Gas Emissions Data and Calculations

Dehydrator Emissions

Unit Numbers	Description	Emission Rates		
		CO2, tpy	N2O, tpy	CH4, tpy
3a	Dehydrator (20 mmscfd)	29.83	-	1.11
9a	Dehydrator (20 mmscfd)	29.83	-	1.11
12a	Dehydrator (4 mmscfd)	10.64	-	16.59
	Total	70.30	-	18.82

The unit 3a & 9a emission rates are taken from the GRI-GLYCalc output file for the June 2016 application in support of Operating Permit P026-R3.
The unit 12a fuel gas dehy emission rates are taken from the GRI-GLYCalc output file using the May 1, 2020 gas sample and no flash tank.

Reboiler Exhaust Emissions

Unit Numbers	Description	Emission Factors			Emission Rates		
		CO2, kg/MMBtu	N2O, kg/MMBtu	CH4, kg/MMBtu	CO2, tpy	N2O, tpy	CH4, tpy
3b	Reboiler (1468 scfh)	53.06	1.00E-04	1.00E-03	842.60	1.59E-03	1.59E-02
9b	Reboiler (1468 scfh)	53.06	1.00E-04	1.00E-03	842.60	1.59E-03	1.59E-02
12b	Reboiler (43.1 scfh)	53.06	1.00E-04	1.00E-03	22.04	4.15E-05	4.15E-04
	Total				1,707.24	3.22E-03	3.22E-02

The emissions factors are taken from 40 CFR 98, Subpart C, Tables C-1 & C-2
Emission Rates (tpy) = kg/MMBtu x 2.2 lb/kg x MMBtu/yr / 2,000 lb/ton

Unit Numbers	Description	Fuel Types	Operating Times hr/yr	LHV			HHV	
				Fuel Usages, scf/hr	Fuel Heat Contents, Btu/scf	Fuel Usages, MMBtu/hr	Fuel Usages, MMBtu/hr	Fuel Usages, MMBtu/yr
3b	Reboiler (1648 scfh)	Nat. Gas	8,760	1,648	900	1.48	1.65	14,436
9b	Reboiler (1648 scfh)	Nat. Gas	8,760	1,648	900	1.48	1.65	14,436
12b	Reboiler (43.1 scfh)	Nat. Gas	8,760	43.1	900	0.04	0.04	378

The fuel types and operating times are provided by Harvest
The LHV fuel usages (scf/hr) are taken from manufacturer's data
The LHV fuel heat contents are estimated based on the value typically used by manufacturers
LHV Fuel Usages (MMBtu/hr) = LHV Fuel Usages (scf/hr) x Btu/scf / 1,000,000 Btu/MMBtu
HHV Fuel Usages (MMBtu/hr) = LHV Fuel Usages (MMBtu/hr) / 0.9 LHV/HHV
HHV Fuel Usages (MMBtu/yr) = HHV Fuel Usages (MMBtu/hr) x hr/yr

Green House Gas Emissions Data and Calculations

Equipment Leaks Emissions

Unit Numbers	Description	Emission Rates		
		CO2, tpy	N2O, tpy	CH4, tpy
NA	Valves	2.6	-	11.4
NA	Connectors	0.4	-	1.6
NA	Open-Ended Lines	0.2	-	0.8
NA	Pressure Relief Valves	0.3	-	1.5
	Total	3.5	-	15.3

A combination of equations W-31 & W-36 (Subpart W) is used to calculate uncombusted CO2 & CH4 emissions
As the NMED requires CO2 & CH4 emissions rather than CO2e emissions, it is not necessary to include the global warming potential from equation W-36
CO2 Emission Rate (tpy) = # x scf/hr/component x (CO2 Content (mole %) / 100) x hr/yr x CO2 Density (kg/scf) x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne
CH4 Emission Rate (tpy) = # x scf/hr/component x (CH4 Content (mole %) / 100) x hr/yr x CH4 Density (kg/scf) x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne

Unit Numbers	Description	Number of Components, #	Emission Factors, scf/hr /component	CO2 Contents, mole %	CH4 Contents, mole %	Operating Times, hr/yr	CO2 Density, kg/scf	CH4 Density, kg/scf
NA	Valves	558	0.121	7.70	91.14	8,760	0.0526	0.0192
NA	Connectors	551	0.017	7.70	91.14	8,760	0.0526	0.0192
NA	Open-Ended Lines	160	0.031	7.70	91.14	8,760	0.0526	0.0192
NA	Pressure Relief Valves	46	0.193	7.70	91.14	8,760	0.0526	0.0192

The number of sources are calculated based on the number of compressors and dehydrators at the station (see criteria pollutant and HAP equipment leaks calculations)
The emission factors are taken from Subpart W, Table W-1A (Western U.S. - Gas Service)
The facility CO2 and CH4 contents are taken from the facility extended gas analysis
The operating times are provided by Harvest (default is the entire year)
The CO2 & CH4 densities are taken from Subpart W, Paragraph 98.233(v)

Natural Gas Pneumatic Device Venting Emissions

Unit Numbers	Description	Number of Devices, #	Emission Factors, scf/hr/device	Operating Times, hr/yr	Emission Rates		
					CO2, tpy	N2O, tpy	CH4, tpy
NA	Continuous High Bleed Pneumatic Devices	1	37.3	8,760	1.46	-	6.29
NA	Intermittent Bleed Pneumatic Devices	25	13.5	8,760	13.21	-	56.91
NA	Continuous Low Bleed Pneumatic Devices	1	1.39	8,760	0.05	-	0.23
	Total				14.72	-	63.43

The number of devices are provided by Harvest
The emission factors are taken from Subpart W, Table W-1A (Western U.S. - Gas Service)
The operating times are provided by Harvest
Equation W-1 (Subpart W) is used to calculate CO2 & CH4 emissions
As the NMED requires CO2 & CH4 emissions in addition to CO2e emissions, it is necessary to divide by the global warming potentials
CO2 Emission Rates (tpy) = # x scf/hr/device x (CO2 Content (mole %) / 100) x CO2 Conversion Factors (tonne CO2e/scf) x hr/yr x (2,204.6 lb/tonne / 2,000 lb/ton) / CO2 Global Warming Potentials (tonne CO2e/tonne CO2)
CH4 Emission Rates (tpy) = # x scf/hr/device x (CH4 Contents (mole %) / 100) x CH4 Conversion Factors (tonne CO2e/scf) x hr/yr x (2,204.6 lb/tonne / 2,000 lb/ton) / CH4 Global Warming Potentials (tonne CO2e/tonne CH4)

Unit Numbers	Description	CO2 Contents, mole %	CH4 Contents, mole %	CO2 Conversion Factors, tonne CO2e /scf	CH4 Conversion Factors, tonne CO2e /scf	CO2 Global Warming Potentials, tonne CO2e /tonne CO2	CH4 Global Warming Potentials, tonne CO2e /tonne CH4
NA	Continuous High Bleed Pneumatic Devices	7.70	91.14	5.262E-05	4.790E-04	1	25
NA	Continuous Low Bleed Pneumatic Devices	7.70	91.14	5.262E-05	4.790E-04	1	25
NA	Intermittent Bleed Pneumatic Devices	7.70	91.14	5.262E-05	4.790E-04	1	25

The facility CO2 and CH4 contents are taken from the facility extended gas analysis
The conversion factors are taken from Subpart W, Paragraph 98.233(a)
The global warming potentials are taken from 40 CFR Part 98, Table A-1

Green House Gas Emissions Data and Calculations

Gas Stream Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight Percent of Total, %	Emission Factors, lb/scf
Carbon Dioxide	7.7018	44.01	3.39	18.4429	0.0089
Hydrogen Sulfide	0.0000	34.07	0.00	0.0000	0.0000
Nitrogen	0.0635	28.01	0.02	0.0968	0.0000
Methane	91.1400	16.04	14.62	79.5426	0.0385
Ethane	0.9777	30.07	0.29	1.5997	0.0008
Propane	0.0847	44.09	0.04	0.2032	0.0001
IsoButane	0.0133	58.12	0.01	0.0421	0.0000
Normal Butane	0.0098	58.12	0.01	0.0310	0.0000
IsoPentane	0.0031	72.15	0.00	0.0122	0.0000
Normal Pentane	0.0000	72.15	0.00	0.0000	0.0000
Cyclopentane	0.0002	70.14	0.00	0.0008	0.0000
n-Hexane	0.0008	86.17	0.00	0.0038	0.0000
Cyclohexane	0.0003	84.16	0.00	0.0014	0.0000
Other Hexanes	0.0017	86.18	0.00	0.0080	0.0000
Heptanes	0.0005	100.20	0.00	0.0027	0.0000
Methylcyclohexane	0.0007	98.19	0.00	0.0037	0.0000
2,2,4-Trimethylpentane	0.0000	100.21	0.00	0.0000	0.0000
Benzene	0.0008	78.11	0.00	0.0034	0.0000
Toluene	0.0007	92.14	0.00	0.0035	0.0000
Ethylbenzene	0.0000	106.17	0.00	0.0000	0.0000
Xylenes	0.0001	106.17	0.00	0.0006	0.0000
C8+ heavies	0.0003	110.00	0.00	0.0018	0.0000
Total	100.0000		18.38	100.0000	0.0484
VOC			0.06	--	0.0002

Gas stream composition obtained from the Rosa #1 CDP extended gas analysis dated June 22, 2021.
Component Weights (lb/lb-mole) = [Mole Percents (%) / 100] x Molecular Weights (lb/lb-mole)
Weight Percent of Total (%) = 100 x Component Weights (lb/lb-mole) / Total Component Weight (lb/lb-mole)
Emission Factors (lb/scf) = [Mole Percents (%) / 100] x Molecular Weights (lb/lb-mole) / 379.4 scf/lb-mole

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Section 7

Information Used To Determine Emissions

Information Used to Determine Emissions shall include the following:

- [X] If manufacturer data are used, include specifications for emissions units and control equipment, including control efficiencies specifications and sufficient engineering data for verification of control equipment operation, including design drawings, test reports, and design parameters that affect normal operation.
- [ ] If test data are used, include a copy of the complete test report. If the test data are for an emissions unit other than the one being permitted, the emission units must be identical. Test data may not be used if any difference in operating conditions of the unit being permitted and the unit represented in the test report significantly effect emission rates.
- [X] If the most current copy of AP-42 is used, reference the section and date located at the bottom of the page. Include a copy of the page containing the emissions factors, and clearly mark the factors used in the calculations.
- [ ] If an older version of AP-42 is used, include a complete copy of the section.
- [X] If an EPA document or other material is referenced, include a complete copy.
- [X] Fuel specifications sheet.
- [X] If computer models are used to estimate emissions, include an input summary (if available) and a detailed report, and a disk containing the input file(s) used to run the model. For tank-flashing emissions, include a discussion of the method used to estimate tank-flashing emissions, relative thresholds (i.e., permit or major source (NSPS, PSD or Title V)), accuracy of the model, the input and output from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis.

Description:	Rosa #1 CDP	Company:	HARVEST MIDSTREAM
Field:		WorkOrder:	
Meter Number:		GPA Method:	GPA 2286
Analysis Date/Time:	9/23/2019 3:51:50	Sampled By:	Jason Cassady
Date Sampled:	9/18/2019	Analyst Initials:	PK
Sample Temperature:	94	Instrument:	SRI 8610
Sample Pressure:	685		

GRI GlyCalc Information

Component	Mol%	Normalized Weight %
Carbon Dioxide	4.9907	12.4159
Hydrogen Sulfide	N/R	0
Nitrogen	0.068	0.1077
Methane	93.4224	84.7232
Ethane	1.3381	2.2745
Propane	0.1455	0.3627
Iso-Butane	0.0213	0.07
n-Butane	0.014	0.046
Iso-Pentane	0	0
n-Pentane	0	0
Cyclopentane	0	0
n-Hexane	0	0
Cyclohexane	0	0
Other Hexanes	0	0
Heptanes	0	0
Methylcyclohexane	0	0
2 2 4 Trimethylpentane	0	0
Benzene	0	0
Toluene	0	0
Ethylbenzene	0	0
Xylenes	0	0
C8+ Heavies	0	0
Subtotal	100	
Oxygen	N/R	
Subtotal	100	100

Calculated Molecular Weight	17.6903

Table 1 – ATGL EMISSION LEVELS‡

MODEL	CARBURETOR SETTING	GRAMS/BHP-HR				% OBSERVED DRY		MASS AFR[2]	VOLUME AFR[2]	EXCESS AIR RATIO
		NOx[1]	CO	NMHC[4]	THC	CO	O_2			
AT25GL	Standard	1.0	2.25	1.0	8.0	0.06	9.8	28.0:1	16.8:1	1.74
AT27GL	Standard	1.5	1.7	0.50	5.0	0.06	9.8	28.0:1	16.8:1	1.74
	Ultra Lean	1.25	1.5	0.40	3.5	0.05	11.2	32.0:1	19.2:1	2.00

‡ These AT-GL emission levels are based on 900 – 1000 rpm operation. For information at all other speeds contact Waukesha's Sales Engineering Department.

