NEW MEXICO 20.2.72 NMAC APPLICATION FOR A SIGNIFICANT PERMIT REVISION TO PSD-NSR PERMIT 1031-M9

31-6 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

April 2023

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Table of Contents

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Introduction

Application Summary

The Harvest 31-6 CDP is currently authorized under Construction Permit 1031-M9, dated October 30, 2011 as administratively revised through -R13. The facility also operates under Title V Operating permit P027-R5, dated December 15, 2022. Equipment currently approved for construction and use at the facility is listed in Tables 2-A, 'Regulated Sources' and Table 2-B, 'Insignificant Activities1 (20.2.70 NMAC) OR Exempted Equipment (20.2.72 NMAC') of Section 2 of this application. This application incorporates any technical and/or administrative revisions to the construction permit that have occurred since construction permit issuance.

As of August 5, 2022, certain existing and previously unregulated emission sources are now subject to the requirements of 20.2.50 NMAC. The newly-regulated equipment are included in Table 2-A regardless of whether 20.2.50 NMAC imposes emission limits on the source.

Currently, there are sixteen permitted Waukesha 7042 GL engines at the facility, eight (8) of which are equipped with emission controls. The facility is permitted for five (5) 12 million cubic feet per day (MMCFD) triethylene glycol (TEG) dehydrators and one (1) 30 MMCFD TEG dehydrator to remove moisture from the pipeline natural gas.

This application includes the following modifications:

- Replace four (4) of the facility's permitted four-stroke, lean burn (4SLB) engines with 4 four-stroke, rich burn (4SRB) engines, each equipped with a three-way catalyst for emissions control. The purpose of the controls is to meet the emission requirements of 20.2.50 NMAC;
- In addition to the currently controlled 4SLB RICE, add oxidation catalyst emission controls to the remaining permitted 4SLB RICE that are not already required to be equipped with a catalyst; and
- Add three (3) 30MMCFD TEG dehydrators, which will handle a different gas stream than those currently handled at the facility. The new dehydrators may each operate at up to 50 MMCFD.

The controlled 4SRB RICE and the newly-controlled 4SLB RICE will emit air pollutants below the current permitted emissions for the RICE.

This application is being submitted under 20.2.72.219.D(1) NMAC of the New Mexico Administrative Code (NMAC) for a Significant Revision to the facility's air quality construction permit.

There are no revisions or modifications to the permit contained in this application that de-bottleneck impacts or change the facility's major/minor status under the Title V Operating Permits program. However, the proposed modifications *do* result in reductions of criteria pollutant emissions that change the facility's status from a major source under the Prevention of Significant Deterioration (PSD) permitting program to a Synthetic Minor source under PSD.

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

Universal Air Quality Permit Application

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

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

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

Acknowledgements:

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

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

☑ Check No.: **1014** in the amount of **$500.00**

☑ 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.

☑ I acknowledge there is an annual fee for permits in addition to the permit review fee: www.env.nm.gov/air-quality/permit-fees-2/.

☐ This facility qualifies for the small business fee reduction per 20.2.75.11.C. NMAC. The full $500.00 filing fee is included with this application and I understand the fee reduction will be calculated in the balance due invoice. The Small Business Certification Form has been previously submitted or is included with this application. (Small Business Environmental Assistance Program Information: www.env.nm.gov/air-quality/small-biz-eap-2/.)

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

Section 1 – Facility Information

Section 1-A: Company Information

		AI # if known (see 1st 3 to 5 #s of permit IDEA ID No.): **1006**	Updating Permit/NOI #: **1031-M9, as revised**
1	Facility Name: **31-6 Central Delivery Point (CDP)**	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 directions in Section 1-D4**		
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, New Mexico 87413**		

b	Plant Operator's New Mexico Corporate ID or Tax ID: **76-0451075**	
3	Plant Owner(s) name(s): **Same as #2 above**	Phone/Fax: **Same as #2 above**
a	Plant Owner(s) Mailing Address(s): **Same as #2a above**	
4	Bill To (Company): **Same as #2 above**	Phone/Fax: **Same as #2 above**
a	Mailing Address: **Same as #2a above**	E-mail: **N/A**
5	☐ Preparer: ☐ Consultant: **Lisa Killion, Cirrus Consulting, LLC**	Phone/Fax: **(505) 466-1790**
a	Mailing Address: **c/o 11139 Crisp Air Drive, Colorado Springs, CO 80908**	E-mail: **lkillion@cirrusllc.com**
6	Plant Operator Contact: **Jennifer Deal**	Phone/Fax: **(505) 324-5128 / (505) 632-4782**
a	Address: **Same as #2a above**	E-mail: **jdeal @harvestmidstream.com**
7	Air Permit Contact: **Same as #6 above**	Title: **Environmental Specialist**
a	E-mail: **Same as #6a above**	Phone/Fax: **Same as #6 above**
b	Mailing Address: **Same as #2a above**	
c	The designated Air permit Contact will receive all official correspondence (i.e. letters, permits) from the Air Quality Bureau.	

Section 1-B: Current Facility Status

1.a	Has this facility already been constructed? ☑ Yes ☐ No	1.b If yes to question 1.a, is it currently operating in New Mexico? ☑ Yes ☐ No
2	If yes to question 1.a, was the existing facility subject to a Notice of Intent (NOI) (20.2.73 NMAC) before submittal of this application? ☐ Yes ☑ No	If yes to question 1.a, was the existing facility subject to a construction permit (20.2.72 NMAC) before submittal of this application? ☑ Yes ☐ No
3	Is the facility currently shut down? ☐ Yes ☑ No	If yes, give month and year of shut down (MM/YY): **N/A**
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? ☐ Yes ☑ No	
5	If Yes to question 3, has this facility been modified (see 20.2.72.7.P NMAC) or the capacity increased since 8/31/1972? ☐ Yes ☐ No ☑ N/A **It is assumed this question refers to question 4 rather than question 3.**	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☑ Yes ☐ No	If yes, the permit No. is: **P027-R5**
7	Has this facility been issued a No Permit Required (NPR)? ☐ Yes ☑ No	If yes, the NPR No. is: **N/A**
8	Has this facility been issued a Notice of Intent (NOI)? ☐ Yes ☑ No	If yes, the NOI No. is: **N/A**
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ☑ Yes ☐ No	If yes, the permit No. is: **1031-M9, as revised**
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes ☑ No	If yes, the register No. is: **N/A**

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: **14.9 MMCF[(a)]**	Daily: **358 MMCF[(a)]**	Annually: **130,559 MMCF[(a)]**
b	Proposed	Hourly: **14.9 MMCF[(a)]**	Daily: **358 MMCF[(a)]**	Annually: **130,559 MMCF[(a)]**
2	What is the facility's maximum production rate, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: **14.9 MMCF[(a)]**	Daily: **358 MMCF[(a)]**	Annually: **130,559 MMCF[(a)]**

b	Proposed	Hourly: **14.9 MMCF[(a)]**	Daily: **358 MMCF[(a)]**	Annually: **130,559 MMCF[(a)]**

[(a)] The station capacity is a direct function of available horsepower. The throughput is therefore dependent on atmospheric temperature and pressure, gas temperature and pressure, relative humidity and gas quality, was well as other factors. The "throughput" expressed above is a nominal quantity (with a 15 percent safety factor), neither an absolute maximum, nor an average. Actual throughput will vary from the nominal amount.

Section 1-D: Facility Location Information

1	Section: **01**	Range: **06W**	Township: **30N**	County: **Rio Arriba**	Elevation (ft): **6430**
2	UTM Zone: ☐ 12 or ☑ 13			Datum: ☐ NAD 27 ☐ NAD 83 ☑ WGS 84	
a	UTM E (in meters, to nearest 10 meters): **284,190 m**			UTM N (in meters, to nearest 10 meters): **4,079,420 m**	
b	**AND** Latitude (deg., min., sec.): **36° 50' 10"**			Longitude (deg., min., sec.): **-107° 25' 12"**	
3	Name and zip code of nearest New Mexico town: **Navajo Dam, New Mexico 87419**				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): **From Bloomfield, drive north on Hwy 64 to mile marker 102.3 (approximately 37 miles). Turn left on Hwy 527. Drive 7.9 miles and turn right on gravel road. Drive 7.5 miles. Facility is on the right.**				
5	The facility is **approximately 15.4** miles **east** of **Navajo Dam, New Mexico**.				
6	Status of land at facility (check one): ☐ Private ☐ Indian/Pueblo ☑ Federal BLM ☐ Federal Forest Service ☐ Other (specify)				
7	List all municipalities, Indian tribes, and counties within a ten (10) mile radius (20.2.72.203.B.2 NMAC) of the property on which the facility is proposed to be constructed or operated: **None; none; Rio Arriba County, NM & San Juan County, NM**				
8	**20.2.72** NMAC applications **only**: Will the property on which the facility is proposed to be constructed or operated be closer than 50 km (31 miles) to other states, Bernalillo County, or a Class I area (see www.env.nm.gov/aqb/modeling/class1areas.html)? ☑ Yes ☐ No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers: **State of Colorado, 18.10 km**				
9	Name nearest Class I area: **Weminuche Wilderness**				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): **66.04 km**				
11	Distance (meters) from the perimeter of the Area of Operations (AO is defined as the plant site inclusive of all disturbed lands, including mining overburden removal areas) to nearest residence, school or occupied structure: **~9,083 m**				
12	Method(s) used to delineate the Restricted Area: **Fence** "**Restricted Area**" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area.				
13	Does the owner/operator intend to operate this source as a portable stationary source as defined in 20.2.72.7.X NMAC? ☐ Yes ☑ No A portable stationary source is not a mobile source, such as an automobile, but a source that can be installed permanently at one location or that can be re-installed at various locations, such as a hot mix asphalt plant that is moved to different job sites.				
14	Will this facility operate in conjunction with other air regulated parties on the same property? ☑ No ☐ Yes If yes, what is the name and permit number (if known) of the other facility? **N/A**				

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

1	Facility **maximum** operating ($\frac{\text{hours}}{\text{day}}$): **24**	($\frac{\text{days}}{\text{week}}$): **7**	($\frac{\text{weeks}}{\text{year}}$): **52**	($\frac{\text{hours}}{\text{year}}$): **8,760**			
2	Facility's maximum daily operating schedule (if less than 24 $\frac{\text{hours}}{\text{day}}$)? Start: **N/A**		☐AM ☐PM	End: **N/A**	☐AM ☐PM		
3	Month and year of anticipated start of construction: **Upon permit issuance**						
4	Month and year of anticipated construction completion: **To be determined (TBD)**						
5	Month and year of anticipated startup of new or modified facility: **TBD**						

6	Will this facility operate at this site for more than one year? ☑ Yes ☐ No

Section 1-F: Other Facility Information

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

Section 1-G: Streamline Application (This section applies to 20.2.72.300 NMAC Streamline applications only)

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

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

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

1	Responsible Official (R.O.) (20.2.70.300.D.2 NMAC): **Travis Jones**		Phone: **(713) 289-2630**
a	R.O. Title: **EH&S Manager**	R.O. e-mail: **trjones@harvestmidstream.com**	
b	R. O. Address: **1111 Travis Street, Houston, Texas 77002**		
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC): **TBD**		Phone: **TBD**
a	A. R.O. Title: **TBD**	A. R.O. e-mail: **TBD**	
b	A. R. O. Address: **TBD**		
3	Company's Corporate or Partnership Relationship to any other Air Quality Permittee (List the names of any companies that have operating (20.2.70 NMAC) permits and with whom the applicant for this permit has a corporate or partnership relationship): **N/A**		
4	Name of Parent Company ("Parent Company" means the primary name of the organization that owns the company to be permitted wholly or in part.): **Harvest Midstream**		
a	Address of Parent Company: **Same as #1b above**		
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, ~18.2 km; Navajo Nation Air Quality Control Program, ~34.1 km; Southern Ute Tribe, ~18.2 km; Jicarilla Apache Tribe, ~19.9 km; Ute Mountain Ute Tribe, ~74.1 km.**		

Section 1-I – Submittal Requirements

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

Hard Copy Submittal Requirements:

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

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

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

Electronic files sent by (check one):

☑ CD/DVD attached to paper application

☐ secure electronic transfer. Air Permit Contact Name_____

Email_____

Phone number _____

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

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

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

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

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

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

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

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

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

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

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

Table of Contents

Table 2-A: Regulated Emission Sources

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

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
1	Reciprocating I.C. Engine	Waukesha	7042 GL	C-10999/2A (Pkg. 77051)	1,478 hp	1,371 hp	09/27/1993 5/11/2017	1 1	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	4SLB	N/A
3	Reciprocating I.C. Engine	Waukesha	7042 GL	296981 (Pkg. 804334)	1,478 hp	1,371 hp	3/2/1976 10/1/1992	3 3	20200202	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
4	Reciprocating I.C. Engine	Waukesha	7042 GL	TBD	1,478 hp	1,371 hp	TBD TBD	N/A 4	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☑ **To be Replaced**	4SLB	N/A
4	Reciprocating I.C. Engine	Waukesha	7042 GSI	TBD	1,480 hp	1,371 hp	TBD TBD	4 4	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☑ **Replacement Unit** ☐ To Be Modified ☐ To be Replaced	4SRB	4
5	Reciprocating I.C. Engine	Waukesha	7042 GL	400911 (Pkg. 804368)	1,478 hp	1,371 hp	7/28/1998 12/30/1993	5 5	20200202	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
6	Reciprocating I.C. Engine	Waukesha	7042 GL	TBD	1,478 hp	1,371 hp	TBD TBD	6 6	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☑ **To be Replaced**	4SLB	N/A
6	Reciprocating I.C. Engine	Waukesha	7042 GSI	TBD	1,480 hp	1,373 hp	TBD TBD	6 6	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☑ **Replacement Unit** ☐ To Be Modified ☐ To be Replaced	4SRB	6
7	Reciprocating I.C. Engine	Waukesha	7042 GL	C-126591 (Pkg. 804389)	1,478 hp	1,371 hp	11/10/1998 7/21/2016	7 7	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	4SLB	N/A
8	Reciprocating I.C. Engine	Waukesha	7042 GL	C-12677/2 (Pkg. x00002)	1,478 hp	1,371 hp	10/21/1998 11/10/2004	8 8	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	4SLB	N/A
9	Reciprocating I.C. Engine	Waukesha	7042 GL	C-11657/3 (Pkg. X00240)	1,478 hp	1,371 hp	2/8/1995 10/10/1995	9 9	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	4SLB	N/A
10	Reciprocating I.C. Engine	Waukesha	7042 GL	C-12572/1 (Pkg. 77583)	1,478 hp	1,371 hp	2/27/1998 11/5/1997	10 10	20200202	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
11	Reciprocating I.C. Engine	Waukesha	7042 GL	C-12554/2 (Pkg. 76490)	1,478 hp	1,371 hp	02/03/1998 7/19/1995	11 11	20200202	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
12	Reciprocating I.C. Engine	Waukesha	7042 GL	C-13154/1 (Pkg. 77582)	1,478 hp	1,371 hp	11/12/1993 1/25/1993	12 12	20200202	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
13	Reciprocating I.C. Engine	Waukesha	7042 GL	TBD	1,478 hp	1,371 hp	TBD TBD	N/A 13	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☑ **To be Replaced**	4SLB	N/A
13	Reciprocating I.C. Engine	Waukesha	7042 GSI	TBD	1,480 hp	1,373 hp	TBD TBD	13 13	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☑ **Replacement Unit** ☐ To Be Modified ☐ To be Replaced	4SRB	13
14	Reciprocating I.C. Engine	Waukesha	7042 GL	TBD	1,478 hp	1,371 hp	TBD TBD	N/A 14	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☑ **To be Replaced**	4SLB	N/A
14	Reciprocating I.C. Engine	Waukesha	7042 GSI	TBD	1,480 hp	1,373 hp	TBD TBD	14 14	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☑ **Replacement Unit** ☐ To Be Modified ☐ To be Replaced	4SRB	14
15	Reciprocating I.C. Engine	Waukesha	7042 GL	C-12554/4 (Pkg. 77052)	1,478 hp	1,371 hp	2/25/1998 2/25/1998	15 15	20200202	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
16	Reciprocating I.C. Engine	Waukesha	7042 GL	208656 (Pkg. 76798)	1,478 hp	1,371 hp	7/30/1971 8/18/2005	16 16	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	4SLB	N/A
33	Reciprocating I.C. Engine	Waukesha	7042 GL	317965 (Pkg. 804367)	1,478 hp	1,371 hp	12/1/1978 4/5/2017	33 33	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	4SLB	N/A
SSM	Compressors & Associated Piping	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	--	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
17a	TEG Dehydrator Still Vent	Enertek	J2P12M749 TEG	41997	12 mmscfd	12 mmscfd	1992 1/1/1992	N/A 17a	31000227	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
17b	TEG Dehydrator Reboiler	Enertek	429 scfh	N/A	429 scfh	429 scfh	1992 1/1/1992	NA 17b	31000228	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
18a	TEG Dehydrator Still Vent	Enertek	J2P12M749 TEG	41733	12 mmscfd	12 mmscfd	1992 1/1/1992	N/A 18a	31000227	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
18b	TEG Dehydrator Reboiler	Enertek	429 scfh	N/A	429 scfh	429 scfh	1992 1/1/1992	N/A 18b	31000228	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
19a	TEG Dehydrator Still Vent	Enertek	J2P12M749 TEG	41688	12 mmscfd	12 mmscfd	1992 1/1/1992	N/A 19a	31000227	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
19b	TEG Dehydrator Reboiler	Enertek	429 scfh	N/A	429 scfh	429 scfh	1992 1/1/1992	N/A 19b	31000228	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
20a	TEG Dehydrator Still Vent	Enertek	J2P12M749 TEG	41747	12 mmscfd	12 mmscfd	1993 1/1/1993	N/A 20a	31000227	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
20b	TEG Dehydrator Reboiler	Enertek	429 scfh	N/A	429 scfh	429 scfh	1993 1/1/1993	N/A 20b	31000228	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
21a	TEG Dehydrator Still Vent	Enertek	J2P12M749 TEG	42380	12 mmscfd	12 mmscfd	1993 1/1/1993	N/A 21a	31000227	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
21b	TEG Dehydrator Reboiler	Enertek	429 scfh	N/A	429 scfh	429 scfh	1993 1/1/1993	N/A 21b	31000228	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
22a	TEG Dehydrator Still Vent	Enertek	J2P12M749 TEG	43250	12 mmscfd	12 mmscfd	1993 1/1/1993	N/A 22a	31000227	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
22b	TEG Dehydrator Reboiler	Enertek	429 scfh	N/A	429 scfh	429 scfh	1992 1/1/1992	NA 22b	31000228	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
31a	TEG Dehydrator Still Vent	Enertek	J2P30M749TEG	42857	30 mmscfd	30 mmscfd	2004 12/17/2004	N/A 31a	31000227	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
31b	TEG Dehydrator Reboiler	Enertek	444 scfh	N/A	444 scfh	444 scfh	2004 12/17/2004	NA 31b	31000228	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
32a	TEG Dehydrator Still Vent	Enertek	TBD	TBD	30 mmscfd	50 mmscfd	TBD TBD	N/A 32a	31000227	☐ Existing (unchanged) ☐ To be Removed ☑ **New/Additional** ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
32b	TEG Dehydrator Reboiler	Enertek	TBD	TBD	550 MBtu	550 MBtu	TBD TBD	N/A 32b	31000228	☐ Existing (unchanged) ☐ To be Removed ☑ **New/Additional** ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
33a	TEG Dehydrator Still Vent	Enertek	TBD	TBD	30 mmscfd	50 mmscfd	TBD TBD	N/A 33a	31000227	☐ Existing (unchanged) ☐ To be Removed ☑ **New/Additional** ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
33b	TEG Dehydrator Reboiler	Enertek	TBD	TBD	550 MBtu	550 MBtu	TBD TBD	N/A 33b	31000228	☐ Existing (unchanged) ☐ To be Removed ☑ **New/Additional** ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
34a	TEG Dehydrator Still Vent	Enertek	TBD	TBD	30 mmscfd	50 mmscfd	TBD TBD	N/A 34a	31000227	☐ Existing (unchanged) ☐ To be Removed ☑ **New/Additional** ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
34b	TEG Dehydrator Reboiler	Enertek	TBD	TBD	550 MBtu	550 MBtu	TBD TBD	N/A 34b	31000228	☐ Existing (unchanged) ☐ To be Removed ☑ **New/Additional** ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
T25, T43, T55, T56	Produced Water Storage Tanks (each)	N/A	N/A	N/A	12,600 gal	12,600 gal	N/A N/A	N/A N/A	40400315	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
T44	Produced Water Storage Tank	N/A	N/A	N/A	1,680 gal	1,680 gal	N/A N/A	N/A N/A	40400315	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
F1	Fugitive Emissions	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	31088811	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
M1	Malfunction Emissions	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	- -	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
PC1-PC144	Pneumatic Controllers	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	31000299	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
C1, C3-C16, C33	Reciprocating Compressor Venting	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	31000299	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

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

[2] Specify dates required to determine regulatory applicability.

