

# *Cirrus Consulting, LLC*

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June 14, 2022

RECEIVED

JUN 22 2022

Air Quality Bureau

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

Re: **Application to Renew Title V Operating Permit P029-R4-M1 (A.I. No. 1168)**  
**Harvest Four Corners, LLC – 32-8 #3 Central Delivery Point**

Dear Madam or Sir,

On behalf of Harvest Four Corners, LLC (Harvest), Cirrus Consulting, LLC is pleased to submit the enclosed Title V Operating Permit renewal application for the **32-8 #3 Central Delivery Point (CDP)**.

In accordance with the instructions in the NMAQB Universal Air Quality Permit Application, one hard copy original, one hard copy review copy, and two CDs containing the application electronic files are included.

Thank you. Please contact Mr. Oakley Hayes of Harvest at (505) 632-4421 if you have questions or need additional information regarding this application.

Sincerely,

**CIRRUS CONSULTING, LLC**



Lisa Killion

Enclosure

- One application original hard copy
- One application review hard copy
- Two CDs containing application electronic files

cc: Oakley Hayes, Harvest (electronic copy)  
James Newby, Cirrus (electronic copy)

**NEW MEXICO 20.2.70 NMAC  
APPLICATION TO RENEW  
TITLE V OPERATING PERMIT NUMBER P029-R4-M1**

**32-8 #3 CENTRAL DELIVERY POINT (CDP)**

**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**

**June 2022**

## Table of Contents

### Introduction

Section 1:	Facility Information
Section 2:	Tables
Section 3:	Application Summary
Section 4:	Process Flow Sheet
Section 5:	Plot Plan Drawn to Scale
Section 6:	All Calculations
	6.a: Green House Gas Emissions
Section 7:	Information Used to Determine Emissions
Section 8:	Map(s)
Section 9:	Proof of Public Notice
Section 10:	Written Description of the Routine Operations of the Facility
Section 11:	Source Determination
Section 12:	PSD Applicability Determination for All Sources
Section 13:	Discussion Demonstrating Compliance with Each Applicable State & Federal Regulation
Section 14:	Operational Plan to Mitigate Emissions
Section 15:	Alternative Operating Scenarios
Section 16:	Air Dispersion Modeling
Section 17:	Compliance Test History
Section 18:	Addendum for Streamline Applications
Section 19:	Requirements for the Title V Program
Section 20:	Other Relevant Information
Section 21:	Addendum for Landfill Applications
Section 22:	Certification

# Introduction

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## *Application Summary*

The Harvest Four Corners, LLC (Harvest) 32-8 #3 Central Delivery Point (32-8 #3 CDP) is a production field natural gas gathering and boosting (compressor) station that currently operates under construction permit 1034-M5-R8, issued on June 1, 2021; and Title V operating permit P029-R4, dated June 19, 2018, as revised through P029-R4-M1 (for a facility ownership change).

This application is being submitted under 20.2.70.300.B(2) of the New Mexico Administrative Code (NMAC) to renew the Title V operating permit. As required by the regulation, this renewal application is being submitted at least 12 months prior to the expiration date of the current Title V Operating Permit.

A list of the equipment currently approved for use at the facility under the Title V Operating permit can be found in Tables 2-A and 2-B of Section 2 of this application. There are no proposed changes to the current permit.

<b>Mail Application To:</b>  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		<b>For Department use only:</b>  <div style="font-size: 2em; color: blue; font-weight: bold;">RECEIVED</div> <div style="color: red; font-weight: bold;">JUN 22 2022</div> <div style="color: blue; font-weight: bold;">Air Quality Bureau</div> AIRS No.:
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## 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](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.B(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 1 <sup>st</sup> 3 to 5 #s of permit IDEA ID No.): <b>1168</b>	Updating Permit/NOI #: <b>P029-R4-M1</b>
1	Facility Name: 32-8 #3 Central Delivery Point		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	<input type="checkbox"/> Preparer: <input checked="" type="checkbox"/> 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.b If yes to question 1.a, is it currently operating in New Mexico? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
3	Is the facility currently shut down? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes, the permit No. is: P 029-R4-M1
7	Has this facility been issued a No Permit Required (NPR)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes, the NPR No. is:
8	Has this facility been issued a Notice of Intent (NOI)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes, the NOI No. is:
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes, the permit No. is: 1034-M5-R8
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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: 2.0 mmcfh <sup>(a)</sup>	Daily: 48.3 mmscfd <sup>(a)</sup>	Annually: 17,630 mmscfd <sup>(a)</sup>
b	Proposed	Hourly: 2.0 mmcfh <sup>(a)</sup>	Daily: 48.3 mmscfd <sup>(a)</sup>	Annually: 17,630 mmscfd <sup>(a)</sup>
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: 2.0 mmcfh <sup>(a)</sup>	Daily: 48.3 mmscfd <sup>(a)</sup>	Annually: 17,630 mmscfd <sup>(a)</sup>
b	Proposed	Hourly: 2.0 mmcfh <sup>(a)</sup>	Daily: 48.3 mmscfd <sup>(a)</sup>	Annually: 17,630 mmscfd <sup>(a)</sup>

<sup>(a)</sup> 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: 09	Range: 08W	Township: 31N	County: San Juan	Elevation (ft): 6,670
2	UTM Zone: <input type="checkbox"/> 12 or <input checked="" type="checkbox"/> 13			Datum: <input type="checkbox"/> NAD 27 <input type="checkbox"/> NAD 83 <input checked="" type="checkbox"/> WGS 84	
a	UTM E (in meters, to nearest 10 meters): 261,765 m			UTM N (in meters, to nearest 10 meters): 4,088,745 m	
b	AND Latitude (deg., min., sec.): 36° 54' 53" N			Longitude (deg., min., sec.): -107° 40' 27" W	
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): From Aztec, NM, drive north on Hwy 550 to Hwy 173 (approximately 2 miles). Turn right, and drive 18 miles to Hwy 511 (Sportsman). Turn left, and drive 15.1 miles on 511 (crossing the dam) to CR 4600. Turn left. Drive 100 yards and turn right. The site is on the left.				
5	The facility is ~18 (distance) miles northeast (direction) of Aztec, NM (nearest town).				
6	Status of land at facility (check one): <input type="checkbox"/> Private <input type="checkbox"/> Indian/Pueblo <input checked="" type="checkbox"/> Federal BLM <input type="checkbox"/> Federal Forest Service <input type="checkbox"/> 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; Southern Ute; San Juan Co.; Rio Arriba Co.				
8	20.2.72 NMAC applications <b>only</b> : 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 <a href="http://www.env.nm.gov/aqb/modeling/class1areas.html">www.env.nm.gov/aqb/modeling/class1areas.html</a> )? <input type="checkbox"/> Yes <input type="checkbox"/> No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers: Not applicable				
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): 56.680 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: 12,090 m				
12	Method(s) used to delineate the Restricted Area: Fencing “ <b>Restricted Area</b> ” 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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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? <input checked="" type="checkbox"/> No <input type="checkbox"/> 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 <b>maximum</b> 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		<input type="checkbox"/> AM <input type="checkbox"/> PM	End: N/A <input type="checkbox"/> AM <input type="checkbox"/> 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
4	Will this facility be a source of federal Hazardous Air Pollutants (HAP)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
a	If Yes, what type of source? <input checked="" type="checkbox"/> <b>Major</b> ( <input checked="" type="checkbox"/> $\geq 10$ tpy of any single HAP <b>OR</b> <input checked="" type="checkbox"/> $\geq 25$ tpy of any combination of HAPS) <b>OR</b> <input type="checkbox"/> <b>Minor</b> ( <input type="checkbox"/> $< 10$ tpy of any single HAP <b>AND</b> <input type="checkbox"/> $< 25$ tpy of any combination of HAPS)		
5	Is any unit exempt under 20.2.72.202.B.3 NMAC? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
a	If yes, include the name of company providing commercial electric power to the facility: <u>Not applicable.</u> 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	<input type="checkbox"/> I have filled out Section 18, "Addendum for Streamline Applications." <input checked="" type="checkbox"/> N/A (This is not a Streamline application.)
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**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.): Hilcorp Energy Company		
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 (9.4 km); Southern Ute Tribe (9.4 km); Jicarilla Apache Tribe (42.5 km); Ute Mountain Ute Tribe (51.5 km); and Navajo Tribal Lands (29.5 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-toe 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.

## Table of Contents

<b>Section 1:</b>	<b>General Facility Information</b>
<b>Section 2:</b>	<b>Tables</b>
<b>Section 3:</b>	<b>Application Summary</b>
<b>Section 4:</b>	<b>Process Flow Sheet</b>
<b>Section 5:</b>	<b>Plot Plan Drawn to Scale</b>
<b>Section 6:</b>	<b>All Calculations</b>
<b>Section 7:</b>	<b>Information Used to Determine Emissions</b>
<b>Section 8:</b>	<b>Map(s)</b>
<b>Section 9:</b>	<b>Proof of Public Notice</b>
<b>Section 10:</b>	<b>Written Description of the Routine Operations of the Facility</b>
<b>Section 11:</b>	<b>Source Determination</b>
<b>Section 12:</b>	<b>PSD Applicability Determination for All Sources &amp; Special Requirements for a PSD Application</b>
<b>Section 13:</b>	<b>Discussion Demonstrating Compliance with Each Applicable State &amp; Federal Regulation</b>
<b>Section 14:</b>	<b>Operational Plan to Mitigate Emissions</b>
<b>Section 15:</b>	<b>Alternative Operating Scenarios</b>
<b>Section 16:</b>	<b>Air Dispersion Modeling</b>
<b>Section 17:</b>	<b>Compliance Test History</b>
<b>Section 18:</b>	<b>Addendum for Streamline Applications (streamline applications only)</b>
<b>Section 19:</b>	<b>Requirements for the Title V (20.2.70 NMAC) Program (Title V applications only)</b>
<b>Section 20:</b>	<b>Other Relevant Information</b>
<b>Section 21:</b>	<b>Addendum for Landfill Applications</b>
<b>Section 22:</b>	<b>Certification Page</b>

**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 <sup>1</sup>	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity <sup>3</sup> (Specify Units)	Requested Permitted Capacity <sup>3</sup> (Specify Units)	Date of Manufacture <sup>2</sup>	Controlled by Unit #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB) <sup>4</sup>	Replacing Unit No.
							Date of Construction/Reconstruction <sup>2</sup>	Emissions vented to Stack #				
1	Reciprocating Internal Combustion Engine	Waukesha	7042GL	C-61028/2 (Pkg. X00055)	1,478 hp	1,363 hp	4/22/1998	N/A	20200202	<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced	4SLB	N/A
							4/22/1998	1				
2	Reciprocating Internal Combustion Engine	Waukesha	7042GL	354800 (Pkg. X00008)	1,478 hp	1,363 hp	12/15/1980	N/A	20200202	<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced	4SLB	N/A
							12/15/1980	2				
3	Reciprocating Internal Combustion Engine	Waukesha	7042GL	269514 (Pkg. X00073)	1,478 hp	1,363 hp	9/30/1974	N/A	20200202	<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced	4SLB	N/A
							9/30/1974	3				
4	Reciprocating Internal Combustion Engine	Waukesha	7042GL	C-11059/2 (Pkg. X00017)	1,478 hp	1,363 hp	11/29/1993	N/A	20200202	<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced	4SLB	N/A
							11/29/1993	4				
5	Reciprocating Internal Combustion Engine	Waukesha	7042GL	TBD	1,478 hp	1,363 hp	TBD	N/A	20200202	<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced	4SLB	N/A
							TBD	5				
6	Reciprocating Internal Combustion Engine	Waukesha	7042GL	TBD	1,478 hp	1,363 hp	TBD	N/A	20200202	<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced	4SLB	N/A
							TBD	6				
SSM	Compressors & Associated Piping (SSM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31000299	<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced	N/A	N/A
							N/A	N/A				
7a	Dehydrator Still Vent	Enertek	J2P12M111 09	41687	12 MMSCFD	12 MMSCFD	07/92	NA	31000227	<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced	N/A	N/A
							07/92	NA				
7b <sup>5</sup>	Dehydrator Reboiler	Enertek	J2P12M111 09	41687	1,208 scfh	1,208 scfh	07/92	NA	31000228	<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced	N/A	N/A
							07/92	7b				
8a	Dehydrator Still Vent	Enertek	J2P12M111 09	41891	12 MMSCFD	12 MMSCFD	01/93	NA	31000227	<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced	N/A	N/A
							01/93	N/A				
8b <sup>5</sup>	Dehydrator Reboiler	Enertek	J2P12M111 09	41891	1,208 scfh	1,208 scfh	01/93	NA	31000228	<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced	N/A	N/A
							01/93	8b				
9a	Dehydrator Still Vent	P & A	PA-10MM- 1000-2P	4301	10 MMSCFD	10 MMSCFD	01/93	NA	31000227	<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced	N/A	N/A
							01/93	N/A				
9b <sup>5</sup>	Dehydrator Reboiler	P & A	PA-10MM- 1000-2P	4301	659 scfh	659 scfh	01/93	NA	31000228	<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced	N/A	N/A
							01/93	9b				
10a	Dehydrator Still Vent	P & A	PA-10MM- 1000-2P	4570	10 MMSCFD	10 MMSCFD	03/91	NA	31000227	<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced	N/A	N/A
							03/91	NA				
10b <sup>5</sup>	Dehydrator Reboiler	P & A	PA-10MM- 1000-2P	4570	659 scfh	659 scfh	03/91	NA	31000228	<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced	N/A	N/A
							03/91	10b				
M-1	Malfunctions	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31000299	<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced	N/A	N/A
							N/A	N/A				

<sup>1</sup> 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.<sup>2</sup> Specify dates required to determine regulatory applicability.<sup>3</sup> 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.<sup>4</sup> "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<sup>5</sup> The previous [Operating Permit P029] application contained typographical errors showing the 'Manufacturer's Rated Capacity' and 'Requested Permitted Capacity' for the unit 7b, 8b, 9b, and 10b dehydrator reboilers as 429 scfh each. With this application, the typos are corrected to match the fuel consumption rates shown in the Section 6 emission calculations. (The reboiler emission rates shown in Table 2-E are unaffected.)

## Table 2-B: Insignificant Activities<sup>1</sup> (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](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.	Max Capacity	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction <sup>2</sup>	For Each Piece of Equipment, Check One
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction <sup>2</sup>	
T1	Waste Water Storage Tank			6,930	20.2.72.202.B(2) NMAC		<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
				gal	Insignificant Activity List Item #5		
T2	Produced Storage Tank			6,300	20.2.72.202.B(5) NMAC		<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
				gal	Insignificant Activity List Item #1		
T3	Used Oil Storage Tank			6,930	20.2.72.202.B(2) NMAC		<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
				gal	Insignificant Activity List Item #5		
T4	Lubrication Oil Storage Tank			4,200	20.2.72.202.B(2) NMAC		<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
				gal	Insignificant Activity List Item #5		
T5-T10	Lubrication Oil Storage Tank			500	20.2.72.202.B(2) NMAC		<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
				gal	Insignificant Activity List Item #5		
T11-T14	Glycol Storage Tank			100	20.2.72.202.B(2) NMAC		<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
				gal	Insignificant Activity List Item #5		
T15-T18	Glycol Storage Tank			50	20.2.72.202.B(2) NMAC		<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
				gal	Insignificant Activity List Item #5		
T19	Antifreeze Storage Tank			500	20.2.72.202.B(2) NMAC		<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
				gal	Insignificant Activity List Item #5		
F1	Fugitive Emissions			N/A	20.2.72.202.B(5) NMAC		<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
				N/A	Insignificant Activity List Item #1		
L1	Truck Loading (Produced Water)			N/A	20.2.72.202.B(5) NMAC		<input checked="" type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
				N/A	Insignificant Activity List Item #1		
							<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
							<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
							<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced

<sup>1</sup> 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.

<sup>2</sup> Specify date(s) required to determine regulatory applicability.

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.

[illegible]

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**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<sup>-4</sup>).

Unit No.	NOx		CO		VOC		SOx		PM <sup>1</sup>		PM10 <sup>1</sup>		PM2.5 <sup>1</sup>		H <sub>2</sub> S		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	4.51	19.74	7.96	34.87	3.00	13.16	5.91E-03	2.59E-02	0.10	0.44	0.10	0.44	0.10	0.44	-	-	-	-
2	4.51	19.74	7.96	34.87	3.00	13.16	5.9E-03	2.6E-02	0.10	0.44	0.10	0.44	0.10	0.44	-	-	-	-
3	4.51	19.74	7.96	34.87	3.00	13.16	5.91E-03	2.59E-02	0.10	0.44	0.10	0.44	0.10	0.44	-	-	-	-
4	4.51	19.74	7.96	34.87	3.00	13.16	5.91E-03	2.6E-02	0.10	0.44	0.10	0.44	0.10	0.44	-	-	-	-
5	4.51	19.74	7.96	34.87	3.00	13.16	5.91E-03	2.59E-02	0.10	0.44	0.10	0.44	0.10	0.44	-	-	-	-
6	4.51	19.74	7.96	34.87	3.00	13.16	5.91E-03	2.59E-02	0.10	0.44	0.10	0.44	0.10	0.44	-	-	-	-
SSM	-	-	-	-	Not specified	1.90	-	-	-	-	-	-	-	-	-	-	-	-
7a	-	-	-	-	2.50	10.00	-	-	-	-	-	-	-	-	-	-	-	-
7b	4.29E-02	0.19	3.25E-02	0.14	4.79E-03	2.10E-02	8.33E-04	3.65E-03	9.18E-03	4.02E-02	9.18E-03	4.02E-02	9.18E-03	4.02E-02	-	-	6.04E-07	2.65E-06
8a	-	-	-	-	2.50	10.00	-	-	-	-	-	-	-	-	-	-	-	-
8b	4.29E-02	0.19	3.25E-02	0.14	4.79E-03	2.10E-02	8.33E-04	3.65E-03	9.18E-03	4.02E-02	9.18E-03	4.02E-02	9.18E-03	4.02E-02	-	-	6.04E-07	2.65E-06
9a	-	-	-	-	2.50	10.00	-	-	-	-	-	-	-	-	-	-	-	-
9b	4.29E-02	0.19	1.79E-02	7.85E-02	2.71E-03	1.19E-02	4.17E-04	1.83E-03	5.01E-03	2.19E-02	5.01E-03	2.19E-02	5.01E-03	2.19E-02	-	-	3.30E-07	1.44E-06
10a	-	-	-	-	2.50	10.00	-	-	-	-	-	-	-	-	-	-	-	-
10b	4.29E-02	0.19	1.79E-02	7.85E-02	2.71E-03	1.19E-02	4.17E-04	1.83E-03	5.01E-03	2.19E-02	5.01E-03	2.19E-02	5.01E-03	2.19E-02	-	-	3.30E-07	1.44E-06
M1	-	-	-	-	Not specified	10.0	-	-	-	-	-	-	-	-	-	-	-	-
<b>Totals</b>	27.21	119.18	47.87	209.67	28.04	130.92	3.80E-02	0.17	0.63	2.76	0.63	2.76	0.63	2.76	-	-	1.87E-06	8.18E-06

<sup>1</sup> **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-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 scheduled 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 explanation of SSM emissions in Section 6 and 6a.

All applications for facilities that have emissions during routine or predictable startup, shutdown or scheduled maintenance (SSM)<sup>1</sup>, 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](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 <sup>2</sup>		PM10 <sup>2</sup>		PM2.5 <sup>2</sup>		H <sub>2</sub> S		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	-	-	-	-	not specified	1.9	-	-	-	-	-	-	-	-	-	-	-	-
M-1	-	-	-	-	not specified	10.0	-	-	-	-	-	-	-	-	-	-	-	-
<b>Totals</b>	-	-	-	-	not specified	11.90	-	-	-	-	-	-	-	-	-	-	-	-

<sup>1</sup> 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.

<sup>2</sup> **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).

☒ 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 the “  ” symbol and on significant figures.

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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:

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**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		Xylene 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	
		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	-	-	-	-								
3	3	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	-	-	-	-	-	-	-	-	-	-								
7a	7a	1.0	4.4	0.3	1.1	-	-	0.4	1.8	0.3	1.4								
7b	7b	-	-	-	-	-	-	-	-	-	-								
8a	8a	1.0	4.4	0.3	1.1	-	-	0.4	1.8	0.3	1.4								
8b	8b	-	-	-	-	-	-	-	-	-	-								
9a	9a	0.9	4.1	0.2	1.1	-	-	0.4	1.7	0.3	1.2								
9b	9b	-	-	-	-	-	-	-	-	-	-								
10a	10a	0.9	4.1	0.2	1.1	-	-	0.4	1.7	0.3	1.2								
10b	10b	-	-	-	-	-	-	-	-	-	-								
T2	T2	-	0.1	-	-	-	-	-	-	-	-								
L1	L1	-	-	-	-	-	-	-	-	-	-								
F1	F1	-	-	-	-	-	-	-	-	-	-								
M1	M1	-	0.2	-	-	-	-	-	-	-	-								
<b>Totals</b>		7.06	31.2	1.1	4.8	3.0	13.3	1.7	7.4	1.2	5.4								

**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	11,165 scfh	97.81 MMscf/yr	-	-
2	Natural gas	Raw/Field Natural Gas	900 Btu/scf	11,165 scfh	97.81 MMscf/yr	-	-
3	Natural gas	Raw/Field Natural Gas	900 Btu/scf	11,165 scfh	97.81 MMscf/yr	-	-
4	Natural gas	Raw/Field Natural Gas	900 Btu/scf	11,165 scfh	97.81 MMscf/yr	-	-
5	Natural gas	Raw/Field Natural Gas	900 Btu/scf	11,165 scfh	97.81 MMscf/yr	-	-
6	Natural gas	Raw/Field Natural Gas	900 Btu/scf	11,165 scfh	97.81 MMscf/yr	-	-
7b	Natural gas	Raw/Field Natural Gas	900 Btu/scf	1,208 scfh	10.58 MMscf/yr	-	-
8b	Natural gas	Raw/Field Natural Gas	900 Btu/scf	1,208 scfh	10.58 MMscf/yr	-	-
9b	Natural gas	Raw/Field Natural Gas	900 Btu/scf	659 scfh	5.77 MMscf/yr	-	-
10b	Natural gas	Raw/Field Natural Gas	900 Btu/scf	659 scfh	5.77 MMscf/yr	-	-

**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)
T1	40400313	Waste Water	Water; <1% hydrocarbon liquids	Insignificant source					
T2	40400315	Produced Water	Produced water w/trace of hydrocarbons	Insignificant source					
T3	40400313	Used Oil	Used Lubrication Oil	Insignificant source					
T4	40400313	Lubrication Oil	Lubrication Oil	Insignificant source					
T5 - T10	40400313	Lubrication Oil	Lubrication Oil	Insignificant source					
T11 - T14	40705218	Glycol	Triethylene Glycol (TEG)	Insignificant source					
T15 - T18	40705218	Glycol	Triethylene Glycol (TEG)	Insignificant source					
T19	31000299	Antifreeze	Triethylene Glycol (TEG)	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)	(M³)			Roof	Shell			
T1		Waste Water	N/A	FX	165	26.2	Insignificant source						
T2		Produced Water	N/A	FX	150	23.8	Insignificant source						
T3		Used oil	N/A	FX	165	26.2	Insignificant source						
T4		Lubrication oil	N/A	FX	100	15.9	Insignificant source						
T5 - T10		Lubrication oil	N/A	FX	11.9	1.9	Insignificant source						
T11 - T14		Triethylene Glycol	N/A	FX	2.4	0.4	Insignificant source						
T15 - T18		Triethylene Glycol	N/A	FX	1.2	0.2	Insignificant source						
T19		Antifreeze	N/A	FX	11.9	1.9	Insignificant source						
							* N/A: The emission calculations do not yield this data.						



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 M³ = 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	C1-C6+	Gas	17,630 mmscfy <sup>1</sup>	High pressure natural gas	C1-C6+	Gas	17,630 mmscfy <sup>1</sup>
Produced water	H <sub>2</sub> O + trace of HC	Liquid	151,800 gal/yr <sup>1</sup>	Produced water	H <sub>2</sub> O + trace of HC	Liquid	151,800 gal/yr <sup>1</sup>
<sup>1</sup> 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.							

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.