Table 2 – VHP EMISSION LEVELS

MODEL	CARBURETOR SETTING	GRAMS/BHP-HR				% OBSERVED DRY		MASS AFR[2]	VOLUME AFR[2]	EXCESS AIR RATIO
		NOX[1]	CO	NMHC[4]	THC	CO	O_2			
G, GSI	Lowest Manifold (Best Power)	8.5	32.0	0.35	2.3	1.15	0.30	15.5:1	9.3:1	0.97
	Equal NOx & CO	12.0	12.0	0.35	2.3	0.45	0.30	15.9:1	9.6:1	0.99
	Catalytic Conv. Input (3-way[3])	13.0	9.0	0.30	2.0	0.38	0.30	15.95:1	9.6:1	0.99
	Standard (Best Economy)	22.0	1.5	0.25	1.5	0.02	1.35	17.0:1	10.2:1	1.06
F3524GSI L7044GSI	Equal NOx & CO	14.0	14.0	0.25	1.1	0.45	0.30	15.85:1	9.5:1	0.99
	Catalytic Conv. Input (3-way[3])	15.0	13.0	0.20	1.0	0.38	0.30	15.95:1	9.6:1	0.99
	Standard (Best Economy)	23.0	2.0	0.20	0.8	0.02	1.35	17.0:1	10.2:1	1.06
L5794GSI	Equal NOx & CO	13.5	13.5	0.45	3.0	0.45	0.30	15.85:1	9.5:1	0.99
	Catalytic Conv. Input (3-way[3])	14.5	11.0	0.45	2.9	0.38	0.30	15.95:1	9.6:1	0.99
	Standard (Best Economy)	22.0	3.0	0.35	2.4	0.02	1.35	17.0:1	10.2:1	1.06
GL	Standard	1.5	2.65	1.0	5.5	0.06	9.8	28.0:1	16.8:1	1.74
L5774LT#	Standard	2.6	2.0	0.60	4.0	0.04	8.0	24.7:1	14.8:1	1.54
L5794LT#	Standard	2.6	2.0	0.60	4.0	0.04	7.8	24.5:1	14.7:1	1.52

L5774LT and L5794LT emission levels are based on 1000 – 1200 rpm operation. For information at all other speeds contact Waukesha's Sales Engineering Department.

NOTE:

The above tables indicate emission levels that are valid for new engines for the duration of the standard warranty period and are attainable by an engine in good operating condition running on commercial quality natural gas of 900 BTU/ft^3 (35.38 MJ/m^3 [25, V(0; 101.325)]) SLHV, Waukesha Knock Index of 91 or higher, 93% methane content by volume, and at ISO standard conditions. Emissions are based on standard engine timing at 91 WKI® with an absolute humidity of 42 grains/lb. Refer to engine specific WKI® Power & Timing curves for standard timing. Unless otherwise noted, these emission levels can be achieved across the continuous duty speed range and from 75% to 110% of the ISO Standard Power (continuous duty) rating. ***Contact the local Waukesha representative or Waukesha's Sales Engineering Department for emission values which can be obtained on a case-by-case basis for specific ratings, fuels, and site conditions.***

Table 3.2-2. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE LEAN-BURN ENGINES[a]
(SCC 2-02-002-54)

Pollutant	Emission Factor (lb/MMBtu)[b] (fuel input)	Emission Factor Rating
Criteria Pollutants and Greenhouse Gases		
NO_x[c] 90 - 105% Load	4.08 E+00	B
NO_x[c] <90% Load	8.47 E-01	B
CO[c] 90 - 105% Load	3.17 E-01	C
CO[c] <90% Load	5.57 E-01	B
CO_2[d]	1.10 E+02	A
SO_2[e]	5.88 E-04	A
TOC[f]	1.47 E+00	A
Methane[g]	1.25 E+00	C
VOC[h]	1.18 E-01	C
PM10 (filterable)[i]	7.71 E-05	D
PM2.5 (filterable)[i]	7.71 E-05	D
PM Condensable[j]	9.91 E-03	D
Trace Organic Compounds		
1,1,2,2-Tetrachloroethane[k]	<4.00 E-05	E
1,1,2-Trichloroethane[k]	<3.18 E-05	E
1,1-Dichloroethane	<2.36 E-05	E
1,2,3-Trimethylbenzene	2.30 E-05	D
1,2,4-Trimethylbenzene	1.43 E-05	C
1,2-Dichloroethane	<2.36 E-05	E
1,2-Dichloropropane	<2.69 E-05	E
1,3,5-Trimethylbenzene	3.38 E-05	D
1,3-Butadiene[k]	2.67E-04	D
1,3-Dichloropropene[k]	<2.64 E-05	E
2-Methylnaphthalene[k]	3.32 E-05	C
2,2,4-Trimethylpentane[k]	2.50 E-04	C
Acenaphthene[k]	1.25 E-06	C

TABLE 1.4-2. EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM NATURAL GAS COMBUSTION[a]

Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
CO_2[b]	120,000	A
Lead	0.0005	D
N_2O (Uncontrolled)	2.2	E
N_2O (Controlled-low-NO_X burner)	0.64	E
PM (Total)[c]	7.6	D
PM (Condensable)[c]	5.7	D
PM (Filterable)[c]	1.9	B
SO_2[d]	0.6	A
TOC	11	B
Methane	2.3	B
VOC	5.5	C

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. To convert from $lb/10^6$ scf to 1b/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. TOC = Total Organic Compounds. VOC = Volatile Organic Compounds.

[b] Based on approximately 100% conversion of fuel carbon to CO_2. $CO_2[lb/10^6 \text{ scf}] = (3.67)(CON)(C)(D)$, where CON = fractional conversion of fuel carbon to CO_2, C = carbon content of fuel by weight (0.76), and D = density of fuel, 4.2×10^4 $lb/10^6$ scf.

[c] All PM (total, condensible, and filterable) is assumed to be less than 1.0 micrometer in diameter. Therefore, the PM emission factors presented here may be used to estimate PM_{10}, $PM_{2.5}$ or PM_1 emissions. Total PM is the sum of the filterable PM and condensible PM. Condensible PM is the particulate matter collected using EPA Method 202 (or equivalent). Filterable PM is the particulate matter collected on, or prior to, the filter of an EPA Method 5 (or equivalent) sampling train.

[d] Based on 100% conversion of fuel sulfur to SO_2. Assumes sulfur content is natural gas of 2,000 grains/10^6 scf. The SO_2 emission factor in this table can be converted to other natural gas sulfur contents by multiplying the SO_2 emission factor by the ratio of the site-specific sulfur content (grains/10^6 scf) to 2,000 grains/10^6 scf.

Extended Gas Analysis

Gas Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Emission Factors, lb/scf
Carbon dioxide	7.7018	44.01	8.934E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.0635	28.01	4.688E-05
Methane	91.1400	16.04	3.853E-02
Ethane	0.9777	30.07	7.749E-04
Propane	0.0847	44.09	9.843E-05
Isobutane	0.0133	58.12	2.037E-05
n-Butane	0.0098	58.12	1.501E-05
Isopentane	0.0031	72.15	5.895E-06
n-Pentane	0.0000	72.15	0.000E+00
Cyclopentane	0.0002	70.14	3.697E-07
n-Hexane	0.0008	86.17	1.817E-06
Cyclohexane	0.0003	84.16	6.655E-07
Other hexanes	0.0017	86.18	3.862E-06
Heptanes	0.0005	100.20	1.321E-06
Methylcyclohexane	0.0007	98.19	1.812E-06
2,2,4-Trimethylpentane	0.0000	100.21	0.000E+00
Benzene	0.0008	78.11	1.647E-06
Toluene	0.0007	92.14	1.700E-06
Ethylbenzene	0.0000	106.17	0.000E+00
Xylenes	0.0001	106.17	2.798E-07
C8+ Heavies	0.0003	110.00	8.698E-07
Total	100.0000		
Total VOC			1.541E-04

Gas stream composition obtained from the Rosa #1 CDP extended gas analysis dated June 22, 2021.
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

2030 Afton Place
Farmington, NM 87401
(505) 325-6622

Analysis No: HM2021059
Cust No: 33700-10340

Well/Lease Information

Customer Name:	HARVEST MIDSTREAM	Source:	Station Discharge
Well Name:	Rosa #1 CDP	Well Flowing:	
County/State:	San Juan NM	Pressure:	225 PSIG
Location:		Flow Temp:	107 DEG. F
Lease/PA/CA:		Ambient Temp:	94 DEG. F
Formation:		Flow Rate:	12 MCF/D
Cust. Stn. No.:		Sample Method:	Purge & Fill
		Sample Date:	06/22/2021
		Sample Time:	1.15 PM
		Sampled By:	DANIEL LOVATO
Heat Trace:		Sampled by (CO):	Harvest
Remarks:	Calculated Molecular Weight = 18.3817		

Analysis

Component:	Mole%:	Unormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.0635	0.0624	0.0070	0.00	0.0006
CO2	7.7018	7.5632	1.3170	0.00	0.1170
Methane	91.1400	89.5003	15.4830	920.51	0.5048
Ethane	0.9777	0.9601	0.2620	17.30	0.0102
Propane	0.0847	0.0832	0.0230	2.13	0.0013
Iso-Butane	0.0133	0.0131	0.0040	0.43	0.0003
N-Butane	0.0098	0.0096	0.0030	0.32	0.0002
Neopentane 2,2 dmc3	0.0000	0.0000	0.0000	0.00	0.0000
I-Pentane	0.0031	0.0030	0.0010	0.12	0.0001
N-Pentane	0.0000	0.0000	0.0000	0.00	0.0000
Neohexane	0.0002	N/R	0.0000	0.01	0.0000
2-3-Dimethylbutane	0.0001	N/R	0.0000	0.00	0.0000
Cyclopentane	0.0002	N/R	0.0000	0.01	0.0000
2-Methylpentane	0.0010	N/R	0.0000	0.05	0.0000
3-Methylpentane	0.0000	N/R	0.0000	0.00	0.0000
C6	0.0008	0.0060	0.0000	0.04	0.0000
Methylcyclopentane	0.0004	N/R	0.0000	0.02	0.0000
Benzene	0.0008	N/R	0.0000	0.03	0.0000
Cyclohexane	0.0003	N/R	0.0000	0.01	0.0000
2-Methylhexane	0.0000	N/R	0.0000	0.00	0.0000
3-Methylhexane	0.0000	N/R	0.0000	0.00	0.0000
2-2-4-Trimethylpentane	0.0000	N/R	0.0000	0.00	0.0000
i-heptanes	0.0001	N/R	0.0000	0.01	0.0000
Heptane	0.0004	N/R	0.0000	0.02	0.0000

Methylcyclohexane	0.0007	N/R	0.0000	0.04	0.0000
Toluene	0.0007	N/R	0.0000	0.03	0.0000
2-Methylheptane	0.0000	N/R	0.0000	0.00	0.0000
4-Methylheptane	0.0001	N/R	0.0000	0.01	0.0000
i-Octanes	0.0000	N/R	0.0000	0.00	0.0000
Octane	0.0002	N/R	0.0000	0.01	0.0000
Ethylbenzene	0.0000	N/R	0.0000	0.00	0.0000
m, p Xylene	0.0001	N/R	0.0000	0.01	0.0000
o Xylene (& 2,2,4 tmc7)	0.0000	N/R	0.0000	0.00	0.0000
i-C9	0.0000	N/R	0.0000	0.00	0.0000
C9	0.0000	N/R	0.0000	0.00	0.0000
i-C10	0.0000	N/R	0.0000	0.00	0.0000
C10	0.0000	N/R	0.0000	0.00	0.0000
i-C11	0.0000	N/R	0.0000	0.00	0.0000
C11	0.0000	N/R	0.0000	0.00	0.0000
C12P	0.0000	N/R	0.0000	0.00	0.0000
Total	100.00	98.201	17.100	941.11	0.6346

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY
**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBLITY FACTOR (1/Z):	1.0023	CYLINDER #:	206
BTU/CU.FT IDEAL:	943.3	CYLINDER PRESSURE:	225 PSIG
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	945.4	ANALYSIS DATE:	07/07/2021
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	929.0	ANALYIS TIME:	02:52:59 AM
DRY BTU @ 15.025:	964.3	ANALYSIS RUN BY:	PATRICIA KING
REAL SPECIFIC GRAVITY:	0.6358		

GPM, BTU, and SPG calculations as shown above are based on current GPA constants.
GPA Standard: GPA 2286-14
GC: SRI Instruments 8610 **Last Cal/Verify: 07/08/2021**
GC Method: C12+BTEX Gas

Oil and Gas
Production Equipment
S. Enertek, Inc.
4901 East Main Street
Farmington, NM 87401
505/326-1151
FAX: 505/325-0317

ENERTEK

VIA FACSIMILE
Fax No. (801) 584-7760
Pages: 1

August 19, 1994

Mr. Lee Batteria
Williams Field Services
Salt Lake City, UT

The following table shows the stack emissions at maximum firing conditions for the dehydrators noted:

Dehydrator	NO_x #/Day	CO #/Day	Fuel SCFH	Total Stack Gases ACFH	Stack Ht. Ft	Stack Dia Inches	Stack Temp F	Stack Velocity FPS
J2P10M11109	0.86	0.17	357	10010	18'-8"	8	600	5.1
J2P10M749	1.03	0.21	429	12012	19'-1"	10	600	6.1
J2P12M11109	0.86	0.17	357	10010	18'-8"	8	600	5.1
J2P12M749	1.03	0.21	429	12012	19'-1"	10	600	6.1
J2P20M11109	1.03	0.21	429	12012	19'-1"	10	600	6.1

Please call me if you need additional information.