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

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

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

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

Unit Number	Source Description	Manufacturer	Model No. / Serial No.	Max Capacity / Capacity Units	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5) / Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Manufacture /Reconstruction[2] / Date of Installation /Construction[2]	For Each Piece of Equipment, Check Onc
T-1 thru T-14	Lubrication (Lube) Oil Storage Tank (each)			500 gal	20.2.72.202.B(2) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				500 gal	Insignificant Activity List Item #5		
T-15	Lube Oil Storage Tank			4,200 gal	20.2.72.202.B(2) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				4,200 gal	Insignificant Activity List Item #5		
T-16	Antifreeze Storage Tank			500 gal	20.2.72.202.B(2) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				500 gal	Insignificant Activity List Item #5		
T-17	Corrosion Inhibitor Storage Tank			500 gal	20.2.72.202.B(5) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				500 gal	Insignificant Activity List Item #1		
T-18 thru T-23	Glycol Storage Tank (each)			100 gal	20.2.72.202.B(2) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				100 gal	Insignificant Activity List Item #5		
T-24	Solvent Storage Tank			500 gal	20.2.72.202.B(2) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				500 gal	Insignificant Activity List Item #5		
T-26	Used Oil Storage Tank			6,930 gal	20.2.72.202.B(2) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				6,930 gal	Insignificant Activity List Item #5		
T-27	Wastewater Storage Tank			6,930 gal	20.2.72.202.B(2) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				6,930 gal	Insignificant Activity List Item #5		
T-28 & T-29	Lube Oil Storage Tank (each)			500 gal	20.2.72.202.B(2) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				500 gal	Insignificant Activity List Item #5		
T-30	Glycol Storage Tank			100 gal	20.2.72.202.B(2) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				100 gal	Insignificant Activity List Item #5		
T-34 thru T-40	Glycol Storage Tank (each)			50 gal	20.2.72.202.B(2) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				50 gal	Insignificant Activity List Item #5		
T-42	Wastewater Storage Tank			740 gal	20.2.72.202.B(2) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				740 gal	Insignificant Activity List Item #5		
T-45 & T-46	Used Oil Storage Tank			500 gal	20.2.72.202.B(2) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				500 gal	Insignificant Activity List Item #5		
T-47 & T-48	Glycol Storage Tank (each)			125 gal	20.2.72.202.B(2) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				125 gal	Insignificant Activity List Item #5		

Unit Number	Source Description	Manufacturer	Model No. / Serial No.	Max Capacity / Capacity Units	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5) / Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Manufacture /Reconstruction[2] / Date of Installation /Construction[2]	For Each Piece of Equipment, Check Onc
T-49	Glycol Storage Tank			2,100 gal	20.2.72.202.B(2) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				2,100 gal	Insignificant Activity List Item #5		
T-50	Methanol Storage Tank			500 gal	20.2.72.202.B(5) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				500 gal	Insignificant Activity List Item #1		
T-51 & T-52	Lube Oil Storage Tank (each)			500 gal	20.2.72.202.B(2) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				500 gal	Insignificant Activity List Item #5		
L1	Truck Loading Emissions (Produced water)			N/A	20.2.72.202.B(5) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				N/A	Insignificant Activity List Item #1		
PR	Pig Receiving			N/A	20.2.72.202.B(5) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				N/A	Insignificant Activity List Item #1		

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

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

Table 2-C: Emissions Control Equipment

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

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
1	Catalytic Converter (oxidation catalyst)	TBD	CO, VOC (HAP)	1	CO 93%; VOC 80%	Mfg. data
3	Catalytic Converter (oxidation catalyst)	8/1/2007	CO, VOC (HAP)	3	CO 93%; VOC 80%	Mfg. data
4	Catalytic Converter (three-way catalyst)	TBD	NO_X, CO, VOC (HAP)	4	NO_X 96%; CO 93%, VOC 67%	Mfg. data
5	Catalytic Converter (oxidation catalyst)	8/1/2007	CO, VOC (HAP)	5	CO 93%; VOC 80%	Mfg. data
6	Catalytic Converter (three-way catalyst)	TBD	NO_X, CO, VOC (HAP)	6	NO_X 96%; CO 93%, VOC 67%	Mfg. data
7	Catalytic Converter (oxidation catalyst)	TBD	CO, VOC (HAP)	7	CO 93%; VOC 80%	Mfg. data
8	Catalytic Converter (oxidation catalyst)	TBD	CO, VOC (HAP)	8	CO 93%; VOC 80%	Mfg. data
9	Catalytic Converter (oxidation catalyst)	TBD	CO, VOC (HAP)	9	CO 93%; VOC 80%	Mfg. data
10	Catalytic Converter (oxidation catalyst)	8/1/2007	CO, VOC (HAP)	10	CO 93%; VOC 80%	Mfg. data
11	Catalytic Converter (oxidation catalyst)	8/1/2007	CO, VOC (HAP)	11	CO 93%; VOC 80%	Mfg. data
12	Catalytic Converter (oxidation catalyst)	8/1/2007	CO, VOC (HAP)	12	CO 93%; VOC 80%	Mfg. data
13	Catalytic Converter (three-way catalyst)	TBD	NO_X, CO, VOC (HAP)	13	NO_X 96%; CO 93%, VOC 67%	Mfg. data
14	Catalytic Converter (three-way catalyst)	TBD	NO_X, CO, VOC (HAP)	14	NO_X 96%; CO 93%, VOC 67%	Mfg. data
15	Catalytic Converter (oxidation catalyst)	8/1/2007	CO, VOC (HAP)	15	CO 93%; VOC 80%	Mfg. data
16	Catalytic Converter (oxidation catalyst)	TBD	CO, VOC (HAP)	16	CO 93%; VOC 80%	Mfg. data
33	Catalytic Converter (oxidation catalyst)	TBD	CO, VOC (HAP)	33	CO 93%; VOC 80%	Mfg. data

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

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

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

Maximum Emissions are the emissions at maximum capacity and prior to (in the absence of) pollution control, emission-reducing process equipment, or any other emission reduction. Calculate the hourly emissions using the worst case hourly emissions for each pollutant. For each pollutant, calculate the annual emissions as if the facility were operating at maximum plant capacity without pollution controls for 8760 hours per year, unless otherwise approved by the Department. List Hazardous Air Pollutants

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	2.72	11.92	8.01	35.09	3.02	13.24	5.9E-03	2.6E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
3	2.72	11.92	8.01	35.09	3.02	13.24	5.9E-03	2.6E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
4	42.07	184.26	29.12	127.57	0.49	2.13	6.8E-03	3.0E-02	2.23E-01	9.77E-01	2.23E-01	9.77E-01	2.23E-01	9.77E-01	-	-	-	-
5	2.72	11.92	8.01	35.09	3.02	13.24	5.9E-03	2.6E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
6	42.07	184.26	29.12	127.57	0.49	2.13	6.8E-03	3.0E-02	2.23E-01	9.77E-01	2.23E-01	9.77E-01	2.23E-01	9.77E-01	-	-	-	-
7	2.72	11.92	8.01	35.09	3.02	13.24	5.9E-03	2.6E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
8	2.72	11.92	8.01	35.09	3.02	13.24	5.9E-03	2.6E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
9	2.72	11.92	8.01	35.09	3.02	13.24	5.9E-03	2.6E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
10	2.72	11.92	8.01	35.09	3.02	13.24	5.9E-03	2.6E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
11	2.72	11.92	8.01	35.09	3.02	13.24	5.9E-03	2.6E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
12	2.72	11.92	8.01	35.09	3.02	13.24	5.9E-03	2.6E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
13	42.07	184.26	29.12	127.57	0.49	2.13	6.8E-03	3.0E-02	2.23E-01	9.77E-01	2.23E-01	9.77E-01	2.23E-01	9.77E-01	-	-	-	-
14	42.07	184.26	29.12	127.57	0.49	2.13	6.8E-03	3.0E-02	2.23E-01	9.77E-01	2.23E-01	9.77E-01	2.23E-01	9.77E-01	-	-	-	-
15	2.72	11.92	8.01	35.09	3.02	13.24	5.9E-03	2.6E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
16	2.72	11.92	8.01	35.09	3.02	13.24	5.9E-03	2.6E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
33	2.72	11.92	8.01	35.09	3.02	13.24	5.9E-03	2.6E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
SSM	-	-	-	-	Not specified	12.00	-	-	-	-	-	-	-	-	-	-	-	-
17a	-	-	-	-	2.12	9.30	-	-	-	-	-	-	-	-	-	-	-	-
17b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.40E-07
18a	-	-	-	-	2.12	9.30	-	-	-	-	-	-	-	-	-	-	-	-
18b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.40E-07

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
19a	-	-	-	-	2.12	9.30	-	-	-	-	-	-	-	-	-	-	-	-
19b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.40E-07
20a	-	-	-	-	2.12	9.30	-	-	-	-	-	-	-	-	-	-	-	-
20b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.40E-07
21a	-	-	-	-	2.12	9.30	-	-	-	-	-	-	-	-	-	-	-	-
21b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.40E-07
22a	-	-	-	-	2.12	9.30	-	-	-	-	-	-	-	-	-	-	-	-
22b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.40E-07
31a	-	-	-	-	2.10	9.20	-	-	-	-	-	-	-	-	-	-	-	-
31b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	4.69E-03	2.05E-02	4.69E-03	2.05E-02	4.69E-03	2.05E-02	-	-	3.08E-07	1.35E-06
32a	-	-	-	-	2.28E-01	1.00	-	-	-	-	-	-	-	-	-	-	-	-
32b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.5E-03	2.8E-02	8.3E-04	3.7E-03	4.7E-03	2.1E-02	4.7E-03	2.1E-02	4.7E-03	2.1E-02	-	-	3.08E-07	1.35E-06
33a	-	-	-	-	2.28E-01	1.00	-	-	-	-	-	-	-	-	-	-	-	-
33b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.5E-03	2.8E-02	8.3E-04	3.7E-03	4.7E-03	2.1E-02	4.7E-03	2.1E-02	4.7E-03	2.1E-02	-	-	3.08E-07	1.35E-06
34a	-	-	-	-	2.28E-01	1.00	-	-	-	-	-	-	-	-	-	-	-	-
34b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.5E-03	2.83E-02	8.3E-04	3.7E-03	4.7E-03	2.1E-02	4.7E-03	2.1E-02	4.7E-03	2.1E-02	-	-	3.08E-07	1.35E-06
T25, T43, T44, T55, T56	-	-	-	-	Not specified	9.52E-01	-	-	-	-	-	-	-	-	-	-	-	-
F1	-	-	-	-	1.39E-01	6.08E-01	-	-	-	-	-	-	-	-	-	-	-	-
M1	-	-	-	-	Not specified	10.00	-	-	-	-	-	-	-	-	-	-	-	-
Totals	201.35	881.93	213.00	932.94	53.93	259.19	0.11	0.47	2.14	9.38	2.14	9.38	2.14	9.38	-	-	2.52E-06	1.1E-05

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

Table 2-E: Requested Allowable Emissions

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	2.72	11.92	5.61E-01	2.46	6.05E-01	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
3	2.72	11.92	5.61E-01	2.46	6.05E-01	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
4	1.62	7.09	1.94	8.50	4.85E-01	2.13	6.76E-03	2.96E-02	2.23E-01	9.77E-01	2.23E-01	9.77E-01	2.23E-01	9.77E-01	-	-	-	-
5	2.72	11.92	5.61E-01	2.46	6.05E-01	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
6	1.62	7.09	1.94	8.50	4.85E-01	2.13	6.76E-03	2.96E-02	2.23E-01	9.77E-01	2.23E-01	9.77E-01	2.23E-01	9.77E-01	-	-	-	-
7	2.72	11.92	5.61E-01	2.46	6.05E-01	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
8	2.72	11.92	5.61E-01	2.46	6.05E-01	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
9	2.72	11.92	5.61E-01	2.46	6.05E-01	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
10	2.72	11.92	5.61E-01	2.46	6.05E-01	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
11	2.72	11.92	5.61E-01	2.46	6.05E-01	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
12	2.72	11.92	5.61E-01	2.46	6.05E-01	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
13	1.62	7.09	1.94	8.50	4.85E-01	2.13	6.76E-03	2.96E-02	2.23E-01	9.77E-01	2.23E-01	9.77E-01	2.23E-01	9.77E-01	-	-	-	-
14	1.62	7.09	1.94	8.50	4.85E-01	2.13	6.76E-03	2.96E-02	2.23E-01	9.77E-01	2.23E-01	9.77E-01	2.23E-01	9.77E-01	-	-	-	-
15	2.72	11.92	5.61E-01	2.46	6.05E-01	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
16	2.72	11.92	5.61E-01	2.46	6.05E-01	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
33	2.72	11.92	5.61E-01	2.46	6.05E-01	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
SSM	-	-	-	-	-	12.00	-	-	-	-	-	-	-	-	-	-	-	-
17a	-	-	-	-	2.12	9.30	-	-	-	-	-	-	-	-	-	-	-	-
17b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.40E-07
18a	-	-	-	-	2.12	9.30	-	-	-	-	-	-	-	-	-	-	-	-
18b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.40E-07
19a	-	-	-	-	2.12	9.30	-	-	-	-	-	-	-	-	-	-	-	-
19b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.40E-07
20a	-	-	-	-	2.12	9.30	-	-	-	-	-	-	-	-	-	-	-	-
20b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.40E-07

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
21a	-	-	-	-	2.12	9.30	-	-	-	-	-	-	-	-	-	-	-	-
21b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.40E-07
22a	-	-	-	-	2.12	9.30	-	-	-	-	-	-	-	-	-	-	-	-
22b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.40E-07
31a	-	-	-	-	2.10	9.20	-	-	-	-	-	-	-	-	-	-	-	-
31b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	4.69E-03	2.05E-02	4.69E-03	2.05E-02	4.69E-03	2.05E-02	-	-	3.08E-07	1.35E-06
32a	-	-	-	-	2.28E-01	1.00	-	-	-	-	-	-	-	-	-	-	-	-
32b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.5E-03	2.8E-02	8.3E-04	3.7E-03	4.7E-03	2.1E-02	4.7E-03	2.1E-02	4.7E-03	2.1E-02	-	-	3.08E-07	1.35E-06
33a	-	-	-	-	2.28E-01	1.00	-	-	-	-	-	-	-	-	-	-	-	-
33b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.5E-03	2.8E-02	8.3E-04	3.7E-03	4.7E-03	2.1E-02	4.7E-03	2.1E-02	4.7E-03	2.1E-02	-	-	3.08E-07	1.35E-06
34a	-	-	-	-	2.28E-01	1.00	-	-	-	-	-	-	-	-	-	-	-	-
34b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.5E-03	2.83E-02	8.3E-04	3.7E-03	4.7E-03	2.1E-02	4.7E-03	2.1E-02	4.7E-03	2.1E-02	-	-	3.08E-07	1.35E-06
T25, T43, T44, T55, T56	-	-	-	-	Not specified	9.52E-01	-	-	-	-	-	-	-	-	-	-	-	-
F1	-	-	-	-	1.39E-01	6.08E-01	-	-	-	-	-	-	-	-	-	-	-	-
M1	-	-	-	-	Not specified	10.00	-	-	-	-	-	-	-	-	-	-	-	-
Totals	39.55	173.22	14.87	65.13	24.92	132.08	0.11	0.47	2.14	9.38	2.14	9.38	2.14	9.38	-	-	2.52E-06	1.10E-05

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

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[2]		PM10[2]		PM2.5[2]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
SSM	-	-	-	-	unspecified	12.0	-	-	-	-	-	-	-	-	-	-	-	-
M1	-	-	-	-	unspecified	10.0	-	-	-	-	-	-	-	-	-	-	-	-
Totals	-	-	-	-	not specified	22.00	-	-	-	-	-	-	-	-	-	-	-	-

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

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

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

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

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

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

Table 2-H: Stack Exit Conditions

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

Stack Number	Serving Unit Number(s) from Table 2-A	Orientation (H-Horizontal V=Vertical)	Rain Caps (Yes or No)	Height Above Ground (ft)	Temp. (F)	Flow Rate		Moisture by Volume (%)	Velocity (ft/sec)	Inside Diameter (ft)
						(acfs)	(dscfs)			
1	1	V	N	27	702	127.1		-	155.3	1.02
3	3	V	N	27	702	127.1		-	155.3	1.02
4	4	V	N	27	702	115.8		-	141.7	1.02
5	5	V	N	27	702	127.1		-	155.3	1.02
6	6	V	N	27	702	115.8		-	141.7	1.02
7	7	V	N	27	702	127.1		-	155.3	1.02
8	8	V	N	27	702	127.1		-	155.3	1.02
9	9	V	N	27	702	127.1		-	155.3	1.02
10	10	V	N	27	702	127.1		-	155.3	1.02
11	11	V	N	27	702	127.1		-	155.3	1.02
12	12	V	N	27	702	127.1		-	155.3	1.02
13	13	V	N	27	702	115.8		-	141.7	1.02
14	14	V	N	27	702	115.8		-	141.7	1.02
15	15	V	N	27	702	127.1		-	155.3	1.02
16	16	V	N	27	702	127.1		-	155.3	1.02
16	16	V	N	27	702	127.1		-	155.3	1.02
33	33	V	N	27	702	127.1		-	155.3	1.02
17b	17b	V	N	23.50	600	3.3		-	6.1	0.83
18b	18b	V	N	23.25	600	3.3		-	6.1	0.83
19b	19b	V	N	23.00	600	3.3		-	6.1	0.83
20b	20b	V	N	23.17	600	3.3		-	6.1	0.83
21b	21b	V	N	23.50	600	3.3		-	6.1	0.83
22b	22b	V	N	23.17	600	3.3		-	6.1	0.83
31b	31b	V	N	23.08	600	3.3		-	6.1	0.83
32b	32b	V	N	23.08	600	3.3		-	6.1	0.83
33b	33b	V	N	23.09	600	3.3		-	6.1	0.83
34b	34b	V	N	23.08	600	3.3		-	6.1	0.83

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		Ethylbenzene 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	
		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	0.1	0.5	-	0.1	-	-	0.5	2.2	-	-	-	-						
3	3	0.1	0.5	-	-	-	-	0.1	0.4	-	-	-	-						
4	4	0.0	0.0	-	0.1	-	-	0.5	2.2	-	-	-	-						
5	5	0.1	0.5	-	-	-	-	0.1	0.4	-	-	-	-						
6	6	0.0	0.0	-	-	-	-	0.1	0.4	-	-	-	-						
7	7	0.1	0.5	-	0.1	-	-	0.5	2.2	-	-	-	-						
8	8	0.1	0.5	-	0.1	-	-	0.5	2.2	-	-	-	-						
9	9	0.1	0.5	-	0.1	-	-	0.5	2.2	-	-	-	-						
10	10	0.1	0.5	-	-	-	-	0.1	0.4	-	-	-	-						
11	11	0.1	0.5	-	-	-	-	0.1	0.4	-	-	-	-						
12	12	0.1	0.5	-	-	-	-	0.1	0.4	-	-	-	-						
13	13	0.0	0.0	-	-	-	-	0.1	0.4	-	-	-	-						
14	14	0.0	0.0	-	0.1	-	-	0.5	2.2	-	-	-	-						
15	15	0.1	0.5	-	-	-	-	0.1	0.4	-	-	-	-						
16	16	0.1	0.5	-	0.1	-	-	0.5	2.2	-	-	-	-						
33	33	0.1	0.5	-	0.1	-	-	0.5	2.2	-	-	-	-						
SSM	SSM	-	0.3	-	-	-	-	-	-	-	-	-	-						
17a	17a	0.2	1.1	-	0.2	0.1	0.3	-	-	0.1	0.4	-	0.1						
17b	17b	-	-	-	-	-	-	-	-	-	-	-	-						
18a	18a	0.2	1.1	-	0.2	0.1	0.3	-	-	0.1	0.4	-	0.1						
18b	18b	-	-	-	-	-	-	-	-	-	-	-	-						

Stack No.	Unit No.(s)	Total HAPs		Benzene X HAP or □ TAP		Ethylbenzene 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	
		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
19a	19a	0.2	1.1	-	0.2	0.1	0.3	-	-	0.1	0.4	-	0.1						
19b	19b	-	-	-	-	-	-	-	-	-	-	-	-						
20a	20a	0.2	1.1	-	0.2	0.1	0.3	-	-	0.1	0.4	-	0.1						
20b	20b	-	-	-	-	-	-	-	-	-	-	-	-						
21a	21a	0.2	1.1	-	0.2	0.1	0.3	-	-	0.1	0.4	-	0.1						
21b	21b	-	-	-	-	-	-	-	-	-	-	-	-						
22a	22a	0.2	1.1	-	0.2	0.1	0.3	-	-	0.1	0.4	-	0.1						
22b	22b	-	-	-	-	-	-	-	-	-	-	-	-						
31a	31a	0.2	1.0	-	0.2	0.1	0.3	-	-	0.1	0.4	-	0.2						
31b	31b	-	-	-	-	-	-	-	-	-	-	-	-						
32a	32a	-	-	-	-	-	-	-	-	-	-	-	-						
32b	32b	-	-	-	-	-	-	-	-	-	-	-	-						
33a	33a	-	-	-	-	-	-	-	-	-	-	-	-						
33b	33b	-	-	-	-	-	-	-	-	-	-	-	-						
34a	34a	-	-	-	-	-	-	-	-	-	-	-	-						
34b	34b	-	-	-	-	-	-	-	-	-	-	-	-						
T25, T43, T44, T55,	T25, T43, T44, T55,	-	0.2	-	-	-	-	-	-	-	-	-	-						
F1	F1	-	-	-	-	-	-	-	-	-	-	-	-						
M1	M1	-	0.2	-	-	-	-	-	-	-	0.1	-	-						
Totals:		2.9	13.2	0.3	1.6	0.5	2.2	1.0	4.5	0.7	3.3	0.2	1.0						

Table 2-J: Fuel

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

Unit No.	Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, …)	Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other	Specify Units				
			Lower Heating Value	Hourly Usage	Annual Usage	% Sulfur	% Ash
1	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
3	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
4	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	12.77 mcfh	111.84 mmcfy	--	--
5	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
6	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	12.77 mcfh	111.84 mmcfy	--	--
7	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
8	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
9	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
10	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
11	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
12	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
13	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
14	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	12.77 mcfh	111.84 mmcfy	--	--
15	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	12.77 mcfh	111.84 mmcfy	--	--
16	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
33	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
17b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	429 scfh	3.76 mmcfy	--	--
18b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	429 scfh	3.76 mmcfy	--	--
19b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	429 scfh	3.76 mmcfy	--	--
20b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	429 scfh	3.76 mmcfy	--	--
21b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	429 scfh	3.76 mmcfy	--	--
22b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	429 scfh	3.76 mmcfy	--	--
31b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	617 scfh	5.40 mmcfy	--	--
32b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	617 scfh	5.40 mmcfy	--	--
33b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	617 scfh	5.40 mmcfy	--	--
34b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	617 scfh	5.40 mmcfy	--	--

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

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

Tank No.	SCC Code	Material Name	Composition	Liquid Density (lb/gal)	Vapor Molecular Weight (lb/lb*mol)	Average Storage Conditions		Max Storage Conditions	
						Temperature (°F)	True Vapor Pressure (psia)	Temperature (°F)	True Vapor Pressure (psia)
T-1 thru T-14	40400313	Lube Oil	Lube oil	Exempt and insignificant source					
T-15	40400313	Lube Oil	Lube oil	Exempt and insignificant source					
T-16	31000299	Antifreeze	Water, 50% ethylene glycol	Exempt and insignificant source					
T-17	31000299	Corrosion Inhibitor	Trimethylbenzene, dodecanethiol, naptha, methyl alcohol	Exempt and insignificant source					
T-18 thru T-23	40705218	Triethylene glycol	Triethylene glycol	Exempt and insignificant source					
T-24	31000299	Solvent	Jet kerosene or similar material	Exempt and insignificant source					
T-25	40400315	Produced Water	Water; <1% hydrocarbon liquids	*					
T-26	40400313	Used Oil	Used Lube oil	Exempt and insignificant source					
T-27	40400313	Wastewater	Water; <1% residual oil	Exempt and insignificant source					
T-28 & T-29	40400313	Lube Oil	Lube oil	Exempt and insignificant source					
T-30	40705218	Triethylene glycol	Triethylene glycol	Exempt and insignificant source					
T-34 thru T-40	40705218	Triethylene glycol	Triethylene glycol	Exempt and insignificant source					
T-42	40400313	Wastewater	Water; ~1% residual oil	Exempt and insignificant source					
T-43	40400315	Produced Water	Water; ~1% hydrocarbon liquids	*					
T-44	40400315	Produced Water	Water; ~1% hydrocarbon liquids	*					
T-45 & T-46	40400313	Used Oil	Used lube oil	Exempt and insignificant source					
T-47 & T-48	40705218	Triethylene glycol	Triethylene glycol	Exempt and insignificant source					
T-49	40705218	Triethylene glycol	Triethylene glycol	Exempt and insignificant source					
T-50	40700816	Methanol	Methanol	Exempt and insignificant source					
T-51 & T-52	40400313	Lube Oil	Lube oil	Exempt and insignificant source					
T-55 & T-56	40400315	Produced Water	Water; <1% hydrocarbon liquids	*					
				* The produced water tanks emission calculation methodology does not provide these data.					