[illegible]

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

[illegible]

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 <sub>2</sub> ton/yr	N <sub>2</sub> O ton/yr	CH <sub>4</sub> ton/yr	SF <sub>6</sub> ton/yr	PFC/HFC ton/yr <sup>2</sup>									Total GHG Mass Basis ton/yr <sup>4</sup>	Total CO <sub>2</sub> e ton/yr <sup>5</sup>
Unit No.	GWPs <sup>1</sup>	1	298	25	22,800	footnote 3										
1	mass GHG	6010.45	0.011	0.11											6010.6	-
	CO <sub>2</sub> e	6010.45	3.4	2.8											-	6016.7
2	mass GHG	6010.45	0.011	0.11											6010.6	-
	CO <sub>2</sub> e	6010.45	3.4	2.8											-	6016.7
3	mass GHG	6010.45	0.011	0.11											6010.6	-
	CO <sub>2</sub> e	6010.45	3.4	2.8											-	6016.7
4	mass GHG	6010.45	0.011	0.11											6010.6	-
	CO <sub>2</sub> e	6010.45	3.4	2.8											-	6016.7
5	mass GHG	6010.45	0.011	0.11											6010.6	-
	CO <sub>2</sub> e	6010.45	3.4	2.8											-	6016.7
6	mass GHG	6010.45	0.011	0.11											6010.6	-
	CO <sub>2</sub> e	6010.45	3.4	2.8											-	6016.7
SSM	mass GHG	67.6	-	133.5											201.0	-
	CO <sub>2</sub> e	67.55	-	3336.7											-	3404.2
7a	mass GHG	36.7	-	1.7											38.4	-
	CO <sub>2</sub> e	36.7	-	41.4											-	78.1
7b	mass GHG	617.6	0.001	0.012											617.6	-
	CO <sub>2</sub> e	617.6	0.347	0.291											-	618.3
8a	mass GHG	36.7	-	1.7											38.4	-
	CO <sub>2</sub> e	36.7	-	41.4											-	78.1
8b	mass GHG	617.6	0.001	0.012											617.6	-
	CO <sub>2</sub> e	617.6	0.347	0.291											-	618.3
9a	mass GHG	36.8	-	1.7											38.4	-
	CO <sub>2</sub> e	36.8	-	41.5											-	78.2
9b	mass GHG	336.9	0.001	0.006											336.9	-
	CO <sub>2</sub> e	336.9	0.189	0.159											-	337.3

Unit No.		CO <sub>2</sub> ton/yr	N <sub>2</sub> O ton/yr	CH <sub>4</sub> ton/yr	SF <sub>6</sub> ton/yr	PFC/HFC ton/yr <sup>2</sup>									Total GHG Mass Basis ton/yr <sup>4</sup>	Total CO <sub>2</sub> e ton/yr <sup>5</sup>
Unit No.	GWPs <sup>1</sup>	1	298	25	22,800	footnote 3										
10a	mass GHG	36.8	-	1.7											38.4	-
	CO <sub>2</sub> e	36.8	-	41.5											-	78.2
10b	mass GHG	336.9	0.001	0.006											336.9	-
	CO <sub>2</sub> e	336.9	0.189	0.159											-	337.3
F1	mass GHG	8.1	-	16.1											24.2	-
	CO <sub>2</sub> e	8.1	-	402.2											-	410.3
M1	mass GHG	356.3	-	703.9											1060.1	-
	CO <sub>2</sub> e	356.3	-	17597.2											-	17953.4
T2	mass GHG	0.0	-	0.0											0.0	-
	CO <sub>2</sub> e	0.0	-	0.0											-	0.0
L1	mass GHG	0.0	-	0.0											0.0	-
	CO <sub>2</sub> e	0.0	-	0.0											-	0.0
Recip Comp Venting	mass GHG	163.5	-	323.5											487.0	-
	CO <sub>2</sub> e	163.5	-	8087.1											-	8250.6
Pneum Dev Venting	mass GHG	41.0	-	81.0											122.0	-
	CO <sub>2</sub> e	41.0	-	2024.6											-	2065.6
Pneum Pump Venting	mass GHG	1.03	-	2.04											3.1	-
	CO <sub>2</sub> e	1.03	-	51.01											-	52.0
	mass GHG														0.0	-
	CO <sub>2</sub> e														-	0.0
	mass GHG														0.0	-
	CO <sub>2</sub> e														-	0.0
Total <sup>6</sup>	mass GHG	38,756.3	0.07	1,267.29											40,024	-
	CO <sub>2</sub> e	38,756.3	21.3	31,682.4											-	70,460.0

<sup>1</sup> 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.

<sup>2</sup> For HFCs or PFCs describe the specific HFC or PFC compound and use a separate column for each individual compound.

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

<sup>4</sup> Green house gas emissions on a mass basis is the ton per year green house gas emission before adjustment with its GWP.

<sup>5</sup> CO<sub>2</sub>e means Carbon Dioxide Equivalent and is calculated by multiplying the TPY mass emissions of the green house gas by its GWP.

<sup>5</sup> The increase in mass GHG and CO<sub>2</sub>e compared to previous permit applications is based on higher methane and lower VOC content of the updated gas sample. (The gas GHG content fluctuates over time.)

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# Section 3

## Application Summary

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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](http://www.env.nm.gov/aqb/permit/app_form.html)) for more detailed instructions on SSM emissions.

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### *Application Summary*

The Harvest Four Corners, LLC (Harvest) 32-8 #3 Central Delivery Point (32-8 #3 CDP) currently operates under construction permit 1034-M5-R8, issued on June 1, 2021; and Title V operating permit P029-R4, dated June 19, 2018, as revised through P029-R4-M1 (for a facility ownership change).

This application is being submitted under 20.2.70.300.B(2) of the New Mexico Administrative Code (NMAC) to renew the Title V operating permit. As required by the regulation, this renewal application is being submitted at least 12 months prior to the expiration date of the current Title V Operating Permit.

A list of the equipment currently approved for use at the facility under the Title V Operating permit can be found in Tables 2-A and 2-B of Section 2 of this application. There are no proposed changes to the current permit; and therefore no de-bottlenecking of impacts or changes to the facility's major/minor status under the Prevention of Significant Deterioration (PSD) program and/or the Title V Operating Permits program.

### *Process Description*

The 32-8 #3 CDP 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 Emissions (SSM)*

Except for facility compressor and piping blowdown events identified in tables 2-E and 2-F in application Section 2, there are no SSM emissions in excess of those identified for steady-state operation. Discussions justifying this conclusion are provided in Section 6. The only SSM emissions are of volatile organic compounds (VOC).

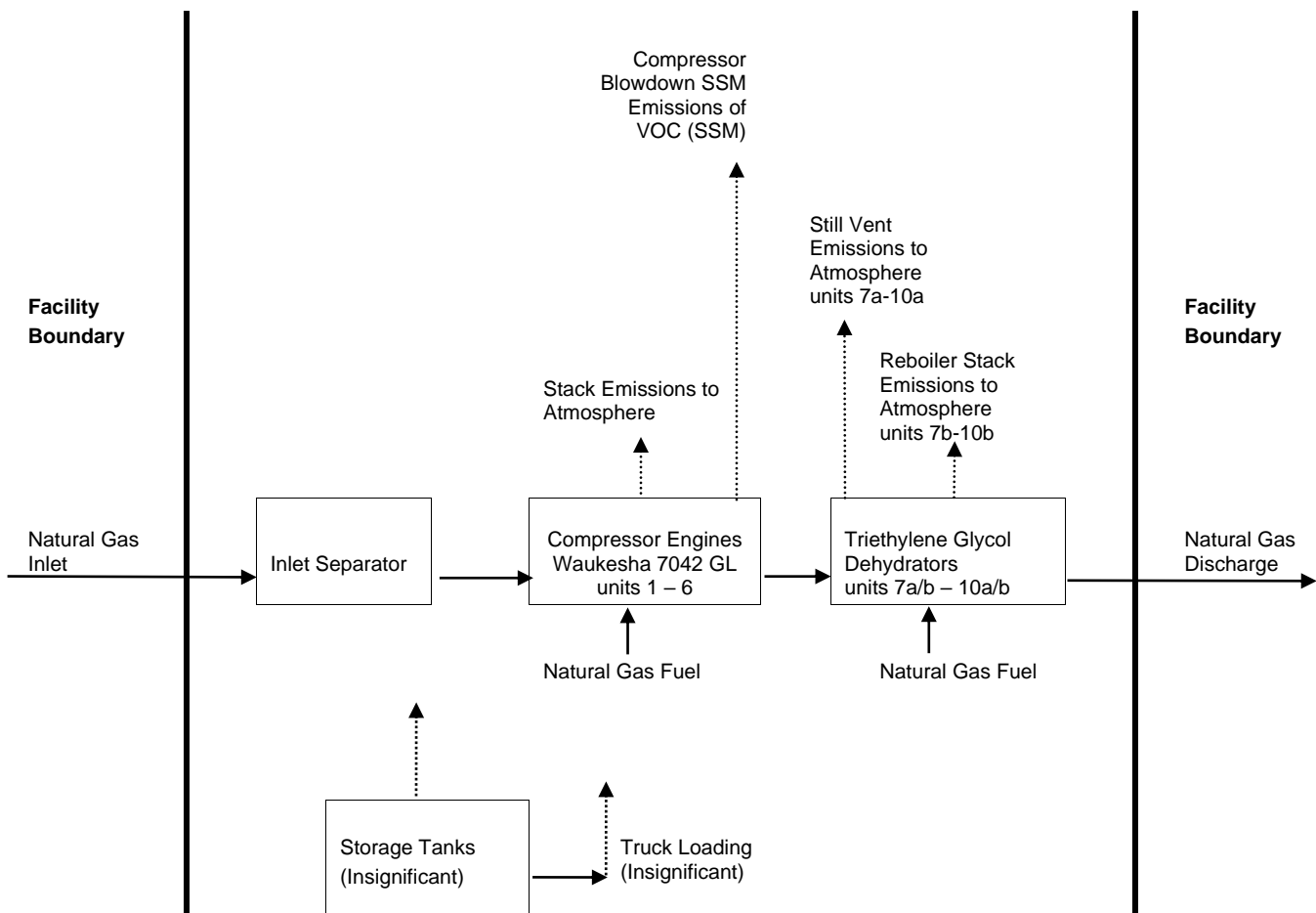


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# Section 4

## 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

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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.

---

A plot plan is provided in this section. Please see the following page.

FACILITY LAYOUT

32-8 #3 CDP FACILITY  
SE¼ NE¼, SECTION 9, T31N, R8W  
SAN JUAN COUNTY, NEW MEXICO  
N36.91501, W107.67462



animas  
environmental  
services

Farmington, NM • Durango, CO  
animasenvironmental.com

DRAWN BY:

C. Lameman

DATE DRAWN:

December 4, 2013

REVISIONS BY:

C. Lameman

DATE REVISED:

December 31, 2015

CHECKED BY:

S. Hinds

DATE CHECKED:

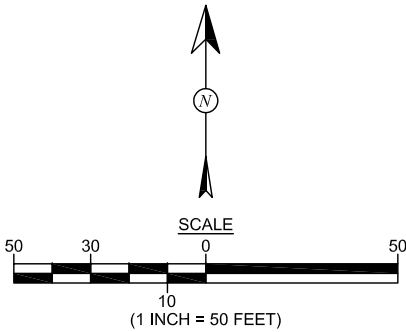
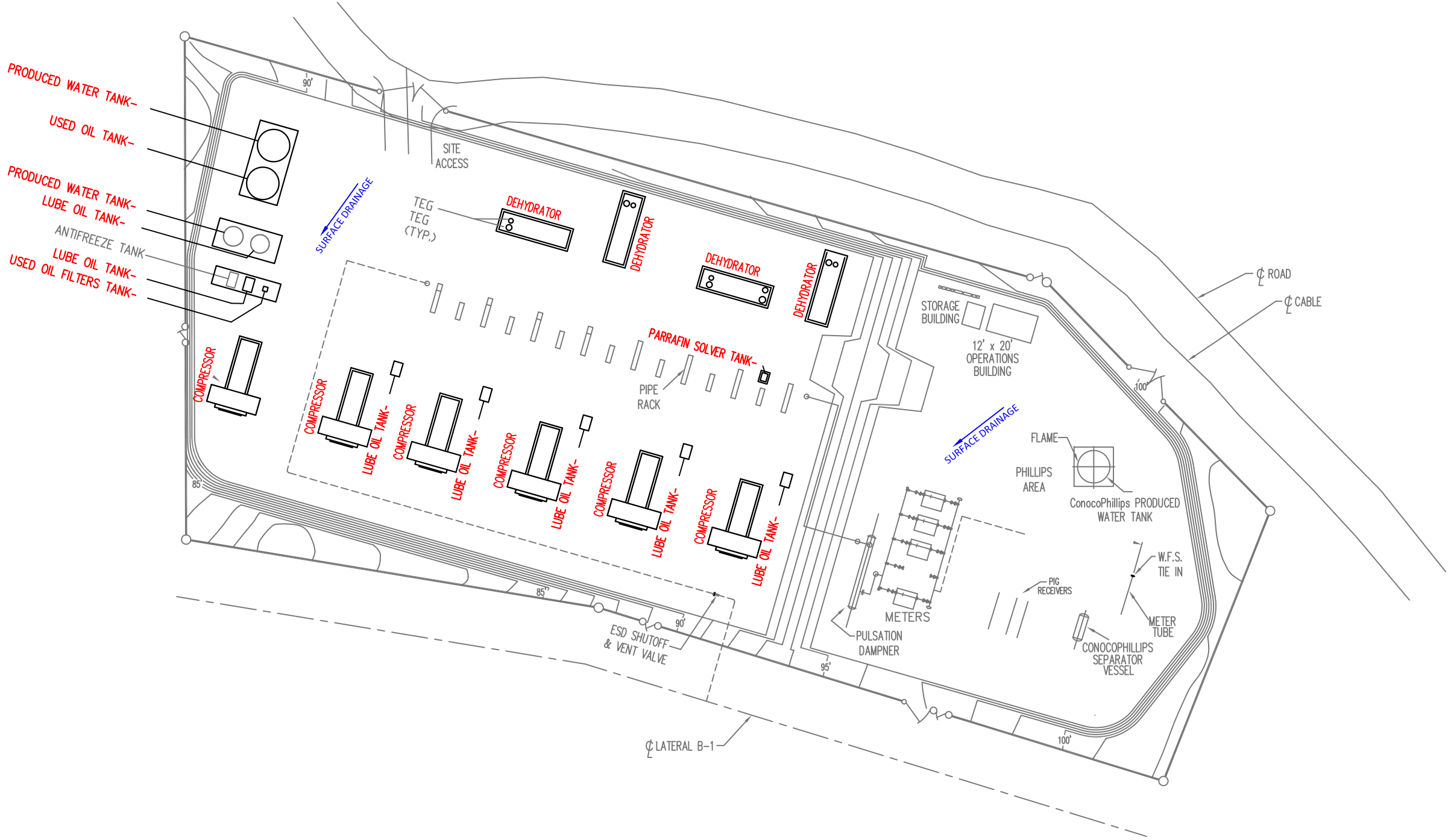
December 31, 2015

APPROVED BY:

E. McNally

DATE APPROVED:

December 31, 2015



# Section 6

## All Calculations

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**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 rationale 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](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.

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## ***Engines***

The NO<sub>2</sub>, CO, and VOC emissions from the engines were calculated from manufacturer's data. The SO<sub>2</sub> and particulate emissions were calculated using AP-42 emission factors from Table 3.2-2. HAP emissions were calculated using GRI-HAPCalc 3.01. 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.

## ***SSM Emissions***

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.

VOC and HAP emissions 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. 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 incorporated 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. The emission calculations assume 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.

No modifications are being made to the dehydrators or their operation. The currently permitted VOC emission rates are carried forward and not revised.

### ***Dehydrator Reboilers***

The NO<sub>x</sub> and CO emission factors for the reboiler emission calculations are from an Enertek letter dated August 19, 1994. The VOC and SO<sub>2</sub> emission factors are 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 3.01. All emissions were calculated assuming each reboiler operates 8,760 hours per year.

The dehydrator reboilers startup 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, resulting in the continued formation of NO<sub>x</sub>. Even so, with no natural gas fuel the NO<sub>x</sub> 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***

The produced water tank Potential To Emit (PTE) for VOC and HAP was calculated using the maximum throughput and emission factors from the Colorado Department of Public Health and Environment (CDPHE) and the Texas Commission on Environmental Quality (TCEQ). As the VOC emission rate from the produced water storage tank is less than 0.5 tpy, the produced water storage tank is an NSR exempt source in accordance with 20.2.72.202.B(5) NMAC, and an insignificant source under the Title V Insignificant Activity list, Item #1.

For the remaining tanks, the following assumptions were made:

- Residual oil #6 was used as an estimate for lubrication oil. As the vapor pressure of residual oil #6 is less than 0.2 psia, the tanks containing lubrication oil are NSR exempt sources under 20.2.72.202.B(2) NMAC, and insignificant sources under Title V Insignificant Activity list Item #5; and
- The wastewater storage tank liquid composition is assumed to be 99% water and 1% residual oil. As the vapor pressure of residual oil is less than 0.2 psia, the wastewater storage tank is an exempt source under 20.2.72.202.B(2) NMAC, and an insignificant source under Title V Insignificant Activity list Item #5.
- As the vapor pressure of triethylene glycol (TEG) is less than 0.2 psia, the TEG storage tanks are each an exempt source under 20.2.72.202.B(2) NMAC, and insignificant sources under Title V Insignificant Activity List Item #5;
- 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 antifreeze storage tanks are exempt sources under 20.2.72.202.B(2) NMAC, and insignificant sources in accordance with the Title V Insignificant Activity List Item #5.

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

No changes are being made to the storage tanks or their operation. Emissions from the tanks are carried forward and not revised.

***Truck Loading - Produced Water***

The VOC emissions from truck loading of produced water 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; therefore, there are no SSM emissions associated with truck loading. No SSM maintenance activities are performed during the truck loading.

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

### ***Equipment Leaks - Fugitive Emissions***

Fugitive 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.

Based on the calculated PTE, fugitive emissions from equipment leaks are an exempt source in accordance with 20.2.72.202.B(5) NMAC (VOC emissions are less than 0.5 tons per year) and a Title V insignificant source in accordance with Insignificant Activity Item #1.

### ***Malfunctions***

Malfunction emissions were set at 10.0 tons of VOC per year to account for emissions that may occur during upsets and malfunctions (including, but not limited to, unscheduled blowdowns and relief valve releases). Based on the gas release rate associated with the set annual VOC emission rate, HAP emissions are calculated using a recent extended gas analysis. Note the malfunction emissions include the venting of gas only, and no combustion emissions.

No changes to currently permitted malfunction emissions are proposed. Permitted VOC emissions are carried forward and not revised.

## Engine Exhaust Emissions Calculations

Unit Number: **1 - 6**  
 Description: Waukesha L7042GL  
 Type: Four Stroke Lean Burn (Turbocharged)

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

### Horsepower Calculations

<b>6,600</b> ft above MSL	Elevation	Mfg. data
<b>1,478</b> hp	Nameplate hp	NMAQB Procedure # 02.002-00
<b>1,363</b> hp	NMAQB Site-rated hp	(loss of 3% for every 1,000 ft over 4,000 ft)
<b>1,327</b> 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

<b>1200</b> rpm	Engine rpm	Mfg. data
<b>7040</b> cu in	Engine displacement	Mfg. data
<b>127.75</b> psi	BMEP	Mfg. data $(+[(792,000 \times \text{NMAQB Site-rated hp}) / (\text{rpm} \times \text{in}^3)])$

### Fuel Consumption

<b>7374</b> Btu/hp-hr	Brake specific fuel consumption	Mfg. data
<b>10.05</b> MMBtu/hr	Hourly fuel consumption	Btu/hp-hr x NMAQB site-rated hp / 1,000,000
<b>900</b> Btu/scf	Field gas heating value	Nominal heat content
<b>11,165</b> scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
<b>8,760</b> hr/yr	Annual operating time	Harvest Four Corners, LLC
<b>88,027</b> MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
<b>97.81</b> MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000

### Steady-State Emission Rates

Pollutants	Emission Factors, g/hp-hr	Uncontrolled Emission Rates,	
		pph	tpy
NOX	<b>1.50</b>	4.506	19.74
CO	<b>2.65</b>	7.961	34.87
VOC	<b>1.00</b>	3.00	13.16

Emission factors taken from Waukesha Bulletin **7005 0102**

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	<b>5.88E-04</b>	5.91E-03	2.59E-02
PM	<b>9.99E-03</b>	1.00E-01	4.40E-01
PM10	<b>9.99E-03</b>	1.00E-01	4.40E-01
PM2.5	<b>9.99E-03</b>	1.00E-01	4.40E-01

Emission factors taken from AP-42, Table 3.2-2

Particulate factors include both filterable and condensable 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

<b>802</b> °F	Stack exit temperature	Mfg. data (carried forward from previous appl.)
<b>8156</b> acfm	Stack flowrate	Mfg. data (carried forward from previous appl.)
<b>1.02</b> ft	Stack exit diameter	Harvest Four Corners, LLC
<b>0.82</b> ft^2	Stack exit area	$3.1416 \times ((\text{ft} / 2) ^2)$
<b>166.08</b> fps	Stack exit velocity	acfm / ft^2 / 60 sec/min
<b>22.00</b> ft	Stack height	Harvest Four Corners, LLC

**GRI-HAPCalc® 3.01**  
**Engines Report**

Facility ID: 32-8 #3  
Operation Type: COMPRESSOR STATION  
Facility Name: 32-8 #3 CDP  
User Name: Cirrus  
Units of Measure: U.S. STANDARD

Notes:

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: UNITS 1-6

Hours of Operation: 8,760 Yearly  
Rate Power: 1,363 hp  
Fuel Type: FIELD GAS  
Engine Type: 4-Stroke, Lean Burn  
Emission Factor Set: EPA > FIELD > LITERATURE  
Additional EF Set: -NONE-

**Calculated Emissions** (ton/yr)

<b><u>Chemical Name</u></b>	<b><u>Emissions</u></b>	<b><u>Emission Factor</u></b>	<b><u>Emission Factor Set</u></b>
<b><u>HAPs</u></b>			
Formaldehyde	2.2131	0.16830000 g/bhp-hr	GRI Literature
Benzene	0.0684	0.00520000 g/bhp-hr	GRI Literature
Toluene	0.0276	0.00210000 g/bhp-hr	GRI Literature
Xylenes(m,p,o)	0.0184	0.00140000 g/bhp-hr	GRI Literature
<b>Total</b>	2.3275		

## Compressor Blowdown Emissions Calculations

Unit Number: **SSM**

Description: Compressor &amp; Piping Associated With Station

### Throughput

6 # of units  
 197 events/yr/unit  
 6,442 scf/event  
 7,614,444 scf/yr

Number of units  
 Blowdowns per year per unit  
 Gas loss per blowdown  
 Annual gas loss

Harvest Four Corners, LLC  
 Harvest Four Corners, LLC  
 Harvest Four Corners, LLC  
 # of units x events/yr/unit x scf/ever

### Emission Rates

Pollutants	Emission Factors, lb/scf	Uncontrolled, Emission Rates, tpy
VOC	4.980E-04	1.90
Benzene	1.853E-06	7.05E-03
Ethylbenzene	0.000E+00	0.00E+00
n-Hexane	4.088E-06	1.56E-02
2,2,4-Trimethylpentane (Isooctane)	2.641E-07	1.01E-03
Toluene	2.186E-06	8.32E-03
Xylene	1.119E-06	4.26E-03

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	15.2958	44.01	1.774E-02
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.0470	28.01	3.470E-05
Methane	82.9203	16.04	3.506E-02
Ethane	1.3527	30.07	1.072E-03
Propane	0.2909	44.09	3.381E-04
Isobutane	0.0359	58.12	5.499E-05
n-Butane	0.0296	58.12	4.534E-05
Isopentane	0.0084	72.15	1.597E-05
n-Pentane	0.0063	72.15	1.198E-05
Cyclopentane	0.0003	70.14	5.546E-07
n-Hexane	0.0018	86.17	4.088E-06
Cyclohexane	0.0007	84.16	1.553E-06
Other hexanes	0.0036	86.18	8.177E-06
Heptanes	0.0014	100.20	3.697E-06
Methylcyclohexane	0.0016	98.19	4.141E-06
2,2,4-Trimethylpentane (Isooctane)	0.0001	100.21	2.641E-07
Benzene	0.0009	78.11	1.853E-06
Toluene	0.0009	92.14	2.186E-06
Ethylbenzene	0.0000	106.17	0.000E+00
Xylenes	0.0004	106.17	1.119E-06
C8+ Heavies	0.0014	110.00	4.059E-06
Total	100.0000		
Total VOC			4.980E-04

Gas stream composition obtained from the 32-8 #3 CDP extended gas analysis dated April 6, 2022.