Sincerely,

Frosty Heath

FH/nb

InFab
INDUSTRIAL FABRICATION

5928 U.S. Highway 64
Farmington, NM 87401

Office: (505)632-2200
Fax: (505)632-8070

July 22, 1998

Mr. Bobby Myers
Williams Field Services
Environmental Affairs
295 Chipeta Way
P O Box 58900
Salt Lake City, UT 84158-0900

The table shown below gives the stack emissions for our larger dehydrators:

Unit Description	SO lb/day	NO_x lb/ Day	CO lb/ Day	Fuel SCFH	Total Organic Comp. Lb/d	Stack Ht. Ft.	Stack Dia inches	Stack Temp °F	Stack Velocity
10 MM LP	.01	.27	.43	659	.13	10'	8	600	5.1
10 MM HP	.01	.27	.43	659	.13	10'	10	600	6.1
12 MM LP	.02	.49	.78	1208	.23	10'	8	600	5.1
12 MM HP	.02	.49	.78	1208	.23	10'	10	600	6.1
15 MM	.02	.54	.85	1318	.25	10'	8	600	5.1
20 MM LP	.02	.67	1.07	1648	.31	10'	8	600	5.1
20 MM HP	.02	.67	1.07	1648	.31	10'	12	600	6.1

If you need any additional information please call me.

Sincerely,

Darby West
VP Engineering

EPA-453/R-95-017

1995 Protocol for Equipment Leak Emission Estimates

Emission Standards Division

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

November 1995

TABLE 2-4. OIL AND GAS PRODUCTION OPERATIONS AVERAGE EMISSION FACTORS (kg/hr/source)

Equipment Type	Service[a]	Emission Factor (kg/hr/source)[b]
Valves	Gas	4.5E-03
	Heavy Oil	8.4E-06
	Light Oil	2.5E-03
	Water/Oil	9.8E-05
Pump seals	Gas	2.4E-03
	Heavy Oil	NA
	Light Oil	1.3E-02
	Water/Oil	2.4E-05
Others[c]	Gas	8.8E-03
	Heavy Oil	3.2E-05
	Light Oil	7.5E-03
	Water/Oil	1.4E-02
Connectors	Gas	2.0E-04
	Heavy Oil	7.5E-06
	Light Oil	2.1E-04
	Water/Oil	1.1E-04
Flanges	Gas	3.9E-04
	Heavy Oil	3.9E-07
	Light Oil	1.1E-04
	Water/Oil	2.9E-06
Open-ended lines	Gas	2.0E-03
	Heavy Oil	1.4E-04
	Light Oil	1.4E-03
	Water/Oil	2.5E-04

[a]Water/Oil emission factors apply to water streams in oil service with a water content greater than 50%, from the point of origin to the point where the water content reaches 99%. For water streams with a water content greater than 99%, the emission rate is considered negligible.

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

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

loading operation, resulting in high levels of vapor generation and loss. If the turbulence is great enough, liquid droplets will be entrained in the vented vapors.

A second method of loading is submerged loading. Two types are the submerged fill pipe method and the bottom loading method. In the submerged fill pipe method, the fill pipe extends almost to the bottom of the cargo tank. In the bottom loading method, a permanent fill pipe is attached to the cargo tank bottom. During most of submerged loading by both methods, the fill pipe opening is below the liquid surface level. Liquid turbulence is controlled significantly during submerged loading, resulting in much lower vapor generation than encountered during splash loading.

The recent loading history of a cargo carrier is just as important a factor in loading losses as the method of loading. If the carrier has carried a nonvolatile liquid such as fuel oil, or has just been cleaned, it will contain vapor-free air. If it has just carried gasoline and has not been vented, the air in the carrier tank will contain volatile organic vapors, which will be expelled during the loading operation along with newly generated vapors.

Cargo carriers are sometimes designated to transport only one product, and in such cases are practicing "dedicated service". Dedicated gasoline cargo tanks return to a loading terminal containing air fully or partially saturated with vapor from the previous load. Cargo tanks may also be "switch loaded" with various products, so that a nonvolatile product being loaded may expel the vapors remaining from a previous load of a volatile product such as gasoline. These circumstances vary with the type of cargo tank and with the ownership of the carrier, the petroleum liquids being transported, geographic location, and season of the year.

One control measure for vapors displaced during liquid loading is called "vapor balance service", in which the cargo tank retrieves the vapors displaced during product unloading at bulk plants or service stations and transports the vapors back to the loading terminal. Figure 5.2-5 shows a tank truck in vapor balance service filling a service station underground tank and taking on displaced gasoline vapors for return to the terminal. A cargo tank returning to a bulk terminal in vapor balance service normally is saturated with organic vapors, and the presence of these vapors at the start of submerged loading of the tanker truck results in greater loading losses than encountered during nonvapor balance, or "normal", service. Vapor balance service is usually not practiced with marine vessels, although some vessels practice emission control by means of vapor transfer within their own cargo tanks during ballasting operations, discussed below.

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

$$L_L = 12.46 \frac{SPM}{T} \quad (1)$$

where:

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

S = a saturation factor (see Table 5.2-1)
P = true vapor pressure of liquid loaded, pounds per square inch absolute (psia) (see Figure 7.1-5, Figure 7.1-6, and Table 7.1-2)
M = molecular weight of vapors, pounds per pound-mole (lb/lb-mole) (see Table 7.1-2)
T = temperature of bulk liquid loaded, °R (°F + 460)

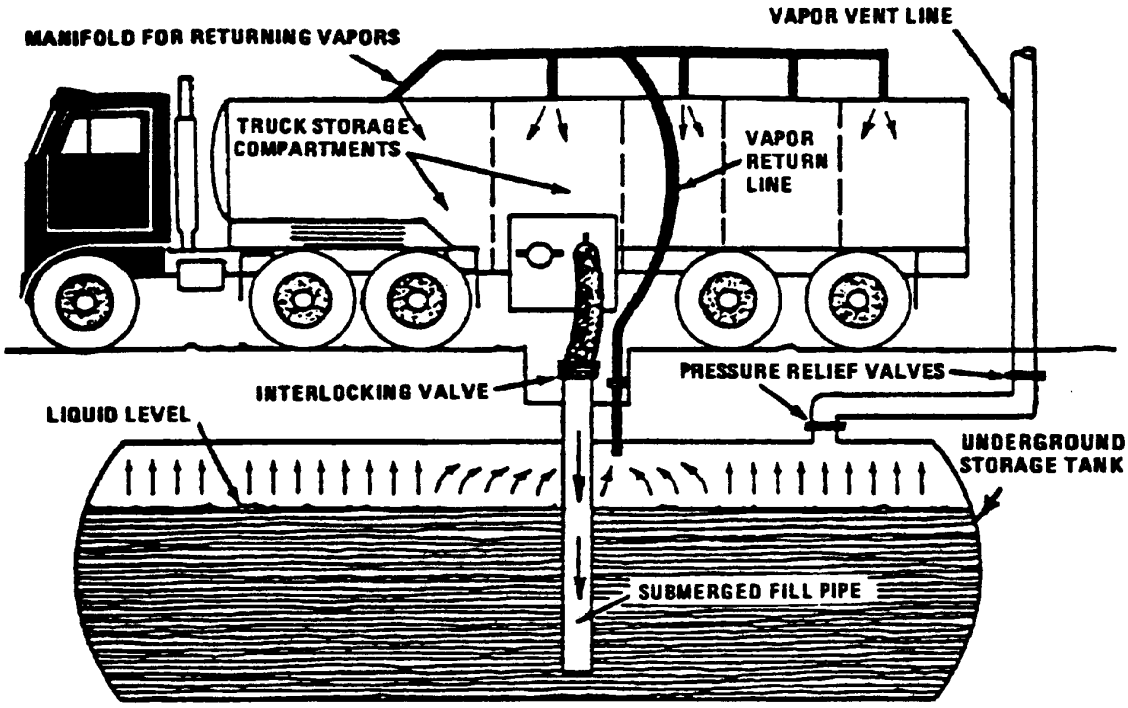

Figure 5.2-5. Tank truck unloading into a service station underground storage tank and practicing "vapor balance" form of emission control.

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

Cargo Carrier	Mode Of Operation	S Factor
Tank trucks and rail tank cars	Submerged loading of a clean cargo tank	0.50
	Submerged loading: dedicated normal service	0.60
	Submerged loading: dedicated vapor balance service	1.00
	Splash loading of a clean cargo tank	1.45
	Splash loading: dedicated normal service	1.45
	Splash loading: dedicated vapor balance service	1.00
Marine vessels[a]	Submerged loading: ships	0.2
	Submerged loading: barges	0.5

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

Table A–1 to Subpart A of Part 98—Global Warming Potentials

[100-Year Time Horizon]

Name	CAS No.	Chemical formula	Global warming potential (100 yr.)
Carbon dioxide	124–38–9	CO_2	1
Methane	74–82–8	CH_4	[a] 25
Nitrous oxide	10024–97–2	N_2O	[a] 298
HFC–23	75–46–7	CHF_3	[a] 14,800
HFC–32	75–10–5	CH_2F_2	[a] 675
HFC–41	593–53–3	CH_3F	[a] 92
HFC–125	354–33–6	C_2HF_5	[a] 3,500
HFC–134	359–35–3	$C_2H_2F_4$	[a] 1,100
HFC–134a	811–97–2	CH_2FCF_3	[a] 1,430
HFC–143	430–66–0	$C_2H_3F_3$	[a] 353
HFC–143a	420–46–2	$C_2H_3F_3$	[a] 4,470
HFC–152	624–72–6	CH_2FCH_2F	53
HFC–152a	75–37–6	CH_3CHF_2	[a] 124
HFC–161	353–36–6	CH_3CH_2F	12
HFC–227ea	431–89–0	C_3HF_7	[a] 3,220
HFC–236cb	677–56–5	$CH_2FCF_2CF_3$	1,340
HFC–236ea	431–63–0	CHF_2CHFCF_3	1,370
HFC–236fa	690–39–1	$C_3H_2F_6$	[a] 9,810
HFC–245ca	679–86–7	$C_3H_3F_5$	[a] 693
HFC–245fa	460–73–1	$CHF_2CH_2CF_3$	1,030
HFC–365mfc	406–58–6	$CH_3CF_2CH_2CF_3$	794
HFC–43–10mee	138495–42–8	$CF_3CFHCFHCF_2CF_3$	[a] 1,640
Sulfur hexafluoride	2551–62–4	SF_6	[a] 22,800
Trifluoromethyl sulphur pentafluoride	373–80–8	SF_5CF_3	17,700
Nitrogen trifluoride	7783–54–2	NF_3	17,200
PFC–14 (Perfluoromethane)	75–73–0	CF_4	7,390
PFC–116 (Perfluoroethane)	76–16–4	C_2F_6	[a] 12,200
PFC–218 (Perfluoropropane)	76–19–7	C_3F_8	[a] 8,830