Table 2-L: Tank Data

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

Tank No.	Date Installed	Materials Stored	Seal Type (refer to Table 2-LR below)	Roof Type (refer to Table 2-LR below)	Capacity		Diameter (M)	Vapor Space (M)	Color (from Table VI-C)		Paint Condition (from Table VI-C)	Annual Throughput (gal/yr)	Turn-overs (per year)
					(bbl)	(M^3)			Roof	Shell			
T-1 thru T-14		Lube Oil	N/A	FX	12	1.9	Exempt and insignificant source						
T-15		Lube Oil	N/A	FX	100	15.9	Exempt and insignificant source						
T-16		Antifreeze	N/A	FX	12	1.9	Exempt and insignificant source						
T-17		Corrosion Inhibitor	N/A	FX	12	1.9	Exempt and insignificant source						
T-18 thru T-23		Triethylene glycol	N/A	FX	2.4	0.4	Exempt and insignificant source						
T-24		Solvent	N/A	FX	11.9	1.9	Exempt and insignificant source						
T-25		Produced Water	N/A	FX	300	47.7	*						
T-26		Used Oil	N/A	FX	165	26.2	Exempt and insignificant source						
T-27		Wastewater	N/A	FX	165	26.2	Exempt and insignificant source						
T-28 & T-29		Lube Oil	N/A	FX	12	1.9	Exempt and insignificant source						
T-30		Triethylene glycol	N/A	FX	2.4	0.4	Exempt and insignificant source						
T-34 thru T-40		Triethylene glycol	N/A	FX	1.2	0.2	Exempt and insignificant source						
T-42		Wastewater	N/A	FX	18	2.8	Exempt and insignificant source						
T-43		Produced Water	N/A	FX	300	47.7	*						
T-44		Produced Water	N/A	FX	40	6.4	*						
T-45 & T-46		Used Oil	N/A	FX	12	1.9	Exempt and insignificant source						
T-47 & T-48		Triethylene glycol	N/A	FX	3	0.5	Exempt and insignificant source						
T-49		Triethylene glycol	N/A	FX	50	7.9	Exempt and insignificant source						
T-50		Methanol	N/A	FX	12	1.9	Exempt and insignificant source						
T-51 & T-52		Lube Oil	N/A	FX	12	1.9	Exempt and insignificant source						
T-55 & T-56		Produced Water	N/A	FX	300	47.7	*						
							* The produced water tanks emission calculation methodology does not provide these 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 M^3 = 42.0 gal

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

Material Processed				Material Produced			
Description	**Chemical Composition**	**Phase (Gas, Liquid, or Solid)**	**Quantity (specify units)**	**Description**	**Chemical Composition**	**Phase**	**Quantity (specify units)**
Low pressure natural gas	C1-C6+	Gas	Throughput = 358 mmscfd[1]	High pressure natural gas	C1-C6+	Gas	Throughput = 358 mmscfd[1]
Produced water	H2O + trace of HC	Liquid	305,340 gal/yr	Produced water	H2O + trace of HC	Liquid	305,340 gal/yr

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

Table 2-N: CEM Equipment

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

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

Table 2-O: Parametric Emissions Measurement Equipment

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

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

Table 2-P: Green House Gas Emissions

Applications submitted under 20.2.70, 20.2.72, & 20.2.74 NMAC are required to complete this Table. Power plants, Title V major sources, and PSD major sources must report and calculate all GHG emissions for each unit. Applicants must report potential emission rates in short tons per year (see Section 6.a for assistance). Include GHG emissions during Startup, Shutdown, and Scheduled Maintenance in this table. For minor source facilities that are not power plants, are not Title V, or are not PSD, there are three options for reporting GHGs 1) report GHGs for each individual piece of equipment; 2) report all GHGs from a group of unit types, for example report all combustion source GHGs as a single unit and all venting GHG as a second separate unit; OR 3) check the following box: ☐ By checking this box, the applicant acknowledges the total CO2e emissions are less than 75,000 tons per year.

Unit No.		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]					Total GHG Mass Basis ton/yr[4]	Total CO_2e ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**22,800**	**footnote 3**						
1	**mass GHG**	6,185.1	0.0117	0.1166							6185.3	-
	CO_2e	6,185.1	3.5	2.9							-	6191.53
3	**mass GHG**	6,185.1	0.0117	0.1166							6185.3	-
	CO_2e	6,185.1	3.5	2.9							-	6191.5
4	**mass GHG**	6,581.4	0.0124	0.1240							6581.5	-
	CO_2e	6,581.4	3.7	3.1							-	6588.18
5	**mass GHG**	6,185.1	0.0117	0.1166							6185.27	-
	CO_2e	6,185.1	3.5	2.9							-	6191.5
6	**mass GHG**	6,581.4	0.0124	0.1240							6581.52	-
	CO_2e	6,581.4	3.7	3.1							-	6588.2
7	**mass GHG**	6,185.1	0.0117	0.1166							6185.27	-
	CO_2e	6,185.1	3.5	2.9							-	6191.5
8	**mass GHG**	6,185.1	0.0117	0.1166							6185.27	-
	CO_2e	6,185.1	3.5	2.9							-	6191.5
9	**mass GHG**	6,185.1	0.0117	0.1166							6185.3	-
	CO2e	6,185.1	3.5	2.9							-	6191.5
10	**mass GHG**	6,185.1	0.0117	0.1166							6185.3	-
	CO_2e	6,185.1	3.5	2.9							-	6191.5
11	**mass GHG**	6,185.1	0.0117	0.1166							6185.3	-
	CO2e	6,185.1	3.5	2.9							-	6191.5
12	**mass GHG**	6,185.1	0.0117	0.1166							6185.3	-
	CO_2e	6,185.1	3.5	2.9							-	6191.5
13	**mass GHG**	6,581.4	0.0124	0.1240							6581.5	-
	CO2e	6,581.4	3.7	3.1							-	6588.2

Unit No.		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]					Total GHG Mass Basis ton/yr[4]	Total CO_2e ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**22,800**	**footnote 3**						
14	**mass GHG**	6,581.4	0.0124	0.1240							6581.5	-
	CO_2e	6,581.4	3.7	3.1							-	6588.2
15	**mass GHG**	6,185.1	0.0117	0.1166							6185.3	-
	CO2e	6,185.1	3.5	2.9							-	6191.5
16	**mass GHG**	6,185.1	0.0117	0.1166							6185.3	-
	CO_2e	6,185.1	3.5	2.9							-	6191.5
33	**mass GHG**	6,185.1	0.0117	0.1166							6185.3	-
	CO2e	6,185.1	3.5	2.9							-	6191.5
SSM	**mass GHG**	296.9	-	1,422.1	SSM GHG includes compressor and pipeline blowdown emissions and [exempt] pigging emissions.						1719.0	-
	CO_2e	296.9	-	35,551.5							-	35848.4
17a	**mass GHG**	57.82	-	1.22							59.0	-
	CO2e	57.82	-	30.43							-	88.2
17b	**mass GHG**	219.3	4.13E-04	4.13E-03							219.3	-
	CO_2e	219.3	0.12	0.10							-	219.6
18a	**mass GHG**	57.82	-	1.22							59.0	-
	CO2e	57.82	-	30.43							-	88.2
18b	**mass GHG**	219.3	4.13E-04	4.13E-03							219.3	-
	CO2e	219.3	0.12	0.10							-	219.6
19a	**mass GHG**	57.82	-	1.22							59.0	-
	CO2e	57.82	-	30.43							-	88.2
19b	**mass GHG**	219.3	4.13E-04	4.13E-03							219.3	-
	CO2e	219.3	0.12	0.10							-	219.6
20a	**mass GHG**	57.82	-	1.22							59.0	-
	CO2e	57.82	-	30.43							-	88.2
20b	**mass GHG**	219.3	4.13E-04	4.13E-03							219.3	-
	CO2e	219.3	0.12	0.10							-	219.6
21a	**mass GHG**	57.82	-	1.22							59.0	-
	CO2e	57.82	-	30.43							-	88.2
21b	**mass GHG**	219.3	4.13E-04	4.13E-03							219.3	-
	CO2e	219.3	0.12	0.10							-	219.6

Unit No.		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]					Total GHG Mass Basis ton/yr[4]	Total CO_2e ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**22,800**	**footnote 3**						
22a	**mass GHG**	57.82	-	1.22							59.03	-
	CO2e	57.82	-	30.43							-	88.2
22b	**mass GHG**	219.3	4.13E-04	4.13E-03							219.3	-
	CO2e	219.3	0.12	0.10							-	219.6
31a	**mass GHG**	56.3	-	1.18							57.51	-
	CO2e	56.3	-	29.6							-	85.9
31b	**mass GHG**	315.3	5.94E-04	5.94E-03							315.30	-
	CO2e	315.3	0.18	0.15							-	315.6
32a	**mass GHG**	29.1	-	1.23							30.32	-
	CO2e	29.1	-	30.8							-	59.9
32b	**mass GHG**	315.3	5.94E-04	5.94E-03							315.30	-
	CO2e	315.3	0.18	0.15							-	315.6
33a	**mass GHG**	29.1	-	1.23							30.32	-
	CO2e	29.1	-	30.8							-	59.9
33b	**mass GHG**	315.3	5.94E-04	5.94E-03							315.30	-
	CO2e	315.3	0.18	0.15							-	315.6
34a	**mass GHG**	29.1	-	1.23							30.32	-
	CO2e	29.1	-	30.8							-	59.9
34b	**mass GHG**	315.3	5.94E-04	5.94E-03							315.30	-
	CO2e	315.3	0.18	0.15							-	315.6
T43, T44, T55, T56	**mass GHG**	-	-	-							0.0	-
	CO2e	-	-	-							-	0.0
F1	**mass GHG**	221.4	-	1,061.7	F1 SSM includes reciprocating compressor venting, centrifugal compressor venting, pneumatic devices, and pneumatic pumps.						1283.1	-
	CO2e	221.4	-	26,542.3							-	26763.7
M1	**mass GHG**	247.5	-	1,185.2							1432.7	-
	CO2e	247.5	-	29,630.2							-	29877.7
Total[6]	**mass GHG**	104,380.7	1.94E-01	3,683.1							108,064.0	-
	CO_2e	104,380.7	57.9	92,077.1							-	196,515.7

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

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

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

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

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

Section 3

Application Summary

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

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

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

Application Summary

The Harvest 31-6 CDP is currently authorized under Construction Permit 1031-M9, dated October 30, 2011 as administratively revised through -R13. The facility also operates under Title V Operating permit P027-R5, dated December 15, 2022.

Equipment currently approved for construction and use at the facility is listed in Tables 2-A, 'Regulated Sources' and Table 2-B, 'Insignificant Activities1 (20.2.70 NMAC) OR Exempted Equipment (20.2.72 NMAC') of Section 2 of this application. Unless noted, all regulated emissions from the currently permitted equipment and sources are brought forward from the most current Construction and/or Title V permit. A calculated emission rate that is lower than the currently permitted emission rate in Table 2-E is a demonstration of compliance with the permitted emission rate.

As of August 5, 2022, certain existing and previously unregulated emission sources are now subject to the requirements of 20.2.50 NMAC. The newly-regulated equipment are included in Table 2-A regardless of whether 20.2.50 NMAC imposes emission limits on the source.

Currently, there are sixteen permitted Waukesha 7042 GL engines at the facility, eight (8) of which are equipped with emission controls. The facility is permitted for five (5) 12 million cubic feet per day (MMCFD) triethylene glycol (TEG) dehydrators and one (1) 30 MMCFD TEG dehydrator to remove moisture from the pipeline natural gas.

This application includes the following modifications:

- Replace four (4) of the facility's permitted four-stroke, lean burn (4SLB) engines with 4 four-stroke, rich burn (4SRB) engines, each equipped with a three-way catalyst for emissions control (units 4, 6, 13 and 14). The purpose of the controls is to meet the emission requirements of 20.2.50 NMAC;

- In addition to the currently controlled 4SLB RICE, add oxidation catalyst emission controls to the remaining permitted 4SLB RICE that are not already required to be equipped with a catalyst; and

- Add three (3) 30MMCFD TEG dehydrators (units 32, 33, and 34). The 3 new dehydrators will handle a different gas stream than those currently handled at the facility. The new dehydrators may each operate at up to 50 MMCFD of natural gas throughput.

The controlled 4SRB RICE and the newly-controlled 4SLB RICE will emit air pollutants below the current permitted emissions for the RICE.

This application is being submitted under 20.2.72.219.D(1) NMAC for a Significant Revision to the facility's construction permit,

An air quality dispersion modeling analysis is included in the application, and demonstrates the emissions resulting from the proposed modifications will not exceed air quality standards.

There are no revisions or modifications to the permit contained in this application that de-bottleneck impacts or change the facility's major/minor status under the Title V Operating Permits program. However, the proposed modifications *do* result in reductions of criteria pollutant emissions that change the facility's status from a major source under the Prevention of Significant Deterioration (PSD) permitting program to a Synthetic Minor source under PSD.

Process Description

A brief summary of facility operations is outlined in Section 10 of this application.

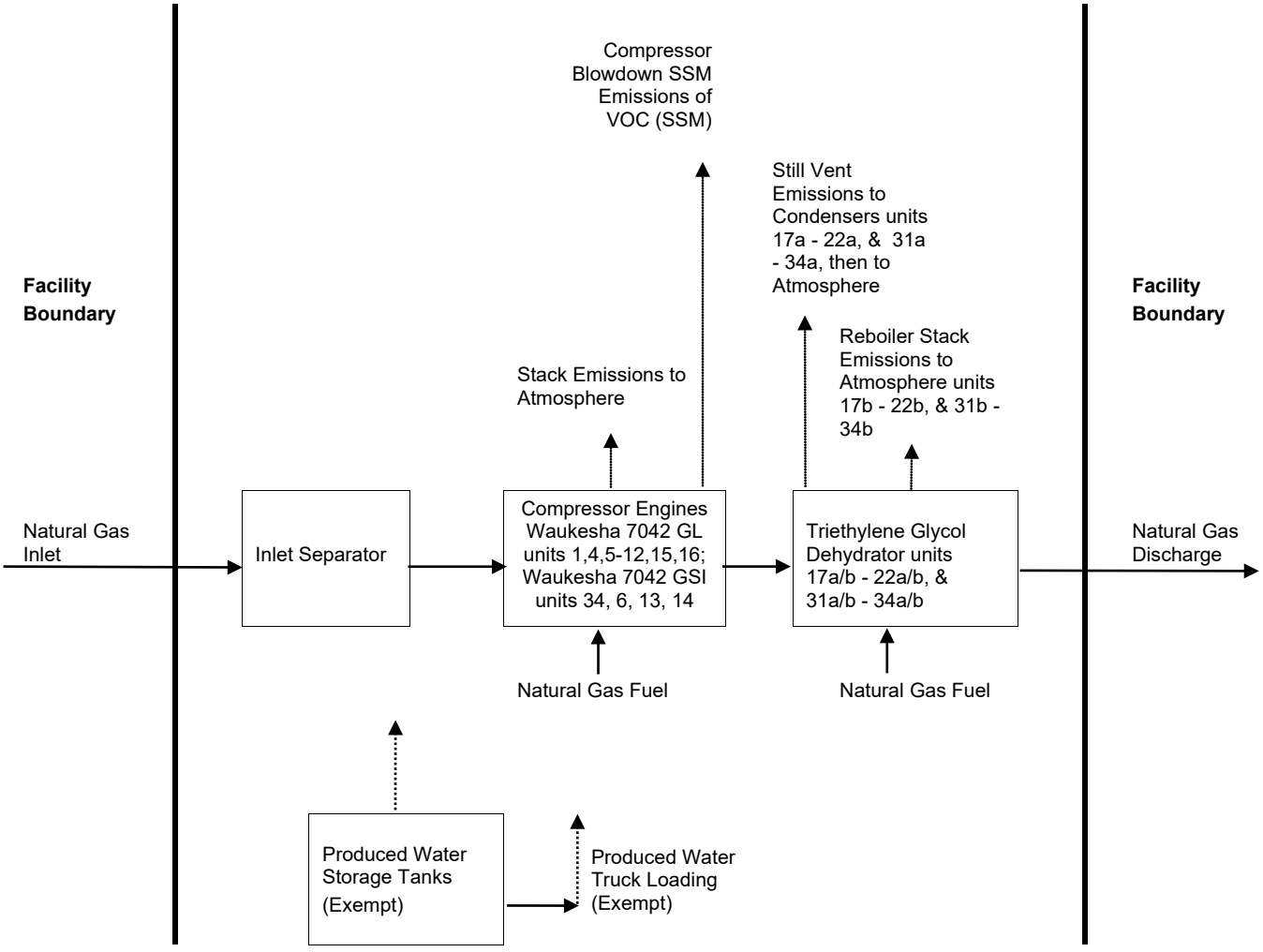
Startup, Shutdown and Maintenance Emissions

Except for the emissions from blowdown events (described below), it is concluded there are no SSM emissions in excess of those identified for steady-state operation as seen in Table 2-E of Section 2. Discussions justifying this conclusion are provided in Section 6.

Section 4

Process Flow Sheet

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



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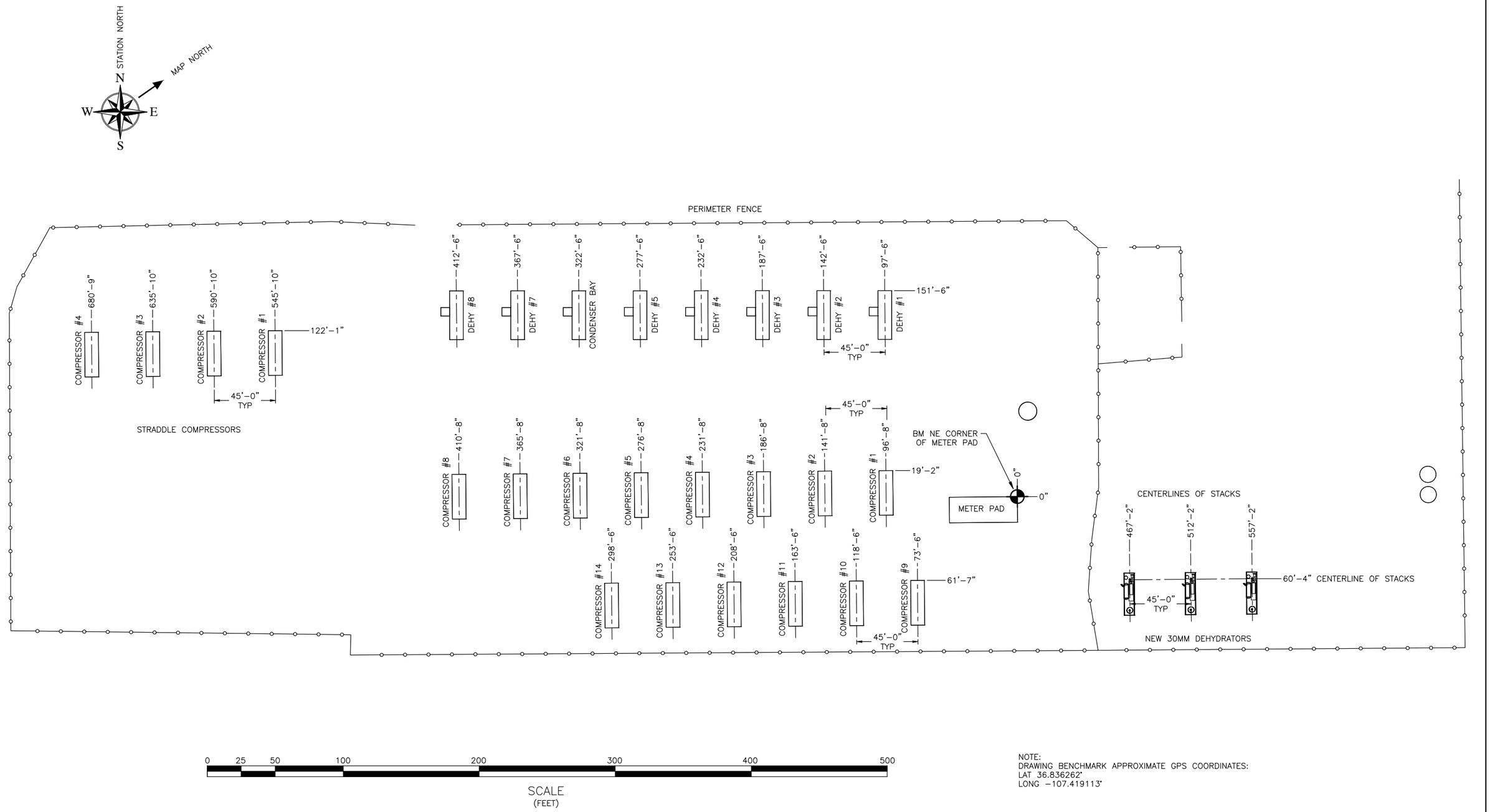
Section 5

Plot Plan Drawn To Scale

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

Please see the following page(s).



NOTE:
DRAWING BENCHMARK APPROXIMATE GPS COORDINATES:
LAT 36.836262°
LONG −107.419113°

NOTES:

DRAWING NO.	TITLE
..	..
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REFERENCE DRAWINGS

REV	DRAWN BY	DATE REVISED	CHECKED BY	PROJECT ENG.	APPROVED BY

REVISIONS

HARVEST MIDSTREAM

H4C Office
1755 Arroyo Drive
Bloomfield, NM 87413

31-6 COMPRESSOR STATION
LOCATION OF PROPOSED
30MM DEHYDRATORS

SAN JUAN — NEW MEXICO

DRAWN BY	T. GOOSSEN	SCALE: AS NOTED	A.F.E.:
CHECKED BY	D.J.		
PROJECT ENG.	D.J.		
APPROVED BY			
DATE ISSUED	1/25/2023		

316-30MM-LOCATION

0

Section 6

All Calculations

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

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

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

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

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

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

Significant Figures:

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

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

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

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

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

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

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

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

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

Engines

The NO_2, CO, and VOC emissions from the uncontrolled 4-stroke, lean burn (4SLB) engines were calculated from manufacturer's data. The controlled CO and VOC emission calculations for 4SLB engines equipped with catalytic converters apply the representative manufacturer's catalyst CO and VOC control efficiencies to the uncontrolled emissions. NO_X emissions are not controlled by catalytic converters on 4SLB engines. The SO_2 and particulate emissions were calculated using AP-42 emission factors from Table 3.2-2.

The NO_2, CO, and VOC emissions from the uncontrolled 4-stroke, rich burn (4SRB) engines were calculated from manufacturer's data. Controlled NO_2 and CO are calculated from 20.2.50.113 NMAC Table 2 maximum allowed emission factors for new 4SRB engines greater than 500 bhp-hr. The controlled VOC emissions were calculated from a representative three-way catalyst manufacturer's emission factor for controlled engines. The control efficiencies of the controlled emissions were back-calculated relative to the uncontrolled emissions.

HAP emissions for all of the engines were calculated using GRI-HAPCalc 3.1. The emissions were calculated assuming each engine operates at full site capacity for 8,760 hours per year. The back-calculated control efficiencies were applied to the uncontrolled HAP emissions.

Each engine starts up with no load and a rich fuel mixture. As a result, emissions are minimized. Because the engine takes only minutes to reach the operating temperature of the engine and effective temperature of the emission control catalyst, 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.