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: 32-8#3 PTE 12 mmcf/d (EU 7a, 8a) Gas 2022-04-06

File Name: C:\Documents and Settings\user\My Documents\GLYCalc\32-8#3 - PTE 12 mm (7a, 8a) Gas 2022-04-06.ddf

Date: May 17, 2022

## DESCRIPTION:

Description: 32-8#3 PTE 12 mmcf/d TEG Dehys  
 EU 7a & 8a  
 Gas sample Apr 6, 2022

Annual Hours of Operation: 8760.0 hours/yr

## WET GAS:

Temperature: 71.00 deg. F  
 Pressure: 902.00 psig  
 Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	15.2958
Nitrogen	0.0470
Methane	82.9203
Ethane	1.3527
Propane	0.2909
Isobutane	0.0359
n-Butane	0.0296
Isopentane	0.0084
n-Pentane	0.0063
Cyclopentane	0.0003
n-Hexane	0.0018
Cyclohexane	0.0007
Other Hexanes	0.0036
Heptanes	0.0014
Methylcyclohexane	0.0016
2,2,4-Trimethylpentane	0.0001
Benzene	0.0009
Toluene	0.0009
Xylenes	0.0004
C8+ Heavies	0.0014

## DRY GAS:

Flow Rate: 12.0 MMSCF/day  
 Water Content: 7.0 lbs. H<sub>2</sub>O/MMSCF

## LEAN GLYCOL:

Glycol Type: TEG  
 Water Content: 1.5 wt% H<sub>2</sub>O  
 Flow Rate: 3.5 gpm

## PUMP:

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

FLASH TANK:

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Flash Control: Recycle/recompression  
Temperature: 77.4 deg. F  
Pressure: 59.7 psig



## GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: 32-8#3 PTE 12 mmcf/d (EU 7a, 8a) Gas 2022-04-06

File Name: C:\Documents and Settings\user\My Documents\GLYCalc\32-8#3 - PTE 12 mm (7a, 8a) Gas 2022-04-06.ddf

Date: May 17, 2022

## DESCRIPTION:

Description: 32-8#3 PTE 12 mmcf/d TEG Dehys

EU 7a &amp; 8a

Gas sample Apr 6, 2022

Annual Hours of Operation: 8760.0 hours/yr

## EMISSIONS REPORTS:

## UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.3780	9.072	1.6557
Ethane	0.0622	1.493	0.2725
Propane	0.0541	1.298	0.2369
Isobutane	0.0172	0.413	0.0753
n-Butane	0.0221	0.530	0.0967
Isopentane	0.0095	0.227	0.0415
n-Pentane	0.0105	0.251	0.0459
Cyclopentane	0.0036	0.086	0.0157
n-Hexane	0.0085	0.205	0.0374
Cyclohexane	0.0212	0.509	0.0929
Other Hexanes	0.0113	0.271	0.0494
Heptanes	0.0195	0.468	0.0854
Methylcyclohexane	0.0674	1.616	0.2950
2,2,4-Trimethylpentane	0.0005	0.013	0.0023
Benzene	0.2545	6.108	1.1147
Toluene	0.4215	10.115	1.8461
Xylenes	0.3136	7.526	1.3736
C8+ Heavies	0.0729	1.750	0.3193
Total Emissions	1.7479	41.951	7.6560
Total Hydrocarbon Emissions	1.7479	41.951	7.6560
Total VOC Emissions	1.3077	31.386	5.7279
Total HAP Emissions	0.9986	23.967	4.3740
Total BTEX Emissions	0.9896	23.749	4.3343

## 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	46.6613	1119.871	204.3765

Ethane	1.7521	42.051	7.6742
Propane	0.6328	15.187	2.7716
Isobutane	0.1150	2.761	0.5039
n-Butane	0.1060	2.544	0.4643
Isopentane	0.0360	0.863	0.1576
n-Pentane	0.0301	0.721	0.1316
Cyclopentane	0.0025	0.060	0.0109
n-Hexane	0.0116	0.278	0.0507
Cyclohexane	0.0069	0.165	0.0301
Other Hexanes	0.0213	0.512	0.0935
Heptanes	0.0109	0.262	0.0478
Methylcyclohexane	0.0152	0.364	0.0664
2,2,4-Trimethylpentane	0.0006	0.015	0.0028
Benzene	0.0090	0.217	0.0396
Toluene	0.0082	0.197	0.0360
Xylenes	0.0020	0.049	0.0090
C8+ Heavies	0.0053	0.128	0.0234
<hr/>			
Total Emissions	49.4269	1186.245	216.4898
Total Hydrocarbon Emissions	49.4269	1186.245	216.4898
Total VOC Emissions	1.0135	24.323	4.4390
Total HAP Emissions	0.0315	0.757	0.1381
Total BTEX Emissions	0.0193	0.463	0.0845

## COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.3780	9.072	1.6557
Ethane	0.0622	1.493	0.2725
Propane	0.0541	1.298	0.2369
Isobutane	0.0172	0.413	0.0753
n-Butane	0.0221	0.530	0.0967
Isopentane	0.0095	0.227	0.0415
n-Pentane	0.0105	0.251	0.0459
Cyclopentane	0.0036	0.086	0.0157
n-Hexane	0.0085	0.205	0.0374
Cyclohexane	0.0212	0.509	0.0929
Other Hexanes	0.0113	0.271	0.0494
Heptanes	0.0195	0.468	0.0854
Methylcyclohexane	0.0674	1.616	0.2950
2,2,4-Trimethylpentane	0.0005	0.013	0.0023
Benzene	0.2545	6.108	1.1147
Toluene	0.4215	10.115	1.8461
Xylenes	0.3136	7.526	1.3736
C8+ Heavies	0.0729	1.750	0.3193
<hr/>			
Total Emissions	1.7479	41.951	7.6560
Total Hydrocarbon Emissions	1.7479	41.951	7.6560
Total VOC Emissions	1.3077	31.386	5.7279
Total HAP Emissions	0.9986	23.967	4.3740
Total BTEX Emissions	0.9896	23.749	4.3343

## COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled	Controlled	% Reduction
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	tons/yr	tons/yr	
Methane	206.0322	1.6557	99.20
Ethane	7.9467	0.2725	96.57
Propane	3.0085	0.2369	92.13
Isobutane	0.5791	0.0753	87.00
n-Butane	0.5610	0.0967	82.76
Isopentane	0.1991	0.0415	79.15
n-Pentane	0.1775	0.0459	74.16
Cyclopentane	0.0265	0.0157	40.96
n-Hexane	0.0882	0.0374	57.55
Cyclohexane	0.1230	0.0929	24.50
Other Hexanes	0.1429	0.0494	65.44
Heptanes	0.1332	0.0854	35.87
Methylcyclohexane	0.3614	0.2950	18.36
2,2,4-Trimethylpentane	0.0051	0.0023	55.04
Benzene	1.1542	1.1147	3.43
Toluene	1.8820	1.8461	1.91
Xylenes	1.3825	1.3736	0.65
C8+ Heavies	0.3426	0.3193	6.82
Total Emissions	224.1458	7.6560	96.58
Total Hydrocarbon Emissions	224.1458	7.6560	96.58
Total VOC Emissions	10.1669	5.7279	43.66
Total HAP Emissions	4.5121	4.3740	3.06
Total BTEX Emissions	4.4188	4.3343	1.91

## EQUIPMENT REPORTS:

## ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages: 1.25  
 Calculated Dry Gas Dew Point: 0.95 lbs. H2O/MMSCF

Temperature: 71.0 deg. F  
 Pressure: 902.0 psig  
 Dry Gas Flow Rate: 12.0000 MMSCF/day  
 Glycol Losses with Dry Gas: 0.0473 lb/hr  
 Wet Gas Water Content: Saturated  
 Calculated Wet Gas Water Content: 26.96 lbs. H2O/MMSCF  
 Calculated Lean Glycol Recirc. Ratio: 16.14 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	3.51%	96.49%
Carbon Dioxide	99.54%	0.46%
Nitrogen	99.97%	0.03%
Methane	99.97%	0.03%
Ethane	99.90%	0.10%
Propane	99.83%	0.17%
Isobutane	99.76%	0.24%
n-Butane	99.67%	0.33%

Isopentane	99.67%	0.33%
n-Pentane	99.56%	0.44%
Cyclopentane	98.06%	1.94%
n-Hexane	99.25%	0.75%
Cyclohexane	96.62%	3.38%
Other Hexanes	99.44%	0.56%
Heptanes	98.60%	1.40%
Methylcyclohexane	96.26%	3.74%
2,2,4-Trimethylpentane	99.46%	0.54%
Benzene	71.82%	28.18%
Toluene	60.96%	39.04%
Xylenes	43.89%	56.11%
C8+ Heavies	97.75%	2.25%

## FLASH TANK

Flash Control: Recycle/recompression  
Flash Temperature: 77.4 deg. F  
Flash Pressure: 59.7 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.95%	0.05%
Carbon Dioxide	12.54%	87.46%
Nitrogen	0.79%	99.21%
Methane	0.80%	99.20%
Ethane	3.43%	96.57%
Propane	7.87%	92.13%
Isobutane	13.00%	87.00%
n-Butane	17.24%	82.76%
Isopentane	21.08%	78.92%
n-Pentane	26.08%	73.92%
Cyclopentane	59.22%	40.78%
n-Hexane	42.67%	57.33%
Cyclohexane	76.23%	23.77%
Other Hexanes	35.02%	64.98%
Heptanes	64.28%	35.72%
Methylcyclohexane	82.33%	17.67%
2,2,4-Trimethylpentane	45.53%	54.47%
Benzene	96.74%	3.26%
Toluene	98.24%	1.76%
Xylenes	99.44%	0.56%
C8+ Heavies	93.93%	6.07%

## REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	69.39%	30.61%
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	1.38%	98.62%
n-Pentane	1.24%	98.76%
Cyclopentane	0.75%	99.25%
n-Hexane	0.89%	99.11%
Cyclohexane	3.93%	96.07%
Other Hexanes	2.01%	97.99%
Heptanes	0.67%	99.33%
Methylcyclohexane	4.58%	95.42%
2,2,4-Trimethylpentane	2.29%	97.71%
Benzene	5.13%	94.87%
Toluene	8.00%	92.00%
Xylenes	12.92%	87.08%
C8+ Heavies	11.68%	88.32%

## STREAM REPORTS:

## WET GAS STREAM

Temperature: 71.00 deg. F  
 Pressure: 916.70 psia  
 Flow Rate: 5.01e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	5.68e-002	1.35e+001
Carbon Dioxide	1.53e+001	8.88e+003
Nitrogen	4.70e-002	1.74e+001
Methane	8.29e+001	1.75e+004
Ethane	1.35e+000	5.37e+002
Propane	2.91e-001	1.69e+002
Isobutane	3.59e-002	2.75e+001
n-Butane	2.96e-002	2.27e+001
Isopentane	8.40e-003	7.99e+000
n-Pentane	6.30e-003	6.00e+000
Cyclopentane	3.00e-004	2.78e-001
n-Hexane	1.80e-003	2.05e+000
Cyclohexane	7.00e-004	7.77e-001
Other Hexanes	3.60e-003	4.09e+000
Heptanes	1.40e-003	1.85e+000
Methylcyclohexane	1.60e-003	2.07e+000
2,2,4-Trimethylpentane	9.99e-005	1.51e-001
Benzene	8.99e-004	9.27e-001
Toluene	8.99e-004	1.09e+000
Xylenes	4.00e-004	5.60e-001
C8+ Heavies	1.40e-003	3.15e+000
Total Components	100.00	2.72e+004

## DRY GAS STREAM

Temperature: 71.00 deg. F  
 Pressure: 916.70 psia  
 Flow Rate: 5.00e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
-----	-----	-----
Water	2.00e-003	4.74e-001
Carbon Dioxide	1.52e+001	8.84e+003
Nitrogen	4.70e-002	1.74e+001
Methane	8.30e+001	1.75e+004
Ethane	1.35e+000	5.36e+002
Propane	2.91e-001	1.69e+002
Isobutane	3.58e-002	2.75e+001
n-Butane	2.95e-002	2.26e+001
Isopentane	8.38e-003	7.97e+000
n-Pentane	6.28e-003	5.97e+000
Cyclopentane	2.94e-004	2.72e-001
n-Hexane	1.79e-003	2.03e+000
Cyclohexane	6.77e-004	7.51e-001
Other Hexanes	3.58e-003	4.07e+000
Heptanes	1.38e-003	1.82e+000
Methylcyclohexane	1.54e-003	1.99e+000
2,2,4-Trimethylpentane	9.96e-005	1.50e-001
Benzene	6.47e-004	6.66e-001
Toluene	5.49e-004	6.67e-001
Xylenes	1.76e-004	2.46e-001
C8+ Heavies	1.37e-003	3.07e+000
-----	-----	-----
Total Components	100.00	2.72e+004

## LEAN GLYCOL STREAM

Temperature: 71.00 deg. F  
 Flow Rate: 3.50e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
-----	-----	-----
TEG	9.85e+001	1.94e+003
Water	1.50e+000	2.96e+001
Carbon Dioxide	2.09e-010	4.13e-009
Nitrogen	2.93e-014	5.78e-013
Methane	8.73e-018	1.72e-016
Ethane	1.28e-008	2.51e-007
Propane	5.84e-010	1.15e-008
Isobutane	1.01e-010	1.99e-009
n-Butane	9.30e-011	1.83e-009
Isopentane	6.72e-006	1.32e-004
n-Pentane	6.68e-006	1.32e-004
Cyclopentane	1.38e-006	2.71e-005
n-Hexane	3.89e-006	7.66e-005
Cyclohexane	4.40e-005	8.67e-004
Other Hexanes	1.17e-005	2.31e-004
Heptanes	6.63e-006	1.31e-004
Methylcyclohexane	1.64e-004	3.23e-003
2,2,4-Trimethylpentane	6.27e-007	1.24e-005
Benzene	6.98e-004	1.38e-002
Toluene	1.86e-003	3.66e-002
Xylenes	2.36e-003	4.65e-002

C8+ Heavies	4.89e-004	9.64e-003
-----		
Total Components	100.00	1.97e+003

# RICH GLYCOL AND PUMP GAS STREAM

-----

Temperature: 71.00 deg. F  
 Pressure: 916.70 psia  
 Flow Rate: 3.78e+000 gpm  
 NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
-----		
TEG	9.25e+001	1.94e+003
Water	2.03e+000	4.26e+001
Carbon Dioxide	2.98e+000	6.25e+001
Nitrogen	2.25e-003	4.73e-002
Methane	2.24e+000	4.70e+001
Ethane	8.65e-002	1.81e+000
Propane	3.28e-002	6.87e-001
Isobutane	6.30e-003	1.32e-001
n-Butane	6.11e-003	1.28e-001
Isopentane	2.17e-003	4.56e-002
n-Pentane	1.94e-003	4.07e-002
Cyclopentane	2.90e-004	6.08e-003
n-Hexane	9.64e-004	2.02e-002
Cyclohexane	1.38e-003	2.90e-002
Other Hexanes	1.57e-003	3.29e-002
Heptanes	1.46e-003	3.05e-002
Methylcyclohexane	4.09e-003	8.57e-002
2,2,4-Trimethylpentane	5.64e-005	1.18e-003
Benzene	1.32e-002	2.77e-001
Toluene	2.22e-002	4.66e-001
Xylenes	1.73e-002	3.62e-001
C8+ Heavies	4.19e-003	8.79e-002
-----		
Total Components	100.00	2.10e+003

# FLASH TANK OFF GAS STREAM

-----

Temperature: 77.40 deg. F  
 Pressure: 74.40 psia  
 Flow Rate: 1.61e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
-----		
Water	2.90e-002	2.21e-002
Carbon Dioxide	2.93e+001	5.46e+001
Nitrogen	3.96e-002	4.69e-002
Methane	6.87e+001	4.67e+001
Ethane	1.38e+000	1.75e+000
Propane	3.39e-001	6.33e-001
Isobutane	4.68e-002	1.15e-001
n-Butane	4.31e-002	1.06e-001
Isopentane	1.18e-002	3.60e-002
n-Pentane	9.84e-003	3.01e-002
Cyclopentane	8.36e-004	2.48e-003
n-Hexane	3.18e-003	1.16e-002

Cyclohexane	1.93e-003	6.88e-003
Other Hexanes	5.85e-003	2.13e-002
Heptanes	2.57e-003	1.09e-002
Methylcyclohexane	3.65e-003	1.52e-002
2,2,4-Trimethylpentane	1.33e-004	6.45e-004
Benzene	2.73e-003	9.04e-003
Toluene	2.11e-003	8.21e-003
Xylenes	4.55e-004	2.05e-003
C8+ Heavies	7.40e-004	5.33e-003
-----		
Total Components	100.00	1.04e+002

## FLASH TANK GLYCOL STREAM

Temperature: 77.40 deg. F  
Flow Rate: 3.55e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
-----		
TEG	9.74e+001	1.94e+003
Water	2.14e+000	4.26e+001
Carbon Dioxide	3.93e-001	7.84e+000
Nitrogen	1.87e-005	3.72e-004
Methane	1.90e-002	3.78e-001
Ethane	3.12e-003	6.22e-002
Propane	2.71e-003	5.41e-002
Isobutane	8.63e-004	1.72e-002
n-Butane	1.11e-003	2.21e-002
Isopentane	4.82e-004	9.61e-003
n-Pentane	5.32e-004	1.06e-002
Cyclopentane	1.81e-004	3.60e-003
n-Hexane	4.33e-004	8.62e-003
Cyclohexane	1.11e-003	2.21e-002
Other Hexanes	5.77e-004	1.15e-002
Heptanes	9.85e-004	1.96e-002
Methylcyclohexane	3.54e-003	7.06e-002
2,2,4-Trimethylpentane	2.70e-005	5.39e-004
Benzene	1.35e-002	2.68e-001
Toluene	2.30e-002	4.58e-001
Xylenes	1.81e-002	3.60e-001
C8+ Heavies	4.14e-003	8.25e-002
-----		
Total Components	100.00	1.99e+003

## 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: 3.58e+002 scfh



Component	Conc. (vol%)	Loading (lb/hr)
-----	-----	-----
Water	7.68e+001	1.30e+001
Carbon Dioxide	1.89e+001	7.84e+000
Nitrogen	1.41e-003	3.72e-004
Methane	2.50e+000	3.78e-001
Ethane	2.20e-001	6.22e-002
Propane	1.30e-001	5.41e-002
Isobutane	3.14e-002	1.72e-002
n-Butane	4.03e-002	2.21e-002
Isopentane	1.39e-002	9.48e-003
n-Pentane	1.54e-002	1.05e-002
Cyclopentane	5.41e-003	3.58e-003
n-Hexane	1.05e-002	8.55e-003
Cyclohexane	2.67e-002	2.12e-002
Other Hexanes	1.39e-002	1.13e-002
Heptanes	2.07e-002	1.95e-002
Methylcyclohexane	7.28e-002	6.74e-002
2,2,4-Trimethylpentane	4.89e-004	5.27e-004
Benzene	3.46e-001	2.54e-001
Toluene	4.85e-001	4.21e-001
Xylenes	3.13e-001	3.14e-001
C8+ Heavies	4.54e-002	7.29e-002
-----	-----	-----
Total Components	100.00	2.26e+001

## Dehydrator Reboiler Exhaust Emissions Calculations

Unit Number: 7b &amp; 8b

Description: Dehydrator Reboilers (12 MMSCFD)

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

### Fuel Consumption

1,208 scf/hr

900 Btu/scf

1.09 MMBtu/hr

8,760 hr/yr

9,524 MMBtu/yr

10.58 MMscf/yr

Hourly fuel consumption

Field gas heating value

Capacity

Annual operating time

Annual fuel consumption

Annual fuel consumption

Mfg. data (Infab)

Nominal heat content

scf/hr x Btu/scf / 1,000,000

Harvest Four Corners, LLC

MMBtu/hr x hr/yr

scf/hr x hr/yr / 1,000,000

### Steady-State Emission Rates

Pollutants	Emission Factors, lb/day	Uncontrolled Emission Rates, pph tpy	
NOX	1.03	4.29E-02	0.188
CO	0.78	3.25E-02	0.142
VOC	0.12	4.79E-03	2.10E-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	9.18E-03	4.02E-02
PM10	7.60	9.18E-03	4.02E-02
PM2.5	7.60	9.18E-03	4.02E-02
Lead	5.00E-04	6.04E-07	2.65E-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

287.46 cfm

1.00 ft

0.79 ft^2

6.1 fps

10.0 ft

Exhaust temperature

Stack flowrate

Stack diameter

Stack exit area

Stack velocity

Stack height

Mfg. data (Enertek &amp; InFab)

fps x ft^2 x 60 sec/min

Mfg. data (InFab)

3.1416 x ((ft / 2) ^2)

Mfg. data (Enertek &amp; InFab)

Mfg. data (InFab)

**GRI-HAPCalc® 3.01**  
**External Combustion Devices Report**

Facility ID: 32-8 #3  
 Operation Type: COMPRESSOR STATION  
 Facility Name: 32-8 #3 CDP  
 User Name: Cirrus  
 Units of Measure: U.S. STANDARD

Notes:

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: 7B, 8B

Hours of Operation: 8,760 Yearly  
 Heat Input: 1.09 MMBtu/hr  
 Fuel Type: NATURAL GAS  
 Device Type: BOILER  
 Emission Factor Set: EPA > FIELD > LITERATURE  
 Additional EF Set: -NONE-

**Calculated Emissions (ton/yr)**

<u>Chemical Name</u>	<u>Emissions</u>	<u>Emission Factor</u>	<u>Emission Factor Set</u>
<b>HAPs</b>			
3-Methylcholanthrene	0.0000	0.0000000018 lb/MMBtu	EPA
7,12-Dimethylbenz(a)anthracene	0.0000	0.0000000157 lb/MMBtu	EPA
Formaldehyde	0.0004	0.0000735294 lb/MMBtu	EPA
Methanol	0.0021	0.0004333330 lb/MMBtu	GRI Field
Acetaldehyde	0.0014	0.0002909000 lb/MMBtu	GRI Field
1,3-Butadiene	0.0000	0.0000001830 lb/MMBtu	GRI Field
Benzene	0.0000	0.0000020588 lb/MMBtu	EPA
Toluene	0.0000	0.0000033333 lb/MMBtu	EPA
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	0.0084	0.0017647059 lb/MMBtu	EPA
Phenol	0.0000	0.0000000950 lb/MMBtu	GRI Field
Naphthalene	0.0000	0.0000005980 lb/MMBtu	EPA
2-Methylnaphthalene	0.0000	0.0000000235 lb/MMBtu	EPA
Acenaphthylene	0.0000	0.0000000018 lb/MMBtu	EPA
Biphenyl	0.0000	0.0000011500 lb/MMBtu	GRI Field
Acenaphthene	0.0000	0.0000000018 lb/MMBtu	EPA
Fluorene	0.0000	0.0000000027 lb/MMBtu	EPA
Anthracene	0.0000	0.0000000024 lb/MMBtu	EPA
Phenanthrene	0.0000	0.0000000167 lb/MMBtu	EPA
Fluoranthene	0.0000	0.0000000029 lb/MMBtu	EPA
Pyrene	0.0000	0.0000000049 lb/MMBtu	EPA
Benz(a)anthracene	0.0000	0.0000000018 lb/MMBtu	EPA
Chrysene	0.0000	0.0000000018 lb/MMBtu	EPA