Name	CAS No.	Chemical formula	Global warming potential (100 yr.)
Perfluorocyclopropane	931–91–9	$C\text{-}C_3F_6$	17,340
PFC–3–1–10 (Perfluorobutane)	355–25–9	C_4F_{10}	[a] 8,860
Perfluorocyclobutane	115–25–3	$C\text{-}C_4F_8$	[a] 10,300
PFC–4–1–12 (Perfluoropentane)	678–26–2	C_5F_{12}	[a] 9,160
PFC–5–1–14 (Perfluorohexane)	355–42–0	C_6F_{14}	[a] 9,300
PFC–9–1–18	306–94–5	$C_{10}F_{18}$	7,500
HCFE–235da2 (Isoflurane)	26675–46–7	$CHF_2OCHClCF_3$	350
HFE–43–10pccc (H–Galden 1040x)	E1730133	$CHF_2OCF_2OC_2F_4OCHF_2$	1,870
HFE–125	3822–68–2	CHF_2OCF_3	14,900
HFE–134	1691–17–4	CHF_2OCHF_2	6,320
HFE–143a	421–14–7	CH_3OCF_3	756
HFE–227ea	2356–62–9	$CF_3CHFOCF_3$	1,540
HFE–236ca12 (HG–10)	78522–47–1	$CHF_2OCF_2OCHF_2$	2,800
HFE–236ea2 (Desflurane)	57041–67–5	$CHF_2OCHFCF_3$	989
HFE–236fa	20193–67–3	$CF_3CH_2OCF_3$	487
HFE–245cb2	22410–44–2	$CH_3OCF_2CF_3$	708
HFE–245fa1	84011–15–4	$CHF_2CH_2OCF_3$	286
HFE–245fa2	1885–48–9	$CHF_2OCH_2CF_3$	659
HFE–254cb2	425–88–7	$CH_3OCF_2CHF_2$	359
HFE–263fb2	460–43–5	$CF_3CH_2OCH_3$	11
HFE–329mcc2	67490–36–2	$CF_3CF_2OCF_2CHF_2$	919
HFE–338mcf2	156053–88–2	$CF_3CF_2OCH_2CF_3$	552
HFE–338pcc13 (HG–01)	188690–78–0	$CHF_2OCF_2CF_2OCHF_2$	1,500
HFE–347mcc3	28523–86–6	$CH_3OCF_2CF_2CF_3$	575
HFE–347mcf2	E1730135	$CF_3CF_2OCH_2CHF_2$	374
HFE–347pcf2	406–78–0	$CHF_2CF_2OCH_2CF_3$	580
HFE–356mec3	382–34–3	$CH_3OCF_2CHFCF_3$	101
HFE–356pcc3	160620–20–2	$CH_3OCF_2CF_2CHF_2$	110
HFE–356pcf2	E1730137	$CHF_2CH_2OCF_2CHF_2$	265
HFE–356pcf3	35042–99–0	$CHF_2OCH_2CF_2CHF_2$	502

Name	CAS No.	Chemical formula	Global warming potential (100 yr.)
HFE–365mcf3	378–16–5	$CF_3CF_2CH_2OCH_3$	11
HFE–374pc2	512–51–6	$CH_3CH_2OCF_2CHF_2$	557
HFE–449sl (HFE–7100) Chemical blend	163702–07–6 163702–08–7	$C_4F_9OCH_3$ $(CF_3)_2CFCF_2OCH_3$	297
HFE–569sf2 (HFE–7200) Chemical blend	163702–05–4 163702–06–5	$C_4F_9OC_2H_5$ $(CF_3)_2CFCF_2OC_2H_5$	59
Sevoflurane	28523–86–6	$CH_2FOCH(CF_3)_2$	345
HFE–356mm1	13171–18–1	$(CF_3)_2CHOCH_3$	27
HFE–338mmz1	26103–08–2	$CHF_2OCH(CF_3)_2$	380
(Octafluorotetramethy-lene)hydroxymethyl group	NA	$X\text{-}(CF_2)_4CH(OH)\text{-}X$	73
HFE–347mmy1	22052–84–2	$CH_3OCF(CF_3)_2$	343
Bis(trifluoromethyl)-methanol	920–66–1	$(CF_3)_2CHOH$	195
2,2,3,3,3-pentafluoropropanol	422–05–9	$CF_3CF_2CH_2OH$	42
PFPMIE	NA	$CF_3OCF(CF_3)CF_2OCF_2OCF_3$	10,300

[a] The GWP for this compound is different than the GWP in the version of Table A-1 to subpart A of part 98 published on October 30, 2009.

Table C–1 to Subpart C of Part 98—Default CO_2 Emission Factors and High Heat Values for Various Types of Fuel

Table C–1 to Subpart C—Default CO_2 Emission Factors and High Heat Values for Various Types of Fuel

Fuel type	Default high heat value	Default CO_2 emission factor
Coal and coke	**mmBtu/short ton**	**kg CO_2/mmBtu**
Anthracite	25.09	103.69
Bituminous	24.93	93.28
Subbituminous	17.25	97.17
Lignite	14.21	97.72
Coal Coke	24.80	113.67
Mixed (Commercial sector)	21.39	94.27
Mixed (Industrial coking)	26.28	93.90
Mixed (Industrial sector)	22.35	94.67
Mixed (Electric Power sector)	19.73	95.52
Natural gas	**mmBtu/scf**	**kg CO_2/mmBtu**
(Weighted U.S. Average)	1.026×10^{-3}	53.06
Petroleum products	**mmBtu/gallon**	**kg CO_2/mmBtu**
Distillate Fuel Oil No. 1	0.139	73.25
Distillate Fuel Oil No. 2	0.138	73.96
Distillate Fuel Oil No. 4	0.146	75.04
Residual Fuel Oil No. 5	0.140	72.93
Residual Fuel Oil No. 6	0.150	75.10
Used Oil	0.138	74.00
Kerosene	0.135	75.20
Liquefied petroleum gases (LPG)[1]	0.092	61.71
Propane[1]	0.091	62.87
Propylene[2]	0.091	67.77
Ethane[1]	0.068	59.60
Ethanol	0.084	68.44
Ethylene[2]	0.058	65.96
Isobutane[1]	0.099	64.94
Isobutylene[1]	0.103	68.86
Butane[1]	0.103	64.77
Butylene[1]	0.105	68.72
Naphtha (<401 deg F)	0.125	68.02
Natural Gasoline	0.110	66.83

Fuel type	Default high heat value	Default CO_2 emission factor
Other Oil (>401 deg F)	0.139	76.22
Pentanes Plus	0.110	70.02
Petrochemical Feedstocks	0.125	71.02
Petroleum Coke	0.143	102.41
Special Naphtha	0.125	72.34
Unfinished Oils	0.139	74.54
Heavy Gas Oils	0.148	74.92
Lubricants	0.144	74.27
Motor Gasoline	0.125	70.22
Aviation Gasoline	0.120	69.25
Kerosene-Type Jet Fuel	0.135	72.22
Asphalt and Road Oil	0.158	75.36
Crude Oil	0.138	74.54
Other fuels-solid	**mmBtu/short ton**	**kg CO_2/mmBtu**
Municipal Solid Waste	9.95[3]	90.7
Tires	28.00	85.97
Plastics	38.00	75.00
Petroleum Coke	30.00	102.41
Other fuels—gaseous	**mmBtu/scf**	**kg CO_2/mmBtu**
Blast Furnace Gas	0.092×10^{-3}	274.32
Coke Oven Gas	0.599×10^{-3}	46.85
Propane Gas	2.516×10^{-3}	61.46
Fuel Gas[4]	1.388×10^{-3}	59.00
Biomass fuels—solid	**mmBtu/short ton**	**kg CO_2/mmBtu**
Wood and Wood Residuals (dry basis)5	17.48	93.80
Agricultural Byproducts	8.25	118.17
Peat	8.00	111.84
Solid Byproducts	10.39	105.51
Biomass fuels—gaseous	**mmBtu/scf**	**kg CO_2/mmBtu**
Landfill Gas	0.485×10^{-3}	52.07
Other Biomass Gases	0.655×10^{-3}	52.07
Biomass Fuels—Liquid	**mmBtu/gallon**	**kg CO_2/mmBtu**
Ethanol	0.084	68.44
Biodiesel (100%)	0.128	73.84
Rendered Animal Fat	0.125	71.06
Vegetable Oil	0.120	81.55

[1] The HHV for components of LPG determined at 60 °F and saturation pressure with the exception of ethylene.

[2] Ethylene HHV determined at 41 °F (5 °C) and saturation pressure.

[3] Use of this default HHV is allowed only for: (a) Units that combust MSW, do not generate steam, and are allowed to use Tier 1; (b) units that derive no more than 10 percent of their annual heat input from MSW and/or tires; and (c) small batch incinerators that combust no more than 1,000 tons of MSW per year.

[4] Reporters subject to subpart X of this part that are complying with § 98.243(d) or subpart Y of this part may only use the default HHV and the default CO2 emission factor for fuel gas combustion under the conditions prescribed in § 98.243(d)(2)(i) and (d)(2)(ii) and § 98.252(a)(1) and (a)(2), respectively. Otherwise, reporters subject to subpart X or subpart Y shall use either Tier 3 (Equation C-5) or Tier 4.

[5] Use the following formula to calculate a wet basis HHV for use in Equation C-1:

$$HHV_w = ((100 - M)/100)*HHV_d$$

where

HHV_w = wet basis HHV,
M = moisture content (percent) and
HHV_d = dry basis HHV from Table C-1.

[74 FR 56374, Oct. 30, 2009, as amended at 75 FR 79153, Dec. 17, 2010; 78 FR 71950, Nov. 29, 2013]

Table C–2 to Subpart C of Part 98—Default CH_4 and N_2O Emission Factors for Various Types of Fuel

Table C–2 to Subpart C—Default CH_4 and N_2O Emission Factors for Various Types of Fuel

Fuel type	Default CH_4 emission factor (kg CH_4/mmBtu)	Default N_2O emission factor (kg N_2O/mmBtu)
Coal and Coke (All fuel types in Table C–1)	1.1×10^{-02}	1.6×10^{-03}
Natural Gas	1.0×10^{-03}	1.0×10^{-04}
Petroleum (All fuel types in Table C–1)	3.0×10^{-03}	6.0×10^{-04}
Fuel Gas	3.0×10^{-03}	6.0×10^{-04}
Municipal Solid Waste	3.2×10^{-02}	4.2×10^{-03}
Tires	3.2×10^{-02}	4.2×10^{-03}
Blast Furnace Gas	2.2×10^{-05}	1.0×10^{-04}
Coke Oven Gas	4.8×10^{-04}	1.0×10^{-04}
Biomass Fuels—Solid (All fuel types in Table C–1)	3.2×10^{-02}	4.2×10^{-03}
Wood and wood residuals	7.2×10^{-03}	3.6×10^{-03}
Biomass Fuels—Gaseous (All fuel types in Table C–1)	3.2×10^{-03}	6.3×10^{-04}
Biomass Fuels—Liquid (All fuel types in Table C–1)	1.1×10^{-03}	1.1×10^{-04}

Note: Those employing this table are assumed to fall under the IPCC definitions of the "Energy Industry" or "Manufacturing Industries and Construction". In all fuels except for coal the values for these two categories are identical. For coal combustion, those who fall within the IPCC "Energy Industry" category may employ a value of 1g of CH_4/mmBtu.

[74 FR 56374, Oct. 30, 2009, as amended at 75 FR 79154, Dec. 17, 2010; 78 FR 71952, Nov. 29, 2013]

Editorial Note: At 74 FR 56374, Oct. 30, 2009, part 98 was added. The added part included two tables identified as "C–2 to Subpart C".