SSM from Compressors and Piping Blowdowns

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.

Dehydrator Still Vents

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

The still vent emissions of each existing dehydrator (units 17 - 22, and 31) are routed to one of four centralized condensers at the facility that handles still vent emissions from multiple dehydrators. The condensers collect the vented regenerator vapors and function as a “knock-out drum” to allow condensable water and hydrocarbon liquids to drop out of the non-condensable still vent emissions stream. The liquid is then routed to a tank for storage and subsequent removal. The non-condensable still vent emissions are released directly to atmosphere. The efficacy of the system for emission control is considered relatively low and is therefore represented as “uncontrolled” still vent emissions in the GLYCalc emission calculations.

The flash tank emissions from the dehydrators will be routed to the reboilers for combustion.

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

The emission calculations for the three (3) new 30 mmcfd TEG dehydrators (units 32a, 33a, and 34a) are based on a representative gas (with a separate gas inlet relative to the remainder of the facility) at a 50 mmcfd processing rate. The emission rates in Table 2-E (Requested Allowable Emissions) are greater

than the calculated emission rates as they include a safety factor to allow for fluctuations in the composition of the natural gas stream that handled by the three new dehydrators.

Dehydrator Reboilers

The NO_X and CO emission factors for the reboilers were identified from an Enertek letter dated August 19, 1994. The VOC and SO_2 emission factors were identified from an InFab letter dated July 22, 1998. The particulate and lead emissions were calculated using AP-42 emission factors from Table 1.4-2. HAP emissions were calculated using GRI-HAPCalc 3.1. All emissions were calculated assuming each reboiler operates 8,760 hours per year.

The dehydrator reboilers (uncontrolled) 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, causing the continued formation of NO_X. Even so, with no fuel, NO_X formation should be less than during steady-state operation. Emissions due to scheduled maintenance are negligible as the units are not in operation.

As previously indicated, three (3) new 30 mmcfd TEG dehydrators are proposed including their associated reboilers. The new reboilers are each rated at 550 MBtu/hr. No modifications are proposed for the permitted seven (7) existing dehydrator reboilers or their operation.

Storage Tanks

VOC and HAP emissions from the four (4) produced water storage tanks were calculated using emission factors from the Colorado Department of Public Health and Environment (CDPHE) and the Texas Commission on Environmental Quality (TCEQ) applied to the total maximum annual facility throughput of produced water. Using this calculation method, the VOC emission rate is now estimated at more than 0.5 tpy; therefore, the produced water storage tank(s) are no longer an NSR exempt source under 20.2.72.202.B(5) NMAC, and have been included in Table 2-A, Regulated Equipment. (However, it is noted the calculated VOC emissions are less than 1 tpy and therefore remain insignificant under the Title V Insignificant Activities List, Item #1 for Title V permitting purposes.) The facility is not a "Produced Water Management Unit" as defined under 20.2.50 NMAC.

As needed to demonstrate exemption based on 20.2.72.202.B(5) NMAC (and/or the Insignificant emissions criterion of the Title V Insignificant Activities List, Item #1), storage tank working/breathing losses were calculated using TANKS 4.0.d.9. Exemption and/or insignificance based on low vapor pressure of the stored contents (20.2.72.202.B(2) NMAC and/or Title V Insignificant Activities List, Item #5) does not require an emission calculation.

The following assumptions were applied:

- 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, tanks containing lubrication oil are NSR exempt sources under 20.2.72.202.B(2) NMAC and Title V insignificant sources in accordance with Insignificant Activity Item #5.

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

- Ambitrol (corrosion inhibitor) is an inhibited ethylene or propylene glycol coolant containing ethylene or propylene glycol, water and less than 5% dipotassium hydrogen phosphate. As the vapor pressures of ethylene glycol and propylene glycol are less than 0.2 psia, tanks containing Ambitrol are exempt sources under 20.2.72.202.B(2) NMAC and insignificant sources in accordance with Insignificant Activity List Item #5.

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

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

- The wastewater captured and stored at the facility is assumed to be 1% residual oil and 99% water. As the vapor pressure of residual oil is less than 0.2 psia, tanks containing wastewater are exempt sources under 20.2.72.202.B(2) NMAC and Title V insignificant sources in accordance with Insignificant Activity List Item #5;

- The composition of methanol from the TANKS chemical database was used to calculate the VOC emissions from methanol storage tank. The methanol tank is exempt under 20.2.72.202.B(5) NMAC and insignificant in accordance with Title V Insignificant Activity List Item #1.a.

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.

Aside from the possible addition of TEG storage for the new dehydrators, no other changes are being made to the storage tanks or their operation.

Truck Loading (Produced Water)

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

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

The produced water truck loading is 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.

Pig Receiver

VOC and HAP emissions from the pig receiver were calculated from the quantity of gas vented during each event, the composition of the gas, and the number of events. The quantity of gas vented during each event was determined by Harvest engineering. The composition of the gas was determined from a recent extended gas analysis. The annual number of blowdown events were estimated based on historical operations. A safety factor was added because VOC and HAP 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. Experience indicates there will be a nominal variation in the composition of the gas.

Due to the nature of the source, it is estimated that SSM emissions from the pig launchers and receivers are already accounted for in the calculations.

Based on calculated VOC emissions of less than 0.5 tpy, the pig receiver is exempt under 20.2.72.202.B(5) NMAC and insignificant in accordance with Title V Insignificant Activity List Item #1.a.

Equipment Leak Emissions

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

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

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 release). 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 that these malfunction emissions include the venting of gas only, not combustion emissions.

Engine Exhaust Emissions Data and Calculations

Unit Number: 1, 3, 5, 7, 8, 9, 10, 11, 12, 15, 16, & 33
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

6,410	ft above MSL	Elevation	
1,478	hp	Nameplate hp	Mfg. data
1,371	hp	NMAQB Site-rated hp	NMAQB Procedure # 02.002-00 (loss of 3% for every 1,000 ft over 4,000 ft)
1,333	hp	Mfg. Site-rated hp	Mfg. product bulletin Power Derate, S8154-6, April 2001 (loss of 2% for every 1,000 ft over 1,500 ft)

Engine Specifications

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

Fuel Consumption

7366	Btu/hp-hr	Brake specific fuel consumption	Mfg. data
10.10	MMBtu/hr	Hourly fuel consumption	Btu/hp-hr x NMAQB site-rated hp / 1,000,000
900	Btu/scf	Field gas heating value	Nominal heat content
11,223	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC
88,479	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
98.31	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	Uncontrolled Emission Rates, tpy	20.2.50 NMAC Reqmt (Table 1) g/hp-hr	Complies with 20.2.50 NMAC Reqmts?
NOX	0.90	2.72	11.92	2.0	**Yes**
CO	2.65	8.01	35.09	0.6	No
VOC	1.00	3.02	13.24	0.7	No

Pollutants	Control Efficiencies, %	Controlled Emission Rates, pph	Controlled Emission Rates, tpy	Back-calculated Controlled Emissions, g/hp-hr	Complies with 20.2.50 NMAC Reqmts?
NOX	- -	- -	- -	- -	- -
CO	93	0.56	2.46	0.19	**Yes**
VOC	80	0.60	2.65	0.20	**Yes**

Emission factors taken from Waukesha Bulletin 7005 0107
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
Control efficiencies taken based on catalyst manufacturer data sheet.
Controlled Emission Rates (pph) = Uncontrolled Emission Rates (pph) x (1 - (% / 100))
Controlled Emission Rates (tpy) = Uncontrolled Emission Rates (tpy) x (1 - (% / 100))

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates, pph	Uncontrolled Emission Rates, tpy
SO2	5.88E-04	5.94E-03	2.60E-02
PM	9.99E-03	1.01E-01	4.42E-01
PM10	9.99E-03	1.01E-01	4.42E-01
PM2.5	9.99E-03	1.01E-01	4.42E-01

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

Exhaust Parameters

702	°F		Stack exit temperature	Mfg. data
7628	acfm	127.1	Stack flowrate	Mfg. data
1.02	ft		Stack exit diameter	Harvest Four Corners, LLC
0.82	ft^2		Stack exit area	3.1416 x ((ft / 2) ^2)
155.32	fps		Stack exit velocity	acfm / ft^2 / 60 sec/min
27.00	ft		Stack height	Harvest Four Corners, LLC

GRI-HAPCalc ® 3.01
Engines Report

Facility ID:	**31-6 CDP**	**Notes:**	**4SLB natural gas fired RICE Site rated at 1,371 hp**
Operation Type:	**COMPRESSOR STATION**		
Facility Name:	**31-6 CENTRAL DELIVERY POINT**		
User Name:	**Cirrus**		
Units of Measure:	**U.S. STANDARD**		

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

Engine Unit

Unit Name: 7042GL

Hours of Operation:	8,760	Yearly
Rate Power:	1,371	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)

Chemical Name	Emissions	Emission Factor	Emission Factor Set
HAPs			
Formaldehyde	2.2261	0.16830000 g/bhp-hr	GRI Literature
Benzene	0.0688	0.00520000 g/bhp-hr	GRI Literature
Toluene	0.0278	0.00210000 g/bhp-hr	GRI Literature
Xylenes(m,p,o)	0.0185	0.00140000 g/bhp-hr	GRI Literature
Total	2.3412		

Engine Exhaust Emissions Data and Calculations

Unit Number: 4, 6, 13, & 14
Description: Waukesha L7042GL
Type: Four Stroke Rich Burn (Turbocharged)

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

Horsepower Calculations

6,410 ft above MSL	Elevation	
1,480 hp	Nameplate hp	Mfg. data
1,373 hp	NMAQB Site-rated hp	NMAQB Procedure # 02.002-00 (loss of 3% for every 1,000 ft over 4,000 ft)
1,468 hp	Mfg. Site-rated hp	Mfg. product bulletin Power Derate, S8154-6, April 2001 (loss of 2% for every 1,000 ft over 1,500 ft)

Engine Specifications

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

Fuel Consumption

7828 Btu/hp-hr	Brake specific fuel consumption	Mfg. data
11.490 MMBtu/hr	Hourly fuel consumption	Btu/hp-hr x Mfg. site-rated hp / 1,000,000
900 Btu/scf	Field gas heating value	Nominal heat content
12,767 scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760 hr/yr	Annual operating time	Harvest Four Corners, LLC
100,652 MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
111.836 MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000

Steady-State Emission Rates

Pollutants	Uncontrolled Emission Factors, g/hp-hr	Uncontrolled Emission Rates, pph	Uncontrolled Emission Rates, tpy	20.2.50 NMAC Reqmt (Table 1) g/hp-hr	Complies with 20.2.50 NMAC Reqmts?
NOX	13.00	42.07	184.26	0.50	No
CO	9.00	29.12	127.57	0.60	No
VOC	0.15	0.49	2.13	0.70	**Yes**

Pollutants	Controlled Emission Factors, g/hp-hr	Controlled Emission Rates, pph	Controlled Emission Rates, tpy	Back-calculated Control Efficiencies, %	Complies with 20.2.50 NMAC Reqmts?
NOX	0.50	1.62	7.09	96.2	**Yes**
CO	0.60	1.94	8.50	93.3	**Yes**
VOC	- -	- -	- -	- -	- -

Uncontrolled NOX, CO & VOC emissions taken from Waukesha 'Environmental 9' VHP (carburetor settings for a 3-way catalyst).
Uncontrolled Emission Rates (pph) = g/hp-hr x Mfg. Site-rated hp / 453.59 g/lb
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton
Controlled NOX & CO emission factors based on 20.2.50.113 NMAC, Table 2 requirements for a new 4SRB engine >500 bhp-hr.
Controlled Emission Rates (pph) = Controlled Emission Factor g/hp-hr x NMAQB Site-rated hp / 453.59 g/lb
Controlled Emission Rates (tpy) = Controlled Emission Rates (pph) x hr/yr / 2,000 lb/ton
Control efficiencies % = (1 - (Controlled lb/hr / Uncontrolled lb/hr)) x 100

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates, pph	Uncontrolled Emission Rates, tpy
SO2	5.88E-04	6.76E-03	2.96E-02
PM	1.94E-02	2.23E-01	9.77E-01
PM10	1.94E-02	2.23E-01	9.77E-01
PM2.5	1.94E-02	2.23E-01	9.77E-01

Emission factors taken from AP-42, Table 3.2-3
Particulate factors include both filterable and condensible emissions
Uncontrolled Emission Rates (pph) = lb/MMBtu x MMBtu/hr
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Exhaust Parameters

1125 °F		Stack exit temperature	Mfg. data
6947 acfm	115.8	Stack flowrate	Mfg. data
1.02 ft		Stack exit diameter	Harvest Four Corners, LLC
0.82 ft^2		Stack exit area	3.1416 x ((ft / 2) ^2)
141.70 fps		Stack exit velocity	acfm / ft^2 / 60 sec/min
27.00 ft		Stack height	Harvest Four Corners, LLC

GRI-HAPCalc ® 3.01
Engines Report

Facility ID:	**31-6 CDP**	**Notes:**	**4SRB natural gas fired RICE Site rated at 1,373 hp**
Operation Type:	**COMPRESSOR STATION**		
Facility Name:	**31-6 CENTRAL DELIVERY POINT**		
User Name:	**Cirrus**		
Units of Measure:	**U.S. STANDARD**		

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

Engine Unit

Unit Name: 7042 GSI

Hours of Operation:	8,760	Yearly
Rate Power:	1,373	hp
Fuel Type:	FIELD GAS	
Engine Type:	4-Stroke, Rich Burn	
Emission Factor Set:	EPA > FIELD > LITERATURE	
Additional EF Set:	-NONE-	

Calculated Emissions (ton/yr)

Chemical Name	Emissions	Emission Factor	Emission Factor Set
HAPs			
Formaldehyde	0.5548	0.04188340 g/bhp-hr	GRI Field
Methanol	0.0883	0.00666670 g/bhp-hr	GRI Field
Benzene	0.2927	0.02210000 g/bhp-hr	GRI Field
Toluene	0.0940	0.00710000 g/bhp-hr	GRI Field
Xylenes(m,p,o)	0.0225	0.00170000 g/bhp-hr	GRI Field
Naphthalene	0.0036	0.00027540 g/bhp-hr	GRI Field
2-Methylnaphthalene	0.0007	0.00005050 g/bhp-hr	GRI Field
Acenaphthylene	0.0003	0.00001890 g/bhp-hr	GRI Field
Acenaphthene	0.0001	0.00001090 g/bhp-hr	GRI Field
Fluorene	0.0002	0.00001720 g/bhp-hr	GRI Field
Dibenzofuran	0.0001	0.00000570 g/bhp-hr	GRI Field
Anthracene	0.0001	0.00000400 g/bhp-hr	GRI Field
Phenanthrene	0.0004	0.00003210 g/bhp-hr	GRI Field
Fluoranthene	0.0002	0.00001260 g/bhp-hr	GRI Field
Pyrene	0.0001	0.00000860 g/bhp-hr	GRI Field
Benz(a)anthracene	0.0000	0.00000180 g/bhp-hr	GRI Field
Chrysene	0.0000	0.00000220 g/bhp-hr	GRI Field
Benzo(a)pyrene	0.0000	0.00000040 g/bhp-hr	GRI Field
Benzo(b)fluoranthene	0.0000	0.00000220 g/bhp-hr	GRI Field
Benzo(k)fluoranthene	0.0000	0.00000220 g/bhp-hr	GRI Field
Benzo(g,h,i)perylene	0.0000	0.00000070 g/bhp-hr	GRI Field
Indeno(1,2,3-c,d)pyrene	0.0000	0.00000050 g/bhp-hr	GRI Field
Dibenz(a,h)anthracene	0.0000	0.00000020 g/bhp-hr	GRI Field
Total	1.0581		

Criteria Pollutants

CO	120.3211	9.08349210	g/bhp-hr	GRI Field
NMEHC	3.4966	0.26396820	g/bhp-hr	GRI Field
NOx	99.6976	7.52654670	g/bhp-hr	GRI Field

Other Pollutants

Methane	12.9812	0.98000000	g/bhp-hr	GRI Field
Ethylene	1.6778	0.12666670	g/bhp-hr	GRI Field
Ethane	4.0621	0.30666670	g/bhp-hr	GRI Field
Propylene	0.3179	0.02400000	g/bhp-hr	GRI Field
Propane	1.2716	0.09600000	g/bhp-hr	GRI Field

Compressor Blowdown Emissions Calculations

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

Throughput

16	# of units	Number of units	Harvest Four Corners, LLC
465	events/yr/unit	Blowdowns per year per unit	Harvest Four Corners, LLC
9,865	scf/event	Gas loss per blowdown	Harvest Four Corners, LLC
73,395,600	scf/yr	Annual gas loss	# of units x events/yr/unit x scf/ever

Emission Rates

Pollutants	Emission Factors, lb/scf	Uncontrolled, Emission Rates, tpy
VOC	3.269E-04	12.00
Benzene	6.682E-07	2.45E-02
Ethylbenzene	1.362E-06	5.00E-02
n-Hexane	2.396E-06	8.79E-02
2,2,4-Trimethlypentane (Isooctane)	2.143E-07	7.87E-03
Toluene	1.774E-06	6.51E-02
Xylene	4.541E-07	1.67E-02

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	6.9735	44.01	8.089E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.1239	28.01	9.150E-05
Methane	91.6392	16.04	3.874E-02
Ethane	1.0173	30.07	8.063E-04
Propane	0.1748	44.09	2.032E-04
Isobutane	0.0243	58.12	3.729E-05
n-Butane	0.0236	58.12	3.612E-05
Isopentane	0.0092	72.15	1.744E-05
n-Pentane	0.0040	72.15	7.561E-06
Cyclopentane	0.0002	70.14	3.000E-07
n-Hexane	0.0011	86.17	2.396E-06
Cyclohexane	0.0004	84.16	9.000E-07
Other hexanes	0.0023	86.18	5.161E-06
Heptanes	0.0011	100.20	2.786E-06
Methylcyclohexane	0.0011	98.19	2.940E-06
2,2,4-Trimethlypentane (Isooctane)	0.0001	100.21	2.143E-07
Benzene	0.0003	78.11	6.682E-07
Toluene	0.0007	92.14	1.774E-06
Ethylbenzene	0.0005	106.17	1.362E-06
Xylenes	0.0002	106.17	4.541E-07
C8+ Heavies	0.0022	110.00	6.352E-06
Total	99.9999		
Total VOC			3.269E-04

The gas stream composition is based on the blended 31-6 CDP & 31-6 Straddle Suction gas analyses sampled 11/30/20
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: 31-6 EU17-22 12mm PTE Gas 2022-11-30 rev02
File Name: C:\Users\Lisa\Documents\0 CIRRUS\0 0 PERMIT APPLICATIONS\0 New Mexico\0 Harvest Four Corners\0 0 0 0 31-6\00 NSR\0 2023-04 (ADD DEHYS & 4SRB)\Analysis & Info\GLYCalc\Rev02\31-6 EU17-22 12mm PTE Gas 2022-11-30 Rev02.ddf
Date: April 10, 2023

DESCRIPTION:

Description: 31-6 EUs 17-22 (slots1-6) 12mmcd dehys PTE Condenser; 2022-11-30 gas blend, 2022 Avg DPT parameters

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 88.10 deg. F
Pressure: 356.20 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	6.9735
Nitrogen	0.1239
Methane	91.6392
Ethane	1.0173
Propane	0.1748
Isobutane	0.0243
n-Butane	0.0236
Isopentane	0.0092
n-Pentane	0.0040
Cyclopentane	0.0002
n-Hexane	0.0011
Cyclohexane	0.0004
Other Hexanes	0.0023
Heptanes	0.0011
Methylcyclohexane	0.0011
2,2,4-Trimethylpentane	0.0001
Benzene	0.0003
Toluene	0.0007
Ethylbenzene	0.0005
Xylenes	0.0002
C8+ Heavies	0.0022

DRY GAS:

Flow Rate: 12.0 MMSCF/day
Water Content: 4.2 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 3.5 gpm

PUMP:

Glycol Pump Type: Gas Injection
Gas Injection Pump Volume Ratio: 0.130 acfm gas/gpm glycol

FLASH TANK:

Flash Control: Recycle/recompression
Temperature: 76.0 deg. F
Pressure: 30.3 psig

REGENERATOR OVERHEADS CONTROL DEVICE:

Control Device: Condenser
Temperature: 100.0 deg. F
Pressure: 11.7 psia

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: 31-6 EU17-22 12mm PTE Gas 2022-11-30 rev02
File Name: C:\Users\Lisa\Documents\0 CIRRUS\0 0 PERMIT APPLICATIONS\0 New Mexico\0 Harvest Four Corners\0 0 0 0 31-6\00 NSR\0 2023-04 (ADD DEHYS & 4SRB)\Analysis & Info\GLYCalc\Rev02\31-6 EU17-22 12mm PTE Gas 2022-11-30 Rev02.ddf
Date: April 10, 2023

DESCRIPTION:

Description: 31-6 EUs 17-22 (slots1-6) 12mmcd dehys PTE
Condenser; 2022-11-30 gas blend,
2022 Avg DPT parameters

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.2777	6.664	1.2162
Ethane	0.0295	0.707	0.1290
Propane	0.0225	0.541	0.0987
Isobutane	0.0083	0.199	0.0363
n-Butane	0.0125	0.300	0.0547
Isopentane	0.0076	0.183	0.0333
n-Pentane	0.0048	0.115	0.0210
Cyclopentane	0.0015	0.035	0.0064
n-Hexane	0.0036	0.086	0.0157
Cyclohexane	0.0069	0.167	0.0304
Other Hexanes	0.0051	0.123	0.0225
Heptanes	0.0088	0.212	0.0387
Methylcyclohexane	0.0244	0.586	0.1069
2,2,4-Trimethylpentane	0.0003	0.008	0.0015
Benzene	0.0438	1.050	0.1917
Toluene	0.1027	2.465	0.4498
Ethylbenzene	0.0698	1.675	0.3057
Xylenes	0.0295	0.707	0.1290
C8+ Heavies	0.0018	0.044	0.0080
Total Emissions	0.6611	15.866	2.8955
Total Hydrocarbon Emissions	0.6611	15.866	2.8955
Total VOC Emissions	0.3540	8.495	1.5503
Total HAP Emissions	0.2496	5.991	1.0934
Total BTEX Emissions	0.2457	5.897	1.0762

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.2779	6.670	1.2172
Ethane	0.0295	0.709	0.1293
Propane	0.0227	0.546	0.0996
Isobutane	0.0084	0.202	0.0369
n-Butane	0.0128	0.307	0.0561

Isopentane	0.0081	0.195	0.0355
n-Pentane	0.0052	0.124	0.0226
Cyclopentane	0.0017	0.040	0.0072
n-Hexane	0.0043	0.104	0.0190
Cyclohexane	0.0092	0.221	0.0402
Other Hexanes	0.0059	0.142	0.0259
Heptanes	0.0139	0.334	0.0610
Methylcyclohexane	0.0400	0.959	0.1751
2,2,4-Trimethylpentane	0.0005	0.013	0.0023
Benzene	0.0617	1.482	0.2704
Toluene	0.2622	6.293	1.1484
Ethylbenzene	0.3135	7.523	1.3730
Xylenes	0.1572	3.773	0.6886
C8+ Heavies	0.3542	8.502	1.5516
Total Emissions	1.5891	38.137	6.9601
Total Hydrocarbon Emissions	1.5891	38.137	6.9601
Total VOC Emissions	1.2816	30.759	5.6136
Total HAP Emissions	0.7995	19.188	3.5017
Total BTEX Emissions	0.7946	19.071	3.4804