Benzo(a)pyrene	0.0000	0.0000000012	lb/MMBtu	EPA
Benzo(b)fluoranthene	0.0000	0.0000000018	lb/MMBtu	EPA
Benzo(k)fluoranthene	0.0000	0.0000000018	lb/MMBtu	EPA
Benzo(g,h,i)perylene	0.0000	0.0000000012	lb/MMBtu	EPA
Indeno(1,2,3-c,d)pyrene	0.0000	0.0000000018	lb/MMBtu	EPA
Dibenz(a,h)anthracene	0.0000	0.0000000012	lb/MMBtu	EPA
Lead	0.0000	0.0000004902	lb/MMBtu	EPA
<b>Total</b>	<b>0.0125</b>			
<b><u>Criteria Pollutants</u></b>				
VOC	0.0257	0.0053921569	lb/MMBtu	EPA
PM	0.0356	0.0074509804	lb/MMBtu	EPA
PM, Condensable	0.0267	0.0055882353	lb/MMBtu	EPA
PM, Filterable	0.0089	0.0018627451	lb/MMBtu	EPA
CO	0.3932	0.0823529410	lb/MMBtu	EPA
NMHC	0.0407	0.0085294118	lb/MMBtu	EPA
NOx	0.4681	0.0980392157	lb/MMBtu	EPA
SO2	0.0028	0.0005880000	lb/MMBtu	EPA
<b><u>Other Pollutants</u></b>				
Dichlorobenzene	0.0000	0.0000011765	lb/MMBtu	EPA
Methane	0.0108	0.0022549020	lb/MMBtu	EPA
Acetylene	0.0255	0.0053314000	lb/MMBtu	GRI Field
Ethylene	0.0025	0.0005264000	lb/MMBtu	GRI Field
Ethane	0.0145	0.0030392157	lb/MMBtu	EPA
Propylene	0.0045	0.0009333330	lb/MMBtu	GRI Field
Propane	0.0075	0.0015686275	lb/MMBtu	EPA
Butane	0.0098	0.0020588235	lb/MMBtu	EPA
Cyclopentane	0.0002	0.0000405000	lb/MMBtu	GRI Field
Pentane	0.0122	0.0025490196	lb/MMBtu	EPA
n-Pentane	0.0095	0.0020000000	lb/MMBtu	GRI Field
Cyclohexane	0.0002	0.0000451000	lb/MMBtu	GRI Field
Methylcyclohexane	0.0008	0.0001691000	lb/MMBtu	GRI Field
n-Octane	0.0002	0.0000506000	lb/MMBtu	GRI Field
n-Nonane	0.0000	0.0000050000	lb/MMBtu	GRI Field
CO2	561.6706	117.6470588235	lb/MMBtu	EPA

## GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: 32-8#3 PTE 10 mmcf/d (EU 9a, 10a) Gas 2022-04-06

File Name: C:\Documents and Settings\user\My Documents\GLYCalc\32-8#3 - PTE 10 mm (9a, 10a) Gas 2022-04-06.ddf

Date: May 17, 2022

## DESCRIPTION:

Description: 32-8#3 PTE 10 mmcf/d TEG Dehys  
EU 9a & 10a  
Gas sample Apr 6, 2022

Annual Hours of Operation: 8760.0 hours/yr

## WET GAS:

Temperature: 71.00 deg. F  
Pressure: 902.00 psig  
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	15.2958
Nitrogen	0.0470
Methane	82.9203
Ethane	1.3527
Propane	0.2909
Isobutane	0.0359
n-Butane	0.0296
Isopentane	0.0084
n-Pentane	0.0063
Cyclopentane	0.0003
n-Hexane	0.0018
Cyclohexane	0.0007
Other Hexanes	0.0036
Heptanes	0.0014
Methylcyclohexane	0.0016
2,2,4-Trimethylpentane	0.0001
Benzene	0.0009
Toluene	0.0009
Xylenes	0.0004
C8+ Heavies	0.0014

## DRY GAS:

Flow Rate: 10.0 MMSCF/day  
Water Content: 7.0 lbs. H<sub>2</sub>O/MMSCF

## LEAN GLYCOL:

Glycol Type: TEG  
Water Content: 1.5 wt% H<sub>2</sub>O  
Flow Rate: 3.5 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: 77.4 deg. F  
Pressure: 59.7 psig

## GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: 32-8#3 PTE 10 mmcf/d (EU 9a, 10a) Gas 2022-04-06

File Name: C:\Documents and Settings\user\My Documents\GLYCalc\32-8#3 - PTE 10 mm (9a, 10a) Gas 2022-04-06.ddf

Date: May 17, 2022

## DESCRIPTION:

Description: 32-8#3 PTE 10 mmcf/d TEG Dehys

EU 9a &amp; 10a

Gas sample Apr 6, 2022

Annual Hours of Operation: 8760.0 hours/yr

## EMISSIONS REPORTS:

## UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.3786	9.087	1.6584
Ethane	0.0625	1.501	0.2739
Propane	0.0541	1.299	0.2371
Isobutane	0.0172	0.414	0.0755
n-Butane	0.0221	0.531	0.0969
Isopentane	0.0095	0.228	0.0416
n-Pentane	0.0105	0.252	0.0460
Cyclopentane	0.0036	0.086	0.0157
n-Hexane	0.0086	0.206	0.0376
Cyclohexane	0.0213	0.510	0.0931
Other Hexanes	0.0113	0.272	0.0496
Heptanes	0.0196	0.470	0.0858
Methylcyclohexane	0.0675	1.619	0.2955
2,2,4-Trimethylpentane	0.0005	0.013	0.0023
Benzene	0.2438	5.850	1.0677
Toluene	0.3957	9.497	1.7332
Xylenes	0.2849	6.838	1.2480
C8+ Heavies	0.0733	1.759	0.3209
Total Emissions	1.6847	40.432	7.3788
Total Hydrocarbon Emissions	1.6847	40.432	7.3788
Total VOC Emissions	1.2435	29.844	5.4466
Total HAP Emissions	0.9335	22.404	4.0888
Total BTEX Emissions	0.9244	22.186	4.0489

## 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	46.6189	1118.853	204.1907

Ethane	1.7517	42.042	7.6726
Propane	0.6326	15.182	2.7708
Isobutane	0.1150	2.761	0.5038
n-Butane	0.1060	2.544	0.4642
Isopentane	0.0360	0.863	0.1576
n-Pentane	0.0301	0.721	0.1316
Cyclopentane	0.0025	0.059	0.0108
n-Hexane	0.0116	0.278	0.0507
Cyclohexane	0.0068	0.164	0.0300
Other Hexanes	0.0213	0.512	0.0935
Heptanes	0.0109	0.261	0.0477
Methylcyclohexane	0.0151	0.361	0.0659
2,2,4-Trimethylpentane	0.0006	0.015	0.0028
Benzene	0.0086	0.207	0.0378
Toluene	0.0077	0.184	0.0336
Xylenes	0.0019	0.044	0.0081
C8+ Heavies	0.0053	0.127	0.0232
<hr/>			
Total Emissions	49.3825	1185.181	216.2955
Total Hydrocarbon Emissions	49.3825	1185.181	216.2955
Total VOC Emissions	1.0119	24.286	4.4322
Total HAP Emissions	0.0304	0.729	0.1330
Total BTEX Emissions	0.0181	0.436	0.0795

## COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.3786	9.087	1.6584
Ethane	0.0625	1.501	0.2739
Propane	0.0541	1.299	0.2371
Isobutane	0.0172	0.414	0.0755
n-Butane	0.0221	0.531	0.0969
Isopentane	0.0095	0.228	0.0416
n-Pentane	0.0105	0.252	0.0460
Cyclopentane	0.0036	0.086	0.0157
n-Hexane	0.0086	0.206	0.0376
Cyclohexane	0.0213	0.510	0.0931
Other Hexanes	0.0113	0.272	0.0496
Heptanes	0.0196	0.470	0.0858
Methylcyclohexane	0.0675	1.619	0.2955
2,2,4-Trimethylpentane	0.0005	0.013	0.0023
Benzene	0.2438	5.850	1.0677
Toluene	0.3957	9.497	1.7332
Xylenes	0.2849	6.838	1.2480
C8+ Heavies	0.0733	1.759	0.3209
<hr/>			
Total Emissions	1.6847	40.432	7.3788
Total Hydrocarbon Emissions	1.6847	40.432	7.3788
Total VOC Emissions	1.2435	29.844	5.4466
Total HAP Emissions	0.9335	22.404	4.0888
Total BTEX Emissions	0.9244	22.186	4.0489

## COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled	Controlled	% Reduction
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	tons/yr	tons/yr	
Methane	205.8491	1.6584	99.19
Ethane	7.9465	0.2739	96.55
Propane	3.0079	0.2371	92.12
Isobutane	0.5793	0.0755	86.97
n-Butane	0.5612	0.0969	82.73
Isopentane	0.1992	0.0416	79.10
n-Pentane	0.1776	0.0460	74.10
Cyclopentane	0.0266	0.0157	40.78
n-Hexane	0.0883	0.0376	57.44
Cyclohexane	0.1231	0.0931	24.35
Other Hexanes	0.1431	0.0496	65.34
Heptanes	0.1335	0.0858	35.74
Methylcyclohexane	0.3614	0.2955	18.24
2,2,4-Trimethylpentane	0.0051	0.0023	54.89
Benzene	1.1054	1.0677	3.42
Toluene	1.7668	1.7332	1.90
Xylenes	1.2561	1.2480	0.65
C8+ Heavies	0.3442	0.3209	6.75
Total Emissions	223.6743	7.3788	96.70
Total Hydrocarbon Emissions	223.6743	7.3788	96.70
Total VOC Emissions	9.8788	5.4466	44.87
Total HAP Emissions	4.2218	4.0888	3.15
Total BTEX Emissions	4.1284	4.0489	1.93

## EQUIPMENT REPORTS:

## ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages: 1.25  
 Calculated Dry Gas Dew Point: 0.92 lbs. H2O/MMSCF

Temperature: 71.0 deg. F  
 Pressure: 902.0 psig  
 Dry Gas Flow Rate: 10.0000 MMSCF/day  
 Glycol Losses with Dry Gas: 0.0394 lb/hr  
 Wet Gas Water Content: Saturated  
 Calculated Wet Gas Water Content: 26.96 lbs. H2O/MMSCF  
 Calculated Lean Glycol Recirc. Ratio: 19.35 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	3.42%	96.58%
Carbon Dioxide	99.44%	0.56%
Nitrogen	99.96%	0.04%
Methane	99.96%	0.04%
Ethane	99.88%	0.12%
Propane	99.80%	0.20%
Isobutane	99.71%	0.29%
n-Butane	99.61%	0.39%

Isopentane	99.60%	0.40%
n-Pentane	99.47%	0.53%
Cyclopentane	97.66%	2.34%
n-Hexane	99.10%	0.90%
Cyclohexane	95.95%	4.05%
Other Hexanes	99.33%	0.67%
Heptanes	98.31%	1.69%
Methylcyclohexane	95.51%	4.49%
2,2,4-Trimethylpentane	99.35%	0.65%
Benzene	67.63%	32.37%
Toluene	56.05%	43.95%
Xylenes	38.90%	61.10%
C8+ Heavies	97.29%	2.71%

## FLASH TANK

Flash Control: Recycle/recompression  
Flash Temperature: 77.4 deg. F  
Flash Pressure: 59.7 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.95%	0.05%
Carbon Dioxide	12.56%	87.44%
Nitrogen	0.79%	99.21%
Methane	0.81%	99.19%
Ethane	3.45%	96.55%
Propane	7.88%	92.12%
Isobutane	13.03%	86.97%
n-Butane	17.27%	82.73%
Isopentane	21.13%	78.87%
n-Pentane	26.14%	73.86%
Cyclopentane	59.40%	40.60%
n-Hexane	42.78%	57.22%
Cyclohexane	76.38%	23.62%
Other Hexanes	35.11%	64.89%
Heptanes	64.41%	35.59%
Methylcyclohexane	82.44%	17.56%
2,2,4-Trimethylpentane	45.68%	54.32%
Benzene	96.75%	3.25%
Toluene	98.25%	1.75%
Xylenes	99.44%	0.56%
C8+ Heavies	93.99%	6.01%

## REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	73.09%	26.91%
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	1.37%	98.63%
n-Pentane	1.23%	98.77%
Cyclopentane	0.75%	99.25%
n-Hexane	0.88%	99.12%
Cyclohexane	3.92%	96.08%
Other Hexanes	1.99%	98.01%
Heptanes	0.66%	99.34%
Methylcyclohexane	4.57%	95.43%
2,2,4-Trimethylpentane	2.28%	97.72%
Benzene	5.12%	94.88%
Toluene	7.97%	92.03%
Xylenes	12.87%	87.13%
C8+ Heavies	11.57%	88.43%

## STREAM REPORTS:

## WET GAS STREAM

Temperature: 71.00 deg. F  
 Pressure: 916.70 psia  
 Flow Rate: 4.17e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	5.68e-002	1.13e+001
Carbon Dioxide	1.53e+001	7.40e+003
Nitrogen	4.70e-002	1.45e+001
Methane	8.29e+001	1.46e+004
Ethane	1.35e+000	4.47e+002
Propane	2.91e-001	1.41e+002
Isobutane	3.59e-002	2.29e+001
n-Butane	2.96e-002	1.89e+001
Isopentane	8.40e-003	6.66e+000
n-Pentane	6.30e-003	5.00e+000
Cyclopentane	3.00e-004	2.31e-001
n-Hexane	1.80e-003	1.71e+000
Cyclohexane	7.00e-004	6.48e-001
Other Hexanes	3.60e-003	3.41e+000
Heptanes	1.40e-003	1.54e+000
Methylcyclohexane	1.60e-003	1.73e+000
2,2,4-Trimethylpentane	9.99e-005	1.26e-001
Benzene	8.99e-004	7.73e-001
Toluene	8.99e-004	9.12e-001
Xylenes	4.00e-004	4.67e-001
C8+ Heavies	1.40e-003	2.62e+000
Total Components	100.00	2.27e+004

## DRY GAS STREAM

Temperature: 71.00 deg. F  
 Pressure: 916.70 psia  
 Flow Rate: 4.17e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
-----	-----	-----
Water	1.94e-003	3.85e-001
Carbon Dioxide	1.52e+001	7.36e+003
Nitrogen	4.70e-002	1.45e+001
Methane	8.30e+001	1.46e+004
Ethane	1.35e+000	4.47e+002
Propane	2.91e-001	1.41e+002
Isobutane	3.58e-002	2.29e+001
n-Butane	2.95e-002	1.88e+001
Isopentane	8.38e-003	6.64e+000
n-Pentane	6.27e-003	4.97e+000
Cyclopentane	2.93e-004	2.26e-001
n-Hexane	1.79e-003	1.69e+000
Cyclohexane	6.72e-004	6.21e-001
Other Hexanes	3.58e-003	3.39e+000
Heptanes	1.38e-003	1.52e+000
Methylcyclohexane	1.53e-003	1.65e+000
2,2,4-Trimethylpentane	9.95e-005	1.25e-001
Benzene	6.09e-004	5.23e-001
Toluene	5.05e-004	5.11e-001
Xylenes	1.56e-004	1.82e-001
C8+ Heavies	1.36e-003	2.55e+000
-----	-----	-----
Total Components	100.00	2.26e+004

## LEAN GLYCOL STREAM

Temperature: 71.00 deg. F  
 Flow Rate: 3.50e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
-----	-----	-----
TEG	9.85e+001	1.94e+003
Water	1.50e+000	2.96e+001
Carbon Dioxide	2.10e-010	4.14e-009
Nitrogen	2.95e-014	5.82e-013
Methane	8.81e-018	1.74e-016
Ethane	1.28e-008	2.53e-007
Propane	5.82e-010	1.15e-008
Isobutane	1.01e-010	1.99e-009
n-Butane	9.27e-011	1.83e-009
Isopentane	6.70e-006	1.32e-004
n-Pentane	6.66e-006	1.31e-004
Cyclopentane	1.37e-006	2.70e-005
n-Hexane	3.88e-006	7.64e-005
Cyclohexane	4.40e-005	8.67e-004
Other Hexanes	1.17e-005	2.30e-004
Heptanes	6.61e-006	1.30e-004
Methylcyclohexane	1.64e-004	3.23e-003
2,2,4-Trimethylpentane	6.26e-007	1.23e-005
Benzene	6.68e-004	1.32e-002
Toluene	1.74e-003	3.43e-002
Xylenes	2.14e-003	4.21e-002

C8+ Heavies	4.87e-004	9.59e-003
-----		
Total Components	100.00	1.97e+003

# RICH GLYCOL AND PUMP GAS STREAM

Temperature: 71.00 deg. F  
 Pressure: 916.70 psia  
 Flow Rate: 3.77e+000 gpm  
 NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
-----		
TEG	9.26e+001	1.94e+003
Water	1.93e+000	4.05e+001
Carbon Dioxide	2.98e+000	6.25e+001
Nitrogen	2.26e-003	4.73e-002
Methane	2.24e+000	4.70e+001
Ethane	8.66e-002	1.81e+000
Propane	3.28e-002	6.87e-001
Isobutane	6.31e-003	1.32e-001
n-Butane	6.12e-003	1.28e-001
Isopentane	2.18e-003	4.56e-002
n-Pentane	1.94e-003	4.07e-002
Cyclopentane	2.91e-004	6.10e-003
n-Hexane	9.66e-004	2.02e-002
Cyclohexane	1.38e-003	2.90e-002
Other Hexanes	1.57e-003	3.29e-002
Heptanes	1.46e-003	3.06e-002
Methylcyclohexane	4.09e-003	8.57e-002
2,2,4-Trimethylpentane	5.66e-005	1.19e-003
Benzene	1.27e-002	2.66e-001
Toluene	2.09e-002	4.38e-001
Xylenes	1.57e-002	3.29e-001
C8+ Heavies	4.21e-003	8.82e-002
-----		
Total Components	100.00	2.09e+003

# FLASH TANK OFF GAS STREAM

Temperature: 77.40 deg. F  
 Pressure: 74.40 psia  
 Flow Rate: 1.60e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
-----		
Water	2.75e-002	2.09e-002
Carbon Dioxide	2.94e+001	5.46e+001
Nitrogen	3.96e-002	4.69e-002
Methane	6.87e+001	4.66e+001
Ethane	1.38e+000	1.75e+000
Propane	3.39e-001	6.33e-001
Isobutane	4.68e-002	1.15e-001
n-Butane	4.31e-002	1.06e-001
Isopentane	1.18e-002	3.60e-002
n-Pentane	9.85e-003	3.01e-002
Cyclopentane	8.34e-004	2.47e-003
n-Hexane	3.18e-003	1.16e-002

Cyclohexane	1.92e-003	6.84e-003
Other Hexanes	5.86e-003	2.13e-002
Heptanes	2.57e-003	1.09e-002
Methylcyclohexane	3.63e-003	1.51e-002
2,2,4-Trimethylpentane	1.33e-004	6.44e-004
Benzene	2.61e-003	8.63e-003
Toluene	1.97e-003	7.67e-003
Xylenes	4.12e-004	1.85e-003
C8+ Heavies	7.36e-004	5.30e-003
-----		
Total Components	100.00	1.04e+002

## FLASH TANK GLYCOL STREAM

Temperature: 77.40 deg. F  
Flow Rate: 3.54e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
-----		
TEG	9.75e+001	1.94e+003
Water	2.03e+000	4.04e+001
Carbon Dioxide	3.94e-001	7.85e+000
Nitrogen	1.88e-005	3.74e-004
Methane	1.90e-002	3.79e-001
Ethane	3.14e-003	6.25e-002
Propane	2.72e-003	5.41e-002
Isobutane	8.65e-004	1.72e-002
n-Butane	1.11e-003	2.21e-002
Isopentane	4.84e-004	9.64e-003
n-Pentane	5.34e-004	1.06e-002
Cyclopentane	1.82e-004	3.62e-003
n-Hexane	4.35e-004	8.66e-003
Cyclohexane	1.11e-003	2.21e-002
Other Hexanes	5.80e-004	1.16e-002
Heptanes	9.90e-004	1.97e-002
Methylcyclohexane	3.55e-003	7.07e-002
2,2,4-Trimethylpentane	2.72e-005	5.42e-004
Benzene	1.29e-002	2.57e-001
Toluene	2.16e-002	4.30e-001
Xylenes	1.64e-002	3.27e-001
C8+ Heavies	4.16e-003	8.29e-002
-----		
Total Components	100.00	1.99e+003

## 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: 3.12e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
-----	-----	-----
Water	7.35e+001	1.09e+001
Carbon Dioxide	2.17e+001	7.85e+000
Nitrogen	1.62e-003	3.74e-004
Methane	2.87e+000	3.79e-001
Ethane	2.53e-001	6.25e-002
Propane	1.49e-001	5.41e-002
Isobutane	3.60e-002	1.72e-002
n-Butane	4.63e-002	2.21e-002
Isopentane	1.60e-002	9.51e-003
n-Pentane	1.77e-002	1.05e-002
Cyclopentane	6.23e-003	3.59e-003
n-Hexane	1.21e-002	8.58e-003
Cyclohexane	3.07e-002	2.13e-002
Other Hexanes	1.60e-002	1.13e-002
Heptanes	2.38e-002	1.96e-002
Methylcyclohexane	8.35e-002	6.75e-002
2,2,4-Trimethylpentane	5.64e-004	5.29e-004
Benzene	3.79e-001	2.44e-001
Toluene	5.22e-001	3.96e-001
Xylenes	3.26e-001	2.85e-001
C8+ Heavies	5.23e-002	7.33e-002
-----	-----	-----
Total Components	100.00	2.04e+001

## Dehydrator Reboiler Exhaust Emissions Calculations

Unit Number: **9b & 10b**Description: Dehydrator Reboilers (**10 MMSCFD**)

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

### Fuel Consumption

<b>659</b> scf/hr	Hourly fuel consumption	Mfg. data (Infab)
<b>900</b> Btu/scf	Field gas heating value	Nominal heat content
0.593 MMBtu/hr	Capacity	scf/hr x Btu/scf / 1,000,000
<b>8,760</b> hr/yr	Annual operating time	Harvest Four Corners, LLC
5,196 MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
5.77 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	<b>1.03</b>	0.043	0.188
CO	<b>0.43</b>	0.018	0.078
VOC	<b>0.07</b>	0.003	0.012
SO2	<b>0.01</b>	4.17E-04	0.002

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	<b>7.60</b>	5.01E-03	2.19E-02
PM10	<b>7.60</b>	5.01E-03	2.19E-02
PM2.5	<b>7.60</b>	5.01E-03	2.19E-02
Lead	<b>5.00E-04</b>	3.30E-07	1.44E-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

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



**GRI-HAPCalc® 3.01**  
**External Combustion Devices Report**

<b>Facility ID:</b>	32-8 #3	<b>Notes:</b>
<b>Operation Type:</b>	COMPRESSOR STATION	
<b>Facility Name:</b>	32-8 #3 CDP	
<b>User Name:</b>	Cirrus	
<b>Units of Measure:</b>	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: 9B, 10B

Hours of Operation: 8,760 Yearly  
 Heat Input: 0.59 MMBtu/hr  
 Fuel Type: NATURAL GAS  
 Device Type: BOILER  
 Emission Factor Set: EPA > FIELD > LITERATURE  
 Additional EF Set: -NONE-

**Calculated Emissions (ton/yr)**

<u>Chemical Name</u>	<u>Emissions</u>	<u>Emission Factor</u>	<u>Emission Factor Set</u>
<b>HAPs</b>			
7,12-Dimethylbenz(a)anthracene	0.0000	0.0000000157 lb/MMBtu	EPA
Formaldehyde	0.0002	0.0000735294 lb/MMBtu	EPA
Methanol	0.0011	0.0004333330 lb/MMBtu	GRI Field
Acetaldehyde	0.0008	0.0002909000 lb/MMBtu	GRI Field
1,3-Butadiene	0.0000	0.0000001830 lb/MMBtu	GRI Field
Benzene	0.0000	0.0000020588 lb/MMBtu	EPA
Toluene	0.0000	0.0000033333 lb/MMBtu	EPA
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	0.0001	0.0000323000 lb/MMBtu	GRI Field
n-Hexane	0.0046	0.0017647059 lb/MMBtu	EPA
Phenol	0.0000	0.0000000950 lb/MMBtu	GRI Field
Naphthalene	0.0000	0.0000005980 lb/MMBtu	EPA
2-Methylnaphthalene	0.0000	0.0000000235 lb/MMBtu	EPA
Biphenyl	0.0000	0.0000011500 lb/MMBtu	GRI Field
Fluorene	0.0000	0.0000000027 lb/MMBtu	EPA
Anthracene	0.0000	0.0000000024 lb/MMBtu	EPA
Phenanthrene	0.0000	0.0000000167 lb/MMBtu	EPA
Fluoranthene	0.0000	0.0000000029 lb/MMBtu	EPA
Pyrene	0.0000	0.0000000049 lb/MMBtu	EPA
Lead	0.0000	0.0000004902 lb/MMBtu	EPA
<b>Total</b>	0.0068		