Table W-1A of Subpart W of Part 98—Default Whole Gas Emission Factors for Onshore Petroleum and Natural Gas Production

Onshore petroleum and natural gas production	Emission factor (scf/hour/ component)
Eastern U.S.	
Population Emission Factors—All Components, Gas Service[1]	
Valve	0.027
Connector	0.003
Open-ended Line	0.061
Pressure Relief Valve	0.040
Low Continuous Bleed Pneumatic Device Vents[2]	1.39
High Continuous Bleed Pneumatic Device Vents[2]	37.3
Intermittent Bleed Pneumatic Device Vents[2]	13.5
Pneumatic Pumps[3]	13.3
Population Emission Factors—All Components, Light Crude Service[4]	
Valve	0.05
Flange	0.003
Connector	0.007
Open-ended Line	0.05
Pump	0.01
Other[5]	0.30
Population Emission Factors—All Components, Heavy Crude Service[6]	
Valve	0.0005
Flange	0.0009
Connector (other)	0.0003
Open-ended Line	0.006
Other[5]	0.003
Western U.S.	
Population Emission Factors—All Components, Gas Service[1]	
Valve	0.121
Connector	0.017
Open-ended Line	0.031
Pressure Relief Valve	0.193
Low Continuous Bleed Pneumatic Device Vents[2]	1.39
High Continuous Bleed Pneumatic Device Vents[2]	37.3
Intermittent Bleed Pneumatic Device Vents[2]	13.5
Pneumatic Pumps[3]	13.3
Population Emission Factors—All Components, Light Crude Service[4]	
Valve	0.05
Flange	0.003

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Section 8

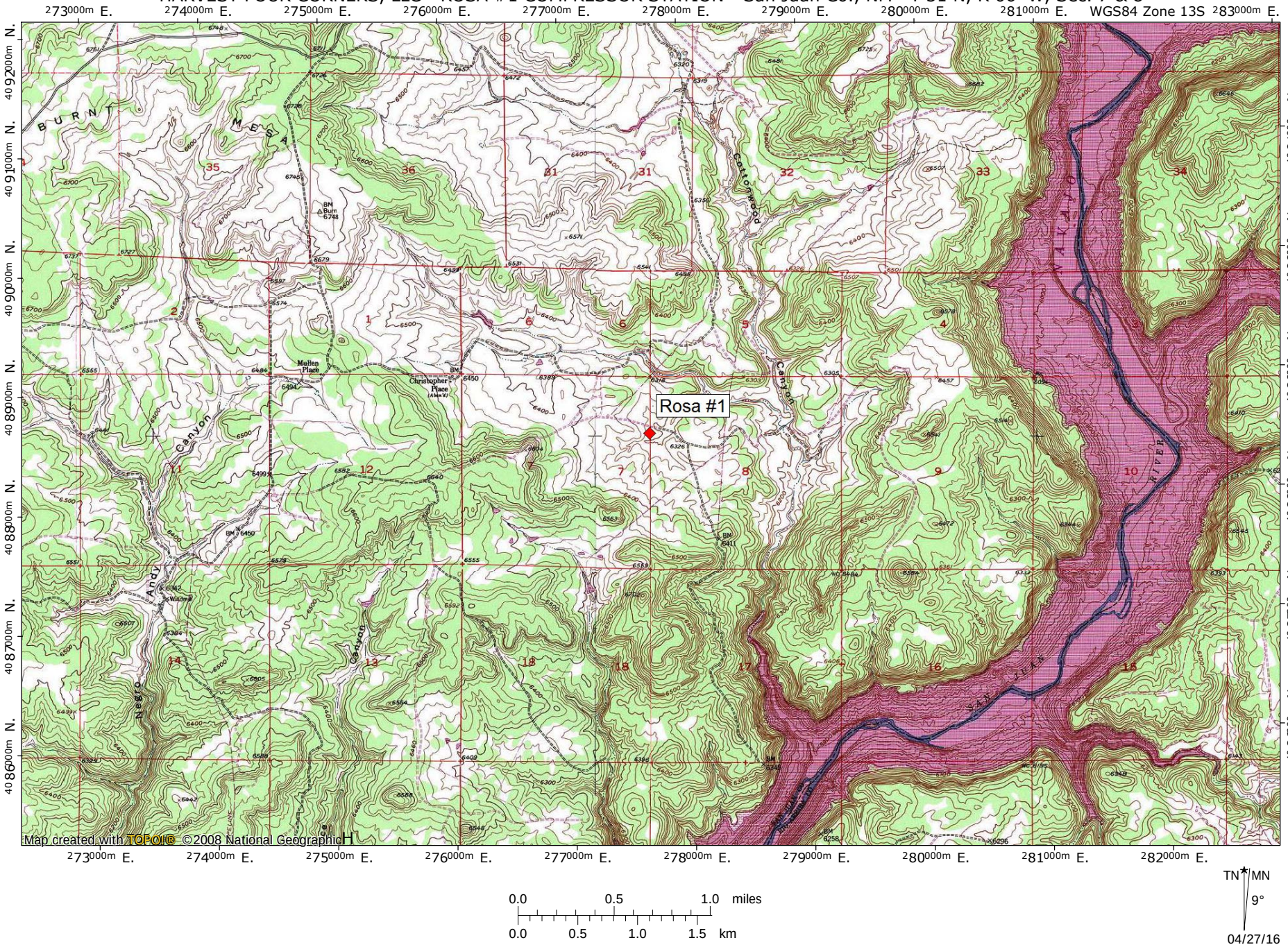
Map(s)

A map such as a 7.5 minute topographic quadrangle showing the exact location of the source. The map shall also include the following:

The UTM or Longitudinal coordinate system on both axes	An indicator showing which direction is north
A minimum radius around the plant of 0.8km (0.5 miles)	Access and haul roads
Topographic features of the area	Facility property boundaries
The name of the map	The area which will be restricted to public access
A graphical scale	

Please see the following page(s).

HARVEST FOUR CORNERS, LLC - ROSA #1 COMPRESSOR STATION - San Juan Co., NM T 31 N, R 06 W, Sec. 7 & 8



Section 9

Proof of Public Notice

(for NSR applications submitting under 20.2.72 or 20.2.74 NMAC)
(This proof is required by: 20.2.72.203.A.14 NMAC "Documentary Proof of applicant's public notice")

☐ **I have read the AQB "Guidelines for Public Notification for Air Quality Permit Applications"**
This document provides detailed instructions about public notice requirements for various permitting actions. It also provides public notice examples and certification forms. Material mistakes in the public notice will require a re-notice before issuance of the permit.

Unless otherwise allowed elsewhere in this document, the following items document proof of the applicant's Public Notification. Please include this page in your proof of public notice submittal with checkmarks indicating which documents are being submitted with the application.

New Permit and **Significant Permit Revision** public notices must include all items in this list.

Technical Revision public notices require only items 1, 5, 9, and 10.

Per the Guidelines for Public Notification document mentioned above, include:

1. ☐ A copy of the certified letter receipts with post marks (20.2.72.203.B NMAC).
2. ☐ A list of the places where the public notice has been posted in at least four publicly accessible and conspicuous places, including the proposed or existing facility entrance. (e.g: post office, library, grocery, etc.).
3. ☐ A copy of the property tax record (20.2.72.203.B NMAC).
4. ☐ A sample of the letters sent to the owners of record.
5. ☐ A sample of the letters sent to counties, municipalities, and Indian tribes.
6. ☐ A sample of the public notice posted and a verification of the local postings.
7. ☐ A table of the noticed citizens, counties, municipalities and tribes and to whom the notices were sent in each group.
8. ☐ A copy of the public service announcement (PSA) sent to a local radio station and documentary proof of submittal.
9. ☐ A copy of the classified or legal ad including the page header (date and newspaper title) or its affidavit of publication stating the ad date, and a copy of the ad. When appropriate, this ad shall be printed in both English and Spanish.
10. ☐ A copy of the display ad including the page header (date and newspaper title) or its affidavit of publication stating the ad date, and a copy of the ad. When appropriate, this ad shall be printed in both English and Spanish.
11. ☐ A map with a graphic scale showing the facility boundary and the surrounding area in which owners of record were notified by mail. This is necessary for verification that the correct facility boundary was used in determining distance for notifying land owners of record.

Not applicable for Title V applications.

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Section 10

Written Description of the Routine Operations of the Facility

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A written description of the routine operations of the facility. Include a description of how each piece of equipment will be operated, how controls will be used, and the fate of both the products and waste generated. For modifications and/or revisions, explain how the changes will affect the existing process. In a separate paragraph describe the major process bottlenecks that limit production. The purpose of this description is to provide sufficient information about plant operations for the permit writer to determine appropriate emission sources.

The Rosa #1 compresses and dehydrates pipeline quality natural gas. Natural gas is received from independent producers via gathering pipelines. The natural gas stream typically contains produced water, which is separated from the gas stream via an inlet separator. The resulting produced water is stored in above ground fixed roof storage tanks until offsite transport via tank truck.

The natural gas is compressed by for pipeline transmission using compressors driven by the natural gas-fired reciprocating internal combustion engines. The natural gas stream is then routed to the triethylene glycol (TEG) dehydrators, which further dehydrate the gas stream. The TEG solution comes into contact with the natural gas and removes the water and some hydrocarbons. The rich TEG solution is regenerated by boiling off the water and hydrocarbons and reclaiming the glycol.

Storage tanks are used to store produced water, waste water, lube oil and used oil, TEG, and antifreeze. Waste products are hauled off-site as required.

Other emission sources include: startups, shutdowns and routine maintenance (SSM) from the compressors and piping (Unit SSM), and fugitive emissions from process piping (valves, flanges, seals, etc.).

The facility is authorized to operate continuously.

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Section 11

Source Determination

(Source submitting under 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC)

Sources applying for a construction permit, PSD permit, or operating permit shall evaluate surrounding and/or associated sources (including those sources directly connected to this source for business reasons) and complete this section. Responses to the following questions shall be consistent with the Air Quality Bureau's permitting guidance, Single Source Determination Guidance, which may be found on the Applications Page in the Permitting Section of the Air Quality Bureau website.

Typically, buildings, structures, installations, or facilities that have the same SIC code, that are under common ownership or control, and that are contiguous or adjacent constitute a single stationary source for 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC applicability purposes. Submission of your analysis of these factors in support of the responses below is optional, unless requested by NMED.

A. Identify the emission sources evaluated in this section (list and describe)**:**

Rosa #1 Compressor Station - natural gas compression and dehydration facility

B. Apply the 3 criteria for determining a single source:

SIC Code: Surrounding or associated sources belong to the same 2-digit industrial grouping (2-digit SIC code) as this facility, OR surrounding or associated sources that belong to different 2-digit SIC codes are support facilities for this source.

☑ **Yes** ☐ **No**

Common Ownership or Control: Surrounding or associated sources are under common ownership or control as this source.

☑ **Yes** ☐ **No**

Contiguous or Adjacent: Surrounding or associated sources are contiguous or adjacent with this source.

☑ **Yes** ☐ **No**

C. Make a determination:

☑ The source, as described in this application, constitutes the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes. If in "A" above you evaluated only the source that is the subject of this application, all "**YES**" boxes should be checked. If in "A" above you evaluated other sources as well, you must check **AT LEAST ONE** of the boxes "**NO**" to conclude that the source, as described in the application, is the entire source for 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC applicability purposes.

☐ The source, as described in this application, **does not** constitute the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes (A permit may be issued for a portion of a source). The entire source consists of the following facilities or emissions sources (list and describe):

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Section 12.A

PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

A PSD applicability determination for all sources. For sources applying for a significant permit revision, apply the applicable requirements of 20.2.74.AG and 20.2.74.200 NMAC and to determine whether this facility is a major or minor PSD source, and whether this modification is a major or a minor PSD modification. It may be helpful to refer to the procedures for Determining the Net Emissions Change at a Source as specified by Table A-5 (Page A.45) of the EPA New Source Review Workshop Manual to determine if the revision is subject to PSD review.

A. This facility is:
   - ☐ a minor PSD source before and after this modification (if so, delete C and D below).
   - ☐ a major PSD source before this modification. This modification will make this a PSD minor source.
   - ☐ an existing PSD Major Source that has never had a major modification requiring a BACT analysis.
   - ☐ an existing PSD Major Source that has had a major modification requiring a BACT analysis
   - ☐ a new PSD Major Source after this modification.

B. This facility [is or is not] one of the listed 20.2.74.501 Table I – PSD Source Categories. The "project" emissions for this modification are [significant or not significant]. [Discuss why.] The "project" emissions listed below [do or do not] only result from changes described in this permit application, thus no emissions from other [revisions or modifications, past or future] to this facility. Also, specifically discuss whether this project results in "de-bottlenecking", or other associated emissions resulting in higher emissions. The project emissions (before netting) for this project are as follows [see Table 2 in 20.2.74.502 NMAC for a complete list of significance levels]:

   a. NOx: XX.X TPY
   b. CO: XX.X TPY
   c. VOC: XX.X TPY
   d. SOx: XX.X TPY
   e. PM: XX.X TPY
   f. PM10: XX.X TPY
   g. PM2.5: XX.X TPY
   h. Fluorides: XX.X TPY
   i. Lead: XX.X TPY
   j. Sulfur compounds (listed in Table 2): XX.X TPY
   k. GHG: XX.X TPY

C. Netting [is required, and analysis is attached to this document.] OR [is not required (project is not significant)] OR [Applicant is submitting a PSD Major Modification and chooses not to net.]

D. BACT is [not required for this modification, as this application is a minor modification.] OR [required, as this application is a major modification. List pollutants subject to BACT review and provide a full top down BACT determination.]

E. If this is an existing PSD major source, or any facility with emissions greater than 250 TPY (or 100 TPY for 20.2.74.501 Table 1 – PSD Source Categories), determine whether any permit modifications are related, or could be considered a single project with this action, and provide an explanation for your determination whether a PSD modification is triggered.

Not applicable for Title V applications.