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	28.1886	676.526	123.4660
Ethane	0.7015	16.837	3.0727
Propane	0.2116	5.079	0.9270
Isobutane	0.0449	1.078	0.1968
n-Butane	0.0488	1.171	0.2137
Isopentane	0.0244	0.586	0.1069
n-Pentane	0.0117	0.282	0.0514
Cyclopentane	0.0010	0.023	0.0042
n-Hexane	0.0047	0.112	0.0205
Cyclohexane	0.0025	0.060	0.0109
Other Hexanes	0.0089	0.214	0.0391
Heptanes	0.0062	0.150	0.0273
Methylcyclohexane	0.0074	0.178	0.0326
2,2,4-Trimethylpentane	0.0005	0.012	0.0023
Benzene	0.0017	0.041	0.0074
Toluene	0.0040	0.096	0.0175
Ethylbenzene	0.0024	0.057	0.0104
Xylenes	0.0008	0.019	0.0034
C8+ Heavies	0.0217	0.520	0.0949
Total Emissions	29.2934	703.041	128.3050
Total Hydrocarbon Emissions	29.2934	703.041	128.3050
Total VOC Emissions	0.4033	9.679	1.7663
Total HAP Emissions	0.0140	0.337	0.0615
Total BTEX Emissions	0.0088	0.212	0.0387

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.2777	6.664	1.2162
Ethane	0.0295	0.707	0.1290
Propane	0.0225	0.541	0.0987
Isobutane	0.0083	0.199	0.0363
n-Butane	0.0125	0.300	0.0547
Isopentane	0.0076	0.183	0.0333
n-Pentane	0.0048	0.115	0.0210
Cyclopentane	0.0015	0.035	0.0064
n-Hexane	0.0036	0.086	0.0157
Cyclohexane	0.0069	0.167	0.0304
Other Hexanes	0.0051	0.123	0.0225
Heptanes	0.0088	0.212	0.0387
Methylcyclohexane	0.0244	0.586	0.1069
2,2,4-Trimethylpentane	0.0003	0.008	0.0015
Benzene	0.0438	1.050	0.1917
Toluene	0.1027	2.465	0.4498
Ethylbenzene	0.0698	1.675	0.3057
Xylenes	0.0295	0.707	0.1290
C8+ Heavies	0.0018	0.044	0.0080
Total Emissions	0.6611	15.866	2.8955
Total Hydrocarbon Emissions	0.6611	15.866	2.8955
Total VOC Emissions	0.3540	8.495	1.5503
Total HAP Emissions	0.2496	5.991	1.0934
Total BTEX Emissions	0.2457	5.897	1.0762

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Methane	124.6832	1.2162	99.02
Ethane	3.2020	0.1290	95.97
Propane	1.0266	0.0987	90.39
Isobutane	0.2337	0.0363	84.49
n-Butane	0.2698	0.0547	79.73
Isopentane	0.1425	0.0333	76.62
n-Pentane	0.0740	0.0210	71.58
Cyclopentane	0.0115	0.0064	44.14
n-Hexane	0.0395	0.0157	60.26
Cyclohexane	0.0511	0.0304	40.51
Other Hexanes	0.0651	0.0225	65.42
Heptanes	0.0883	0.0387	56.14
Methylcyclohexane	0.2077	0.1069	48.50
2,2,4-Trimethylpentane	0.0046	0.0015	67.56
Benzene	0.2778	0.1917	31.02
Toluene	1.1659	0.4498	61.42
Ethylbenzene	1.3835	0.3057	77.90
Xylenes	0.6920	0.1290	81.36
C8+ Heavies	1.6464	0.0080	99.52
Total Emissions	135.2651	2.8955	97.86
Total Hydrocarbon Emissions	135.2651	2.8955	97.86
Total VOC Emissions	7.3799	1.5503	78.99

Total HAP Emissions	3.5632	1.0934	69.31
Total BTEX Emissions	3.5192	1.0762	69.42

EQUIPMENT REPORTS:

CONDENSER

Condenser Outlet Temperature:	100.00 deg. F
Condenser Pressure:	11.70 psia
Condenser Duty:	4.03e-002 MM BTU/hr
Hydrocarbon Recovery:	0.07 bbls/day
Produced Water:	3.07 bbls/day
VOC Control Efficiency:	72.38 %
HAP Control Efficiency:	68.78 %
BTEX Control Efficiency:	69.08 %
Dissolved Hydrocarbons in Water:	271.40 mg/L

Component	Emitted	Condensed
Water	0.24%	99.76%
Carbon Dioxide	98.73%	1.27%
Nitrogen	99.94%	0.06%
Methane	99.92%	0.08%
Ethane	99.78%	0.22%
Propane	99.06%	0.94%
Isobutane	98.17%	1.83%
n-Butane	97.53%	2.47%
Isopentane	93.79%	6.21%
n-Pentane	93.01%	6.99%
Cyclopentane	88.58%	11.42%
n-Hexane	82.51%	17.49%
Cyclohexane	75.59%	24.41%
Other Hexanes	86.72%	13.28%
Heptanes	63.51%	36.49%
Methylcyclohexane	61.07%	38.93%
2,2,4-Trimethylpentane	64.22%	35.78%
Benzene	70.88%	29.12%
Toluene	39.17%	60.83%
Ethylbenzene	22.27%	77.73%
Xylenes	18.73%	81.27%
C8+ Heavies	0.51%	99.49%

ABSORBER

Calculated Absorber Stages:	1.43
Specified Dry Gas Dew Point:	4.20 lbs. H2O/MMSCF
Temperature:	88.1 deg. F
Pressure:	356.2 psig
Dry Gas Flow Rate:	12.0000 MMSCF/day
Glycol Losses with Dry Gas:	0.0340 lb/hr
Wet Gas Water Content:	Saturated
Calculated Wet Gas Water Content:	93.64 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	4.69 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol

Water	4.48%	95.52%
Carbon Dioxide	99.81%	0.19%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.95%	0.05%
Propane	99.90%	0.10%
Isobutane	99.85%	0.15%
n-Butane	99.79%	0.21%
Isopentane	99.76%	0.24%
n-Pentane	99.69%	0.31%
Cyclopentane	98.72%	1.28%
n-Hexane	99.41%	0.59%
Cyclohexane	97.50%	2.50%
Other Hexanes	99.57%	0.43%
Heptanes	98.75%	1.25%
Methylcyclohexane	96.80%	3.20%
2,2,4-Trimethylpentane	99.44%	0.56%
Benzene	79.60%	20.40%
Toluene	68.82%	31.18%
Ethylbenzene	54.99%	45.01%
Xylenes	43.68%	56.32%
C8+ Heavies	92.52%	7.48%

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 76.0 deg. F
Flash Pressure: 30.3 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.96%	0.04%
Carbon Dioxide	15.21%	84.79%
Nitrogen	0.93%	99.07%
Methane	0.98%	99.02%
Ethane	4.04%	95.96%
Propane	9.70%	90.30%
Isobutane	15.80%	84.20%
n-Butane	20.78%	79.22%
Isopentane	25.17%	74.83%
n-Pentane	30.80%	69.20%
Cyclopentane	63.23%	36.77%
n-Hexane	48.37%	51.63%
Cyclohexane	79.35%	20.65%
Other Hexanes	40.33%	59.67%
Heptanes	69.20%	30.80%
Methylcyclohexane	84.92%	15.08%
2,2,4-Trimethylpentane	51.12%	48.88%
Benzene	97.45%	2.55%
Toluene	98.62%	1.38%
Ethylbenzene	99.32%	0.68%
Xylenes	99.57%	0.43%
C8+ Heavies	94.92%	5.08%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	39.72%	60.28%
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	1.27%	98.73%
n-Pentane	1.13%	98.87%
Cyclopentane	0.72%	99.28%
n-Hexane	0.84%	99.16%
Cyclohexane	3.83%	96.17%
Other Hexanes	1.90%	98.10%
Heptanes	0.65%	99.35%
Methylcyclohexane	4.53%	95.47%
2,2,4-Trimethylpentane	2.37%	97.63%
Benzene	5.10%	94.90%
Toluene	7.98%	92.02%
Ethylbenzene	10.45%	89.55%
Xylenes	12.94%	87.06%
C8+ Heavies	12.47%	87.53%

STREAM REPORTS:

WET GAS STREAM

Temperature: 88.10 deg. F
Pressure: 370.90 psia
Flow Rate: 5.01e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.97e-001	4.69e+001
Carbon Dioxide	6.96e+000	4.05e+003
Nitrogen	1.24e-001	4.57e+001
Methane	9.15e+001	1.94e+004
Ethane	1.02e+000	4.03e+002
Propane	1.74e-001	1.02e+002
Isobutane	2.43e-002	1.86e+001
n-Butane	2.36e-002	1.81e+001
Isopentane	9.18e-003	8.75e+000
n-Pentane	3.99e-003	3.80e+000
Cyclopentane	2.00e-004	1.85e-001
n-Hexane	1.10e-003	1.25e+000
Cyclohexane	3.99e-004	4.44e-001
Other Hexanes	2.30e-003	2.61e+000
Heptanes	1.10e-003	1.45e+000
Methylcyclohexane	1.10e-003	1.42e+000
2,2,4-Trimethylpentane	9.98e-005	1.51e-001

Benzene	2.99e-004	3.09e-001
Toluene	6.99e-004	8.50e-001
Ethylbenzene	4.99e-004	7.00e-001
Xylenes	2.00e-004	2.80e-001
C8+ Heavies	2.20e-003	4.94e+000
Total Components	100.00	2.41e+004

DRY GAS STREAM

Temperature: 88.10 deg. F
Pressure: 370.90 psia
Flow Rate: 5.00e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	8.85e-003	2.10e+000
Carbon Dioxide	6.96e+000	4.04e+003
Nitrogen	1.24e-001	4.57e+001
Methane	9.16e+001	1.94e+004
Ethane	1.02e+000	4.03e+002
Propane	1.75e-001	1.02e+002
Isobutane	2.43e-002	1.86e+001
n-Butane	2.36e-002	1.80e+001
Isopentane	9.18e-003	8.73e+000
n-Pentane	3.99e-003	3.79e+000
Cyclopentane	1.97e-004	1.83e-001
n-Hexane	1.09e-003	1.24e+000
Cyclohexane	3.90e-004	4.33e-001
Other Hexanes	2.29e-003	2.60e+000
Heptanes	1.09e-003	1.43e+000
Methylcyclohexane	1.07e-003	1.38e+000
2,2,4-Trimethylpentane	9.95e-005	1.50e-001
Benzene	2.39e-004	2.46e-001
Toluene	4.82e-004	5.85e-001
Ethylbenzene	2.75e-004	3.85e-001
Xylenes	8.74e-005	1.22e-001
C8+ Heavies	2.04e-003	4.57e+000
Total Components	100.00	2.40e+004

LEAN GLYCOL STREAM

Temperature: 88.10 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	3.92e-011	7.72e-010
Nitrogen	2.85e-014	5.62e-013
Methane	3.98e-018	7.84e-017
Ethane	4.48e-009	8.83e-008
Propane	2.01e-010	3.96e-009
Isobutane	4.30e-011	8.47e-010
n-Butane	4.68e-011	9.23e-010
Isopentane	5.29e-006	1.04e-004

n-Pentane	3.00e-006	5.92e-005
Cyclopentane	6.05e-007	1.19e-005
n-Hexane	1.87e-006	3.68e-005
Cyclohexane	1.86e-005	3.66e-004
Other Hexanes	5.81e-006	1.14e-004
Heptanes	4.64e-006	9.14e-005
Methylcyclohexane	9.62e-005	1.90e-003
2,2,4-Trimethylpentane	6.52e-007	1.28e-005
Benzene	1.68e-004	3.32e-003
Toluene	1.15e-003	2.27e-002
Ethylbenzene	1.86e-003	3.66e-002
Xylenes	1.19e-003	2.34e-002
C8+ Heavies	2.56e-003	5.05e-002
Total Components	100.00	1.97e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 88.10 deg. F
Pressure: 370.90 psia
Flow Rate: 3.68e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.42e+001	1.94e+003
Water	3.62e+000	7.44e+001
Carbon Dioxide	6.40e-001	1.32e+001
Nitrogen	3.27e-003	6.73e-002
Methane	1.38e+000	2.85e+001
Ethane	3.55e-002	7.31e-001
Propane	1.14e-002	2.34e-001
Isobutane	2.59e-003	5.34e-002
n-Butane	2.99e-003	6.16e-002
Isopentane	1.58e-003	3.26e-002
n-Pentane	8.24e-004	1.70e-002
Cyclopentane	1.28e-004	2.63e-003
n-Hexane	4.39e-004	9.05e-003
Cyclohexane	5.85e-004	1.20e-002
Other Hexanes	7.27e-004	1.50e-002
Heptanes	9.84e-004	2.02e-002
Methylcyclohexane	2.40e-003	4.93e-002
2,2,4-Trimethylpentane	5.14e-005	1.06e-003
Benzene	3.24e-003	6.67e-002
Toluene	1.40e-002	2.89e-001
Ethylbenzene	1.71e-002	3.52e-001
Xylenes	8.81e-003	1.81e-001
C8+ Heavies	2.07e-002	4.26e-001
Total Components	100.00	2.06e+003

FLASH TANK OFF GAS STREAM

Temperature: 76.00 deg. F
Pressure: 45.00 psia
Flow Rate: 7.76e+002 scfh

Component	Conc.	Loading

	(vol%)	(lb/hr)
Water	7.99e-002	2.95e-002
Carbon Dioxide	1.24e+001	1.12e+001
Nitrogen	1.16e-001	6.67e-002
Methane	8.59e+001	2.82e+001
Ethane	1.14e+000	7.02e-001
Propane	2.35e-001	2.12e-001
Isobutane	3.78e-002	4.49e-002
n-Butane	4.10e-002	4.88e-002
Isopentane	1.65e-002	2.44e-002
n-Pentane	7.95e-003	1.17e-002
Cyclopentane	6.75e-004	9.69e-004
n-Hexane	2.65e-003	4.67e-003
Cyclohexane	1.44e-003	2.49e-003
Other Hexanes	5.07e-003	8.93e-003
Heptanes	3.04e-003	6.24e-003
Methylcyclohexane	3.70e-003	7.43e-003
2,2,4-Trimethylpentane	2.21e-004	5.18e-004
Benzene	1.06e-003	1.70e-003
Toluene	2.11e-003	3.99e-003
Ethylbenzene	1.10e-003	2.38e-003
Xylenes	3.58e-004	7.78e-004
C8+ Heavies	6.21e-003	2.17e-002
Total Components	100.00	4.06e+001

FLASH TANK GLYCOL STREAM

Temperature: 76.00 deg. F
Flow Rate: 3.59e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.61e+001	1.94e+003
Water	3.69e+000	7.44e+001
Carbon Dioxide	9.93e-002	2.00e+000
Nitrogen	3.10e-005	6.26e-004
Methane	1.38e-002	2.78e-001
Ethane	1.46e-003	2.95e-002
Propane	1.13e-003	2.27e-002
Isobutane	4.18e-004	8.43e-003
n-Butane	6.34e-004	1.28e-002
Isopentane	4.07e-004	8.21e-003
n-Pentane	2.59e-004	5.22e-003
Cyclopentane	8.25e-005	1.67e-003
n-Hexane	2.17e-004	4.38e-003
Cyclohexane	4.73e-004	9.55e-003
Other Hexanes	2.99e-004	6.04e-003
Heptanes	6.94e-004	1.40e-002
Methylcyclohexane	2.07e-003	4.19e-002
2,2,4-Trimethylpentane	2.68e-005	5.41e-004
Benzene	3.22e-003	6.51e-002
Toluene	1.41e-002	2.85e-001
Ethylbenzene	1.73e-002	3.50e-001
Xylenes	8.95e-003	1.81e-001
C8+ Heavies	2.01e-002	4.05e-001
Total Components	100.00	2.02e+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: 9.74e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.70e+001	4.49e+001
Carbon Dioxide	1.77e+000	2.00e+000
Nitrogen	8.71e-004	6.26e-004
Methane	6.75e-001	2.78e-001
Ethane	3.83e-002	2.95e-002
Propane	2.01e-002	2.27e-002
Isobutane	5.65e-003	8.43e-003
n-Butane	8.58e-003	1.28e-002
Isopentane	4.38e-003	8.11e-003
n-Pentane	2.79e-003	5.17e-003
Cyclopentane	9.19e-004	1.65e-003
n-Hexane	1.96e-003	4.34e-003
Cyclohexane	4.25e-003	9.19e-003
Other Hexanes	2.68e-003	5.92e-003
Heptanes	5.41e-003	1.39e-002
Methylcyclohexane	1.59e-002	4.00e-002
2,2,4-Trimethylpentane	1.80e-004	5.28e-004
Benzene	3.08e-002	6.17e-002
Toluene	1.11e-001	2.62e-001
Ethylbenzene	1.15e-001	3.13e-001
Xylenes	5.77e-002	1.57e-001
C8+ Heavies	8.10e-002	3.54e-001
Total Components	100.00	4.85e+001

CONDENSER VENT GAS STREAM

Temperature: 100.00 deg. F
Pressure: 11.70 psia
Flow Rate: 2.79e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	8.22e+000	1.09e-001
Carbon Dioxide	6.12e+001	1.98e+000
Nitrogen	3.04e-002	6.26e-004
Methane	2.35e+001	2.78e-001
Ethane	1.33e+000	2.95e-002
Propane	6.95e-001	2.25e-002
Isobutane	1.94e-001	8.28e-003

n-Butane	2.92e-001	1.25e-002
Isopentane	1.43e-001	7.60e-003
n-Pentane	9.06e-002	4.80e-003
Cyclopentane	2.84e-002	1.46e-003
n-Hexane	5.65e-002	3.58e-003
Cyclohexane	1.12e-001	6.94e-003
Other Hexanes	8.11e-002	5.14e-003
Heptanes	1.20e-001	8.84e-003
Methylcyclohexane	3.38e-001	2.44e-002
2,2,4-Trimethylpentane	4.04e-003	3.39e-004
Benzene	7.62e-001	4.38e-002
Toluene	1.52e+000	1.03e-001
Ethylbenzene	8.94e-001	6.98e-002
Xylenes	3.77e-001	2.95e-002
C8+ Heavies	1.45e-002	1.82e-003
Total Components	100.00	2.75e+000

CONDENSER PRODUCED WATER STREAM

Temperature: 100.00 deg. F
Flow Rate: 8.95e-002 gpm

Component	Conc. (wt%)	Loading (lb/hr)	(ppm)
Water	9.99e+001	4.48e+001	999198.
Carbon Dioxide	5.31e-002	2.38e-002	531.
Nitrogen	3.81e-007	1.71e-007	0.
Methane	3.43e-004	1.54e-004	3.
Ethane	4.39e-005	1.97e-005	0.
Propane	2.94e-005	1.32e-005	0.
Isobutane	6.05e-006	2.71e-006	0.
n-Butane	1.24e-005	5.56e-006	0.
Isopentane	5.50e-006	2.46e-006	0.
n-Pentane	3.79e-006	1.70e-006	0.
Cyclopentane	8.72e-006	3.90e-006	0.
n-Hexane	2.45e-006	1.10e-006	0.
Cyclohexane	2.87e-005	1.28e-005	0.
Other Hexanes	2.78e-006	1.25e-006	0.
Heptanes	3.46e-006	1.55e-006	0.
Methylcyclohexane	4.91e-005	2.20e-005	0.
2,2,4-Trimethylpentane	8.71e-008	3.90e-008	0.
Benzene	5.64e-003	2.53e-003	56.
Toluene	1.13e-002	5.08e-003	113.
Ethylbenzene	6.01e-003	2.69e-003	60.
Xylenes	3.61e-003	1.61e-003	36.
C8+ Heavies	4.04e-007	1.81e-007	0.
Total Components	100.00	4.48e+001	1000000.