## Criteria Pollutants

VOC	0.0139	0.0053921569	lb/MMBtu	EPA
PM	0.0193	0.0074509804	lb/MMBtu	EPA
PM, Condensable	0.0144	0.0055882353	lb/MMBtu	EPA
PM, Filterable	0.0048	0.0018627451	lb/MMBtu	EPA
CO	0.2128	0.0823529410	lb/MMBtu	EPA
NMHC	0.0220	0.0085294118	lb/MMBtu	EPA
NOx	0.2534	0.0980392157	lb/MMBtu	EPA
SO2	0.0015	0.0005880000	lb/MMBtu	EPA

## Other Pollutants

Dichlorobenzene	0.0000	0.0000011765	lb/MMBtu	EPA
Methane	0.0058	0.0022549020	lb/MMBtu	EPA
Acetylene	0.0138	0.0053314000	lb/MMBtu	GRI Field
Ethylene	0.0014	0.0005264000	lb/MMBtu	GRI Field
Ethane	0.0079	0.0030392157	lb/MMBtu	EPA
Propylene	0.0024	0.0009333330	lb/MMBtu	GRI Field
Propane	0.0041	0.0015686275	lb/MMBtu	EPA
Butane	0.0053	0.0020588235	lb/MMBtu	EPA
Cyclopentane	0.0001	0.0000405000	lb/MMBtu	GRI Field
Pentane	0.0066	0.0025490196	lb/MMBtu	EPA
n-Pentane	0.0052	0.0020000000	lb/MMBtu	GRI Field
Cyclohexane	0.0001	0.0000451000	lb/MMBtu	GRI Field
Methylcyclohexane	0.0004	0.0001691000	lb/MMBtu	GRI Field
n-Octane	0.0001	0.0000506000	lb/MMBtu	GRI Field
n-Nonane	0.0000	0.0000050000	lb/MMBtu	GRI Field
CO2	304.0235	117.6470588235	lb/MMBtu	EPA

## Storage Tank Emissions Calculations

Unit Number: **T2**

Description: Produced Water Tank

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

### Throughput

151,800 gal/yr  
3,614 bbl/yrAnnual liquid throughput  
Annual liquid throughputHarvest Four Corners, LLC  
gal/yr x 1 bbl/42 gal

### Emission Rates

Pollutant	Emission Factor, lb/bbl	Uncontrolled, Emission Rate, tpy
VOC	0.262	0.473
Benzene	0.007	1.27E-02
Ethylbenzene	0.0007	1.27E-03
n-Hexane	0.022	3.98E-02
Toluene	0.009	1.63E-02
Xylene	0.006	1.08E-02

VOC, Benzene, and n-Hexane emission factors are taken from the CDPHE PS Memo 09-02 (Oil & Gas Produced Water Tank Batteries - Regulatory Definitions & Permitting Guidance)

Ethylbenzene, toluene, and xylene emissions factors (Non-Texas) are taken from the TCEQ Project 2010-29 (Emission Factor Determination for Produced Water Storage Tanks) report

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

## Truck Loading (Produced Water) Emissions Calculations

Unit Number: **L1**

Description: Truck Loading

### Emission Factor

<b>0.6</b>	Saturation factor, S	AP-42, Table 5.2-1 (submerged loading & dedicated service)
0.4581 psia (maximum)	True vapor pressure of liquid, P	Estimated using Antoine's Equation (see calculations below)
0.3045 psia (average)	True vapor pressure of liquid, P	Estimated using Antoine's Equation (see calculations below)
<b>18.02</b> lb/lb-mole	Molecular weight of vapors, M	TANKS 4.0 Database
77 °F (maximum)	Temperature of liquid	Estimated (see calculations below)
65 °F (average)	Temperature of liquid	Estimated (see calculations below)
536.67 °R (maximum)	Temperature of liquid, T	°F + 459.67
524.67 °R (average)	Temperature of liquid, T	°F + 459.67
0.11 lb/10 <sup>3</sup> gal (maximum)	Emission factor, L	AP-42, Section 5.2, Equation 1
0.08 lb/10 <sup>3</sup> gal (average)	Emission factor, L	AP-42, Section 5.2, Equation 1

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

### Production Rate

<b>3.36</b> 10 <sup>3</sup> gal/hr	Maximum hourly production rate	Harvest Four Corners, LLC
<b>151.80</b> 10 <sup>3</sup> gal/yr	Maximum annual production rate	Harvest Four Corners, LLC

### Steady-State Emission Rates

Pollutant	Uncontrolled Emission Rates,	
	pph	tpy
VOC	3.86E-01	5.93E-03

The short-term emission rates are calculated using the maximum true vapor pressure and maximum temperature of the liquid

The annual emission rates are calculated using the average true vapor pressure and average temperature of the liquid

Uncontrolled Emission Rate (pph) = lb/10<sup>3</sup> gal x 10<sup>3</sup> gal/hr

Uncontrolled Emission Rate (tpy) = lb/10<sup>3</sup> gal x 10<sup>3</sup> gal/yr / 2,000 lb/ton

Pollutants	Mass Fraction	Uncontrolled Emission Rates,	
		pph	tpy
Benzene	<b>0.0267</b>	1.03E-04	1.59E-06
Ethylbenzene	<b>0.0027</b>	1.03E-05	1.59E-07
n-Hexane	<b>0.0840</b>	3.24E-04	4.98E-06
Toluene	<b>0.0344</b>	1.33E-04	2.04E-06
m-Xylene	<b>0.0229</b>	8.85E-05	1.36E-06

HAP mass fractions are estimated from the produced water tank emission factors

HAP Mass Fraction = HAP Emission Factor (lb/bbl) / VOC Emission Factor (lb/bbl)

Emission Rates (pph) = VOC Emission Rate (pph) x HAP Mass Fraction

Emission Rates (tpy) = VOC Emission Rate (tpy) x HAP Mass Fraction

## Truck Loading (Produced Water) Emissions Calculations

Unit Number: **L1**

Description: Truck Loading

### Vapor Pressure of Produced Water:

It is estimated that the true vapor pressure of produced water is approximately equal to the true vapor pressure of pure water. An estimate of the true vapor pressure for water is calculated using Antoine's equation (see AP-42, Section 7.1, Equation 1-25).

#### Maximum:

Temperature = **77** °F

$$\log P = A - (B / (C + T))$$

$$A = 8.07131$$

$$B = 1730.63$$

$$C = 233.426$$

$$T = 25.00 \text{ }^{\circ}\text{C}$$

$$P = \text{mmHg}$$

$$P = 10^{(A - (B / (C + T)))}$$

$$P = 23.69 \text{ mmHg}$$

$$P = 0.4581 \text{ psi}$$

Note: 760 mmHg = 14.7 psia

#### Average:

Temperature = **65** °F

$$\log P = A - (B / (C + T))$$

$$A = 8.07131$$

$$B = 1730.63$$

$$C = 233.426$$

$$T = 18.33 \text{ }^{\circ}\text{C}$$

$$P = \text{mmHg}$$

$$P = 10^{(A - (B / (C + T)))}$$

$$P = 15.75 \text{ mmHg}$$

$$P = 0.3045 \text{ psi}$$

## Equipment Leaks Emissions Calculations

Unit Number: **F1**

Description: Valves, Connectors, Seals &amp; Open-Ended Lines

### Steady-State Emission Rates

Equipment	Number of Components, # of sources	Emission Factors, kg/hr/source	Emission Factors, lb/hr/source	Uncontrolled Emission Rates,	
				pph	tpy
Valves	639	0.0045	0.0099	6.33	27.71
Connectors	647	0.0002	0.0004	0.28	1.25
Pump Seals	8	0.0024	0.0053	0.04	0.19
Compressor Seals	48	0.0088	0.0194	0.93	4.07
Pressure Relief Valves	55	0.0088	0.0194	1.06	4.66
Open-Ended Lines	184	0.0020	0.0044	0.81	3.55
Total				<b>9.46</b>	<b>41.42</b>

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 %	Uncontrolled Emission Rates,	
					pph	tpy
Carbon dioxide	15.2958	44.010	6.732	32.609	3.08E+00	1.35E+01
Hydrogen sulfide	0.0000	34.070	0.000	0.000	0.00E+00	0.00E+00
Nitrogen	0.0470	28.013	0.013	0.064	6.03E-03	2.64E-02
Methane	82.9203	16.043	13.303	64.441	6.09E+00	2.67E+01
Ethane	1.3527	30.070	0.407	1.970	1.86E-01	8.16E-01
Propane	0.2909	44.097	0.128	0.621	5.88E-02	2.57E-01
Isobutane	0.0359	58.123	0.021	0.101	9.56E-03	4.19E-02
n-Butane	0.0296	58.123	0.017	0.083	7.88E-03	3.45E-02
Isopentane	0.0084	72.150	0.006	0.029	2.78E-03	1.22E-02
n-Pentane	0.0063	72.150	0.005	0.022	2.08E-03	9.12E-03
Cyclopentane	0.0003	70.134	0.000	0.001	9.64E-05	4.22E-04
n-Hexane	0.0018	86.177	0.002	0.008	7.11E-04	3.11E-03
Cyclohexane	0.0007	84.161	0.001	0.003	2.70E-04	1.18E-03
Other hexanes	0.0036	86.177	0.003	0.015	1.42E-03	6.22E-03
Heptanes	0.0014	100.204	0.001	0.007	6.43E-04	2.81E-03
Methylcyclohexane	0.0016	98.188	0.002	0.008	7.20E-04	3.15E-03
2,2,4-Trimethylpentane (Isooctane)	0.0001	114.231	0.000	0.001	5.23E-05	2.29E-04
Benzene	0.0009	78.114	0.001	0.003	3.22E-04	1.41E-03
Toluene	0.0009	92.141	0.001	0.004	3.80E-04	1.66E-03
Ethylbenzene	0.0000	106.167	0.000	0.000	0.00E+00	0.00E+00
Xylenes	0.0004	106.167	0.000	0.002	1.95E-04	8.52E-04
C8+ Heavies	0.0014	114.231	0.002	0.008	7.33E-04	3.21E-03
Total	100.0000		20.644			
Total VOC				0.916	8.66E-02	0.379

Gas stream composition obtained from the 32-8 #3 CDP extended gas analysis dated April 6, 2022.

Component Weights (lb/lb-mole) = (% / 100) \* Molecular Weights (lb/lb-mole)

Weight Percent (%) = 100 x Component Weights (lb/lb-mole) / Total Component Weight (lb/lb-mole)

Uncontrolled Emission Rates (pph) = Total Uncontrolled Emission Rate (from Table 1 above) (pph) x (% / 100)

Uncontrolled Emission Rates (tpy) = Total Uncontrolled Emission Rate (from Table 1 above) (tpy) x (% / 100)

## Equipment Leaks Emissions Calculations

Unit Number: **F1**

Description: Valves, Connectors, Seals &amp; Open-Ended Lines

### Component Count

Number of Compressors at the Facility: **6**Number of Dehydrators at the Facility: **4**

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	264	354	0	24	36	66	0	24	54
Components from dehydrators	24	40	8	0	12	24	0	12	16
<b>Total</b>	<b>409</b>	<b>467</b>	<b>8</b>	<b>48</b>	<b>55</b>	<b>138</b>	<b>3</b>	<b>46</b>	<b>82</b>
<b>Adjusted Total</b>	<b>639</b>	<b>647</b>	<b>8</b>	<b>48</b>	<b>55</b>	<b>184</b>			

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 the evaluation of a comparable facility (Sim Mesa Central Delivery Point)

## Malfunction Emissions Data and Calculations

Unit Number: **M1**  
 Description: **Malfunctions**

### Emission Rates

Pollutants	Weight Percents, %	Uncontrolled Emission Rates, tpy
VOC		<b>10.00</b>
Benzene	3.720E-01	3.72E-02
Ethylbenzene	0.000E+00	0.00E+00
n-Hexane	8.209E-01	8.21E-02
2,2,4-Trimethylpentane (Isooctane)	5.303E-02	5.30E-03
Toluene	4.389E-01	4.39E-02
Xylene	2.248E-01	2.25E-02

Weight percents calculated from gas composition (see table below)

Uncontrolled Emission Rates (tpy) = VOC Emission Rate (tpy) x (% / 100)

### Gas Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight Percent, %
Carbon dioxide	15.2958	44.01		
Hydrogen sulfide	0.0000	34.07		
Nitrogen	0.0470	28.01		
Methane	82.9203	16.04		
Ethane	1.3527	30.07		
Propane	0.2909	44.09	0.1283	6.788E+01
Isobutane	0.0359	58.12	0.0209	1.104E+01
n-Butane	0.0296	58.12	0.0172	9.104E+00
Isopentane	0.0084	72.15	0.0061	3.207E+00
n-Pentane	0.0063	72.15	0.0045	2.406E+00
Cyclopentane	0.0003	70.14	0.0002	1.114E-01
n-Hexane	0.0018	86.17	0.0016	8.209E-01
Cyclohexane	0.0007	84.16	0.0006	3.118E-01
Other hexanes	0.0036	86.18	0.0031	1.642E+00
Heptanes	0.0014	100.20	0.0014	7.424E-01
Methylcyclohexane	0.0016	98.19	0.0016	8.314E-01
2,2,4-Trimethylpentane (Isooctane)	0.0001	100.21	0.0001	5.303E-02
Benzene	0.0009	78.11	0.0007	3.720E-01
Toluene	0.0009	92.14	0.0008	4.389E-01
Ethylbenzene	0.0000	106.17	0.0000	0.000E+00
Xylenes	0.0004	106.17	0.0004	2.248E-01
C8+ Heavies	0.0014	110.00	0.0015	8.150E-01
Total	100.0000			
Total VOC			0.1890	

Gas stream composition obtained from the 32-8 #3 CDP extended gas analysis dated April 6, 2022.

Component Weights (lb/lb-mole) = (% / 100) x Molecular Weights (lb/lb-mole)

Weight Percents (%) = 100 x Component Weights (lb/lb-mole) / Total VOC Weight (lb/lb-mole)



## Section 6.a

### Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMAC)

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**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<sub>2</sub>), nitrous oxide (N<sub>2</sub>O), methane (CH<sub>4</sub>), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>).

#### Calculating GHG Emissions:

1. Calculate the ton per year (tpy) GHG mass emissions and GHG CO<sub>2</sub>e 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<sub>2</sub>e 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<sub>2</sub>e 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 CO<sub>2</sub>e 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 CO<sub>2</sub>e 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<sub>2</sub> 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)

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CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O stack exhaust emissions for combustion sources 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 and malfunction CO<sub>2</sub> and CH<sub>4</sub> emissions from blowdown events were calculated from the annual blowdown volumes and gas composition.

CO<sub>2</sub> and CH<sub>4</sub> emissions from each of the dehydrators is based on the regenerator and flash gas stream data and still vent emission data in the GLYCalc output file.

There are no GHG emissions associated with the produced water storage tank or its associated truck loading operations.

Emissions of CO<sub>2</sub> and CH<sub>4</sub> from equipment leaks were calculated using the TOC emission factors and the facility gas stream composition.

The reciprocating compressor CO<sub>2</sub> and CH<sub>4</sub> emissions were calculated using a combination of equations W-26 & W-36 (from Subpart W).

CH<sub>4</sub> gas-driven pneumatic device emissions and non-routine emissions were calculated from the facility CH<sub>4</sub> gas stream composition using the emission factors and baseline CH<sub>4</sub> content from the API Compendium, Section 5.6.1, Table 5-15. CO<sub>2</sub> gas-driven pneumatic device emissions and non-routine emissions were calculated from the CH<sub>4</sub> emissions and facility gas stream CO<sub>2</sub> composition.

## Green House Gas Emissions Data and Calculations

Sources	Facility Total Emissions				
	CO <sub>2</sub> , tpy	N <sub>2</sub> O, tpy	CH <sub>4</sub> , tpy	GHG, tpy	CO <sub>2</sub> e, tpy
Engine & Turbine Exhaust	36,062.72	0.068	0.680	36,063.5	36099.96
SSM Blowdowns	67.55	--	133.47	201.02	3404.24
Reciprocating Compressor Venting	163.47	--	323.48	486.96	8250.58
Dehydrators	147.01	--	6.63	153.64	312.72
Reboiler Exhaust	1,909.14	3.60E-03	3.60E-02	1,909.18	1911.11
Equipment Leaks	8.13	--	16.09	24.22	410.28
Natural Gas Pneumatic Device Venting	41.03	--	80.98	122.01	2065.65
Natural Gas Driven Pneumatic Pump Venting	1.03	--	2.04	3.07	52.04
Malfunctions	356.26	--	703.89	1,060.14	17953.45
Separators & Storage Tanks (Flash Emissions)	0.00	--	0.00	0.00	0.00
Total	38,756.34	7.16E-02	1,267.29	40,023.71	70,460.03

### Engine & Turbine Exhaust Emissions

Unit Numbers	Description	Emission Factors			Emission Rates		
		CO <sub>2</sub> , kg/MMBtu	N <sub>2</sub> O, kg/MMBtu	CH <sub>4</sub> , kg/MMBtu	CO <sub>2</sub> , tpy	N <sub>2</sub> O, tpy	CH <sub>4</sub> , tpy
1	Engine	53.06	1.00E-04	1.00E-03	6,010.45	0.011	0.113
2	Engine	53.06	1.00E-04	1.00E-03	6,010.45	0.011	0.113
3	Engine	53.06	1.00E-04	1.00E-03	6,010.45	0.011	0.113
4	Engine	53.06	1.00E-04	1.00E-03	6,010.45	0.011	0.113
5	Engine	53.06	1.00E-04	1.00E-03	6,010.45	0.011	0.113
6	Engine	53.06	1.00E-04	1.00E-03	6,010.45	0.011	0.113
	Total	36,062.72	0.068	0.680			

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	Engine	Nat. Gas	8,760	10.58	11.76	102,979
2	Engine	Nat. Gas	8,760	10.58	11.76	102,979
3	Engine	Nat. Gas	8,760	10.58	11.76	102,979
4	Engine	Nat. Gas	8,760	10.58	11.76	102,979
5	Engine	Nat. Gas	8,760	10.58	11.76	102,979
6	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

### SSM Blowdown Emissions

Unit Numbers	Description	Total Gas Losses, scf/yr	CO <sub>2</sub> Emission Factors, lb/scf	CH <sub>4</sub> Emission Factors, lb/scf	Emission Rates		
					CO <sub>2</sub> , tpy	N <sub>2</sub> O, tpy	CH <sub>4</sub> , tpy
SSM	SSM Blowdowns	7,614,444	0.0177	0.0351	67.55	-	133.47

The annual blowdown volumes are calculated from data provided by Harvest

The CO<sub>2</sub> and CH<sub>4</sub> emission factors are calculated from the facility extended gas analysis

Emission Rates (tpy) = scf/yr x lb/scf / 2,000 lb/ton

## Green House Gas Emissions Data and Calculations

### Reciprocating Compressor Venting Emissions

Unit Numbers	Description	Emission Rates		
		CO <sub>2</sub> , tpy	N <sub>2</sub> O, tpy	CH <sub>4</sub> , tpy
NA	Blowdown Valve Leakage	15.62	-	30.90
NA	Rod Packing Emissions	147.86	-	292.58
NA	Isolation Valve Leakage	0.00	-	0.00
	Total	163.47	-	323.48

Operating or standby mode - includes blowdown valve leakage through blowdown vent stack

Operating mode - includes rod packing emissions

Non-operating depressurized mode - includes isolation valve leakage through open blowdown vents (without blind flanges)

Rod packing gas emissions assume 4 cylinders per compressor

A combination of equations W-26 & W-36 (Subpart W) is used to calculate reciprocating compressor emissions

As the NMED requires CO<sub>2</sub> & CH<sub>4</sub> emissions rather than CO<sub>2</sub>e emissions, it is not necessary to include the global warming potential from equation W-36

CO<sub>2</sub> Emission Rates (tpy) = # x scf/hr x hr/yr x (CO<sub>2</sub> Mole Percent (%) / 100) x CO<sub>2</sub> Density (kg/scf)  
x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne

CH<sub>4</sub> Emission Rates (tpy) = # x scf/hr x hr/yr x (CH<sub>4</sub> Mole Percent (%) / 100) x CH<sub>4</sub> Density (kg/scf)  
x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne

Unit Numbers	Description	Number of Compressors #	Gas Emissions, scf/hr	Operating Times, hr/yr	CO <sub>2</sub> Mole Percents, %	CH <sub>4</sub> Mole Percents, %	CO <sub>2</sub> Density, kg/scf	CH <sub>4</sub> Density, kg/scf
NA	Blowdown Valve Leakage	6	33.5	8,760	15.30	82.92	0.0526	0.0192
NA	Rod Packing Emissions	6	317.2	8,760	15.30	82.92	0.0526	0.0192
NA	Isolation Valve Leakage	6	10.5	0	15.30	82.92	0.0526	0.0192

The number of compressors is provided by Harvest

Blowdown valve leakage (33.5 scf/hr) and rod packing emissions occur in operating mode

Blowdown valve leakage (10.5 scf/hr) occurs in standby pressurized mode

Emission factors are the three year rolling average (2012-2014) of all measurements in the Harvest Four Corners, LLC compressor fleet located at natural gas processing plants

The operating times (the average operating times for all station compressors combined) are provided by Harvest

The facility CO<sub>2</sub> and CH<sub>4</sub> contents are taken from the facility extended gas analysis

The CO<sub>2</sub> & CH<sub>4</sub> densities (kg/scf) are taken from Subpart W, Paragraph 98.233(v)

### Dehydrator Emissions

Unit Numbers	Description	Emission Rates		
		CO <sub>2</sub> , tpy	N <sub>2</sub> O, tpy	CH <sub>4</sub> , tpy
7a	Dehydrator (10 MMSCFD)	36.73	-	1.66
8a	Dehydrator (12 MMSCFD)	36.73	-	1.66
9a	Dehydrator (15 MMSCFD)	36.77	-	1.66
10a	Dehydrator (20 MMSCFD)	36.77	-	1.66
	Total	147.01	-	6.63

The emission rates are taken from the GRI-GLYCalc output file

## Green House Gas Emissions Data and Calculations

### Reboiler Exhaust Emissions

Unit Numbers	Description	Emission Factors			Emission Rates		
		CO <sub>2</sub> , kg/MMBtu	CH <sub>4</sub> , kg/MMBtu	N <sub>2</sub> O, kg/MMBtu	CO <sub>2</sub> , tpy	N <sub>2</sub> O, tpy	CH <sub>4</sub> , tpy
7b	Reboiler (12 MMSCFD)	53.06	1.00E-03	1.00E-04	617.63	0.001	0.012
8b	Reboiler (12 MMSCFD)	53.06	1.00E-03	1.00E-04	617.63	0.001	0.012
9b	Reboiler (10 MMSCFD)	53.06	1.00E-03	1.00E-04	336.94	0.001	0.006
10b	Reboiler (10 MMSCFD)	53.06	1.00E-03	1.00E-04	336.94	0.001	0.006
Total					1,909.14	0.004	0.036

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
7b	Reboiler (12 MMSCFD)	Nat. Gas	8,760	1,208	900	1.09	1.21	10,582
8b	Reboiler (12 MMSCFD)	Nat. Gas	8,760	1,208	900	1.09	1.21	10,582
9b	Reboiler (10 MMSCFD)	Nat. Gas	8,760	659	900	0.59	0.66	5,773
10b	Reboiler (10 MMSCFD)	Nat. Gas	8,760	659	900	0.59	0.66	5,773

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

### Equipment Leaks Emissions

Unit Numbers	Description	Emission Rates		
		CO <sub>2</sub> , tpy	N <sub>2</sub> O, tpy	CH <sub>4</sub> , tpy
NA	Valves	6.0	-	11.9
NA	Connectors	0.9	-	1.7
NA	Open-Ended Lines	0.4	-	0.9
NA	Pressure Relief Valves	0.8	-	1.6
Total		8.1	-	16.1