Section 12.B

Special Requirements for a PSD Application

(Submitting under 20.2.74 NMAC)

Prior *to Submitting a PSD application,* **the permittee shall:**

- ☐ Submit the BACT analysis for review prior to submittal of the application. No application will be ruled complete until the final determination regarding BACT is made, as this determination can ultimately affect information to be provided in the application. A pre-application meeting is recommended to discuss the requirements of the BACT analysis.
- ☐ Submit a modeling protocol prior to submitting the permit application. **[Except for GHG]**
- ☐ Submit the monitoring exemption analysis protocol prior to submitting the application. **[Except for GHG]**

For PSD applications, the permittee shall also include the following:

- ☐ Documentation containing an analysis on the impact on visibility. **[Except for GHG]**
- ☐ Documentation containing an analysis on the impact on soil. **[Except for GHG]**
- ☐ Documentation containing an analysis on the impact on vegetation, including state and federal threatened and endangered species. **[Except for GHG]**
- ☐ Documentation containing an analysis on the impact on water consumption and quality. **[Except for GHG]**
- ☐ Documentation that the federal land manager of a Class I area within 100 km of the site has been notified and provided a copy of the application, including the BACT and modeling results. The name of any Class I Federal area located within one hundred (100) kilometers of the facility.

Not applicable for Title V applications.

Section 13

Determination of State & Federal Air Quality Regulations

This section lists each state and federal air quality regulation that may apply to your facility and/or equipment that are stationary sources of regulated air pollutants. Not all state and federal air quality regulations are included in this list. Go to the Code of Federal Regulations (CFR) or to the Air Quality Bureau's regulation page to see the full set of air quality regulations.

Required Information for Specific Equipment:

For regulations that apply to specific source types, in the 'Justification' column **provide any information needed to determine if the regulation does or does not apply**. **For example**, to determine if emissions standards at 40 CFR 60, Subpart IIII apply to your three identical stationary engines, we need to know the construction date as defined in that regulation; the manufacturer date; the date of reconstruction or modification, if any; if they are or are not fire pump engines; if they are or are not emergency engines as defined in that regulation; their site ratings; and the cylinder displacement.

Required Information for Regulations that Apply to the Entire Facility:

See instructions in the 'Justification' column for the information that is needed to determine if an 'Entire Facility' type of regulation applies (e.g. 20.2.70 or 20.2.73 NMAC).

Regulatory Citations for Regulations That Do Not, but Could Apply:

If there is a state or federal air quality regulation that does not apply, but you have a piece of equipment in a source category for which a regulation has been promulgated, you must **provide the low level regulatory citation showing why your piece of equipment is not subject to or exempt from the regulation. For example** if you have a stationary internal combustion engine that is not subject to 40 CFR 63, Subpart ZZZZ because it is an existing 2 stroke lean burn stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, your citation would be 40 CFR 63.6590(b)(3)(i). **We don't want a discussion of every non-applicable regulation, but if it is possible a regulation could apply, explain why it does not. For example,** if your facility is a power plant, you do not need to include a citation to show that 40 CFR 60, Subpart OOO does not apply to your non-existent rock crusher.

Regulatory Citations for Emission Standards:

For each unit that is subject to an emission standard in a source specific regulation, such as 40 CFR 60, Subpart OOO or 40 CFR 63, Subpart HH, include the low level regulatory citation of that emission standard. Emission standards can be numerical emission limits, work practice standards, or other requirements such as maintenance. **Here are examples:** a glycol dehydrator is subject to the general standards at 63.764C(1)(i) through (iii); an engine is subject to 63.6601, Tables 2a and 2b; a crusher is subject to 60.672(b), Table 3 and all transfer points are subject to 60.672(e)(1)

Federally Enforceable Conditions:

All federal regulations are federally enforceable. All Air Quality Bureau State regulations are federally enforceable except for the following: affirmative defense portions at 20.2.7.6.B, 20.2.7.110(B)(15), 20.2.7.11 through 20.2.7.113, 20.2.7.115, and 20.2.7.116; 20.2.37; 20.2.42; 20.2.43; 20.2.62; 20.2.63; 20.2.86; 20.2.89; and 20.2.90 NMAC. Federally enforceable means that EPA can enforce the regulation as well as the Air Quality Bureau and federally enforceable regulations can count toward determining a facility's potential to emit (PTE) for the Title V, PSD, and nonattainment permit regulations.

INCLUDE ANY OTHER INFORMATION NEEDED TO COMPLETE AN APPLICABILITY DETERMINATION OR THAT IS RELEVENT TO YOUR FACILITY'S NOTICE OF INTENT OR PERMIT.

EPA Applicability Determination Index for 40 CFR 60, 61, 63, etc: http://cfpub.epa.gov/adi/

State Regulations

Applicable state requirements are embodied in the New Mexico SIP, the New Mexico Administrative Code (NMAC), and the terms and conditions of any preconstruction permits issued pursuant to regulations promulgated through rulemaking under Title I of the CAA.

Table for STATE REGULATIONS:

STATE REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
20.2.1 NMAC	General Provisions	Yes	Facility	This regulation is applicable because it establishes procedures for protecting confidential information, procedures for seeking a variance, NMAQB's authority to require sampling equipment, severability, and the effective date for conformance with the NMACs, and prohibits the violation of other requirements in attempting to comply with the NMACs. Although this regulation is applicable, it does not impose any specific requirements.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	Facility	This is a State Implementation Plan (SIP) approved regulation that limits the maximum allowable concentrations of Total Suspended Particulates, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide.
20.2.7 NMAC	Excess Emissions	Yes	Facility	This regulation is applicable because it prohibits excess emissions unless proper notification procedures are followed.
20.2.8 NMAC	Emissions Leaving New Mexico	Yes	Facility	This regulation is applicable because it establishes prohibitions on the release of pollutants that cross New Mexico State boundaries.
20.2.14 NMAC	Particulate Emissions from Coal Burning Equipment	No	N/A	This regulation is not applicable because the facility does not burn coal (see 20.2.14.5 NMAC).
20.2.18 NMAC	Oil Burning Equipment - Particulate Matter	No	N/A	This regulation is not applicable because the facility does not burn oil (see 20.2.18.5 NMAC).
20.2.31 NMAC	Coal Burning Equipment – Sulfur Dioxide	No	N/A	This regulation is not applicable because the facility does not burn coal (see 20.2.31.6 NMAC).
20.2.32 NMAC	Coal Burning Equipment – Nitrogen Dioxide,	No	N/A	This regulation is not applicable because the facility does not burn coal (see 20.2.32.6 NMAC).
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No	N/A	This regulation is not applicable because the facility is not equipped with external gas burning equipment which have heat input rates exceeding the trigger level (one million MMBtu/year) established by the regulation (see 20.2.33.108 NMAC).
20.2.34 NMAC	Oil Burning Equipment: NO_2	No	N/A	This regulation is not applicable because the facility does not burn oil (see 20.2.34.6 NMAC).
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	No	N/A	This regulation is not applicable because the facility is not a natural gas processing plant (see 20.2.35.6 NMAC).
20.2.38 NMAC	Hydrocarbon Storage Facility	No	N/A	This regulation is not applicable because the facility does not store hydrocarbons containing hydrogen sulfide, nor is there a tank battery storing hydrocarbon liquids with a capacity greater than or equal to 65,000 gallons (see 20.2.38.112 NMAC).
20.2.39 NMAC	Sulfur Recovery Plant - Sulfur	No	N/A	This regulation is not applicable because the facility is not equipped with a sulfur recovery plant (see 20.2.39.6 NMAC).

STATE REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	RICE units 1, 2, & 4-6; Reboilers 3b, 9b, & 12b	This regulation is applicable because the facility is equipped with stationary combustion sources. Emissions from these combustion sources are limited to less than 20% opacity (see 20.2.61.109 NMAC). The regulation is not applicable to Title V insignificant heaters (see 20.2.61.111.D NMAC).
20.2.70 NMAC	Operating Permits	Yes	Facility	This regulation is applicable because the facility is a major source of NOx, CO, VOC, and HAP emissions (see 20.2.70.200 NMAC).
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	This regulation is applicable because the facility is subject to 20.2.70 NMAC (see 20.2.71.6 NMAC).
20.2.72 NMAC	Construction Permits	Yes	Facility	This regulation is applicable because the facility has potential emission rates (PER) greater than 10 pph or 25 tpy for pollutants subject to a state or federal ambient air quality standards (does not include VOCs or HAPs).
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	The Notice of Intent portion of this regulation (20.2.73.200.A &.B NMAC) was fulfilled with the construction permit application for the facility submitted under 20.2.72 NMAC. The emissions inventory portion of this regulation is applicable based on the facility is a Title V major source (20.2.73.300.B(1) & (2)).
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No	N/A	This regulation is not applicable because the facility is not a PSD major source.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	This regulation is applicable because it establishes the fee schedule associated with construction permit applications (see 20.2.75.6 NMAC). The facility has a construction permit.
20.2.77 NMAC	New Source Performance	No	Potentially applicable to RICE unit 6	This regulation is not applicable because there are no installed equipment that are subject to an NSPS. The regulation adopts by reference the federal NSPS codified in 40 CFR 60 (see 20.2.77.6 NMAC). The facility is potentially subject to 40 CFR 60 if affected sources are installed. The applicability or non-applicability of the subpart to unit 6 will be determined upon installation.
20.2.78 NMAC	Emission Standards for HAPS	No	N/A	This regulation is not applicable because it incorporates by reference the NESHAPs codified under 40 CFR 61 (see 20.2.78.6 NMAC). The facility is not subject to 40 CFR 61.
20.2.79 NMAC	Permits – Nonattainment Areas	No	N/A	This regulation is not applicable because the facility is neither located in nor has a significant impact on a nonattainment area (see 20.2.79.6 NMAC).
20.2.80 NMAC	Stack Heights	No	N/A	This regulation is not applicable because it establishes guidelines for the selection of an appropriate stack height for the purpose of atmospheric dispersion modeling (see 20.2.80.6 NMAC); however, it only imposes those requirements when modeling is required as a part of the application. This application does not require modeling.
20.2.82 NMAC	MACT Standards for Source Categories of HAPS	Yes	TEG dehydrators 3a/b, 9a/b, & 12a/b. Potentially applicable to RICE unit 6	This regulation is applicable because it adopts by reference the federal MACT Standards for source categories codified in 40 CFR 63 (see 20.2.82.6 NMAC). The facility TEG dehydrators are subject to 40 CFR 63, subparts A and HH. RICE unit 6 is not installed. The applicability or non-applicability of subpart ZZZZ to unit 6 will be determined upon installation.

Federal Regulations

Federal standards and requirements are embodied in Title 40 (Protection of the Environment), Subchapter C (Air Programs) of the CFR, Parts 50 through 99.

FEDERAL REGULATIONS APPLICABILITY CHECKLIST

FEDERAL REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 50	NAAQS	Yes	Facility	This regulation is applicable because it applies to all sources in the state of New Mexico.
40 CFR 52	Approval and Promulgation of Implementation Plans	No	N/A	40 CFR 52.21 *Prevention of Significant Deterioration of Air Quality* is not applicable because the facility is not a major Prevention of Significant Deterioration source. The remainder of 40 CFR 52 is not applicable because it addresses approval and promulgation of implementation plans.
NSPS 40 CFR 60, Subpart A	General Provisions	No	N/A	This regulation is not applicable because none of the other 40 CFR Part 60 subparts are applicable.
NSPS 40 CFR 60, Subpart K	Standards of Performance for Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978	No	N/A	This regulation is not applicable because the petroleum liquids storage tanks at the facility have capacities less than the minimum applicability threshold capacity of 40,000 gallons (see §60.110(a)).
NSPS 40 CFR 60, Subpart Ka	Standards of Performance for Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984	No	N/A	This regulation is not applicable because the storage tanks at the facility have capacities less than the minimum applicability threshold capacity of 40,000 gallons (see §60.110a(a)).
NSPS 40 CFR 60, Subpart Kb	Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984	No	N/A	This regulation is not applicable because all storage tanks at the facility have capacities less than the minimum applicability threshold capacity of 75 cubic meters (19,812 gallons), or they have a capacity between 75 and 151 cubic meters (40,000 gallons) and store a liquid with a maximum true vapor pressure less than 15.0 kPa (2.2 psi) (see §60.110b(a) & §60.110b(b))).