CONDENSER RECOVERED OIL STREAM

Temperature: 100.00 deg. F
Flow Rate: 2.16e-003 gpm

Component	Conc. (wt%)	Loading (lb/hr)

Water	3.30e-002	3.03e-004
Carbon Dioxide	1.73e-001	1.59e-003
Nitrogen	2.35e-005	2.15e-007
Methane	8.76e-003	8.04e-005
Ethane	5.03e-003	4.61e-005
Propane	2.19e-002	2.01e-004
Isobutane	1.65e-002	1.51e-004
n-Butane	3.39e-002	3.11e-004
Isopentane	5.46e-002	5.01e-004
n-Pentane	3.92e-002	3.59e-004
Cyclopentane	2.01e-002	1.85e-004
n-Hexane	8.26e-002	7.58e-004
Cyclohexane	2.43e-001	2.23e-003
Other Hexanes	8.56e-002	7.85e-004
Heptanes	5.53e-001	5.08e-003
Methylcyclohexane	1.69e+000	1.55e-002
2,2,4-Trimethylpentane	2.06e-002	1.89e-004
Benzene	1.68e+000	1.54e-002
Toluene	1.68e+001	1.54e-001
Ethylbenzene	2.63e+001	2.41e-001
Xylenes	1.37e+001	1.26e-001
C8+ Heavies	3.84e+001	3.52e-001
Total Components	100.00	9.18e-001

Dehydrator Reboiler Exhaust Emissions Calculations

Unit Number: 17b, 18b, 19b, 20b, 21b, 22b
Description: Dehydrator Reboiler (12 MMSCFD)

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

Fuel Consumption

429	scf/hr	Hourly fuel consumption	Mfg. data (Enertek)
900	Btu/scf	Field gas heating value	Nominal heat content
0.386	MMBtu/hr	Capacity	scf/hr x Btu/scf / 1,000,000
8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC
3,382	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
3.76	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	1.03	4.29E-02	1.88E-01
CO	0.78	3.25E-02	1.42E-01
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	3.26E-03	1.43E-02
PM10	7.60	3.26E-03	1.43E-02
PM2.5	7.60	3.26E-03	1.43E-02
Lead	5.00E-04	2.15E-07	9.40E-07

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

Exhaust Parameters

600	°F	Exhaust temperature	Mfg. data (Enertek & InFab)
198.03	cfm	Stack flowrate	fps x ft^2 x 60 sec/min
0.83	ft	Stack diameter	Mfg. data (InFab)
0.54	ft^2	Stack exit area	3.1416 x ((ft / 2) ^2)
6.1	fps	Stack velocity	Mfg. data (Enertek & InFab)
23.50	ft	Stack height - units 17b & 21b	Harvest Four Corners, LLC
23.25	ft	Stack height - unit 18b	Harvest Four Corners, LLC
23.17	ft	Stack height - units 20b & 22b	Harvest Four Corners, LLC
23.00	ft	Stack height - unit 19b	Harvest Four Corners, LLC

GRI-HAPCalc ® 3.01
External Combustion Devices Report

Facility ID:	**31-6 CDP**	**Notes:**	**12 mmcfd reboiler**
Operation Type:	**COMPRESSOR STATION**		
Facility Name:	**31-6 CENTRAL DELIVERY POINT**		
User Name:	**Cirrus**		
Units of Measure:	**U.S. STANDARD**		

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

External Combustion Devices

Unit Name: 1208 SCFH

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

Calculated Emissions (ton/yr)

Chemical Name	Emissions	Emission Factor	Emission Factor Set
HAPs			
3-Methylcholanthrene	0.0000	0.0000000018 lb/MMBtu	EPA
7,12-Dimethylbenz(a)anthracene	0.0000	0.0000000157 lb/MMBtu	EPA
Formaldehyde	0.0004	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
Total	0.0125			

Criteria Pollutants

VOC	0.0257	0.0053921569	lb/MMBtu	EPA
PM	0.0356	0.0074509804	lb/MMBtu	EPA
PM, Condensible	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

Other Pollutants

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: 31-6 EU 31 30mm PTE Gas 2022-11-30 rev02
File Name: C:\Users\Lisa\Documents\0 CIRRUS\0 0 PERMIT APPLICATIONS\0 New Mexico\0 Harvest Four Corners\0 0 0 0 31-6\00 NSR\0 2023-04 (ADD DEHYS & 4SRB)\Analysis & Info\GLYCalc\Rev02\31-6 EU 31 30mm PTE Gas 2022-11-30 rev02.ddf
Date: April 10, 2023

DESCRIPTION:

Description: 31-6 EU 31 (slot 7) 30 mmcd dehy PTE Condenser; 2022-11-30 gas blend, 2022 Avg DPT parameters

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 93.10 deg. F
Pressure: 355.90 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	6.9735
Nitrogen	0.1239
Methane	91.6392
Ethane	1.0173
Propane	0.1748
Isobutane	0.0243
n-Butane	0.0236
Isopentane	0.0092
n-Pentane	0.0040
Cyclopentane	0.0002
n-Hexane	0.0011
Cyclohexane	0.0004
Other Hexanes	0.0023
Heptanes	0.0011
Methylcyclohexane	0.0011
2,2,4-Trimethylpentane	0.0001
Benzene	0.0003
Toluene	0.0007
Ethylbenzene	0.0005
Xylenes	0.0002
C8+ Heavies	0.0022

DRY GAS:

Flow Rate: 30.0 MMSCF/day
Water Content: 3.6 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 3.5 gpm

PUMP:

Glycol Pump Type: Gas Injection
Gas Injection Pump Volume Ratio: 0.130 acfm gas/gpm glycol

FLASH TANK:

Flash Control: Recycle/recompression
Temperature: 79.3 deg. F
Pressure: 31.6 psig

REGENERATOR OVERHEADS CONTROL DEVICE:

Control Device: Condenser
Temperature: 100.0 deg. F
Pressure: 11.7 psia

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: 31-6 EU 31 30mm PTE Gas 2022-11-30 rev02
File Name: C:\Users\Lisa\Documents\0 CIRRUS\0 0 PERMIT APPLICATIONS\0 New Mexico\0 Harvest Four Corners\0 0 0 0 31-6\00 NSR\0 2023-04 (ADD DEHYS & 4SRB)\Analysis & Info\GLYCalc\Rev02\31-6 EU 31 30mm PTE Gas 2022-11-30 rev02.ddf
Date: April 10, 2023

DESCRIPTION:

Description: 31-6 EU 31 (slot 7) 30 mmcd dehy PTE
Condenser; 2022-11-30 gas blend,
2022 Avg DPT parameters

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.2696	6.470	1.1808
Ethane	0.0250	0.601	0.1097
Propane	0.0212	0.509	0.0929
Isobutane	0.0074	0.177	0.0322
n-Butane	0.0110	0.263	0.0481
Isopentane	0.0064	0.154	0.0281
n-Pentane	0.0040	0.096	0.0175
Cyclopentane	0.0011	0.026	0.0048
n-Hexane	0.0028	0.067	0.0123
Cyclohexane	0.0052	0.125	0.0228
Other Hexanes	0.0041	0.098	0.0178
Heptanes	0.0066	0.157	0.0287
Methylcyclohexane	0.0179	0.430	0.0785
2,2,4-Trimethylpentane	0.0002	0.006	0.0011
Benzene	0.0365	0.876	0.1598
Toluene	0.0899	2.158	0.3938
Ethylbenzene	0.0702	1.685	0.3076
Xylenes	0.0346	0.830	0.1515
C8+ Heavies	0.0014	0.033	0.0060
Total Emissions	0.6151	14.761	2.6939
Total Hydrocarbon Emissions	0.6151	14.761	2.6939
Total VOC Emissions	0.3204	7.690	1.4035
Total HAP Emissions	0.2343	5.622	1.0261
Total BTEX Emissions	0.2312	5.549	1.0127

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.2701	6.483	1.1832
Ethane	0.0251	0.603	0.1101
Propane	0.0215	0.515	0.0940
Isobutane	0.0075	0.180	0.0329
n-Butane	0.0113	0.271	0.0495

Isopentane	0.0069	0.165	0.0301
n-Pentane	0.0043	0.104	0.0190
Cyclopentane	0.0013	0.030	0.0055
n-Hexane	0.0035	0.084	0.0153
Cyclohexane	0.0071	0.171	0.0311
Other Hexanes	0.0048	0.114	0.0208
Heptanes	0.0108	0.260	0.0474
Methylcyclohexane	0.0310	0.743	0.1357
2,2,4-Trimethylpentane	0.0004	0.010	0.0018
Benzene	0.0581	1.394	0.2544
Toluene	0.2618	6.284	1.1468
Ethylbenzene	0.3553	8.526	1.5560
Xylenes	0.2121	5.089	0.9288
C8+ Heavies	0.3080	7.391	1.3489
Total Emissions	1.6008	38.419	7.0114
Total Hydrocarbon Emissions	1.6008	38.419	7.0114
Total VOC Emissions	1.3055	31.332	5.7181
Total HAP Emissions	0.8911	21.387	3.9031
Total BTEX Emissions	0.8872	21.293	3.8861

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	28.9270	694.247	126.7001
Ethane	0.7048	16.915	3.0870
Propane	0.2122	5.092	0.9294
Isobutane	0.0444	1.066	0.1945
n-Butane	0.0480	1.151	0.2100
Isopentane	0.0239	0.573	0.1046
n-Pentane	0.0114	0.275	0.0501
Cyclopentane	0.0010	0.023	0.0043
n-Hexane	0.0046	0.110	0.0200
Cyclohexane	0.0026	0.063	0.0115
Other Hexanes	0.0087	0.209	0.0382
Heptanes	0.0063	0.151	0.0276
Methylcyclohexane	0.0080	0.192	0.0351
2,2,4-Trimethylpentane	0.0005	0.012	0.0022
Benzene	0.0019	0.046	0.0084
Toluene	0.0050	0.121	0.0220
Ethylbenzene	0.0036	0.085	0.0156
Xylenes	0.0013	0.032	0.0058
C8+ Heavies	0.0262	0.629	0.1148
Total Emissions	30.0414	720.993	131.5813
Total Hydrocarbon Emissions	30.0414	720.993	131.5813
Total VOC Emissions	0.4096	9.831	1.7942
Total HAP Emissions	0.0169	0.406	0.0741
Total BTEX Emissions	0.0118	0.284	0.0518

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.2696	6.470	1.1808
Ethane	0.0250	0.601	0.1097
Propane	0.0212	0.509	0.0929
Isobutane	0.0074	0.177	0.0322
n-Butane	0.0110	0.263	0.0481
Isopentane	0.0064	0.154	0.0281
n-Pentane	0.0040	0.096	0.0175
Cyclopentane	0.0011	0.026	0.0048
n-Hexane	0.0028	0.067	0.0123
Cyclohexane	0.0052	0.125	0.0228
Other Hexanes	0.0041	0.098	0.0178
Heptanes	0.0066	0.157	0.0287
Methylcyclohexane	0.0179	0.430	0.0785
2,2,4-Trimethylpentane	0.0002	0.006	0.0011
Benzene	0.0365	0.876	0.1598
Toluene	0.0899	2.158	0.3938
Ethylbenzene	0.0702	1.685	0.3076
Xylenes	0.0346	0.830	0.1515
C8+ Heavies	0.0014	0.033	0.0060
Total Emissions	0.6151	14.761	2.6939
Total Hydrocarbon Emissions	0.6151	14.761	2.6939
Total VOC Emissions	0.3204	7.690	1.4035
Total HAP Emissions	0.2343	5.622	1.0261
Total BTEX Emissions	0.2312	5.549	1.0127

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Methane	127.8833	1.1808	99.08
Ethane	3.1971	0.1097	96.57
Propane	1.0234	0.0929	90.92
Isobutane	0.2274	0.0322	85.83
n-Butane	0.2595	0.0481	81.47
Isopentane	0.1348	0.0281	79.15
n-Pentane	0.0691	0.0175	74.70
Cyclopentane	0.0098	0.0048	50.92
n-Hexane	0.0353	0.0123	65.15
Cyclohexane	0.0426	0.0228	46.55
Other Hexanes	0.0590	0.0178	69.83
Heptanes	0.0750	0.0287	61.74
Methylcyclohexane	0.1707	0.0785	54.01
2,2,4-Trimethylpentane	0.0040	0.0011	72.88
Benzene	0.2628	0.1598	39.19
Toluene	1.1688	0.3938	66.31
Ethylbenzene	1.5716	0.3076	80.43
Xylenes	0.9346	0.1515	83.79
C8+ Heavies	1.4637	0.0060	99.59
Total Emissions	138.5927	2.6939	98.06
Total Hydrocarbon Emissions	138.5927	2.6939	98.06
Total VOC Emissions	7.5123	1.4035	81.32

Total HAP Emissions	3.9772	1.0261	74.20
Total BTEX Emissions	3.9379	1.0127	74.28

EQUIPMENT REPORTS:

CONDENSER

Condenser Outlet Temperature:	100.00 deg. F
Condenser Pressure:	11.70 psia
Condenser Duty:	1.09e-001 MM BTU/hr
Hydrocarbon Recovery:	0.08 bbls/day
Produced Water:	9.07 bbls/day
VOC Control Efficiency:	75.45 %
HAP Control Efficiency:	73.71 %
BTEX Control Efficiency:	73.94 %
Dissolved Hydrocarbons in Water:	275.95 mg/L

Component	Emitted	Condensed
Water	0.08%	99.92%
Carbon Dioxide	96.20%	3.80%
Nitrogen	99.87%	0.13%
Methane	99.79%	0.21%
Ethane	99.62%	0.38%
Propane	98.84%	1.16%
Isobutane	97.91%	2.09%
n-Butane	97.18%	2.82%
Isopentane	93.22%	6.78%
n-Pentane	91.98%	8.02%
Cyclopentane	87.00%	13.00%
n-Hexane	80.58%	19.42%
Cyclohexane	73.19%	26.81%
Other Hexanes	85.42%	14.58%
Heptanes	60.59%	39.41%
Methylcyclohexane	57.88%	42.12%
2,2,4-Trimethylpentane	61.80%	38.20%
Benzene	62.82%	37.18%
Toluene	34.34%	65.66%
Ethylbenzene	19.77%	80.23%
Xylenes	16.31%	83.69%
C8+ Heavies	0.44%	99.56%

ABSORBER

Calculated Absorber Stages:	3.71
Specified Dry Gas Dew Point:	3.60 lbs. H2O/MMSCF
Temperature:	93.1 deg. F
Pressure:	355.9 psig
Dry Gas Flow Rate:	30.0000 MMSCF/day
Glycol Losses with Dry Gas:	0.1107 lb/hr
Wet Gas Water Content:	Saturated
Calculated Wet Gas Water Content:	109.24 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	1.59 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol

Water	3.29%	96.71%
Carbon Dioxide	99.93%	0.07%
Nitrogen	100.00%	0.00%
Methane	100.00%	0.00%
Ethane	99.98%	0.02%
Propane	99.96%	0.04%
Isobutane	99.94%	0.06%
n-Butane	99.92%	0.08%
Isopentane	99.92%	0.08%
n-Pentane	99.89%	0.11%
Cyclopentane	99.57%	0.43%
n-Hexane	99.80%	0.20%
Cyclohexane	99.18%	0.82%
Other Hexanes	99.85%	0.15%
Heptanes	99.58%	0.42%
Methylcyclohexane	98.96%	1.04%
2,2,4-Trimethylpentane	99.81%	0.19%
Benzene	92.28%	7.72%
Toluene	87.50%	12.50%
Ethylbenzene	79.54%	20.46%
Xylenes	69.54%	30.46%
C8+ Heavies	97.35%	2.65%

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 79.3 deg. F
Flash Pressure: 31.6 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.96%	0.04%
Carbon Dioxide	14.46%	85.54%
Nitrogen	0.83%	99.17%
Methane	0.93%	99.07%
Ethane	3.44%	96.56%
Propane	9.19%	90.81%
Isobutane	14.47%	85.53%
n-Butane	19.06%	80.94%
Isopentane	22.60%	77.40%
n-Pentane	27.74%	72.26%
Cyclopentane	56.60%	43.40%
n-Hexane	43.47%	56.53%
Cyclohexane	73.84%	26.16%
Other Hexanes	35.79%	64.21%
Heptanes	63.31%	36.69%
Methylcyclohexane	80.24%	19.76%
2,2,4-Trimethylpentane	44.54%	55.46%
Benzene	96.97%	3.03%
Toluene	98.27%	1.73%
Ethylbenzene	99.11%	0.89%
Xylenes	99.46%	0.54%
C8+ Heavies	93.08%	6.92%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	18.25%	81.75%
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	1.34%	98.66%
n-Pentane	1.20%	98.80%
Cyclopentane	0.78%	99.22%
n-Hexane	0.90%	99.10%
Cyclohexane	4.07%	95.93%
Other Hexanes	2.04%	97.96%
Heptanes	0.70%	99.30%
Methylcyclohexane	4.74%	95.26%
2,2,4-Trimethylpentane	2.60%	97.40%
Benzene	5.12%	94.88%
Toluene	8.01%	91.99%
Ethylbenzene	10.48%	89.52%
Xylenes	12.99%	87.01%
C8+ Heavies	12.68%	87.32%

STREAM REPORTS:

WET GAS STREAM

Temperature: 93.10 deg. F
Pressure: 370.60 psia
Flow Rate: 1.25e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.30e-001	1.37e+002
Carbon Dioxide	6.96e+000	1.01e+004
Nitrogen	1.24e-001	1.14e+002
Methane	9.14e+001	4.84e+004
Ethane	1.01e+000	1.01e+003
Propane	1.74e-001	2.54e+002
Isobutane	2.42e-002	4.65e+001
n-Butane	2.35e-002	4.52e+001
Isopentane	9.18e-003	2.19e+001
n-Pentane	3.99e-003	9.51e+000
Cyclopentane	2.00e-004	4.62e-001
n-Hexane	1.10e-003	3.12e+000
Cyclohexane	3.99e-004	1.11e+000
Other Hexanes	2.29e-003	6.53e+000
Heptanes	1.10e-003	3.63e+000
Methylcyclohexane	1.10e-003	3.56e+000
2,2,4-Trimethylpentane	9.98e-005	3.76e-001

Benzene	2.99e-004	7.72e-001
Toluene	6.98e-004	2.12e+000
Ethylbenzene	4.99e-004	1.75e+000
Xylenes	2.00e-004	7.00e-001
C8+ Heavies	2.19e-003	1.23e+001
Total Components	100.00	6.02e+004

DRY GAS STREAM

Temperature: 93.10 deg. F
Pressure: 370.60 psia
Flow Rate: 1.25e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.58e-003	4.50e+000
Carbon Dioxide	6.97e+000	1.01e+004
Nitrogen	1.24e-001	1.14e+002
Methane	9.16e+001	4.84e+004
Ethane	1.02e+000	1.01e+003
Propane	1.75e-001	2.54e+002
Isobutane	2.43e-002	4.65e+001
n-Butane	2.36e-002	4.52e+001
Isopentane	9.19e-003	2.19e+001
n-Pentane	4.00e-003	9.50e+000
Cyclopentane	1.99e-004	4.60e-001
n-Hexane	1.10e-003	3.12e+000
Cyclohexane	3.97e-004	1.10e+000
Other Hexanes	2.30e-003	6.52e+000
Heptanes	1.10e-003	3.62e+000
Methylcyclohexane	1.09e-003	3.52e+000
2,2,4-Trimethylpentane	9.98e-005	3.76e-001
Benzene	2.77e-004	7.12e-001
Toluene	6.12e-004	1.86e+000
Ethylbenzene	3.98e-004	1.39e+000
Xylenes	1.39e-004	4.87e-001
C8+ Heavies	2.14e-003	1.20e+001
Total Components	100.00	6.01e+004

LEAN GLYCOL STREAM

Temperature: 93.10 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	3.67e-011	7.23e-010
Nitrogen	2.58e-014	5.08e-013
Methane	3.71e-018	7.31e-017
Ethane	4.01e-009	7.91e-008
Propane	1.90e-010	3.74e-009
Isobutane	3.95e-011	7.79e-010
n-Butane	4.28e-011	8.44e-010
Isopentane	4.73e-006	9.33e-005

n-Pentane	2.67e-006	5.27e-005
Cyclopentane	5.07e-007	9.99e-006
n-Hexane	1.61e-006	3.18e-005
Cyclohexane	1.53e-005	3.01e-004
Other Hexanes	5.04e-006	9.93e-005
Heptanes	3.85e-006	7.59e-005
Methylcyclohexane	7.82e-005	1.54e-003
2,2,4-Trimethylpentane	5.44e-007	1.07e-005
Benzene	1.59e-004	3.14e-003
Toluene	1.16e-003	2.28e-002
Ethylbenzene	2.11e-003	4.16e-002
Xylenes	1.61e-003	3.17e-002
C8+ Heavies	2.27e-003	4.47e-002
Total Components	100.00	1.97e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 93.10 deg. F
Pressure: 370.60 psia
Flow Rate: 3.86e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.04e+001	1.94e+003
Water	7.55e+000	1.62e+002
Carbon Dioxide	6.00e-001	1.29e+001
Nitrogen	3.21e-003	6.89e-002
Methane	1.36e+000	2.92e+001
Ethane	3.40e-002	7.30e-001
Propane	1.09e-002	2.34e-001
Isobutane	2.42e-003	5.19e-002
n-Butane	2.76e-003	5.92e-002
Isopentane	1.44e-003	3.09e-002
n-Pentane	7.38e-004	1.58e-002
Cyclopentane	1.05e-004	2.26e-003
n-Hexane	3.77e-004	8.09e-003
Cyclohexane	4.68e-004	1.00e-002
Other Hexanes	6.33e-004	1.36e-002
Heptanes	8.02e-004	1.72e-002
Methylcyclohexane	1.89e-003	4.05e-002
2,2,4-Trimethylpentane	4.31e-005	9.25e-004
Benzene	2.94e-003	6.31e-002
Toluene	1.35e-002	2.90e-001
Ethylbenzene	1.87e-002	4.00e-001
Xylenes	1.14e-002	2.45e-001
C8+ Heavies	1.77e-002	3.79e-001
Total Components	100.00	2.14e+003

FLASH TANK OFF GAS STREAM

Temperature: 79.30 deg. F
Pressure: 46.30 psia
Flow Rate: 7.93e+002 scfh

Component	Conc.	Loading

	(vol%)	(lb/hr)
Water	1.93e-001	7.25e-002
Carbon Dioxide	1.20e+001	1.10e+001
Nitrogen	1.17e-001	6.83e-002
Methane	8.62e+001	2.89e+001
Ethane	1.12e+000	7.05e-001
Propane	2.30e-001	2.12e-001
Isobutane	3.65e-002	4.44e-002
n-Butane	3.95e-002	4.80e-002
Isopentane	1.58e-002	2.39e-002
n-Pentane	7.59e-003	1.14e-002
Cyclopentane	6.68e-004	9.79e-004
n-Hexane	2.54e-003	4.58e-003
Cyclohexane	1.49e-003	2.62e-003
Other Hexanes	4.84e-003	8.71e-003
Heptanes	3.01e-003	6.31e-003
Methylcyclohexane	3.90e-003	8.00e-003
2,2,4-Trimethylpentane	2.15e-004	5.13e-004
Benzene	1.17e-003	1.91e-003
Toluene	2.61e-003	5.03e-003
Ethylbenzene	1.60e-003	3.56e-003
Xylenes	6.00e-004	1.33e-003
C8+ Heavies	7.36e-003	2.62e-002
Total Components	100.00	4.12e+001

FLASH TANK GLYCOL STREAM

Temperature: 79.30 deg. F
Flow Rate: 3.76e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.21e+001	1.94e+003
Water	7.70e+000	1.62e+002
Carbon Dioxide	8.85e-002	1.86e+000
Nitrogen	2.73e-005	5.74e-004
Methane	1.28e-002	2.70e-001
Ethane	1.19e-003	2.51e-002
Propane	1.02e-003	2.15e-002
Isobutane	3.57e-004	7.51e-003
n-Butane	5.37e-004	1.13e-002
Isopentane	3.32e-004	6.98e-003
n-Pentane	2.09e-004	4.39e-003
Cyclopentane	6.07e-005	1.28e-003
n-Hexane	1.67e-004	3.52e-003
Cyclohexane	3.52e-004	7.41e-003
Other Hexanes	2.31e-004	4.86e-003
Heptanes	5.18e-004	1.09e-002
Methylcyclohexane	1.55e-003	3.25e-002
2,2,4-Trimethylpentane	1.96e-005	4.12e-004
Benzene	2.91e-003	6.12e-002
Toluene	1.35e-002	2.85e-001
Ethylbenzene	1.89e-002	3.97e-001
Xylenes	1.16e-002	2.44e-001
C8+ Heavies	1.68e-002	3.53e-001
Total Components	100.00	2.10e+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: 2.82e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.90e+001	1.32e+002
Carbon Dioxide	5.70e-001	1.86e+000
Nitrogen	2.76e-004	5.74e-004
Methane	2.27e-001	2.70e-001
Ethane	1.13e-002	2.51e-002
Propane	6.56e-003	2.15e-002
Isobutane	1.74e-003	7.51e-003
n-Butane	2.62e-003	1.13e-002
Isopentane	1.29e-003	6.88e-003
n-Pentane	8.11e-004	4.34e-003
Cyclopentane	2.43e-004	1.27e-003
n-Hexane	5.45e-004	3.49e-003
Cyclohexane	1.14e-003	7.11e-003
Other Hexanes	7.44e-004	4.76e-003
Heptanes	1.45e-003	1.08e-002
Methylcyclohexane	4.25e-003	3.10e-002
2,2,4-Trimethylpentane	4.73e-005	4.01e-004
Benzene	1.00e-002	5.81e-002
Toluene	3.83e-002	2.62e-001
Ethylbenzene	4.51e-002	3.55e-001
Xylenes	2.69e-002	2.12e-001
C8+ Heavies	2.44e-002	3.08e-001
Total Components	100.00	1.36e+002

CONDENSER VENT GAS STREAM

Temperature: 100.00 deg. F
Pressure: 11.70 psia
Flow Rate: 2.57e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	8.22e+000	1.00e-001
Carbon Dioxide	6.01e+001	1.79e+000
Nitrogen	3.03e-002	5.74e-004
Methane	2.48e+001	2.70e-001
Ethane	1.23e+000	2.50e-002
Propane	7.11e-001	2.12e-002
Isobutane	1.87e-001	7.36e-003

n-Butane	2.79e-001	1.10e-002
Isopentane	1.31e-001	6.42e-003
n-Pentane	8.17e-002	3.99e-003
Cyclopentane	2.32e-002	1.10e-003
n-Hexane	4.82e-002	2.81e-003
Cyclohexane	9.13e-002	5.20e-003
Other Hexanes	6.97e-002	4.06e-003
Heptanes	9.66e-002	6.55e-003
Methylcyclohexane	2.70e-001	1.79e-002
2,2,4-Trimethylpentane	3.21e-003	2.48e-004
Benzene	6.90e-001	3.65e-002
Toluene	1.44e+000	8.99e-002
Ethylbenzene	9.77e-001	7.02e-002
Xylenes	4.81e-001	3.46e-002
C8+ Heavies	1.18e-002	1.36e-003
Total Components	100.00	2.51e+000

CONDENSER PRODUCED WATER STREAM

Temperature: 100.00 deg. F
Flow Rate: 2.65e-001 gpm

Component	Conc. (wt%)	Loading (lb/hr)	(ppm)
Water	9.99e+001	1.32e+002	999202.
Carbon Dioxide	5.22e-002	6.91e-002	522.
Nitrogen	3.79e-007	5.02e-007	0.
Methane	3.61e-004	4.78e-004	4.
Ethane	4.05e-005	5.37e-005	0.
Propane	3.01e-005	3.99e-005	0.
Isobutane	5.84e-006	7.74e-006	0.
n-Butane	1.18e-005	1.57e-005	0.
Isopentane	5.04e-006	6.67e-006	0.
n-Pentane	3.42e-006	4.53e-006	0.
Cyclopentane	7.12e-006	9.43e-006	0.
n-Hexane	2.09e-006	2.76e-006	0.
Cyclohexane	2.33e-005	3.09e-005	0.
Other Hexanes	2.39e-006	3.17e-006	0.
Heptanes	2.78e-006	3.68e-006	0.
Methylcyclohexane	3.91e-005	5.18e-005	0.
2,2,4-Trimethylpentane	6.91e-008	9.14e-008	0.
Benzene	5.11e-003	6.77e-003	51.
Toluene	1.08e-002	1.43e-002	108.
Ethylbenzene	6.57e-003	8.69e-003	66.
Xylenes	4.60e-003	6.09e-003	46.
C8+ Heavies	3.29e-007	4.35e-007	0.
Total Components	100.00	1.32e+002	1000000.