A combination of equations W-31 & W-36 (Subpart W) is used to calculate uncombusted CO<sub>2</sub> & CH<sub>4</sub> emissions

As the NMED requires CO<sub>2</sub> & CH<sub>4</sub> emissions rather than CO<sub>2</sub>e emissions, it is not necessary to include the global warming potential from equation W-36

CO<sub>2</sub> Emission Rate (tpy) = # x scf/hr/component x (CO<sub>2</sub> Content (mole %) / 100) x hr/yr x CO<sub>2</sub> Density (kg/scf)  
x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne

CH<sub>4</sub> Emission Rate (tpy) = # x scf/hr/component x (CH<sub>4</sub> Content (mole %) / 100) x hr/yr x CH<sub>4</sub> 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	CO <sub>2</sub> Contents, mole %	CH <sub>4</sub> Contents, mole %	Operating Times, hr/yr	CO <sub>2</sub> Density, kg/scf	CH <sub>4</sub> Density, kg/scf
NA	Valves	639	0.121	15.30	82.92	8,760	0.0526	0.0192
NA	Connectors	647	0.017	15.30	82.92	8,760	0.0526	0.0192
NA	Open-Ended Lines	184	0.031	15.30	82.92	8,760	0.0526	0.0192
NA	Pressure Relief Valves	55	0.193	15.30	82.92	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 CO<sub>2</sub> and CH<sub>4</sub> contents are taken from the facility extended gas analysis

The operating times are provided by Harvest (default is the entire year)

The CO<sub>2</sub> & CH<sub>4</sub> densities are taken from Subpart W, Paragraph 98.233(v)

## Green House Gas Emissions Data and Calculations

### 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	0	37.3	8,760	0.00	-	0.00
NA	Intermittent Bleed Pneumatic Devices	39	13.5	8,760	40.92	-	80.77
NA	Continuous Low Bleed Pneumatic Devices	1	1.39	8,760	0.11	-	0.21
	Total				41.03	-	80.98

The number of devices and operating times are provided by Harvest

The emission factors are taken from Subpart W, Table W-1A (Western U.S. - Gas Service)

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	15.30	82.92	5.262E-05	4.790E-04	1	25
NA	Continuous Low Bleed Pneumatic Devices	15.30	82.92	5.262E-05	4.790E-04	1	25
NA	Intermittent Bleed Pneumatic Devices	15.30	82.92	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

### Natural Gas Driven Pneumatic Pump Venting Emissions

#### Emission Rates

Unit Number	Description	Number of Pumps, #	Emission Factor, scf/hr/pump	Operating Time, hr/yr	Emission Rates		
					CO2, tpy	N2O, tpy	CH4, tpy
NA	Pneumatic Pump Venting	1	13.3	8,760	1.03	-	2.04

The number of pumps is provided by Harvest

The emission factor is taken from Subpart W, Table W-1A (Western U.S. - Gas Service)

The operating time is provided by Harvest (default is the entire year)

Equation W-2 (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 Rate (tpy) = # x scf/hr/pump x (CO2 Content (mole %) / 100) x CO2 Conversion Factor (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 Rate (tpy) = # x scf/hr/pump x (CH4 Content (mole %) / 100) x CH4 Conversion Factor (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 Number	Description	CO2 Content, mole %	CH4 Content, mole %	CO2 Conversion Factor, tonne CO2e /scf	CH4 Conversion Factor, tonne CO2e /scf	CO2 Global Warming Potential, tonne CO2e /tonne CO2	CH4 Global Warming Potential, tonne CO2e /tonne CH4
NA	Pneumatic Pump Venting	15.30	82.92	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 operating time is provided by Harvest (the default is the entire year)

The global warming potentials are taken from 40 CFR Part 98, Table A-1

## Green House Gas Emissions Data and Calculations

### Malfunction Emissions

Unit Number	Description	Total Component Weight, lb/lb-mole	VOC Component Weight, lb/lb-mole	CO2 Weight % of Total, %	CH4 Weight % of Total, %	Emission Rates		
						CO2, tpy	N2O, tpy	CH4, tpy
M1	Malfunctions	20.64	0.19	32.61	64.44	356.26	-	703.89

The total & VOC component weights and CO2 & CH4 weight % of totals are calculated from the facility extended gas analysis

The VOC emission rate is estimated (see calculations workbook)

CO2 Emission Rate (tpy) = VOC Emission Rate (tpy) x (Total Component Weight (lb/lb-mole) / VOC Component Weight (lb-lb-mole)) x (CO2 Weight % of Total (%) / 100)

CH4 Emission Rate (tpy) = VOC Emission Rate (tpy) x (Total Component Weight (lb/lb-mole) / VOC Component Weight (lb-lb-mole)) x (CH4 Weight % of Total (%) / 100)

### 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	15.2958	44.01	6.73	32.6132	0.0177
Hydrogen Sulfide	0.0000	34.07	0.00	0.0000	0.0000
Nitrogen	0.0470	28.01	0.01	0.0638	0.0000
Methane	82.9203	16.04	13.30	64.4370	0.0351
Ethane	1.3527	30.07	0.41	1.9706	0.0011
Propane	0.2909	44.09	0.13	0.6214	0.0003
IsoButane	0.0359	58.12	0.02	0.1011	0.0001
Normal Butane	0.0296	58.12	0.02	0.0833	0.0000
IsoPentane	0.0084	72.15	0.01	0.0294	0.0000
Normal Pentane	0.0063	72.15	0.00	0.0220	0.0000
Cyclopentane	0.0003	70.14	0.00	0.0010	0.0000
n-Hexane	0.0018	86.17	0.00	0.0075	0.0000
Cyclohexane	0.0007	84.16	0.00	0.0029	0.0000
Other Hexanes	0.0036	86.18	0.00	0.0150	0.0000
Heptanes	0.0014	100.20	0.00	0.0068	0.0000
Methylcyclohexane	0.0016	98.19	0.00	0.0076	0.0000
2,2,4-Trimethylpentane	0.0001	100.21	0.00	0.0005	0.0000
Benzene	0.0009	78.11	0.00	0.0034	0.0000
Toluene	0.0009	92.14	0.00	0.0040	0.0000
Ethylbenzene	0.0000	106.17	0.00	0.0000	0.0000
Xylenes	0.0004	106.17	0.00	0.0021	0.0000
C8+ heavies	0.0014	110.00	0.00	0.0075	0.0000
Total	100.0000		20.64	100.0000	0.0544
VOC			0.19	--	0.0005

Gas stream composition obtained from the 32-8 #3 CDP extended gas analysis dated April 6, 2022.

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

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**Information Used to Determine Emissions** shall include the following:

- ☒ 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.
  - ☒ 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.
  - ☒ If an EPA document or other material is referenced, include a complete copy.
  - ☐ Fuel specifications sheet.
  - ☒ 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.
- 

Please see the following pages.

## STANDARD EQUIPMENT

**AIR CLEANER** – Two, dry type with rain shield and service indicator.

**BARRING DEVICE** – Manual.

**BEARINGS** – Heavy duty, replaceable, precision type.

**BREATHER** – Closed system.

**CONNECTING RODS** – Drop forged steel, rifle drilled.

**CONTROL SYSTEM** – Pneumatic. Includes pilot operated valves for air start and prelube. Engine mounted control panel with two push button valves. Pilot operated air start valves omitted when starter is not furnished by Waukesha. Includes engine On/Off push button. One mounted on either side of the engine.

**CRANKCASE** – Integral crankcase and cylinder frame. Main bearing caps drilled and tapped for temperature sensors. Does not include sensors.

**CRANKSHAFT** – Counterweighted, forged steel, seven main bearings, and dynamically balanced.

**CYLINDERS** – Removable wet type cylinder liners, chrome plated on outer diameter. Induction hardened.

**CYLINDER HEADS** – Twelve interchangeable. Two hard faced intake and two hard faced exhaust valves per cylinder. Hard faced intake and exhaust valve seat inserts. Roller valve lifters and hydraulic push rods. Includes prechamber and related fuel control valves.

**ENGINE ROTATION** – Counterclockwise when facing flywheel.

**ENGINE MONITORING DEVICES** – Engine thermocouples, K-type, for jacket water temperature, lube oil temperature, intake manifold temperature, individual cylinder exhaust temperature and a common pre turbine temperatures, one on each bank. Magnetic pickup wired for customer supplied tachometer. Lube oil pressure and intake manifold pressure sensing lines are terminated in a common bulk head.

**EXHAUST OUTLET** – Single vertical at rear. Flexible stainless steel connection with 8" (203 mm) pipe flange.

**FLYWHEEL** – Approx.  $WR^2 = 155000 \text{ lb-in}^2$ ; with ring gear (208 teeth), machined to accept two drive adapters: 31.88" (810 mm) pilot bore, 30.25" (768 mm) bolt circle, (12) 0.75"-10 tapped holes; or 28.88" (734 mm) pilot bore, 27.25" (692 mm) bolt circle, (12) 0.625"-11 tapped holes and (12) 0.75"-10 tapped holes.

**FLYWHEEL HOUSING** – No. 00 SAE.

**FUEL SYSTEM** – Dual natural gas, 4" (102 mm) duplex updraft carburetors. Two Fisher Model 99, 2" (51 mm) gas regulators, 30 – 50 psi (241 – 345 kPa) gas inlet pressure required. Prechamber fuel system and control logic.

**GOVERNOR** – Woodward UG-8 LD hydraulic lever type, with friction type speed control. Mounted on right hand side.

**IGNITION** – Waukesha Custom Engine Control Ignition Module. Electronic digital ignition system. 24V DC power required.

**INTERCOOLER** – Air-to-water.

**LEVELING BOLTS**

**LIFTING EYES**

**LUBRICATION** – Full pressure. Gear type pump. Full flow filter, 36 gallon (136 litres) capacity, not mounted. Includes flexible connections. Includes lube oil strainer, mounted on engine. Air/gas motor driven prelube pump. Requires final piping.

**MANIFOLDS** – Exhaust, (2) water cooled.

**OIL COOLER** – With thermostatic temperature controller and pressure regulating valve. Not mounted.

**OIL PAN** – Base type. 90 gallon (340 litres) capacity including filter and cooler.

**PAINT** – Oilfield orange primer.

**PISTONS** – Aluminum with floating pin. 10.5:1 compression ratio. Oil cooled.

**SHIPPING SKID** – Steel for domestic truck or rail.

**TURBOCHARGERS** – Two, dry type. Wastegate controlled.

**VIBRATION DAMPER** – Two, viscous type. Guard included with remote mounted radiator or no radiator.

### WATER CIRCULATING SYSTEM

**Auxiliary Circuit** – For oil cooler and intercooler. Pump is belt driven from crankshaft pulley. Includes thermostatic valve.

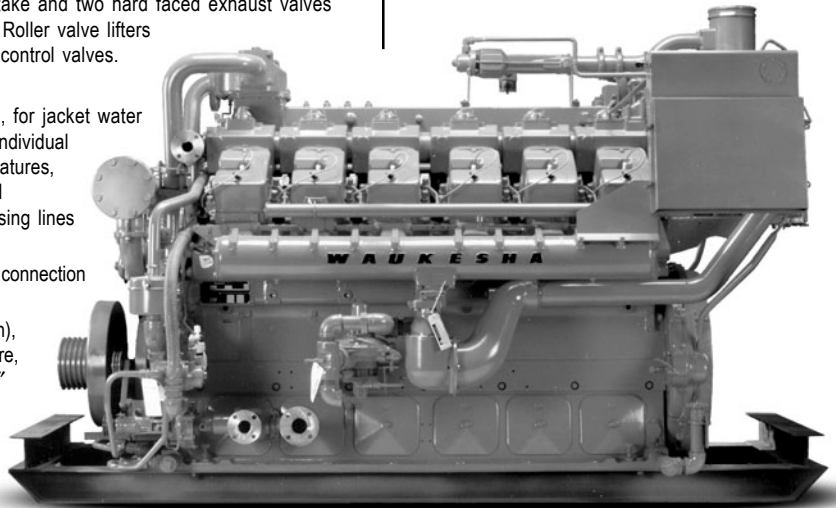
**Engine Jacket** – Belt driven water circulating pump, cluster type thermostatic temperature regulating valve, full flow bypass type. Flange connections and mating flanges for (2) 4" (102 mm) inlets and (1) 5" (127 mm) outlet.

**WAUKESHA CUSTOM ENGINE CONTROL, DETONATION SENSING MODULE (DSM)** – Includes individual cylinder sensors, Detonation Sensing Module, filter and cables. Device is compatible with Waukesha CEC Ignition Module only. Sensors are mounted and wired to engine junction box. Detonation Sensing Module and filter are shipped loose. One 11 ft. cable provided for connection between engine junction box and filter. One each 15 ft. cable provided for connection between filter and DSM and Ignition Module and DSM. One 20 ft. cable provided for power and ground for filter. All cables are shipped loose. Packager is responsible for power supply and ground to the DSM. 24V DC power is required. The DSM meets Canadian Standards Association Class 1, Group D, Division 2, hazardous location requirements.

**Waukesha**  
VHP

# L7042GL

**VHP™ Series Gas Engine**  
886 - 1547 BHP



**Model L7042GL** Turbocharged and Intercooled,  
Twelve Cylinder, Lean Combustion, Four-Cycle  
Gas Engine

## SPECIFICATIONS

### Cylinders

V 12

### Piston Displacement

7040 cu. in.  
(115 L)

### Bore & Stroke

9.375" x 8.5"  
(238 x 216 mm)

### Compression Ratio

10.5:1

### Jacket Water System Capacity

107 gal.  
(405 L)

### Lube Oil Capacity

90 gal.  
(340 L)

### Starting System

125 - 150 psi air/gas  
24/32V electric

### Dry Weight

21,000 lb.  
(9525 kg)

### Full Load Exhaust Emissions

Nox - 1.50 g/bhp-hr  
CO - 2.65 g/bhp-hr  
HC - 1.00 g/bhp-hr  
(non-methane)

Waukesha Engine  
 **ISO 9001**  
CERTIFIED

## POWER RATINGS: L7042GL VHP SERIES GAS ENGINES

Brake Horsepower (kWb Output)							
Model	I.C. Water Inlet Temp. °F (°C) (Tcra)	C.R.	800 rpm	900 rpm	1000 rpm	1100 rpm	1200 rpm
High Speed Turbo <sup>1</sup>	85° (29°)	10.5:1	928 (692)	1160 (865)	1289 (961)	1418 (1057)	1547 (1154)
High Speed Turbo <sup>1</sup>	130° (54°)	10.5:1	886 (661)	1108 (826)	1232 (919)	1355 (1010)	1478 (1102)
Low Speed Turbo <sup>2</sup>	85° (29°)	10.5:1	1031 (769)	1160 (865)	1289 (961)	— —	— —
Low Speed Turbo <sup>2</sup>	130° (54°)	10.5:1	985 (735)	1108 (826)	1232 (919)	— —	— —

<sup>1</sup>High speed turbocharger match – 1001-1200 rpm

<sup>2</sup>Low speed turbocharger match – 700-1000 rpm

**Rating Standard:** All models: Ratings are based on ISO 3046/1-1995 with mechanical efficiency of 90% and auxiliary water temperature Tcra (clause 10.1) as specified above limited to  $\pm 10^\circ \text{F}$  ( $\pm 5^\circ \text{C}$ ). Ratings are also valid for SAE J1349, BS5514, DIN6271 and AP17B-11C standard atmospheric conditions.

**ISO Standard Power/Continuous Power Rating:** The highest load and speed which can be applied 24 hours a day, seven days a week, 365 days per year except for normal maintenance. It is permissible to operate the engine at up to 10% overload, or maximum load indicated by the intermittent rating, whichever is lower, for two hours in each 24 hour period.

All natural gas engine ratings are based on a fuel of 900 Btu/ft<sup>3</sup> (35.3 MJ/nm<sup>3</sup>) SLHV value, with a 91 Waukesha Knock Index®.

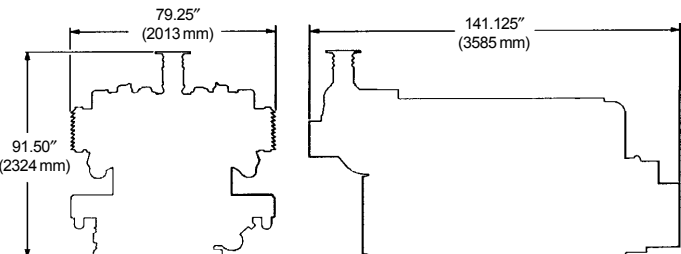
For conditions or fuels other than standard, the Waukesha Engine Sales Engineering Department.

## PERFORMANCE: L7042GL VHP SERIES GAS ENGINES

English		130° F ICW		85° F ICW		Metric		54° C ICW		29° C ICW	
Low NO <sub>x</sub> Settings	RPM	1200	1000	1200	1000	RPM		1200	1000	1200	1000
	Power (Bhp)	1478	1232	1547	1289	Power (kWb)		1103	919	1154	962
	BSFC (Btu/bhp-hr)	7155	6815	7180	6840	BSFC (kJ/kW-hr)		10124	9643	10160	9679
	NO <sub>x</sub> (grams/bhp-hr)	0.90	0.90	0.70	0.70	NO <sub>x</sub> (g/nm <sup>3</sup> )		0.37	0.37	0.29	0.29
	CO (grams/bhp-hr)	2.75	2.65	2.65	2.55	CO (g/nm <sup>3</sup> )		1.14	1.10	1.10	1.05
	NMHC (grams/bhp-hr)	1.00	1.00	1.10	1.10	NMHC (g/nm <sup>3</sup> )		0.41	0.41	0.45	0.45
Low Fuel Consumption Settings	BSFC (Btu/bhp-hr)	6910	6615	6935	6640	BSFC (kJ/kW-hr)		9778	9360	9813	9396
	NO <sub>x</sub> (grams/bhp-hr)	1.50	1.60	1.30	1.40	NO <sub>x</sub> (g/nm <sup>3</sup> )		0.62	0.66	0.54	0.58
	CO (grams/bhp-hr)	3.00	2.75	2.90	2.65	CO (g/nm <sup>3</sup> )		1.24	1.14	1.20	1.10
	NMHC (grams/bhp-hr)	0.70	1.00	0.80	1.10	NMHC (g/nm <sup>3</sup> )		0.29	0.41	0.33	0.45

### NOTES:

- Performance ratings are based on ISO 3046/1-1995 with mechanical efficiency of 90% and Tcra limited to  $\pm 10^\circ \text{F}$ .
- Fuel consumptions based on ISO 3046/1-1995 with a +5% tolerance for commercial quality natural gas having a 900 Btu/ft<sup>3</sup> saturated low heat value.
- Data based on standard conditions of 77° F (25° C) ambient temperature, 29.53 inches Hg (100kPa) barometric pressure, 30% relative humidity (0.3 inches Hg / 1 kPa water vapor pressure).
- Data will vary due to variations in site conditions. For conditions and/or fuels other than standard, consult the Waukesha Engine Sales Engineering Department.



Waukesha

**WAUKESHA ENGINE  
DRESSER, INC.**

1000 West St. Paul Avenue  
Waukesha, WI 53188-4999  
Phone: (262) 547-3311 Fax: (262) 549-2795  
waukeshaengine.dresser.com

Bulletin 7005 0102

**WAUKESHA ENGINE  
DRESSER INDUSTRIAL PRODUCTS, B.V.**

Farmsumerweg 43, Postbus 330  
9900 AH Appingedam, The Netherlands  
Phone: (31) 596-652222 Fax: (31) 596-628111

Consult your local Waukesha Distributor for system application assistance. The manufacturer reserves the right to change or modify without notice, the design or equipment specifications as herein set forth without incurring any obligation either with respect to equipment previously sold or in the process of construction except where otherwise specifically guaranteed by the manufacturer.

Table 3.2-2. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE LEAN-BURN ENGINES<sup>a</sup>  
(SCC 2-02-002-54)

Pollutant	Emission Factor (lb/MMBtu) <sup>b</sup> (fuel input)	Emission Factor Rating
Criteria Pollutants and Greenhouse Gases		
NO <sub>x</sub> <sup>c</sup> 90 - 105% Load	4.08 E+00	B
NO <sub>x</sub> <sup>c</sup> <90% Load	8.47 E-01	B
CO <sup>c</sup> 90 - 105% Load	3.17 E-01	C
CO <sup>c</sup> <90% Load	5.57 E-01	B
CO <sub>2</sub> <sup>d</sup>	1.10 E+02	A
SO <sub>2</sub> <sup>e</sup>	5.88 E-04	A
TOC <sup>f</sup>	1.47 E+00	A
Methane <sup>g</sup>	1.25 E+00	C
VOC <sup>h</sup>	1.18 E-01	C
PM10 (filterable) <sup>i</sup>	7.71 E-05	D
PM2.5 (filterable) <sup>i</sup>	7.71 E-05	D
PM Condensable <sup>j</sup>	9.91 E-03	D
Trace Organic Compounds		
1,1,2,2-Tetrachloroethane <sup>k</sup>	<4.00 E-05	E
1,1,2-Trichloroethane <sup>k</sup>	<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 <sup>k</sup>	2.67E-04	D
1,3-Dichloropropene <sup>k</sup>	<2.64 E-05	E
2-Methylnaphthalene <sup>k</sup>	3.32 E-05	C
2,2,4-Trimethylpentane <sup>k</sup>	2.50 E-04	C
Acenaphthene <sup>k</sup>	1.25 E-06	C

<sup>h</sup> h = heating value of natural gas (assume 1020 Btu/scf at 60°F).

<sup>e</sup> Based on 100% conversion of fuel sulfur to SO<sub>2</sub>. Assumes sulfur content in natural gas of 2,000 gr/10<sup>6</sup> scf.

<sup>f</sup> Emission factor for TOC is based on measured emission levels from 22 source tests.

<sup>g</sup> Emission factor for methane is determined by subtracting the VOC and ethane emission factors from the TOC emission factor. Measured emission factor for methane compares well with the calculated emission factor, 1.31 lb/MMBtu vs. 1.25 lb/MMBtu, respectively.

<sup>h</sup> VOC emission factor is based on the sum of the emission factors for all speciated organic compounds less ethane and methane.

<sup>i</sup> Considered  $\leq 1 \mu\text{m}$  in aerodynamic diameter. Therefore, for filterable PM emissions, PM<sub>10</sub>(filterable) = PM<sub>2.5</sub>(filterable).

<sup>j</sup> PM Condensable = PM Condensable Inorganic + PM-Condensable Organic

<sup>k</sup> Hazardous Air Pollutant as defined by Section 112(b) of the Clean Air Act.

<sup>l</sup> For lean burn engines, aldehyde emissions quantification using CARB 430 may reflect interference with the sampling compounds due to the nitrogen concentration in the stack. The presented emission factor is based on FTIR measurements. Emissions data based on CARB 430 are available in the background report.

TABLE 1.4-2. EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM NATURAL GAS COMBUSTION<sup>a</sup>

Pollutant	Emission Factor (lb/10 <sup>6</sup> scf)	Emission Factor Rating
CO <sub>2</sub> <sup>b</sup>	120,000	A
Lead	0.0005	D
N <sub>2</sub> O (Uncontrolled)	2.2	E
N <sub>2</sub> O (Controlled-low-NO <sub>x</sub> burner)	0.64	E
PM (Total) <sup>c</sup>	7.6	D
PM (Condensable) <sup>c</sup>	5.7	D
PM (Filterable) <sup>c</sup>	1.9	B
SO <sub>2</sub> <sup>d</sup>	0.6	A
TOC	11	B
Methane	2.3	B
VOC	5.5	C

<sup>a</sup> 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<sup>6</sup> scf to kg/10<sup>6</sup> m<sup>3</sup>, multiply by 16. To convert from lb/10<sup>6</sup> scf to lb/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.

<sup>b</sup> Based on approximately 100% conversion of fuel carbon to CO<sub>2</sub>. CO<sub>2</sub>[lb/10<sup>6</sup> scf] = (3.67) (CON) (C)(D), where CON = fractional conversion of fuel carbon to CO<sub>2</sub>, C = carbon content of fuel by weight (0.76), and D = density of fuel, 4.2x10<sup>4</sup> lb/10<sup>6</sup> scf.

<sup>c</sup> All PM (total, condensable, 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<sub>10</sub>, PM<sub>2.5</sub> or PM<sub>1</sub> emissions. Total PM is the sum of the filterable PM and condensable PM. Condensable 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.