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
NSPS 40 CFR 60, Subpart KKK	Standards of Performance for Equipment Leaks of VOC from Onshore Gas Plants	No	N/A	This regulation is not applicable because the facility is not an onshore natural gas processing plant as defined by the subpart (see §60.630(a)(1)). Natural gas processing plant (gas plant) means any processing site engaged in the extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids to natural gas products, or both (see §60.631).
NSPS 40 CFR 60, Subpart LLL	Standards of Performance for Onshore Natural Gas Processing: SO_2 Emissions	No	N/A	This regulation is not applicable because the facility is not a natural gas processing plant as defined by the subpart. It is not equipped with a sweetening unit (see §60.640(a)).
NSPS 40 CFR 60, Subpart IIII	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	No	N/A	This regulation is not applicable because the facility is not equipped with stationary compression ignition (CI) internal combustion engines (ICE) that commenced construction after July 11, 2005 and were manufactured after April 1, 2006 (see §60.4200(a)(2)(i)). For the purpose of this subpart, construction commences on the date the engine is ordered by the owner or operator (see §60.4200(a)).
NSPS 40 CFR 60, Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	No	Potentially applicable to RICE unit 6	This regulation is not applicable because the facility is not equipped with spark ignition (SI) internal combustion engines (ICE) constructed, modified, or reconstructed after June 12, 2006. Units 1, 2, 4 and 5 were constructed prior to the applicability date and have not been modified or reconstructed. The applicability or non-applicability of the subpart to unit 6 will be determined upon installation. See the definitions of construction, modification, and reconstruction referenced in Subpart OOOO, below.
NSPS 40 CFR 60, Subpart OOOO	Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution for which Construction, Modification or Reconstruction Commenced After August 23, 2011 and On or Before September 18, 2015	No	N/A	This regulation is not applicable because the facility is not equipped with "affected" sources that commenced construction, modification or reconstruction after August 23, 2011 and on or before September 18, 2015: gas wells, centrifugal or reciprocating compressors, pneumatic controllers, and storage vessels (see §60.5365). Note that the facility is not a natural gas processing plant as defined by the subpart (see §60.5430). "Commenced" construction means a continuous program of fabrication, erection or installation (see §60.2). "Modification" means any physical change in or change in the method of operation of an existing facility which increases emissions or results in new emissions (see §60.2). The following, by themselves, are not modifications: routine maintenance, repair or replacement, production increase without capital expenditure, increase in hours of operation, addition of emission controls, or the relocation or change in ownership of an existing facility (see §60.14). "Reconstruction" means the replacement of components of an existing facility such that the fixed capital cost of the new components exceeds 50 % of the fixed capital cost required to construct a comparable entirely new facility. Fixed capital cost means the capital needed to provide all the depreciable components (see §60.15).

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
NSPS 40 CFR 60, Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015	No	N/A	This regulation is not applicable because the facility is not equipped with "affected" sources that commenced construction, modification or reconstruction after September 18, 2015: gas wells, centrifugal or reciprocating compressors, pneumatic controllers, storage vessels, sweetening units, pneumatic pumps, and equipment leaks (see §60.5365a). In general, this regulation may apply if existing affected equipment is replaced or new affected equipment is installed. In particular, this regulation will apply to fugitive emissions components at the facility if any engines and compressors are installed. Fugitive components monitoring is required if a compressor station is modified. For the purpose of fugitive components monitoring as required by this subpart, modification of a compressor station is the addition of a compressor or replacement of a compressor with a larger unit (greater total horsepower) (see §60.5365a(j)). Note that the facility is not a natural gas processing plant as defined by the subpart (see §60.5430a). See the definitions of construction, modification, and reconstruction referenced in Subpart OOOO, above.
NESHAP 40 CFR 61, Subpart A	General Provisions	No	N/A	This regulation is not applicable because the facility is not subject to any requirements under 40 CFR Part 61 (see §61.01(c)).
NESHAP 40 CFR 61, Subpart V	National Emission Standards for Equipment Leaks (Fugitive Emission Sources)	No	N/A	This regulation is not applicable because none of the listed equipment at the facility is in VHAP service. The provisions of this subpart apply to each of the following sources that are *intended* to operate in volatile hazardous air pollutant (VHAP) service: pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, and control devices or systems required by the subpart (see §61.240(a)). "VHAP service" means a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 10 percent by weight of VHAP. "VHAP" means a substance regulated under this subpart for which a standard for equipment leaks of the substance has been promulgated (see §61.241).
MACT 40 CFR 63, Subpart A	General Provisions	Yes	TEG dehydrators 3a/b, 9a/b, & 12a/b	This regulation is applicable because 40 CFR 63 subpart HH applies to the TEG dehydrators (see §63.1(b)).
MACT 40 CFR 63, Subpart HH	National Emission Standards for Hazardous Air Pollutants For Oil and Natural Gas Production Facilities	Yes	TEG dehydrators 3a/b, 9a/b, & 12a/b	This regulation is applicable because the facility is equipped with affected equipment subject to 40 CFR 63, subpart HH. As the facility is a production field facility located prior to the point of custody transfer, only HAP emissions from glycol dehydration units and storage vessels (crude oil tanks, condensate tanks, intermediate hydrocarbon liquid tanks, and produced water tanks) are aggregated for a major source determination (see §63.761). As defined under the subpart, the facility is an **area** source of HAP. The facility is located in an area that is not within an UA plus offset and UC boundary (as defined in §63.761). At a HAP area source, the only affected unit is each dehydration unit (see §63.760(b)(2)). Under §63.764(e)(1)(ii), the owner or operator of an affected area source [TEG dehydrator] with **actual** average benzene emissions from the process vent to the atmosphere of less than 0.90 megagrams per year (~1 tpy) is exempt from the operational, recordkeeping and notification requirements in §63.764(d), provided that documentation of the exemption determination is maintained as required in §63.774(d)(1).

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
MACT 40 CFR 63, Subpart HHH	National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities	No	N/A	This regulation is not applicable because the facility is not a natural gas transmission and storage facility as defined by the subpart. A compressor station that transports natural gas prior to the point of custody transfer or to a natural gas processing plant (if present) are not considered a part of the natural gas transmission and storage source category (see §63.1270(a)).
MACT 40 CFR 63, Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT)	No	Potentially applicable to RICE unit 6	This regulation is potentially applicable if the facility is equipped with affected sources. The station is an major HAP source as defined by the subpart. For production field facilities, HAP emissions from engines, turbines, dehydrators, and storage vessels with the potential for flash emissions are aggregated for the HAP major source determination (see §63.6675). Units 1, 2, 4, and 5 are 4-stroke, lean burn (4SLB) spark ignition (SI) RICE, each with a site rating of more than 500 hp, and constructed prior to December 19, 2002. Under §63.6590(b)(3)(ii), existing 4SLB stationary RICE with a site rating of more than 500 hp located at a major source of HAP do not have to meet the requirements of the subpart and of subpart A, including initial notification requirements. The applicability or non-applicability of the subpart to unit 6 will be determined upon installation.
MACT 40 CFR 63, Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	No	N/A	This regulation is not applicable both because the facility is an area HAP source as defined by the subpart (see §63.7480) and is not equipped with boilers and process heaters. Since the facility is a natural gas production facility, only HAP emissions from dehydrators and storage vessels with the potential for flash emissions are aggregated for a major source determination (see §63.7575).
MACT 40 CFR 63, Subpart JJJJJJ	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers at Area Sources	No	N/A	This regulation is not applicable because the facility is not equipped with industrial, commercial, or institutional boilers.
40 CFR 64	Compliance Assurance Monitoring	No	N/A	This regulation is not applicable because no equipment at the facility requires a control device to achieve compliance with emission limits or standards where pre control emissions equal or exceed the major source threshold (100 tons per year). (see §64.2(a)).
40 CFR 68	Chemical Accident Prevention	No	N/A	This regulation is not applicable because the facility does not store any of the identified toxic and flammable substances in quantities exceeding the applicability thresholds (see §68.10(a), §68.115(a), and §68.130 Tables 1-4).
40 CFR 70	State Operating Permit Programs	No	N/A	This regulation is not applicable, as the requirements associated with Title V are delegated to the State of New Mexico and implemented under 20 NMAC 2.70.
40 CFR 82	Protection of Stratospheric Ozone	No	N/A	This regulation is not applicable because the facility does not produce, transform, destroy, import, or export ozone-depleting substances (see §82.1(b),); does not service motor vehicle air conditioning units (see §82.30(b)); and does not sell, distribute, or offer for sale or distribution any product that contains ozone-depleting substances (see §82.64).

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Section 14

Operational Plan to Mitigate Emissions

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

☑ **Title V Sources** (20.2.70 NMAC)**:** By checking this box and certifying this application the permittee certifies that it has developed an **Operational Plan to Mitigate Emissions During Startups, Shutdowns, and Emergencies** defining the measures to be taken to mitigate source emissions during startups, shutdowns, and emergencies as required by 20.2.70.300.D.5(f) and (g) NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.

☑ **NSR** (20.2.72 NMAC)**, PSD** (20.2.74 NMAC) **& Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has developed an **Operational Plan to Mitigate Source Emissions During Malfunction, Startup, or Shutdown** defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown as required by 20.2.72.203.A.5 NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.

☑ **Title V** (20.2.70 NMAC)**, NSR** (20.2.72 NMAC)**, PSD** (20.2.74 NMAC) **& Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has established and implemented a Plan to Minimize Emissions During Routine or Predictable Startup, Shutdown, and Scheduled Maintenance through work practice standards and good air pollution control practices as required by 20.2.7.14.A and B NMAC. This plan shall be kept on site or at the nearest field office to be made available to the Department upon request. This plan should not be submitted with this application.

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Section 15

Alternative Operating Scenarios

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

Alternative Operating Scenarios: Provide all information required by the department to define alternative operating scenarios. This includes process, material and product changes; facility emissions information; air pollution control equipment requirements; any applicable requirements; monitoring, recordkeeping, and reporting requirements; and compliance certification requirements. Please ensure applicable Tables in this application are clearly marked to show alternative operating scenario.

Construction Scenarios: When a permit is modified authorizing new construction to an existing facility, NMED includes a condition to clearly address which permit condition(s) (from the previous permit and the new permit) govern during the interval between the date of issuance of the modification permit and the completion of construction of the modification(s). There are many possible variables that need to be addressed such as: Is simultaneous operation of the old and new units permitted and, if so for example, for how long and under what restraints? In general, these types of requirements will be addressed in Section A100 of the permit, but additional requirements may be added elsewhere. Look in A100 of our NSR and/or TV permit template for sample language dealing with these requirements. Find these permit templates at: https://www.env.nm.gov/aqb/permit/aqb_pol.html. Compliance with standards must be maintained during construction, which should not usually be a problem unless simultaneous operation of old and new equipment is requested.

In this section, under the bolded title "Construction Scenarios", specify any information necessary to write these conditions, such as: conservative-realistic estimated time for completion of construction of the various units, whether simultaneous operation of old and new units is being requested (and, if so, modeled), whether the old units will be removed or decommissioned, any PSD ramifications, any temporary limits requested during phased construction, whether any increase in emissions is being requested as SSM emissions or will instead be handled as a separate Construction Scenario (with corresponding emission limits and conditions, etc.

Not applicable.

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Section 16

Air Dispersion Modeling

1) Minor Source Construction (20.2.72 NMAC) and Prevention of Significant Deterioration (PSD) (20.2.74 NMAC) ambient impact analysis (modeling): Provide an ambient impact analysis as required at 20.2.72.203.A(4) and/or 20.2.74.303 NMAC and as outlined in the Air Quality Bureau's Dispersion Modeling Guidelines found on the Planning Section's modeling website. If air dispersion modeling has been waived for one or more pollutants, attach the AQB Modeling Section modeling waiver approval documentation.
2) SSM Modeling: Applicants must conduct dispersion modeling for the total short term emissions during routine or predictable startup, shutdown, or maintenance (SSM) using realistic worst case scenarios following guidance from the Air Quality Bureau's dispersion modeling section. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) for more detailed instructions on SSM emissions modeling requirements.
3) Title V (20.2.70 NMAC) ambient impact analysis: Title V applications must specify the construction permit and/or Title V Permit number(s) for which air quality dispersion modeling was last approved. Facilities that have only a Title V permit, such as landfills and air curtain incinerators, are subject to the same modeling required for preconstruction permits required by 20.2.72 and 20.2.74 NMAC.

What is the purpose of this application?	Enter an X for each purpose that applies
New PSD major source or PSD major modification (20.2.74 NMAC). See #1 above.	
New Minor Source or significant permit revision under 20.2.72 NMAC (20.2.72.219.D NMAC). See #1 above. **Note:** Neither modeling nor a modeling waiver is required for VOC emissions.	
Reporting existing pollutants that were not previously reported.	
Reporting existing pollutants where the ambient impact is being addressed for the first time.	
Title V application (new, renewal, significant, or minor modification. 20.2.70 NMAC). See #3 above.	**X**
Relocation (20.2.72.202.B.4 or 72.202.D.3.c NMAC)	
Minor Source Technical Permit Revision 20.2.72.219.B.1.d.vi NMAC for like-kind unit replacements.	
Other: i.e. SSM modeling. See #2 above.	
This application does not require modeling since this is a No Permit Required (NPR) application.	
This application does not require modeling since this is a Notice of Intent (NOI) application (20.2.73 NMAC).	
This application does not require modeling according to 20.2.70.7.E(11), 20.2.72.203.A(4), 20.2.74.303, 20.2.79.109.D NMAC and in accordance with the Air Quality Bureau's Modeling Guidelines.	