CONDENSER RECOVERED OIL STREAM

Temperature: 100.00 deg. F
Flow Rate: 2.24e-003 gpm

Component	Conc. (wt%)	Loading (lb/hr)

Water	3.49e-002	3.32e-004
Carbon Dioxide	1.72e-001	1.64e-003
Nitrogen	2.79e-005	2.65e-007
Methane	9.21e-003	8.76e-005
Ethane	4.49e-003	4.27e-005
Propane	2.21e-002	2.10e-004
Isobutane	1.57e-002	1.49e-004
n-Butane	3.18e-002	3.03e-004
Isopentane	4.84e-002	4.60e-004
n-Pentane	3.61e-002	3.44e-004
Cyclopentane	1.63e-002	1.55e-004
n-Hexane	7.09e-002	6.74e-004
Cyclohexane	1.97e-001	1.87e-003
Other Hexanes	7.26e-002	6.91e-004
Heptanes	4.48e-001	4.26e-003
Methylcyclohexane	1.37e+000	1.30e-002
2,2,4-Trimethylpentane	1.61e-002	1.53e-004
Benzene	1.56e+000	1.48e-002
Toluene	1.66e+001	1.58e-001
Ethylbenzene	2.91e+001	2.76e-001
Xylenes	1.80e+001	1.71e-001
C8+ Heavies	3.22e+001	3.07e-001
Total Components	100.00	9.51e-001

Dehydrator Reboiler Exhaust Emissions Calculations

Unit Number: 31b (existing unit); and 32b, 33b,& 34b (new-proposed units)
Description: Dehydrator Reboiler (30 MMSCFD / 50 MMSCFD dehydrators)

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

Fuel Consumption

617	scf/hr	Hourly fuel consumption	(MMBtu/hr / Btu/scf) x 1,000,000
900	Btu/scf	Field gas heating value	Nominal heat content
0.555	MMBtu/hr	Capacity	Manufacturer data
8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC
4,862	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
5.40	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	1.03	4.29E-02	1.88E-01
CO	1.07	4.46E-02	1.95E-01
VOC	0.16	6.46E-03	2.83E-02
SO2	0.02	8.33E-04	3.65E-03

NOX emission factor taken from August 1994 Enertek Letter *(20 mmcfd)*
CO, TOC and SO2 emission factors taken from July 1998 InFab Letter *(20 mmcfd)*
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	4.69E-03	2.05E-02
PM10	7.60	4.69E-03	2.05E-02
PM2.5	7.60	4.69E-03	2.05E-02
Lead	5.00E-04	3.08E-07	1.35E-06

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

Exhaust Parameters

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

GRI-HAPCalc ® 3.01
External Combustion Devices Report

Facility ID:	**31-6 CDP**	**Notes:**	**30 mmcfd reboiler**
Operation Type:	**COMPRESSOR STATION**		
Facility Name:	**31-6 CENTRAL DELIVERY POINT**		
User Name:	**Cirrus**		
Units of Measure:	**U.S. STANDARD**		

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

External Combustion Devices

Unit Name: 617 SCFH

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

Calculated Emissions (ton/yr)

Chemical Name	Emissions	Emission Factor	Emission Factor Set
HAPs			
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	0.0007	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	0.0043	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
Total	0.0064		

Criteria Pollutants

VOC	0.0132	0.0053921569	lb/MMBtu	EPA
PM	0.0183	0.0074509804	lb/MMBtu	EPA
PM, Condensible	0.0137	0.0055882353	lb/MMBtu	EPA
PM, Filterable	0.0046	0.0018627451	lb/MMBtu	EPA
CO	0.2020	0.0823529410	lb/MMBtu	EPA
NMHC	0.0209	0.0085294118	lb/MMBtu	EPA
NOx	0.2405	0.0980392157	lb/MMBtu	EPA
SO2	0.0014	0.0005880000	lb/MMBtu	EPA

Other Pollutants

Dichlorobenzene	0.0000	0.0000011765	lb/MMBtu	EPA
Methane	0.0055	0.0022549020	lb/MMBtu	EPA
Acetylene	0.0131	0.0053314000	lb/MMBtu	GRI Field
Ethylene	0.0013	0.0005264000	lb/MMBtu	GRI Field
Ethane	0.0075	0.0030392157	lb/MMBtu	EPA
Propylene	0.0023	0.0009333330	lb/MMBtu	GRI Field
Propane	0.0038	0.0015686275	lb/MMBtu	EPA
Butane	0.0050	0.0020588235	lb/MMBtu	EPA
Cyclopentane	0.0001	0.0000405000	lb/MMBtu	GRI Field
Pentane	0.0063	0.0025490196	lb/MMBtu	EPA
n-Pentane	0.0049	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	288.5647	117.6470588235	lb/MMBtu	EPA

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: 31-6 EUs 32-34 50 mm ops (30mm) PTE Gas 2021-10-18 Rev02
File Name: C:\Users\Lisa\Documents\0 CIRRUS\0 0 PERMIT APPLICATIONS\0 New Mexico\0 Harvest Four Corners\0 0 0 0 31-6\00 NSR\0 2023-04 (ADD DEHYS & 4SRB)\Analysis & Info\GLYCalc\Rev02\31-6 EUs 32, 33, & 34 50 mm ops (30mm) PTE Gas 2021-10-18 rev02.ddf
Date: April 11, 2023

DESCRIPTION:

Description: 31-6 EUs 32-34 50 mm ops (30mm) dehy PTE Condenser; 2021-10-18 Laguna Seca gas (rep gas)
2022 Avg 30 mm DPT parameters

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 93.10 deg. F
Pressure: 355.90 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	3.6895
Nitrogen	0.2513
Methane	95.9097
Ethane	0.1228
n-Butane	0.0268

DRY GAS:

Flow Rate: 50.0 MMSCF/day
Water Content: 3.6 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 3.5 gpm

PUMP:

Glycol Pump Type: Gas Injection
Gas Injection Pump Volume Ratio: 0.130 acfm gas/gpm glycol

FLASH TANK:

Flash Control: Recycle/recompression
Temperature: 79.3 deg. F
Pressure: 31.6 psig

REGENERATOR OVERHEADS CONTROL DEVICE:

Control Device: Condenser
Temperature: 100.0 deg. F
Pressure: 11.7 psia

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: 31-6 EUs 32-34 50 mm ops (30mm) PTE Gas 2021-10-18 Rev02
File Name: C:\Users\Lisa\Documents\0 CIRRUS\0 0 PERMIT APPLICATIONS\0 New Mexico\0 Harvest Four Corners\0 0 0 0 31-6\00 NSR\0 2023-04 (ADD DEHYS & 4SRB)\Analysis & Info\GLYCalc\Rev02\31-6 EUs 32, 33, & 34 50 mm ops (30mm) PTE Gas 2021-10-18 rev02.ddf
Date: April 11, 2023

DESCRIPTION:

Description: 31-6 EUs 32-34 50 mm ops (30mm) dehy PTE Condenser; 2021-10-18 Laguna Seca gas (rep gas)
2022 Avg 30 mm DPT parameters

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.2782	6.677	1.2186
Ethane	0.0027	0.065	0.0119
n-Butane	0.0119	0.287	0.0523
Total Emissions	0.2929	7.029	1.2828
Total Hydrocarbon Emissions	0.2929	7.029	1.2828
Total VOC Emissions	0.0119	0.287	0.0523

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.2796	6.709	1.2245
Ethane	0.0027	0.066	0.0120
n-Butane	0.0120	0.288	0.0525
Total Emissions	0.2943	7.063	1.2889
Total Hydrocarbon Emissions	0.2943	7.063	1.2889
Total VOC Emissions	0.0120	0.288	0.0525

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	31.2597	750.233	136.9176
Ethane	0.0866	2.079	0.3794
n-Butane	0.0549	1.319	0.2407

Total Emissions	31.4013	753.631	137.5377
Total Hydrocarbon Emissions	31.4013	753.631	137.5377
Total VOC Emissions	0.0549	1.319	0.2407

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.2782	6.677	1.2186
Ethane	0.0027	0.065	0.0119
n-Butane	0.0119	0.287	0.0523
Total Emissions	0.2929	7.029	1.2828
Total Hydrocarbon Emissions	0.2929	7.029	1.2828
Total VOC Emissions	0.0119	0.287	0.0523

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Methane	138.1421	1.2186	99.12
Ethane	0.3913	0.0119	96.96
n-Butane	0.2932	0.0523	82.16
Total Emissions	138.8266	1.2828	99.08
Total Hydrocarbon Emissions	138.8266	1.2828	99.08
Total VOC Emissions	0.2932	0.0523	82.16

EQUIPMENT REPORTS:

CONDENSER

Condenser Outlet Temperature:	100.00 deg. F
Condenser Pressure:	11.70 psia
Condenser Duty:	1.78e-001 MM BTU/hr
Produced Water:	15.06 bbls/day
VOC Control Efficiency:	0.39 %
HAP Control Efficiency:	0.00 %
BTEX Control Efficiency:	0.00 %
Dissolved Hydrocarbons in Water:	6.41 mg/L

Component	Emitted	Condensed
Water	0.03%	99.97%
Carbon Dioxide	90.48%	9.52%
Nitrogen	99.76%	0.24%
Methane	99.52%	0.48%
Ethane	99.42%	0.58%
n-Butane	99.61%	0.39%

ABSORBER

Calculated Absorber Stages:	4.84	
Specified Dry Gas Dew Point:	3.60	lbs. H2O/MMSCF
Temperature:	93.1	deg. F
Pressure:	355.9	psig
Dry Gas Flow Rate:	50.0000	MMSCF/day
Glycol Losses with Dry Gas:	0.1798	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	108.86	lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	0.96	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	3.30%	96.70%
Carbon Dioxide	99.96%	0.04%
Nitrogen	100.00%	0.00%
Methane	100.00%	0.00%
Ethane	99.99%	0.01%
n-Butane	99.96%	0.04%

FLASH TANK

Flash Control:	Recycle/recompression	
Flash Temperature:	79.3	deg. F
Flash Pressure:	31.6	psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.96%	0.04%
Carbon Dioxide	14.20%	85.80%
Nitrogen	0.76%	99.24%
Methane	0.89%	99.11%
Ethane	3.06%	96.94%
n-Butane	17.91%	82.09%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	11.86%	88.14%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
n-Butane	0.00%	100.00%

STREAM REPORTS:

WET GAS STREAM

Temperature: 93.10 deg. F
Pressure: 370.60 psia
Flow Rate: 2.09e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.29e-001	2.27e+002
Carbon Dioxide	3.68e+000	8.92e+003
Nitrogen	2.51e-001	3.86e+002
Methane	9.57e+001	8.45e+004
Ethane	1.23e-001	2.03e+002
n-Butane	2.67e-002	8.55e+001
Total Components	100.00	9.43e+004

DRY GAS STREAM

Temperature: 93.10 deg. F
Pressure: 370.60 psia
Flow Rate: 2.08e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.58e-003	7.50e+000
Carbon Dioxide	3.69e+000	8.91e+003
Nitrogen	2.51e-001	3.86e+002
Methane	9.59e+001	8.45e+004
Ethane	1.23e-001	2.03e+002
n-Butane	2.68e-002	8.55e+001
Total Components	100.00	9.41e+004

LEAN GLYCOL STREAM

Temperature: 93.10 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	1.92e-011	3.79e-010
Nitrogen	4.86e-014	9.58e-013
Methane	3.69e-018	7.27e-017
Ethane	4.51e-010	8.89e-009
n-Butane	4.68e-011	9.23e-010
Total Components	100.00	1.97e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 93.10 deg. F
Pressure: 370.60 psia
Flow Rate: 4.01e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc.	Loading

Component	(wt%)	(lb/hr)
TEG	8.70e+001	1.94e+003
Water	1.12e+001	2.49e+002
Carbon Dioxide	3.09e-001	6.89e+000
Nitrogen	6.47e-003	1.44e-001
Methane	1.42e+000	3.15e+001
Ethane	4.02e-003	8.93e-002
n-Butane	3.01e-003	6.69e-002
Total Components	100.00	2.22e+003

FLASH TANK OFF GAS STREAM

Temperature: 79.30 deg. F
Pressure: 46.30 psia
Flow Rate: 7.96e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.91e-001	1.10e-001
Carbon Dioxide	6.40e+000	5.91e+000
Nitrogen	2.43e-001	1.43e-001
Methane	9.29e+001	3.13e+001
Ethane	1.37e-001	8.66e-002
n-Butane	4.51e-002	5.49e-002
Total Components	100.00	3.76e+001

FLASH TANK GLYCOL STREAM

Temperature: 79.30 deg. F
Flow Rate: 3.93e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)	(ppm)
TEG	8.85e+001	1.94e+003	885427.
Water	1.14e+001	2.49e+002	113991.
Carbon Dioxide	4.47e-002	9.78e-001	447.
Nitrogen	5.01e-005	1.10e-003	1.
Methane	1.28e-002	2.80e-001	128.
Ethane	1.25e-004	2.73e-003	1.
n-Butane	5.48e-004	1.20e-002	5.
Total Components	100.00	2.19e+003	1000000.

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

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

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F

Pressure: 14.70 psia
Flow Rate: 4.65e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.97e+001	2.20e+002
Carbon Dioxide	1.81e-001	9.78e-001
Nitrogen	3.19e-004	1.10e-003
Methane	1.42e-001	2.80e-001
Ethane	7.42e-004	2.73e-003
n-Butane	1.68e-003	1.20e-002
Total Components	100.00	2.21e+002

CONDENSER VENT GAS STREAM

Temperature: 100.00 deg. F
Pressure: 11.70 psia
Flow Rate: 1.56e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	8.22e+000	6.09e-002
Carbon Dioxide	4.88e+001	8.85e-001
Nitrogen	9.48e-002	1.09e-003
Methane	4.21e+001	2.78e-001
Ethane	2.19e-001	2.71e-003
n-Butane	4.99e-001	1.19e-002
Total Components	100.00	1.24e+000

CONDENSER PRODUCED WATER STREAM

Temperature: 100.00 deg. F
Flow Rate: 4.39e-001 gpm

Component	Conc. (wt%)	Loading (lb/hr)	(ppm)
Water	1.00e+002	2.20e+002	999570.
Carbon Dioxide	4.23e-002	9.31e-002	423.
Nitrogen	1.19e-006	2.61e-006	0.
Methane	6.12e-004	1.35e-003	6.
Ethane	7.22e-006	1.59e-005	0.
n-Butane	2.11e-005	4.64e-005	0.
Total Components	100.00	2.20e+002	1000000.

CONDENSER RECOVERED OIL STREAM

Temperature: 100.00 deg. F

The calculated flow rate is less than 0.000001 #mol/hr.
The stream flow rate and composition are not reported.

Dehydrator Reboiler Exhaust Emissions Calculations

Unit Number: 31b (existing unit); and 32b, 33b,& 34b (new-proposed units)
Description: Dehydrator Reboiler (30 MMSCFD / 50 MMSCFD dehydrators)

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

Fuel Consumption

617	scf/hr	Hourly fuel consumption	(MMBtu/hr / Btu/scf) x 1,000,000
900	Btu/scf	Field gas heating value	Nominal heat content
0.555	MMBtu/hr	Capacity	Manufacturer data
8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC
4,862	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
5.40	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	1.03	4.29E-02	1.88E-01
CO	1.07	4.46E-02	1.95E-01
VOC	0.16	6.46E-03	2.83E-02
SO2	0.02	8.33E-04	3.65E-03

NOX emission factor taken from August 1994 Enertek Letter *(20 mmcfd)*
CO, TOC and SO2 emission factors taken from July 1998 InFab Letter *(20 mmcfd)*
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	4.69E-03	2.05E-02
PM10	7.60	4.69E-03	2.05E-02
PM2.5	7.60	4.69E-03	2.05E-02
Lead	5.00E-04	3.08E-07	1.35E-06

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

Exhaust Parameters

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

GRI-HAPCalc ® 3.01
External Combustion Devices Report

Facility ID:	**31-6 CDP**	**Notes:**	**50 mmcfd reboiler**
Operation Type:	**COMPRESSOR STATION**		
Facility Name:	**31-6 CENTRAL DELIVERY POINT**		
User Name:	**Cirrus**		
Units of Measure:	**U.S. STANDARD**		

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

External Combustion Devices

Unit Name: 617 SCFH

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

Calculated Emissions (ton/yr)

Chemical Name	Emissions	Emission Factor	Emission Factor Set
HAPs			
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	0.0007	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	0.0043	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
Total	0.0064		

Criteria Pollutants

VOC	0.0132	0.0053921569	lb/MMBtu	EPA
PM	0.0183	0.0074509804	lb/MMBtu	EPA
PM, Condensible	0.0137	0.0055882353	lb/MMBtu	EPA
PM, Filterable	0.0046	0.0018627451	lb/MMBtu	EPA
CO	0.2020	0.0823529410	lb/MMBtu	EPA
NMHC	0.0209	0.0085294118	lb/MMBtu	EPA
NOx	0.2405	0.0980392157	lb/MMBtu	EPA
SO2	0.0014	0.0005880000	lb/MMBtu	EPA

Other Pollutants

Dichlorobenzene	0.0000	0.0000011765	lb/MMBtu	EPA
Methane	0.0055	0.0022549020	lb/MMBtu	EPA
Acetylene	0.0131	0.0053314000	lb/MMBtu	GRI Field
Ethylene	0.0013	0.0005264000	lb/MMBtu	GRI Field
Ethane	0.0075	0.0030392157	lb/MMBtu	EPA
Propylene	0.0023	0.0009333330	lb/MMBtu	GRI Field
Propane	0.0038	0.0015686275	lb/MMBtu	EPA
Butane	0.0050	0.0020588235	lb/MMBtu	EPA
Cyclopentane	0.0001	0.0000405000	lb/MMBtu	GRI Field
Pentane	0.0063	0.0025490196	lb/MMBtu	EPA
n-Pentane	0.0049	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	288.5647	117.6470588235	lb/MMBtu	EPA

Storage Tank Emissions Calculations

Unit Number: T43, T44, T55, & T56
Description: Produced Water Tank

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

Throughput

7,270 bbl/yr Annual liquid throughput (gal/yr) / (42 gal/bbl)

Emission Rates

Pollutant	Emission Factor, lb/bbl	Uncontrolled, Emission Rate, tpy
VOC	0.262	0.95
Benzene	0.007	2.54E-02
Ethylbenzene	0.0007	2.54E-03
n-Hexane	0.022	8.00E-02
Toluene	0.009	3.27E-02
Xylene	0.006	2.18E-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

0.6	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)
18.02 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/10^3 gal (maximum)	Emission factor, L	AP-42, Section 5.2, Equation 1
0.08 lb/10^3 gal (average)	Emission factor, L	AP-42, Section 5.2, Equation 1

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

Production Rate

3.36 10^3 gal/hr	Maximum hourly production rate	Harvest Four Corners, LLC
305.340 10^3 gal/yr	Maximum annual production rate (aggregate)	Harvest Four Corners, LLC

Steady-State Emission Rates

Pollutant	Uncontrolled Emission Rates, pph	tpy
VOC	3.86E-01	1.19E-02

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

Pollutants	Mass Fraction	Uncontrolled Emission Rates, pph	tpy
Benzene	0.0267	1.03E-04	3.19E-06
Ethylbenzene	0.0027	1.03E-05	3.19E-07
n-Hexane	0.0840	3.24E-04	1.00E-05
Toluene	0.0344	1.33E-04	4.10E-06
m-Xylene	0.0229	8.85E-05	2.73E-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 °C
P = mmHg

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

P = 23.69 mmHg
P = 0.4581 psi

Average:

Temperature = 65 °F

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

A = 8.07131
B = 1730.63
C = 233.426
T = 18.33 °C
P = mmHg

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

P = 15.75 mmHg
P = 0.3045 psi

Note: 760 mmHg = 14.7 psia

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

Identification

User Identification:	31-6 T-50 Methanol (500 gal)
City:	Rio Arriba Co., T30N, R06W, Sec01
State:	NM
Company:	Williams Four Corners
Type of Tank:	Vertical Fixed Roof Tank
Description:	500 gal methanol tank 2,000 gal throughput

Tank Dimensions

Shell Height (ft):	5.00
Diameter (ft):	4.50
Liquid Height (ft) :	4.00
Avg. Liquid Height (ft):	2.00
Volume (gallons):	500.00
Turnovers:	4.00
Net Throughput(gal/yr):	2,000.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

Roof Characteristics

Type:	Cone
Height (ft)	0.00
Slope (ft/ft) (Cone Roof)	0.06

Breather Vent Settings

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

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

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

31-6 T-50 Methanol (500 gal) - Vertical Fixed Roof Tank
Rio Arriba Co., T30N, R06W, Sec01, NM