<sup>d</sup> Based on 100% conversion of fuel sulfur to SO<sub>2</sub>.

Assumes sulfur content is natural gas of 2,000 grains/10<sup>6</sup> scf. The SO<sub>2</sub> emission factor in this table can be converted to other natural gas sulfur contents by multiplying the SO<sub>2</sub> emission factor by the ratio of the site-specific sulfur content (grains/10<sup>6</sup> scf) to 2,000 grains/10<sup>6</sup> scf.



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

Analysis No: HM20220019  
Cust No: 33700-10475

### Well/Lease Information

Customer Name: HARVEST MIDSTREAM  
Well Name: 32-8 #3 CDP  
County/State: SAN JUAN NM  
Location:  
Lease/PA/CA:  
Formation:  
Cust. Stn. No.:

Source: DEHY INLET  
Well Flowing:  
Pressure: 905 PSIG  
Flow Temp: 71 DEG. F  
Ambient Temp: 66 DEG. F  
Flow Rate: 12.7 MCF/D  
Sample Method: Purge & Fill  
Sample Date: 04/06/2022  
Sample Time: 12.00 PM  
Sampled By: DANIEL LOVATO  
Sampled by (CO): HARVEST

Heat Trace:

Remarks: Calculated Molecular Weight = 20.6441  
Dehy #45 #41891 Inlet

### Analysis

Component:	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.0470	0.0475	0.0050	0.00	0.0005
CO2	15.2958	15.4667	2.6160	0.00	0.2324
Methane	82.9203	83.8466	14.0890	837.49	0.4593
Ethane	1.3527	1.3678	0.3630	23.94	0.0140
Propane	0.2909	0.2941	0.0800	7.32	0.0044
Iso-Butane	0.0359	0.0363	0.0120	1.17	0.0007
N-Butane	0.0296	0.0299	0.0090	0.96	0.0006
Neopentane 2,2 dmc3	0.0000	0.0000	0.0000	0.00	0.0000
I-Pentane	0.0084	0.0085	0.0030	0.34	0.0002
N-Pentane	0.0063	0.0064	0.0020	0.25	0.0002
Neohexane	0.0002	N/R	0.0000	0.01	0.0000
2-3-Dimethylbutane	0.0003	N/R	0.0000	0.01	0.0000
Cyclopentane	0.0003	N/R	0.0000	0.01	0.0000
2-Methylpentane	0.0021	N/R	0.0010	0.10	0.0001
3-Methylpentane	0.0007	N/R	0.0000	0.03	0.0000
C6	0.0018	0.0133	0.0010	0.09	0.0001
Methylcyclopentane	0.0003	N/R	0.0000	0.01	0.0000
Benzene	0.0009	N/R	0.0000	0.03	0.0000
Cyclohexane	0.0007	N/R	0.0000	0.03	0.0000
2-Methylhexane	0.0003	N/R	0.0000	0.02	0.0000
3-Methylhexane	0.0001	N/R	0.0000	0.01	0.0000
2-2-4-Trimethylpentane	0.0001	N/R	0.0000	0.01	0.0000
i-heptanes	0.0002	N/R	0.0000	0.01	0.0000
Heptane	0.0008	N/R	0.0000	0.04	0.0000

Methylcyclohexane	0.0016	N/R	0.0010	0.08	0.0001
Toluene	0.0009	N/R	0.0000	0.04	0.0000
2-Methylheptane	0.0003	N/R	0.0000	0.02	0.0000
4-Methylheptane	0.0002	N/R	0.0000	0.01	0.0000
i-Octanes	0.0001	N/R	0.0000	0.01	0.0000
Octane	0.0004	N/R	0.0000	0.02	0.0000
Ethylbenzene	0.0000	N/R	0.0000	0.00	0.0000
m, p Xylene	0.0003	N/R	0.0000	0.02	0.0000
o Xylene (& 2,2,4 tmc7)	0.0001	N/R	0.0000	0.01	0.0000
i-C9	0.0001	N/R	0.0000	0.01	0.0000
C9	0.0001	N/R	0.0000	0.01	0.0000
i-C10	0.0001	N/R	0.0000	0.01	0.0000
C10	0.0001	N/R	0.0000	0.01	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	101.117	17.182	872.12	0.7127

\* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

\*\*@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z):	1.0025	CYLINDER #:	08
BTU/CU.FT IDEAL:	874.1	CYLINDER PRESSURE:	902 PSIG
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	876.3	ANALYSIS DATE:	04/13/2022
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	861.1	ANALYSIS TIME:	12:31:41 PM
DRY BTU @ 15.025:	893.8	ANALYSIS RUN BY:	PATRICIA KING
REAL SPECIFIC GRAVITY:	0.7142		

**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: 04/18/2022**

**GC Method: C12+BTEX Gas**





HARVEST MIDSTREAM  
WELL ANALYSIS COMPARISON

Lease: 32-8 #3 CDP

DEHY INLET

04/18/2022

Stn. No.:

33700-10475

Mtr. No.:

Smpl Date:	04/06/2022	05/04/2021	05/01/2020
Test Date:	04/13/2022	05/06/2021	05/06/2020
Run No:	HM20220019	HM2021043	HM200035
Nitrogen:	0.0470	0.0361	0.0625
CO2:	15.2958	16.1543	14.9424
Methane:	82.9203	82.9525	84.0623
Ethane:	1.3527	0.7093	0.7624
Propane:	0.2909	0.1088	0.1354
I-Butane:	0.0359	0.0147	0.0155
N-Butane:	0.0296	0.0191	0.0170
2,2 dmc3:	0.0000	0.0000	0.0000
I-Pentane:	0.0084	0.0045	0.0016
N-Pentane:	0.0063	0.0008	0.0009
Neohexane:	0.0002	0.0000	0.0000
2-3-	0.0003	0.0000	0.0000
Cyclopentane:	0.0003	0.0000	0.0000
2-Methylpentane:	0.0021	0.0000	0.0000
3-Methylpentane:	0.0007	0.0000	0.0000
C6:	0.0018	0.0000	0.0000
Methylcyclopentane:	0.0003	0.0000	0.0000
Benzene:	0.0009	0.0000	0.0000
Cyclohexane:	0.0007	0.0000	0.0000
2-Methylhexane:	0.0003	0.0000	0.0000
3-Methylhexane:	0.0000	0.0000	0.0000
2-2-4-	0.0001	0.0000	0.0000
i-heptanes:	0.0002	0.0000	0.0000
Heptane:	0.0008	0.0000	0.0000
Methylcyclohexane:	0.0016	0.0000	0.0000
Toluene:	0.0009	0.0000	0.0000
2-Methylheptane:	0.0003	0.0000	0.0000
4-Methylheptane:	0.0002	0.0000	0.0000
i-Octanes:	0.0001	0.0000	0.0000
Octane:	0.0004	0.0000	0.0000
Ethylbenzene:	0.0000	0.0000	0.0000
m, p Xylene:	0.0003	0.0000	0.0000
o Xylene (& 2,2,4	0.0001	0.0000	0.0000
i-C9:	0.0001	0.0000	0.0000
C9:	0.0001	0.0000	0.0000
i-C10:	0.0001	0.0000	0.0000
C10:	0.0001	0.0000	0.0000
i-C11:	0.0000	0.0000	0.0000
C11:	0.0000	0.0000	0.0000
C12P:	0.0000	0.0000	0.0000
BTU:	876.3	858.5	871.3
GPM:	17.1850	17.0950	17.0980
SPG:	0.7142	0.7166	0.7054

C6+ ☐ C9+ ☐ C12+ BTEX ☐ Helium ☐N2 Flowback ☐ Sulfurs ☐ Ext. Liquid ☐

Other \_\_\_\_\_

Date 4/6/22

Sampled By: (Co.)

Harvest Midstream

Time 1200

☐ AM☒ PM

Sampled by: (Person)

Daniel Lovato

Well Flowing: ☐ Yes ☐ No

Company: \_\_\_\_\_

Heat Trace: ☐ Yes ☐ No

Well Name: \_\_\_\_\_

Flow Pressure (PSIG):

905#

Lease#:

32-8 #3 CDP

Flow Temp (°F):

71°

County:

San Juan

Formation: \_\_\_\_\_

Ambient Temp (°F):

66°

State:

N.M.

Location:

32-8 #3

Flow Rate (MCF/D):

12.7

Source:

☐ Meter Run☐ Tubing☐ Casing☐ Bradenhead☒ Other

DEH #4 5#41891 Inlet

Sample Type:

☒ Spot☐ Composite

Sample Method:

☒ Purge & Fill☐ Other \_\_\_\_\_

Meter Number: \_\_\_\_\_

Cylinder Number:

08

Contact:

Environmental Dept #

Remarks:

12.7 mcf site flow, 6.3 mcf through DEH

33700 - 10475

HM 20220019

Oil and Gas  
 Production Equipment  
 J. Envertek, Inc.  
 4401 East Main Street  
 Farmington, NM 87401  
 505/326-1151  
 FAX 505/325-0317



VIA FACSIMILE  
 Fax No. (801) 534-7760  
 Page: 1

August 19, 1994

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

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

Dehydrator	NO <sub>x</sub> #/Day	CO #/Day	Fuel \$/CEH	Total Stack Gas \$/CEH	Stack Ht. Ft	Stack Dia Inches	Stack Temp. F	Stack Velocity FPM
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

5928 U.S. Highway 64  
Farmington, NM 87401

# InFab

INDUSTRIAL FABRICATION

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

July 22, 1998

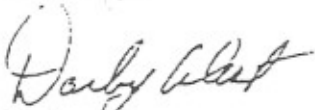
Mr. Bobby Myers  
Williams Field Services  
Environmental Affairs  
295 Chipeta Way  
P O Box 58900  
Salt Lake City, UT 84158-0900

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

Unit Description	SO lb/day	NO <sub>x</sub> 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	.25	10'	8	600	5.1
12 MM HP	.02	.49	.78	1208	.25	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

## PS Memo 09-02

**To:** Stationary Sources Program, Local Agencies, and Regulated Community  
**From:** Chris Laplante and Roland C. Hea, Colorado Air Pollution Control Division  
**Date:** February 8, 2010  
**Subject:** Oil & Gas Produced Water Tank Batteries  
Regulatory Definitions and Permitting Guidance

---

This guidance document is intended to answer frequently asked questions concerning oil and gas industry produced water tank batteries. This document does not address any other equipment types that may be part of a common facility with a tank battery. Nothing in this guidance should be construed regarding Air Pollution Control Division (Division) permitting of evaporation ponds or water treatment facilities. Please consult with the Division for information regarding the permitting of evaporation ponds or water treatment facilities.

### Revision History

October 1, 2009	Initial issuance.
February 8, 2010	First revision. This guidance document replaces the October 1, 2009 version. Revised language to clarify APEN fee structure, definition of modification, APEN submittals, and produced water exemption.

Topic	Page
1. DEFINITIONS.....	2
2. AIR POLLUTANT EMISSION NOTICE Q&A.....	4
3. EMISSION FACTORS AND SITE SPECIFIC SAMPLING Q&A .....	7
4. EMISSION CALCULATIONS Q&A .....	8
5. CONSTRUCTION PERMIT Q&A .....	9
6. OIL AND GAS INDUSTRY PRODUCED WATER TANK GP Q & A .....	10
7. HOUSE BILL 07-1341 .....	12

### Document source:

[https://www.colorado.gov/pacific/sites/default/files/AP\\_Memo-09-02-Oil-\\_-Gas-Produced-Water-Tank-Batteries-Regulatory-Definitions-and-Permitting-Guidance.pdf](https://www.colorado.gov/pacific/sites/default/files/AP_Memo-09-02-Oil-_-Gas-Produced-Water-Tank-Batteries-Regulatory-Definitions-and-Permitting-Guidance.pdf)

### 3. EMISSION FACTORS AND SITE SPECIFIC SAMPLING Q&A

#### 3.1. *What are the State approved default emission factors for produced water tanks?*

County	Produced Water Tank Default Emission Factors <sup>1</sup> (lb/bbl) <sup>2</sup>		
	VOC	Benzene	n-Hexane
Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson, Larimer, & Weld	0.262	0.007	0.022
Garfield, Mesa, Rio Blanco, & Moffat	0.178	0.004	0.010
Remainder of Colorado <sup>3</sup>	0.262	0.007	0.022

<sup>1</sup> Testing may be performed at any site to determine site-specific emissions factors. These default emission factors may be revised by the Division in the future, pending approved data and testing results.

<sup>2</sup> Units of lb/bbl means pounds of emissions per barrel of produced water throughput

<sup>3</sup> For counties not listed in this table, use the emissions factors listed as a conservative measure or perform testing to determine a site-specific emission factor

#### 3.2. *What type of emissions are included in the produced water tank state default emission factors?*

State default emission factors for produced water tanks include flash, working, and breathing losses.

#### 3.3. *Are there limits as to when produced water tank state default emission factors may be used?*

State default emission factors may be used at all oil and gas industry tank batteries. The Division intends to work with industry to refine emission factors and may develop separate emission factors for E&P and non-E&P sites.

#### 3.4. *When are site-specific emission factors required for tank batteries?*

Site-specific emission factors may be developed and used on a voluntary basis for any tank battery. The Division reserves the authority to require site-specific emission factors at any time. Site-specific emission factors may only be applied at the tank battery for which they were developed, unless otherwise approved by the Division.

#### 3.5. *How is a site-specific emission factor developed?*

A site-specific emission factor for tank batteries is developed by performing a Division approved stack test. A test protocol must be submitted and approved by the Division prior to performing the test. Once a test protocol has been approved by the Division, subsequent testing may be performed following the approved protocol without submittal to the Division.

The Division must be notified of the site specific testing at least 30-days prior to the actual test date.



Emission Factor  
Determination for Produced  
Water Storage Tanks

TCEQ Project 2010-29

Prepared for:  
**Texas Commission on Environmental Quality**  
**Austin, Texas**

Prepared by:  
**ENVIRON International Corporation**  
**Novato, California**

Date:  
**August 2010**

ENVIRON Project Number:  
**06-17477T**

Document source:

<https://www.tceq.texas.gov/assets/public/implementation/air/am/contracts/reports/ei/5820784005FY1024-20100830-environ-%20EmissionFactorDeterminationForProducedWaterStorageTanks.pdf>

## Executive Summary

The overall purpose of this Study is to evaluate volatile organic compounds (VOC), speciated VOC and hazardous air pollutant (HAP) emissions from produced water and/or saltwater storage tanks servicing oil and gas wells and to develop appropriate VOC and HAP emission factors. The emission factors are to be used for emission inventory development purposes.

The primary source of information for this study was testing conducted by the Texas Commission on Environmental Quality (TCEQ) under Work Order 522-7-84005-FY10-25, *Upstream Oil & Gas Tank Measurements*, TCEQ Project 2010-39. As part of this referenced testing project, pressurized produced water samples were taken at seven different tank batteries located in Johnson, Wise and Tarrant Counties, Texas (all part of the Eastern Barnett Shale region) and analyzed for flash gas volume and composition. The sample collection and analysis conducted as part of TCEQ Project 2010-39 was done according to strict sampling and quality assurance procedures. In addition to TCEQ Project 2010-39 data, a thorough review of publically-available information sources identified a limited amount of data on produced water emissions. This was supplemented by data provided by two natural gas producers and one petroleum engineering services company. Other than TCEQ Project 2010-39 data, however, it could not be confirmed that any of the data had undergone a rigorous quality assurance process and therefore is considered secondary data, used to support conclusions drawn using the primary data but not used directly in deriving the produced water emission factors.

Emissions from produced water storage tanks consist of flash emissions, working losses and breathing losses. Flash emissions are determined using flash gas analysis. Working and breathing losses are estimated using EPA TANKS 4.09d software. Using this approach and the assumptions detailed within this report, it is determined that working and breathing losses associated with primary data source sites are very small compared to flash emissions and can be ignored without affecting the overall emission factor determination.

Table ES-1 presents the recommended emission factors for VOC and four HAPs – benzene, toluene, ethylbenzene and xylenes – derived from the primary data source sites. For comparative purposes, average emissions from Texas and non-Texas secondary sites are also presented in Table ES-1.

**Table ES-1. Recommended Emission Factors and Comparative Data**

Pollutant	Average Produced Water Emission Factor by Data Set (lb/bbl)		
	Recommended Emission Factor	Secondary Data – Texas	Secondary Data – Non-Texas
VOC	0.01	0.012	0.18
Benzene	0.0001	0.0012	0.004
Toluene	0.0003	0.0012	0.009
Ethylbenzene	0.000006	0.0001	0.0007
Xylenes	0.00006	0.0003	0.006



# 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 <sup>a</sup>	Emission Factor (kg/hr/source) <sup>b</sup>
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 <sup>c</sup>	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

<sup>a</sup>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.

<sup>b</sup>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.

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

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  $\pm 30$  percent)<sup>4</sup> using the following expression:

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

where:

$L_L$  = loading loss, pounds per 1000 gallons ( $\text{lb}/10^3 \text{ gal}$ ) 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 ( $\text{lb}/\text{lb-mole}$ ) (see Table 7.1-2)

$T$  = temperature of bulk liquid loaded,  $^{\circ}\text{R}$  ( $^{\circ}\text{F} + 460$ )

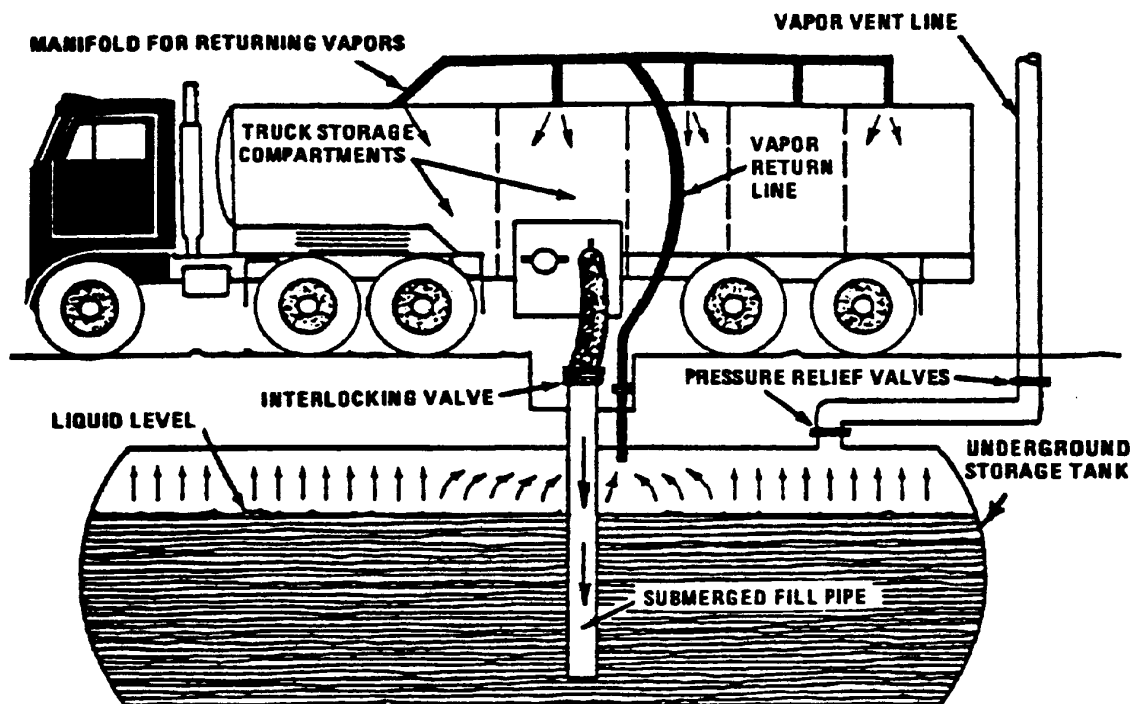


Figure 5.2-5. Tank truck unloading into a service station underground storage tank and practicing "vapor balance" form of emission control.

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 <sup>a</sup>	Submerged loading: ships	0.2
	Submerged loading: barges	0.5

<sup>a</sup> 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 <sub>2</sub>	1
Methane	74–82–8	CH <sub>4</sub>	<sup>a</sup> 25
Nitrous oxide	10024–97–2	N <sub>2</sub> O	<sup>a</sup> 298
HFC–23	75–46–7	CHF <sub>3</sub>	<sup>a</sup> 14,800
HFC–32	75–10–5	CH <sub>2</sub> F <sub>2</sub>	<sup>a</sup> 675
HFC–41	593–53–3	CH <sub>3</sub> F	<sup>a</sup> 92
HFC–125	354–33–6	C <sub>2</sub> HF <sub>5</sub>	<sup>a</sup> 3,500
HFC–134	359–35–3	C <sub>2</sub> H <sub>2</sub> F <sub>4</sub>	<sup>a</sup> 1,100
HFC–134a	811–97–2	CH <sub>2</sub> FCF <sub>3</sub>	<sup>a</sup> 1,430
HFC–143	430–66–0	C <sub>2</sub> H <sub>3</sub> F <sub>3</sub>	<sup>a</sup> 353
HFC–143a	420–46–2	C <sub>2</sub> H <sub>3</sub> F <sub>3</sub>	<sup>a</sup> 4,470
HFC–152	624–72–6	CH <sub>2</sub> FCH <sub>2</sub> F	53
HFC–152a	75–37–6	CH <sub>3</sub> CHF <sub>2</sub>	<sup>a</sup> 124
HFC–161	353–36–6	CH <sub>3</sub> CH <sub>2</sub> F	12
HFC–227ea	431–89–0	C <sub>3</sub> HF <sub>7</sub>	<sup>a</sup> 3,220
HFC–236cb	677–56–5	CH <sub>2</sub> FCF <sub>2</sub> CF <sub>3</sub>	1,340
HFC–236ea	431–63–0	CHF <sub>2</sub> CHFCF <sub>3</sub>	1,370
HFC–236fa	690–39–1	C <sub>3</sub> H <sub>2</sub> F <sub>6</sub>	<sup>a</sup> 9,810
HFC–245ca	679–86–7	C <sub>3</sub> H <sub>3</sub> F <sub>5</sub>	<sup>a</sup> 693
HFC–245fa	460–73–1	CHF <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	1,030
HFC–365mfc	406–58–6	CH <sub>3</sub> CF <sub>2</sub> CH <sub>2</sub> CF <sub>3</sub>	794
HFC–43–10mee	138495–42–8	CF <sub>3</sub> CFHCFHCF <sub>2</sub> CF <sub>3</sub>	<sup>a</sup> 1,640
Sulfur hexafluoride	2551–62–4	SF <sub>6</sub>	<sup>a</sup> 22,800
Trifluoromethyl sulphur pentafluoride	373–80–8	SF <sub>5</sub> CF <sub>3</sub>	17,700
Nitrogen trifluoride	7783–54–2	NF <sub>3</sub>	17,200
PFC–14 (Perfluoromethane)	75–73–0	CF <sub>4</sub>	7,390
PFC–116 (Perfluoroethane)	76–16–4	C <sub>2</sub> F <sub>6</sub>	<sup>a</sup> 12,200
PFC–218 (Perfluoropropane)	76–19–7	C <sub>3</sub> F <sub>8</sub>	<sup>a</sup> 8,830