Check each box that applies:

☐ See attached, approved modeling **waiver for all** pollutants from the facility.
☐ See attached, approved modeling **waiver for some** pollutants from the facility.
☐ Attached in Universal Application Form 4 (UA4) is a **modeling report for all** pollutants from the facility.
☐ Attached in UA4 is a **modeling report for some** pollutants from the facility.
☑ No modeling is required.

Modeling was last conducted in the application submitted for construction permit 2004-M3.

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Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

To show compliance with existing NSR permit conditions, you must submit a compliance test history. The table below provides an example.

Compliance Test History Table

Unit No.	Test Description	Test Date
1	Compliance test for NOx and CO, in accordance with Operating Permit P206-R3, Condition A201.B	June 1, 2021
2	Compliance test for NOx and CO, in accordance with Operating Permit P206-R3, Condition A201.B	November 19, 2020
4	Compliance test for NOx and CO, in accordance with Operating Permit P206-R3, Condition A201.B	June 11, 2019
5	Compliance test for NOx and CO, in accordance with Operating Permit P206-R3, Condition A201.B	June 1, 2021

Engine units 2 and 4 are on standby.

Engine unit 6 has not been installed.

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Section 18

Addendum for Streamline Applications

Streamline Applications do not require a complete application. Submit Sections 1-A, 1-B, 1-D, 1-F, 1-G, 2-A, 2-C thru L, Sections 3 thru 8, Section 13, Section 18, Section 22, and Section 23 (Certification). Other sections may be required at the discretion of the Department. 20.2.72.202 NMAC Exemptions do not apply to Streamline sources. 20.2.72.219 NMAC revisions and modifications do not apply to Streamline sources, thus 20.2.72.219 type actions require a complete new application submittal. Please do not print sections of a streamline application that are not required.

Not applicable for Title V applications.

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Section 19

Requirements for Title V Program

Who Must Use this Attachment:

* Any major source as defined in 20.2.70 NMAC.
* Any source, including an area source, subject to a standard or other requirement promulgated under Section 111 - Standards of Performance for New Stationary Sources, or Section 112 Hazardous Air Pollutants, of the 1990 federal Clean Air Act ("federal Act"). Non-major sources subject to Sections 111 or 112 of the federal Act are exempt from the obligation to obtain an 20.2.70 NMAC operating permit until such time that the EPA Administrator completes rulemakings that require such sources to obtain operating permits. In addition, sources that would be required to obtain an operating permit solely because they are subject to regulations or requirements under Section 112(r) of the federal Act are exempt from the requirement to obtain an Operating Permit.
* Any Acid Rain source as defined under title IV of the federal Act. The Acid Rain program has additional forms. See http://www.env.nm.gov/aqb/index.html. Sources that are subject to both the Title V and Acid Rain regulations are encouraged to submit both applications simultaneously.
* Any source in a source category designated by the EPA Administrator ("Administrator"), in whole or in part, by regulation, after notice and comment.

19.1 - 40 CFR 64, Compliance Assurance Monitoring (CAM) (20.2.70.300.D.10.e NMAC)

Any source subject to 40CFR, Part 64 (Compliance Assurance Monitoring) must submit all the information required by section 64.7 with the operating permit application. The applicant must prepare a separate section of the application package for this purpose; if the information is already listed elsewhere in the application package, make reference to that location. Facilities not subject to Part 64 are invited to submit periodic monitoring protocols with the application to help the AQB to comply with 20.2.70 NMAC. Sources subject to 40 CFR Part 64, must submit a statement indicating your source's compliance status with any enhanced monitoring and compliance certification requirements of the federal Act.

The facility is not subject to 40 CFR, Part 64, Compliance Assurance Monitoring (CAM); consequently, a monitoring protocol is not required with this application.

19.2 - Compliance Status (20.2.70.300.D.10.a & 10.b NMAC)

Describe the facility's compliance status with each applicable requirement at the time this permit application is submitted. This statement should include descriptions of or references to all methods used for determining compliance. This statement should include descriptions of monitoring, recordkeeping and reporting requirements and test methods used to determine compliance with all applicable requirements. Refer to Section 2, Tables 2-N and 2-O of the Application Form as necessary. (20.2.70.300.D.11 NMAC) For facilities with existing Title V permits, refer to most recent Compliance Certification for existing requirements. Address new requirements such as CAM, here, including steps being taken to achieve compliance.

The facility is in compliance with all applicable requirements, as has been demonstrated by the most recent semi-annual monitoring reports and annual compliance certification. It is assumed that compliance with the Title V operating permit ensures compliance with the construction permit and New Mexico regulations.

19.3 - Continued Compliance (20.2.70.300.D.10.c NMAC)

Provide a statement that your facility will continue to be in compliance with requirements for which it is in compliance at the time of permit application. This statement must also include a commitment to comply with other applicable requirements as they come into effect during the permit term. This compliance must occur in a timely manner or be consistent with such schedule expressly required by the applicable requirement.

The facility will continue to be in compliance with applicable requirements for which it is in compliance at the time of this permit application. In addition, Harvest will, in a timely manner or consistent with such schedule expressly required by the applicable requirement, comply with other applicable requirements as they come into effect during the permit term.

19.4 - Schedule for Submission of Compliance (20.2.70.300.D.10.d NMAC)

You must provide a proposed schedule for submission to the department of compliance certifications during the permit term. This certification must be submitted annually unless the applicable requirement or the department specifies a more frequent period. A sample form for these certifications will be attached to the permit.

The submittal of compliance certifications during the five-year term of the operating permit will occur annually.

19.5 - Stratospheric Ozone and Climate Protection

In addition to completing the four (4) questions below, you must submit a statement indicating your source's compliance status with requirements of Title VI, Section 608 (National Recycling and Emissions Reduction Program) and Section 609 (Servicing of Motor Vehicle Air Conditioners).

---

1. Does your facility have any air conditioners or refrigeration equipment that uses CFCs, HCFCs or other ozone-depleting substances? **Yes** ☑ **No**

2. Does any air conditioner(s) or any piece(s) of refrigeration equipment contain a refrigeration charge greater than 50 lbs? **Yes** ☑ **No**

   (If the answer is yes, describe the type of equipment and how many units are at the facility.)

3. Do your facility personnel maintain, service, repair, or dispose of any motor vehicle air conditioners (MVACs) or appliances ("appliance" and "MVAC" as defined at 82. 152)? **Yes** ☑ **No**

4. Cite and describe which Title VI requirements are applicable to your facility (i.e. 40 CFR Part 82, Subpart A through G). **None**

The facility does not produce, manufacture, transform, destroy, import, or export any stratospheric ozone-depleting substances (CFCs, HCFCs); does not maintain or service motor vehicle air conditioning units or refrigeration equipment; and does not sell, distribute, or offer for sale any product that may contain stratospheric ozone-depleting substances.

Harvest shall continue to maintain compliance with the conditions stipulated in 40 CFR 82, Subparts A-G of the Stratospheric Ozone Protection Program (Title VI of the Clean Air Act Amendments).

19.6 - Compliance Plan and Schedule

Applications for sources, which are not in compliance with all applicable requirements at the time the permit application is submitted to the department, must include a proposed compliance plan as part of the permit application package. This plan shall include the information requested below:

A. Description of Compliance Status: (20.2.70.300.D.11.a NMAC)
A narrative description of your facility's compliance status with respect to all applicable requirements (as defined in 20.2.70 NMAC) at the time this permit application is submitted to the department.

B. Compliance plan: (20.2.70.300.D.11.B NMAC)
A narrative description of the means by which your facility will achieve compliance with applicable requirements with which it is not in compliance at the time you submit your permit application package.

C. Compliance schedule: (20.2.70.300D.11.c NMAC)
A schedule of remedial measures that you plan to take, including an enforceable sequence of actions with milestones, which will lead to compliance with all applicable requirements for your source. This schedule of compliance must be at least as stringent as that contained in any consent decree or administrative order to which your source is subject. The obligations of any consent decree or administrative order are not in any way diminished by the schedule of compliance.

D. Schedule of Certified Progress Reports: (20.2.70.300.D.11.d NMAC)
A proposed schedule for submission to the department of certified progress reports must also be included in the compliance schedule. The proposed schedule must call for these reports to be submitted at least every six (6) months.

E. Acid Rain Sources: (20.2.70.300.D.11.e NMAC)
If your source is an acid rain source as defined by EPA, the following applies to you. For the portion of your acid rain source subject to the acid rain provisions of title IV of the federal Act, the compliance plan must also include any additional requirements under the acid rain provisions of title IV of the federal Act. Some requirements of title IV regarding the schedule and methods the source will use to achieve compliance with the acid rain emissions limitations may supersede the requirements of title V and 20.2.70 NMAC. You will need to consult with the Air Quality Bureau permitting staff concerning how to properly meet this requirement.

NOTE: The Acid Rain program has additional forms. See http://www.env.nm.gov/aqb/index.html. Sources that are subject to both the Title V and Acid Rain regulations are **encouraged** to submit both applications **simultaneously**.

The facility is in compliance with all applicable requirements; consequently, a compliance plan, a compliance schedule, and a schedule of certified progress reports is not required.

The facility is not equipped with any acid rain sources; consequently, compliance with the acid rain provisions is not required as a part of this permit application.

19.7 - 112(r) Risk Management Plan (RMP)

Any major sources subject to section 112(r) of the Clean Air Act must list all substances that cause the source to be subject to section 112(r) in the application. The permittee must state when the RMP was submitted to and approved by EPA.

The facility is not subject to 40 CFR 68, Chemical Accident Prevention Provisions; consequently, a Risk Management Plan is not required.

19.8 - Distance to Other States, Bernalillo, Indian Tribes and Pueblos

Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B NMAC)?

(If the answer is yes, state which apply and provide the distances.)

The facility is located within 80 kilometers of the following states, local pollution control programs, Indian tribes and pueblos:

State of Colorado (9.2 km)

Jicarilla Apache Tribe (26.5 km)

Navajo Nation Tribal land (34.2 km)

Southern Ute Tribe (~9.2 km)

Ute Mountain Ute Tribe (67.3 km)

19.9 - Responsible Official

Provide the Responsible Official as defined in 20.2.70.7.AD NMAC:

The responsible official is Travis Jones, EH&S Manager.

Section 20

Other Relevant Information

Other relevant information. Use this attachment to clarify any part in the application that you think needs explaining. Reference the section, table, column, and/or field. Include any additional text, tables, calculations or clarifying information.

Additionally, the applicant may propose specific permit language for AQB consideration. In the case of a revision to an existing permit, the applicant should provide the old language and the new language in track changes format to highlight the proposed changes. If proposing language for a new facility or language for a new unit, submit the proposed operating condition(s), along with the associated monitoring, recordkeeping, and reporting conditions. In either case, please limit the proposed language to the affected portion of the permit.

Not applicable.

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Section 21

Addendum for Landfill Applications

Landfill Applications are not required to complete Sections 1-C Input Capacity and Production Rate, 1-E Operating Schedule, 17 Compliance Test History, and 18 Streamline Applications. Section 12 – PSD Applicability is required only for Landfills with Gas Collection and Control Systems and/or landfills with other non-fugitive stationary sources of air emissions such as engines, turbines, boilers, heaters. All other Sections of the Universal Application Form are required.

EPA Background Information for MSW Landfill Air Quality Regulations:
https://www3.epa.gov/airtoxics/landfill/landflpg.html

NM Solid Waste Bureau Website: https://www.env.nm.gov/swb/

Not applicable.

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Section 22: Certification

Company Name: Harvest Four Corners, LLC

I, Travis Jones, hereby certify that the information and data submitted in this application are true and as accurate as possible, to the best of my knowledge and professional expertise and experience.

Signed this 17th day of January, 2022, upon my oath or affirmation, before a notary of the State of

Texas.

*Signature

1/17/2022
Date

Travis Jones
Printed Name

EH&S Manager
Title

Scribed and sworn before me on this 17 day of January, 2022.

My authorization as a notary of the State of Texas expires on the

23 day of July, 2024.

Notary's Signature

01-17-2022
Date

Brittany Burkhalter
Notary's Printed Name

BRITTANY BURKHALTER
Notary Public, State of Texas
Comm. Expires 07-23-2024
Notary ID 130640662

*For Title V applications, the signature must be of the Responsible Official as defined in 20.2.70.7.AE NMAC.

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