Name	CAS No.	Chemical formula	Global warming potential (100 yr.)
Perfluorocyclopropane	931-91-9	C-C <sub>3</sub> F <sub>6</sub>	17,340
PFC-3-1-10 (Perfluorobutane)	355-25-9	C <sub>4</sub> F <sub>10</sub>	<sup>a</sup> 8,860
Perfluorocyclobutane	115-25-3	C-C <sub>4</sub> F <sub>8</sub>	<sup>a</sup> 10,300
PFC-4-1-12 (Perfluoropentane)	678-26-2	C <sub>5</sub> F <sub>12</sub>	<sup>a</sup> 9,160
PFC-5-1-14 (Perfluorohexane)	355-42-0	C <sub>6</sub> F <sub>14</sub>	<sup>a</sup> 9,300
PFC-9-1-18	306-94-5	C <sub>10</sub> F <sub>18</sub>	7,500
HCFE-235da2 (Isoflurane)	26675-46-7	CHF <sub>2</sub> OCHClCF <sub>3</sub>	350
HFE-43-10pccc (H-Galden 1040x)	E1730133	CHF <sub>2</sub> OCF <sub>2</sub> OC <sub>2</sub> F <sub>4</sub> OCHF <sub>2</sub>	1,870
HFE-125	3822-68-2	CHF <sub>2</sub> OCF <sub>3</sub>	14,900
HFE-134	1691-17-4	CHF <sub>2</sub> OCHF <sub>2</sub>	6,320
HFE-143a	421-14-7	CH <sub>3</sub> OCF <sub>3</sub>	756
HFE-227ea	2356-62-9	CF <sub>3</sub> CHFOCF <sub>3</sub>	1,540
HFE-236ca12 (HG-10)	78522-47-1	CHF <sub>2</sub> OCF <sub>2</sub> OCHF <sub>2</sub>	2,800
HFE-236ea2 (Desflurane)	57041-67-5	CHF <sub>2</sub> OCHF <sub>2</sub> CF <sub>3</sub>	989
HFE-236fa	20193-67-3	CF <sub>3</sub> CH <sub>2</sub> OCF <sub>3</sub>	487
HFE-245cb2	22410-44-2	CH <sub>3</sub> OCF <sub>2</sub> CF <sub>3</sub>	708
HFE-245fa1	84011-15-4	CHF <sub>2</sub> CH <sub>2</sub> OCF <sub>3</sub>	286
HFE-245fa2	1885-48-9	CHF <sub>2</sub> OCH <sub>2</sub> CF <sub>3</sub>	659
HFE-254cb2	425-88-7	CH <sub>3</sub> OCF <sub>2</sub> CHF <sub>2</sub>	359
HFE-263fb2	460-43-5	CF <sub>3</sub> CH <sub>2</sub> OCH <sub>3</sub>	11
HFE-329mcc2	67490-36-2	CF <sub>3</sub> CF <sub>2</sub> OCF <sub>2</sub> CHF <sub>2</sub>	919
HFE-338mcf2	156053-88-2	CF <sub>3</sub> CF <sub>2</sub> OCH <sub>2</sub> CF <sub>3</sub>	552
HFE-338pcc13 (HG-01)	188690-78-0	CHF <sub>2</sub> OCF <sub>2</sub> CF <sub>2</sub> OCHF <sub>2</sub>	1,500
HFE-347mcc3	28523-86-6	CH <sub>3</sub> OCF <sub>2</sub> CF <sub>2</sub> CF <sub>3</sub>	575
HFE-347mcf2	E1730135	CF <sub>3</sub> CF <sub>2</sub> OCH <sub>2</sub> CHF <sub>2</sub>	374
HFE-347pcf2	406-78-0	CHF <sub>2</sub> CF <sub>2</sub> OCH <sub>2</sub> CF <sub>3</sub>	580
HFE-356mec3	382-34-3	CH <sub>3</sub> OCF <sub>2</sub> CHF <sub>2</sub> CF <sub>3</sub>	101
HFE-356pcc3	160620-20-2	CH <sub>3</sub> OCF <sub>2</sub> CF <sub>2</sub> CHF <sub>2</sub>	110
HFE-356pcf2	E1730137	CHF <sub>2</sub> CH <sub>2</sub> OCF <sub>2</sub> CHF <sub>2</sub>	265
HFE-356pcf3	35042-99-0	CHF <sub>2</sub> OCH <sub>2</sub> CF <sub>2</sub> CHF <sub>2</sub>	502

Name	CAS No.	Chemical formula	Global warming potential (100 yr.)
HFE-365mcf3	378-16-5	$\text{CF}_3\text{CF}_2\text{CH}_2\text{OCH}_3$	11
HFE-374pc2	512-51-6	$\text{CH}_3\text{CH}_2\text{OCF}_2\text{CHF}_2$	557
HFE-449sl (HFE-7100) Chemical blend	163702-07-6 163702-08-7	$\text{C}_4\text{F}_9\text{OCH}_3$ $(\text{CF}_3)_2\text{CFCF}_2\text{OCH}_3$	297
HFE-569sf2 (HFE-7200) Chemical blend	163702-05-4 163702-06-5	$\text{C}_4\text{F}_9\text{OC}_2\text{H}_5$ $(\text{CF}_3)_2\text{CFCF}_2\text{OC}_2\text{H}_5$	59
Sevoflurane	28523-86-6	$\text{CH}_2\text{FOCH}(\text{CF}_3)_2$	345
HFE-356mm1	13171-18-1	$(\text{CF}_3)_2\text{CHOCH}_3$	27
HFE-338mmz1	26103-08-2	$\text{CHF}_2\text{OCH}(\text{CF}_3)_2$	380
(Octafluorotetramethylene)hydroxymethyl group	NA	$\text{X}-(\text{CF}_2)_4\text{CH}(\text{OH})-\text{X}$	73
HFE-347mmy1	22052-84-2	$\text{CH}_3\text{OCF}(\text{CF}_3)_2$	343
Bis(trifluoromethyl)-methanol	920-66-1	$(\text{CF}_3)_2\text{CHOH}$	195
2,2,3,3,3-pentafluoropropanol	422-05-9	$\text{CF}_3\text{CF}_2\text{CH}_2\text{OH}$	42
PFPME	NA	$\text{CF}_3\text{OCF}(\text{CF}_3)\text{CF}_2\text{OCF}_2\text{O}$ $\text{CF}_3$	10,300

<sup>a</sup> 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<sub>2</sub> Emission Factors and High Heat Values for Various Types of Fuel**

Table C–1 to Subpart C—Default CO<sub>2</sub> Emission Factors and High Heat Values for Various Types of Fuel

Fuel type	Default high heat value	Default CO <sub>2</sub> emission factor
<b>Coal and coke</b>	<b>mmBtu/short ton</b>	<b>kg CO<sub>2</sub>/mmBtu</b>
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
<b>Natural gas</b>	<b>mmBtu/scf</b>	<b>kg CO<sub>2</sub>/mmBtu</b>
(Weighted U.S. Average)	$1.026 \times 10^{-3}$	53.06
<b>Petroleum products</b>	<b>mmBtu/gallon</b>	<b>kg CO<sub>2</sub>/mmBtu</b>
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) <sup>1</sup>	0.092	61.71
Propane <sup>1</sup>	0.091	62.87
Propylene <sup>2</sup>	0.091	67.77
Ethane <sup>1</sup>	0.068	59.60
Ethanol	0.084	68.44
Ethylene <sup>2</sup>	0.058	65.96
Isobutane <sup>1</sup>	0.099	64.94
Isobutylene <sup>1</sup>	0.103	68.86
Butane <sup>1</sup>	0.103	64.77
Butylene <sup>1</sup>	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 <sub>2</sub> 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
<b>Other fuels-solid</b>	<b>mmBtu/short ton</b>	<b>kg CO<sub>2</sub>/mmBtu</b>
Municipal Solid Waste	9.95 <sup>3</sup>	90.7
Tires	28.00	85.97
Plastics	38.00	75.00
Petroleum Coke	30.00	102.41
<b>Other fuels—gaseous</b>	<b>mmBtu/scf</b>	<b>kg CO<sub>2</sub>/mmBtu</b>
Blast Furnace Gas	$0.092 \times 10^{-3}$	274.32
Coke Oven Gas	$0.599 \times 10^{-3}$	46.85
Propane Gas	$2.516 \times 10^{-3}$	61.46
Fuel Gas <sup>4</sup>	$1.388 \times 10^{-3}$	59.00
<b>Biomass fuels—solid</b>	<b>mmBtu/short ton</b>	<b>kg CO<sub>2</sub>/mmBtu</b>
Wood and Wood Residuals (dry basis) <sup>5</sup>	17.48	93.80
Agricultural Byproducts	8.25	118.17
Peat	8.00	111.84
Solid Byproducts	10.39	105.51
<b>Biomass fuels—gaseous</b>	<b>mmBtu/scf</b>	<b>kg CO<sub>2</sub>/mmBtu</b>
Landfill Gas	$0.485 \times 10^{-3}$	52.07
Other Biomass Gases	$0.655 \times 10^{-3}$	52.07
<b>Biomass Fuels—Liquid</b>	<b>mmBtu/gallon</b>	<b>kg CO<sub>2</sub>/mmBtu</b>
Ethanol	0.084	68.44
Biodiesel (100%)	0.128	73.84
Rendered Animal Fat	0.125	71.06
Vegetable Oil	0.120	81.55

<sup>1</sup> The HHV for components of LPG determined at 60 °F and saturation pressure with the exception of ethylene.

<sup>2</sup> Ethylene HHV determined at 41 °F (5 °C) and saturation pressure.

<sup>3</sup> 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.

<sup>4</sup> 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 CO<sub>2</sub> 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.

<sup>5</sup> 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<sub>w</sub> = wet basis HHV,

M = moisture content (percent) and

HHV<sub>d</sub> = 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]

# Section 8

## Map(s)

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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	

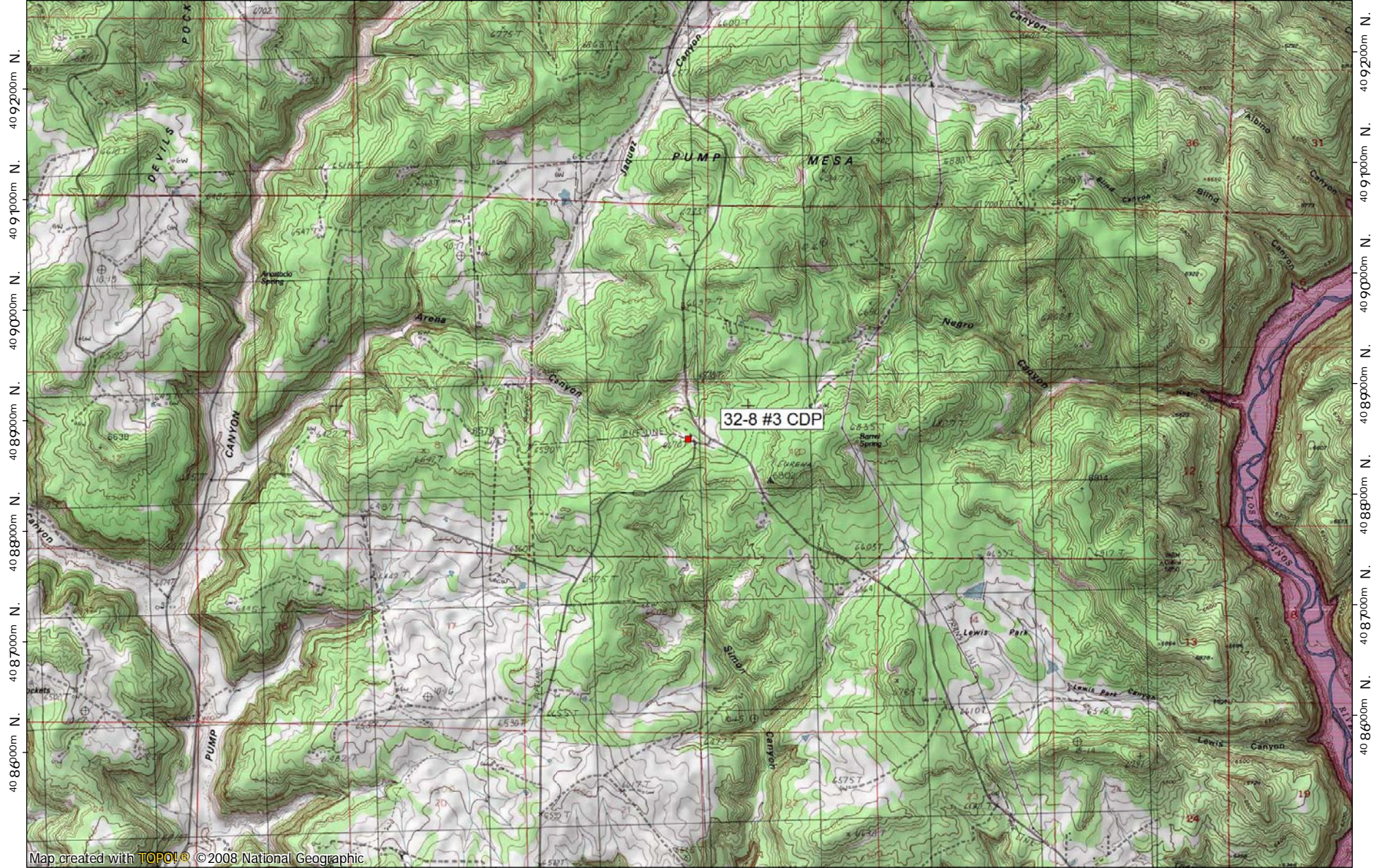
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A topographic map of the area around the facility is provided in this section. Please see the following page.



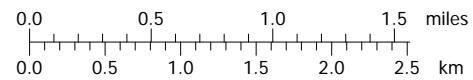
HARVEST FOUR CORNERS, LLC - 32-8 #3 CENTRAL DELIVERY POINT (CDP) - San Juan County, NM T 31 N, R 08 W, Sec. 9

257000m E. 258000m E. 259000m E. 260000m E. 261000m E. 262000m E. 263000m E. 264000m E. 265000m E. WGS84 Zone 13S 267000m E.



Map created with TOPOLR © 2008 National Geographic

257000m E. 258000m E. 259000m E. 260000m E. 261000m E. 262000m E. 263000m E. 264000m E. 265000m E. WGS84 Zone 13S 267000m E.



TN MN  
9°  
12/16/16



# 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")

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☐ **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.

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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.
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Not applicable, since this is a Title V application.

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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.

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The 32-8 #3 CDP compresses and dehydrates natural gas for midstream pipeline transmission (i.e., prior to entering a fractionating gas plant) using natural gas-fired reciprocating engines.

Natural gas from independent producers in the production fields is piped to the facility inlet via gathering pipelines. The natural gas contains entrained produced water. The natural gas-produced water mixture passes through an inlet separator, where the produced water drops out from the natural gas and is piped to a storage tank where it is stored until it is transported offsite via a tank truck. The natural gas is sent to the compressors for pressurization, and is then routed to TEG dehydrators for additional moisture removal. Following dehydration, the natural gas exits the facility for transport via pipeline to a downstream gas processing facility. A portion of the gas is routed to the compressor engines for use as fuel.

A waste water storage tank collects storm water runoff and small amounts of heavy hydrocarbon residues resulting from any drips or spills that may occur from machinery, where it is stored until transport offsite via tank truck. The hydrocarbon residues are of low volatility. The lube oil and used lube oil tanks store heavy hydrocarbon machinery oils, also with low volatility. Similarly, the stored contents of the TEG and antifreeze tanks also have low volatility.

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):

32-8 #3 Central Delivery Point (production field natural gas gathering and boosting station)

**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)

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**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. NO<sub>x</sub>: XX.X TPY
- b. CO: XX.X TPY
- c. VOC: XX.X TPY
- d. SO<sub>x</sub>: XX.X TPY
- e. PM: XX.X TPY
- f. PM<sub>10</sub>: XX.X TPY
- g. PM<sub>2.5</sub>: 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.

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Not applicable for a Title V application.

# Section 12.B

## Special Requirements for a PSD Application (Submitting under 20.2.74 NMAC)

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### **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.
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Not applicable, since this is a Title V application.

# Section 13

## Determination of State & Federal Air Quality Regulations

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**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 RELEVANT 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/>

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## 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:**

<u>STATE REGU- LATIONS CITATION</u>	<b>Title</b>	<b>Applies? Enter Yes or No</b>	<b>Unit(s) or Facility</b>	<b>JUSTIFICATION:</b>
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 <sub>2</sub>	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).

<u>STATE REGU- LATIONS CITATION</u>	<b>Title</b>	<b>Applies? Enter Yes or No</b>	<b>Unit(s) or Facility</b>	<b>JUSTIFICATION:</b>
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	TEG dehy reboilers 7b-10b; and RICE 1-6	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 NO <sub>x</sub> , CO and VOC 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 requirements of this regulation were fulfilled with the construction permit application.  The emissions inventory portion of this regulation is applicable since the facility is a Title V major source (see 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 the facility is subject to 20.2.72 NMAC and it establishes the fee schedule associated with the filing of construction permits (see 20.2.75.6 NMAC).
20.2.77 NMAC	New Source Performance	Yes, potentially	Potentially applicable to RICE 5 & 6	This 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, subparts A and JJJJ.
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 7a/b-10a/b, and Potentially applicable to RICE 5 & 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; and the RICE units 5 and 6 are potentially subject to 40 CFR 63, subparts A and ZZZZ.

## 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

<u>FEDERAL REGU- LATIONS CITATION</u>	<b>Title</b>	<b>Applies? Enter Yes or No</b>	<b>Unit(s) or Facility</b>	<b>JUSTIFICATION:</b>
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 <i>Prevention of Significant Deterioration of Air Quality</i> 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	Potentially yes	Potentially applicable to RICE 5 & 6, & fugitive emissions	The regulation may apply in the future if 40 CFR Part 60 subpart JJJJ is determined to apply to RICE units 5 and 6, and if subpart OOOOa is found to be applicable to fugitive emissions.
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)).



<b><u>FEDERAL REGU- LATIONS</u> CITATION</b>	<b>Title</b>	<b>Applies? Enter Yes or No</b>	<b>Unit(s) or Facility</b>	<b>JUSTIFICATION:</b>
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 <sub>2</sub> 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	Potentially yes	Potentially applies to RICE 5 & 6	The regulation is potentially applicable to RICE units 5 and 6. Applicability of the subpart to the RICE will be evaluated upon their installation.  The regulation is applicable to spark ignition (SI) internal combustion engines (ICE) constructed, modified, or reconstructed after June 12, 2006.  Units 1 through 4 were constructed prior to the applicability date and have not been modified or reconstructed. Therefore, the subpart does not apply to these RICE.  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).

<u>FEDERAL REGU- LATIONS</u> 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	Potentially yes	Potentially applies to fugitive emissions components	<p>The facility is not currently equipped with one or more “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).</p> <p>In general, this regulation may apply if existing affected equipment is replaced or new affected equipment is installed.</p> <p>In particular, this regulation will apply to fugitive emissions components at the facility if any engines and compressors are installed, including the compressors associated with RICE units 5 and 6. 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)).</p> <p>Note that the facility is not a natural gas processing plant as defined by the subpart (see §60.5430a).</p> <p>See the definitions of construction, modification, and reconstruction referenced in Subpart OOOO above.</p>
NESHAP 40 CFR 61, Subpart A	General Provisions	No	N/A	This regulation is not applicable because no other 40 CFR Part 61 subparts apply (see §61.01(c)).
NESHAP 40 CFR 61, Subpart V	National Emission Standards for Equipment Leaks (Fugitive Emission Sources)	No	N/A	<p>This regulation is not applicable because none of the listed equipment at the facility is in VHAP service.</p> <p>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 this 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).</p>
MACT 40 CFR 63, Subpart A	General Provisions	Yes, and Potentially yes	TEG dehydrators 7a/b-10a/b, and Potentially applicable to RICE 5 & 6	This regulation is applicable to the TEG dehydrators because 40 CFR 63, subpart HH applies; and is potentially applicable to RICE units 5 and 6 if 40 CFR 63 subpart ZZZZ is determined upon installation to be applicable.

<u>FEDERAL REGU- LATIONS CITATION</u>	<b>Title</b>	<b>Applies? Enter Yes or No</b>	<b>Unit(s) or Facility</b>	<b>JUSTIFICATION:</b>
MACT 40 CFR 63, Subpart HH	National Emission Standards for Hazardous Air Pollutants For Oil and Natural Gas Production Facilities	Yes	TEG dehydrators 7a/b, 8a/b, 9a/b & 10a/b	<p>This regulation is applicable because the facility is equipped with affected equipment subject to 40 CFR 63, subpart HH.</p> <p>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 <b>area</b> 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).</p> <p>At a HAP area source, the only affected unit is each dehydration unit (see §63.760(b)(2)).</p> <p>Under §63.764(e)(1)(ii), the owner or operator of an affected area source [TEG dehydrator] with <b>actual</b> 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).</p>
MACT 40 CFR 63, Subpart HHH	National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities	No	N/A	<p>This regulation is not applicable because the facility is not a natural gas transmission and storage facility as defined by the subpart.</p> <p>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)).</p>
MACT 40 CFR 63, Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT)	Potentially yes	Potentially applicable to units 5 & 6	<p>The regulation is potentially applicable to RICE units 5 and 6. The applicability of the subpart to these RICE will be evaluated upon their installation.</p> <p>40 CFR 63, Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from existing, new, modified and reconstructed stationary reciprocating internal combustion engines (RICE) located at both major and area sources of HAP, including provisions for initial and continuous compliance demonstration.</p> <p>As defined at §63.6585(b), the station is a <b>major</b> source of HAP emissions. Under §63.6590(a)(1)(i), a stationary RICE greater than 500 horsepower (hp) located at a major source of HAP is considered an “existing” unit if construction or reconstruction commenced before December 19, 2002. (“Construction” does not include the reinstallation of an existing unit at another location.) Each of the engines that have been installed at the facility are an “existing” engine.</p> <p>Under §63.6590(b)(3)(ii), existing 4SLB stationary RICE with 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. Therefore, the subpart is not applicable to engine units 1 through 4.</p>
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	<p>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.</p> <p>For natural gas production facilities, only the HAP emissions from dehydrators and storage vessels with the potential for flash emissions are aggregated for a major source determination (see §63.7575).</p>

<b><u>FEDERAL REGU- LATIONS</u> CITATION</b>	<b>Title</b>	<b>Applies? Enter Yes or No</b>	<b>Unit(s) or Facility</b>	<b>JUSTIFICATION:</b>
MACT 40 CFR 63, Subpart JJJJJ	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).

# Section 14

## Operational Plan to Mitigate Emissions

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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- ☒ **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)

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**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](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).

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Not applicable, as there are no alternative operating scenarios at this facility.

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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](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. <b>Note:</b> 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.	<b>X</b>
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 for construction permit number 1034-M3 (April 5, 1996).

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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 NO <sub>x</sub> and CO, in accordance with Operating Permit condition A201.A	Sept. 2, 2021
2	Compliance test for NO <sub>x</sub> and CO, in accordance with Operating Permit condition A201.A	Sept. 2, 2021
3	Compliance test for NO <sub>x</sub> and CO, in accordance with Operating Permit condition A201.A	Sept. 1, 2021
4	Compliance test for NO <sub>x</sub> and CO, in accordance with Operating Permit condition A201.A	Sept. 1, 2021
5	Compliance test for NO <sub>x</sub> and CO, in accordance with Operating Permit condition A201.A	--
6	Compliance test for NO <sub>x</sub> and CO, in accordance with Operating Permit condition A201.A	--

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# Section 18

## Addendum for Streamline Applications

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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.

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Not applicable, as this is not a streamline application.

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# Section 19

## Requirements for Title V Program

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### 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.

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**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.

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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.

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**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.

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

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**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).

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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**.

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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.

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#### 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.

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

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**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:

**Neighboring States, Local Pollution Control Programs, and Indian Tribes and Pueblos**

	Approximate Distance to Facility (kilometers)
<b>Neighboring States</b>	
Colorado	9.4
<b>Indian Lands</b>	
Southern Ute Tribe	9.4
Jicarilla Apache Tribe	42.5
Ute Mountain Ute Tribe	51.5
Navajo Nation	29.5

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**19.9 - Responsible Official**

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

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

# Section 20

## Other Relevant Information

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**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.

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Not applicable, as no other relevant information is being provided.

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# Section 21

## Addendum for Landfill Applications

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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/>

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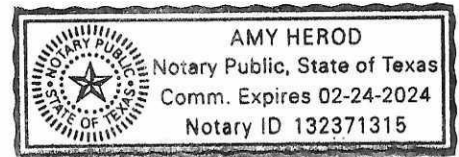
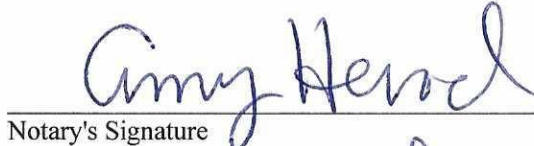
Not applicable, as the facility is not a landfill.

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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 3 day of June, 2022, upon my oath or affirmation, before a notary of the State ofTEXAS  
\*SignatureTravis Jones  
Printed Name6/3/2022  
DateEHS Manager  
TitleScribed and sworn before me on this 3 day of June, 2022.My authorization as a notary of the State of Texas expires on the24th day of February, 2024.  
Notary's Signature6/3/2022  
DateAmy Herod  
Notary's Printed Name

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