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Methyl alcohol	All	58.54	51.41	65.66	56.17	1.3769	1.0943	1.7198	32.0400			32.04	Option 2: A=7.897, B=1474.08, C=229.13

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

31-6 T-50 Methanol (500 gal) - Vertical Fixed Roof Tank
Rio Arriba Co., T30N, R06W, Sec01, NM

Annual Emission Calcaulations

Standing Losses (lb):	12.3406
Vapor Space Volume (cu ft):	48.4585
Vapor Density (lb/cu ft):	0.0079
Vapor Space Expansion Factor:	0.1075
Vented Vapor Saturation Factor:	0.8181
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	48.4585
Tank Diameter (ft):	4.5000
Vapor Space Outage (ft):	3.0469
Tank Shell Height (ft):	5.0000
Average Liquid Height (ft):	2.0000
Roof Outage (ft):	0.0469
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.0469
Roof Height (ft):	0.0000
Roof Slope (ft/ft):	0.0625
Shell Radius (ft):	2.2500
Vapor Density	
Vapor Density (lb/cu ft):	0.0079
Vapor Molecular Weight (lb/lb-mole):	32.0400
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.3769
Daily Avg. Liquid Surface Temp. (deg. R):	518.2062
Daily Average Ambient Temp. (deg. F):	56.1542
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	515.8442
Tank Paint Solar Absorptance (Shell):	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.1075
Daily Vapor Temperature Range (deg. R):	28.5089
Daily Vapor Pressure Range (psia):	0.6255
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.3769
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	1.0943
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	1.7198
Daily Avg. Liquid Surface Temp. (deg R):	518.2062
Daily Min. Liquid Surface Temp. (deg R):	511.0790
Daily Max. Liquid Surface Temp. (deg R):	525.3334
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.8181
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	1.3769
Vapor Space Outage (ft):	3.0469
Working Losses (lb):	2.1008
Vapor Molecular Weight (lb/lb-mole):	32.0400
Vapor Pressure at Daily Average Liquid	

Surface Temperature (psia):	1.3769
Annual Net Throughput (gal/yr.):	2,000.0000
Annual Turnovers:	4.0000
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	500.0000
Maximum Liquid Height (ft):	4.0000
Tank Diameter (ft):	4.5000
Working Loss Product Factor:	1.0000

Total Losses (lb):	14.4414

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

Emissions Report for: Annual

31-6 T-50 Methanol (500 gal) - Vertical Fixed Roof Tank
Rio Arriba Co., T30N, R06W, Sec01, NM

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Methyl alcohol	2.10	12.34	14.44

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

Identification

User Identification:	31-6 T-17 Corrosion Inhibitor (500 gal)
City:	Rio Arriba Co., T30N, R06W, Sec01
State:	NM
Company:	Williams Four Corners
Type of Tank:	Vertical Fixed Roof Tank
Description:	500 gal corrosion inhibitor tank 2,000 gal throughput

Tank Dimensions

Shell Height (ft):	5.00
Diameter (ft):	4.50
Liquid Height (ft) :	4.00
Avg. Liquid Height (ft):	2.00
Volume (gallons):	500.00
Turnovers:	4.00
Net Throughput(gal/yr):	2,000.00
Is Tank Heated (y/n):	N

Paint Characteristics

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

Roof Characteristics

Type:	Cone
Height (ft)	0.00
Slope (ft/ft) (Cone Roof)	0.06

Breather Vent Settings

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

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

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

31-6 T-17 Corrosion Inhibitor (500 gal) - Vertical Fixed Roof Tank
Rio Arriba Co., T30N, R06W, Sec01, NM

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Corrosion Inhibitor	All	67.36	53.93	80.79	59.23	1.2967	0.8686	1.8803	41.3754			68.87	
1,2,3-Trimethylbenzene						0.0198	0.0114	0.0332	120.2000	0.0450	0.0011	120.20	Option 2: A=7.04082, B=1593.958, C=207.078
1,2,4-Trimethylbenzene						0.0273	0.0160	0.0451	120.1900	0.2700	0.0095	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
1,3,5-Trimethylbenzene						0.0292	0.0171	0.0483	120.1900	0.0900	0.0034	120.19	Option 2: A=7.07436, B=1573.622, C=208.564
1-Dodecanethiol						0.0000	0.0000	0.0001	202.4000	0.0100	0.0000	202.40	Option 2: A=7.0244, B=1817.8, C=164.1
Jet naphtha (JP-4)						1.5209	1.1180	1.9396	80.0000	0.2700	0.3514	120.00	Option 1: VP60 = 1.3 VP70 = 1.6
Methyl alcohol						1.8115	1.1881	2.6951	32.0400	0.2700	0.6279	32.04	Option 2: A=7.897, B=1474.08, C=229.13
Xylene (-m)						0.1165	0.0728	0.1813	106.1700	0.0450	0.0067	106.17	Option 2: A=7.009, B=1462.266, C=215.11

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

31-6 T-17 Corrosion Inhibitor (500 gal) - Vertical Fixed Roof Tank
Rio Arriba Co., T30N, R06W, Sec01, NM

Annual Emission Calcaulations

Standing Losses (lb):	26.3064
Vapor Space Volume (cu ft):	48.4585
Vapor Density (lb/cu ft):	0.0095
Vapor Space Expansion Factor:	0.1896
Vented Vapor Saturation Factor:	0.8269
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	48.4585
Tank Diameter (ft):	4.5000
Vapor Space Outage (ft):	3.0469
Tank Shell Height (ft):	5.0000
Average Liquid Height (ft):	2.0000
Roof Outage (ft):	0.0469
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.0469
Roof Height (ft):	0.0000
Roof Slope (ft/ft):	0.0625
Shell Radius (ft):	2.2500
Vapor Density	
Vapor Density (lb/cu ft):	0.0095
Vapor Molecular Weight (lb/lb-mole):	41.3754
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.2967
Daily Avg. Liquid Surface Temp. (deg. R):	527.0322
Daily Average Ambient Temp. (deg. F):	56.1542
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	518.9042
Tank Paint Solar Absorptance (Shell):	0.6800
Tank Paint Solar Absorptance (Roof):	0.6800
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.1896
Daily Vapor Temperature Range (deg. R):	53.7176
Daily Vapor Pressure Range (psia):	1.0118
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.2967
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.8686
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	1.8803
Daily Avg. Liquid Surface Temp. (deg R):	527.0322
Daily Min. Liquid Surface Temp. (deg R):	513.6028
Daily Max. Liquid Surface Temp. (deg R):	540.4617
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.8269
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	1.2967
Vapor Space Outage (ft):	3.0469

Working Losses (lb):	2.5548
Vapor Molecular Weight (lb/lb-mole):	41.3754
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.2967
Annual Net Throughput (gal/yr.):	2,000.0000
Annual Turnovers:	4.0000
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	500.0000
Maximum Liquid Height (ft):	4.0000
Tank Diameter (ft):	4.5000
Working Loss Product Factor:	1.0000
Total Losses (lb):	28.8612

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

Emissions Report for: Annual

31-6 T-17 Corrosion Inhibitor (500 gal) - Vertical Fixed Roof Tank
Rio Arriba Co., T30N, R06W, Sec01, NM

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Corrosion Inhibitor	2.55	26.31	28.86
1,2,3-Trimethylbenzene	0.00	0.03	0.03
1,2,4-Trimethylbenzene	0.02	0.25	0.27
1,3,5-Trimethylbenzene	0.01	0.09	0.10
1-Dodecanethiol	0.00	0.00	0.00
Jet naphtha (JP-4)	0.90	9.24	10.14
Methyl alcohol	1.60	16.52	18.12
Xylene (-m)	0.02	0.18	0.19

Pig Receiver Emissions Calculations

Unit Number: PR1
Description: Pig Receiver

Blowdown Volume

Outside Diameter, in	Wall Thickness, in	Tube Length, ft	Port Size, in	Pressure, psig	Purge Duration, min	Gas Loss, mscf
20	0.375	10	1	30	0.5	0.291

Blowdown Gas Loss
(([Outside diameter (in)] - 2 * [Wall thickness (in)]) ^ 2) * [Pressure (psig)] * [Pipeline length (ft)] * 0.372 / 1000000
Purge Gas Loss
([Port size (in)] ^ 2) * [Pressure (psig)] * ([Purge duration (min)] / 60)

Throughput

52	events/yr	Blowdowns per year	Harvest Four Corners, LLC
291	scf/event	Gas loss per blowdown	Calculated (see table above)
15,150	scf/yr	Annual gas loss	events/yr x scf/event

Emission Rates

Pollutants	Emission Factors, lb/scf	Uncontrolled, Emission Rates, tpy
VOC	3.269E-04	2.48E-03
Benzene	6.682E-07	5.06E-06
Ethylbenzene	1.362E-06	1.03E-05
n-Hexane	2.396E-06	1.81E-05
Isooctane	2.143E-07	1.62E-06
Toluene	1.774E-06	1.34E-05
Xylene	4.541E-07	3.44E-06

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	6.9735	44.01	8.089E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.1239	28.01	9.150E-05
Methane	91.6392	16.04	3.874E-02
Ethane	1.0173	30.07	8.063E-04
Propane	0.1748	44.09	2.032E-04
Isobutane	0.0243	58.12	3.729E-05
n-Butane	0.0236	58.12	3.612E-05
Isopentane	0.0092	72.15	1.744E-05
n-Pentane	0.0040	72.15	7.561E-06
Cyclopentane	0.0002	70.14	3.000E-07
n-Hexane	0.0011	86.17	2.396E-06
Cyclohexane	0.0004	84.16	9.000E-07
Other hexanes	0.0023	86.18	5.161E-06
Heptanes	0.0011	100.20	2.786E-06
Methylcyclohexane	0.0011	98.19	2.940E-06
Isooctane	0.0001	100.21	2.143E-07
Benzene	0.0003	78.11	6.682E-07
Toluene	0.0007	92.14	1.774E-06
Ethylbenzene	0.0005	106.17	1.362E-06
Xylenes	0.0002	106.17	4.541E-07
C8+ Heavies	0.0022	110.00	6.352E-06
Total	99.9999		
Total VOC			3.269E-04

The gas stream composition is based on the blended 31-6 CDP & 31-6 Straddle Suction gas analyses sampled 11/30/2022.
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

Equipment Leaks Emissions Calculations

Unit Number: F1
Description: Valves, Connectors, Seals & Open-Ended Lines

Steady-State Emission Rates

Equipment	Number of Components, # of sources	Emission Factors, kg/hr/source	Emission Factors, lb/hr/source	Uncontrolled Emission Rates, pph	tpy
Valves	1377	0.0045	0.0099	13.63	59.71
Connectors	1527	0.0002	0.0004	0.67	2.94
Pump Seals	20	0.0024	0.0053	0.11	0.46
Compressor Seals	88	0.0088	0.0194	1.70	7.46
Pressure Relief Valves	133	0.0088	0.0194	2.57	11.28
Open-Ended Lines	388	0.0020	0.0044	1.71	7.48
Total				**20.40**	**89.33**

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	6.9735	44.010	3.069	16.830	3.43E+00	1.50E+01
Hydrogen sulfide	0.0000	34.070	0.000	0.000	0.00E+00	0.00E+00
Nitrogen	0.1239	28.013	0.035	0.190	3.88E-02	1.70E-01
Methane	91.6392	16.043	14.702	80.621	1.64E+01	7.20E+01
Ethane	1.0173	30.070	0.306	1.678	3.42E-01	1.50E+00
Propane	0.1748	44.097	0.077	0.423	8.62E-02	3.78E-01
Isobutane	0.0243	58.123	0.014	0.078	1.58E-02	6.93E-02
n-Butane	0.0236	58.123	0.014	0.075	1.53E-02	6.71E-02
Isopentane	0.0092	72.150	0.007	0.036	7.40E-03	3.24E-02
n-Pentane	0.0040	72.150	0.003	0.016	3.21E-03	1.41E-02
Cyclopentane	0.0002	70.134	0.000	0.001	1.27E-04	5.58E-04
n-Hexane	0.0011	86.177	0.001	0.005	1.02E-03	4.45E-03
Cyclohexane	0.0004	84.161	0.000	0.002	3.82E-04	1.67E-03
Other hexanes	0.0023	86.177	0.002	0.011	2.19E-03	9.59E-03
Heptanes	0.0011	100.204	0.001	0.006	1.18E-03	5.18E-03
Methylcyclohexane	0.0011	98.188	0.001	0.006	1.25E-03	5.46E-03
2,2,4-Trimethylpentane (Isooctane	0.0001	114.231	0.000	0.001	1.04E-04	4.54E-04
Benzene	0.0003	78.114	0.000	0.001	2.84E-04	1.24E-03
Toluene	0.0007	92.141	0.001	0.004	7.53E-04	3.30E-03
Ethylbenzene	0.0005	106.167	0.001	0.003	5.78E-04	2.53E-03
Xylenes	0.0002	106.167	0.000	0.001	1.93E-04	8.44E-04
C8+ Heavies	0.0022	114.231	0.003	0.014	2.80E-03	1.23E-02
Total	99.9999		18.235			
Total VOC				0.681	1.39E-01	6.08E-01

The gas stream composition is based on the blended 31-6 CDP & 31-6 Straddle Suction gas analyses sampled 11/30/2022.
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 & Open-Ended Lines

Component Count

Number of Compressors at the Facility: 16
Number of Dehydrators at the Facility: 10

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	704	944	0	64	96	176	0	64	144
Components from dehydrators	60	100	20	0	30	60	0	30	40
Total	885	1117	20	88	133	284	3	104	196
Adjusted Total	1377	1527	20	88	133	388			

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		10.00
Benzene	2.044E-01	2.04E-02
Ethylbenzene	4.168E-01	4.17E-02
n-Hexane	7.329E-01	7.33E-02
2,2,4-Trimethlypentane (Isooctane)	6.557E-02	6.56E-03
Toluene	5.426E-01	5.43E-02
Xylene	1.389E-01	1.39E-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	6.9735	44.01		
Hydrogen sulfide	0.0000	34.07		
Nitrogen	0.1239	28.01		
Methane	91.6392	16.04		
Ethane	1.0173	30.07		
Propane	0.1748	44.09	0.0771	6.215E+01
Isobutane	0.0243	58.12	0.0141	1.141E+01
n-Butane	0.0236	58.12	0.0137	1.105E+01
Isopentane	0.0092	72.15	0.0066	5.334E+00
n-Pentane	0.0040	72.15	0.0029	2.313E+00
Cyclopentane	0.0002	70.14	0.0001	9.178E-02
n-Hexane	0.0011	86.17	0.0009	7.329E-01
Cyclohexane	0.0004	84.16	0.0003	2.753E-01
Other hexanes	0.0023	86.18	0.0020	1.579E+00
Heptanes	0.0011	100.20	0.0011	8.523E-01
Methylcyclohexane	0.0011	98.19	0.0011	8.994E-01
2,2,4-Trimethlypentane (Isooctane)	0.0001	100.21	0.0001	6.557E-02
Benzene	0.0003	78.11	0.0003	2.044E-01
Toluene	0.0007	92.14	0.0007	5.426E-01
Ethylbenzene	0.0005	106.17	0.0005	4.168E-01
Xylenes	0.0002	106.17	0.0002	1.389E-01
C8+ Heavies	0.0022	110.00	0.0024	1.943E+00
Total	99.9999			
Total VOC			0.1240	

The gas stream composition is based on the blended 31-6 CDP & 31-6 Straddle Suction gas analyses sampled 11/30/2022.
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)

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

Calculating GHG Emissions:

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

Sources for Calculating GHG Emissions:

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

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

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

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

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

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

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

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

CO_2 and CH_4 from emission sources including equipment leaks (fugitive emissions), gas-driven pneumatic devices, and gas-driven pneumatic pumps were calculated using the gas stream composition, component counts, and the applicable Subpart W methodology.

There are no appreciable GHG emissions associated with the storage tanks and/or truck loading operations.

Green House Gas Emissions Data and Calculations

Sources	Facility Total Emissions				
	CO2, tpy	N2O, tpy	CH4, tpy	GHG, tpy	CO2e, tpy
Engine & Turbine Exhaust	100,547.25	1.89E-01	1.89	100,549.34	100,651.10
SSM Blowdowns	296.86	--	1,421.77	1,718.62	35,841.01
Reciprocating Compressor Venting	198.75	--	953.33	1,152.07	24,031.93
Dehydrators	490.50	--	12.18	502.68	794.95
Reboiler Exhaust	2,577.22	4.86E-03	0.05	2,577.28	2,579.88
Pig Launchers & Receivers	0.06	--	0.29	0.35	7.40
Equipment Leaks	8.16	--	39.12	47.28	986.22
Natural Gas Pneumatic Device Venting	13.53	--	64.73	78.26	1,631.86
Natural Gas Driven Pneumatic Pump Venting	0.94	--	4.51	5.45	113.69
Malfunctions	247.46	--	1,185.21	1,432.67	29,877.66
Total	104,380.73	1.94E-01	3,683.08	108,064.00	196,515.70

Engine & Turbine Exhaust Emissions

Unit Numbers	Description	Emission Factors			Emission Rates		
		CO2, kg/MMBtu	N2O, kg/MMBtu	CH4, kg/MMBtu	CO2, tpy	N2O, tpy	CH4, tpy
1	Waukesha 7042 GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
3	Waukesha 7042 GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
4	Waukesha 7042 **GSI**	53.06	1.00E-04	1.00E-03	6,581.39	1.24E-02	1.24E-01
5	Waukesha 7042 GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
6	Waukesha 7042 **GSI**	53.06	1.00E-04	1.00E-03	6,581.39	1.24E-02	1.24E-01
7	Waukesha 7042 GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
8	Waukesha 7042 GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
9	Waukesha 7042 GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
10	Waukesha 7042 GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
11	Waukesha 7042 GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
12	Waukesha 7042 GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
13	Waukesha 7042 **GSI**	53.06	1.00E-04	1.00E-03	6,581.39	1.24E-02	1.24E-01
14	Waukesha 7042 **GSI**	53.06	1.00E-04	1.00E-03	6,581.39	1.24E-02	1.24E-01
15	Waukesha 7042 GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
16	Waukesha 7042 GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
33	Waukesha 7042 GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
	Total				100,547.25	1.89E-01	1.89

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	Waukesha 7042 GL	Nat. Gas	8,760	10.89	12.10	105,972
3	Waukesha 7042 GL	Nat. Gas	8,760	10.89	12.10	105,972
4	Waukesha 7042 **GSI**	Nat. Gas	8,760	11.58	12.87	112,761
5	Waukesha 7042 GL	Nat. Gas	8,760	10.89	12.10	105,972
6	Waukesha 7042 **GSI**	Nat. Gas	8,760	11.58	12.87	112,761
7	Waukesha 7042 GL	Nat. Gas	8,760	10.89	12.10	105,972
8	Waukesha 7042 GL	Nat. Gas	8,760	10.89	12.10	105,972
9	Waukesha 7042 GL	Nat. Gas	8,760	10.89	12.10	105,972
10	Waukesha 7042 GL	Nat. Gas	8,760	10.89	12.10	105,972
11	Waukesha 7042 GL	Nat. Gas	8,760	10.89	12.10	105,972
12	Waukesha 7042 GL	Nat. Gas	8,760	10.89	12.10	105,972
13	Waukesha 7042 **GSI**	Nat. Gas	8,760	11.58	12.87	112,761
14	Waukesha 7042 **GSI**	Nat. Gas	8,760	11.58	12.87	112,761
15	Waukesha 7042 GL	Nat. Gas	8,760	10.89	12.10	105,972
16	Waukesha 7042 GL	Nat. Gas	8,760	10.89	12.10	105,972
33	Waukesha 7042 GL	Nat. Gas	8,760	10.89	12.10	105,972

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

Green House Gas Emissions Data and Calculations

SSM Blowdown Emissions

Unit Numbers	Description	Total Gas Losses, scf/yr	CO2 Emission Factors, lb/scf	CH4 Emission Factors, lb/scf	Emission Rates		
					CO2, tpy	N2O, tpy	CH4, tpy
SSM (Eng)	SSM Blowdowns	73,395,600	0.0081	0.0387	296.86	-	1,421.77
	Total	73,395,600	0.0081	0.0387	296.86	-	1,421.77

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

Reciprocating Compressor Venting Emissions

Unit Numbers	Description	Emission Rates		
		CO2, tpy	N2O, tpy	CH4, tpy
NA	Blowdown Valve Leakage	18.98	-	91.06
NA	Rod Packing Emissions	179.76	-	862.26
NA	Isolation Valve Leakage	0.00	-	0.00
	Total	198.75	-	953.33

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 CO2 & CH4 emissions rather than CO2e emissions, it is not necessary to include the global warming potential from equation W-36
CO2 Emission Rates (tpy) = # x scf/hr x hr/yr x (CO2 Mole Percent (%) / 100) x CO2 Density (kg/scf)
x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne
CH4 Emission Rates (tpy) = # x scf/hr x hr/yr x (CH4 Mole Percent (%) / 100) x CH4 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	CO2 Mole Percents, %	CH4 Mole Percents, %	CO2 Density, kg/scf	CH4 Density, kg/scf
NA	Blowdown Valve Leakage	16	33.5	8,760	6.97	91.64	0.0526	0.0192
NA	Rod Packing Emissions	16	317.2	8,760	6.97	91.64	0.0526	0.0192
NA	Isolation Valve Leakage	16	10.5	0	6.97	91.64	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 Williams Field Services, 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 CO2 and CH4 contents are taken from the facility extended gas analysis
The CO2 & CH4 densities (kg/scf) are taken from Subpart W, Paragraph 98.233(v)

Green House Gas Emissions Data and Calculations

Dehydrator Emissions

Unit Numbers	Description	Emission Rates		
		CO2, tpy	N2O, tpy	CH4, tpy
17a	Dehydrator (12 MMSCFD)	57.82	-	1.22
18a	Dehydrator (12 MMSCFD)	57.82	-	1.22
19a	Dehydrator (12 MMSCFD)	57.82	-	1.22
20a	Dehydrator (12 MMSCFD)	57.82	-	1.22
21a	Dehydrator (12 MMSCFD)	57.82	-	1.22
22a	Dehydrator (12 MMSCFD)	57.82	-	1.22
31a	Dehydrator (30 MMSCFD)	56.33	-	1.18
32a	Dehydrator (30/50 MMSCFD)	29.09	-	1.23
33a	Dehydrator (30/50 MMSCFD)	29.09	-	1.23
34a	Dehydrator (30/50 MMSCFD)	29.09	-	1.23
	Total	490.50	-	12.18

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

Reboiler Exhaust Emissions

Unit Numbers	Description	Emission Factors			Emission Rates		
		CO2, kg/MMBtu	N2O, kg/MMBtu	CH4, kg/MMBtu	CO2, tpy	N2O, tpy	CH4, tpy
17b	Reboiler (12 MMSCFD)	53.06	1.00E-04	1.00E-03	219.34	4.13E-04	4.13E-03
18b	Reboiler (12 MMSCFD)	53.06	1.00E-04	1.00E-03	219.34	4.13E-04	4.13E-03
19b	Reboiler (12 MMSCFD)	53.06	1.00E-04	1.00E-03	219.34	4.13E-04	4.13E-03
20b	Reboiler (12 MMSCFD)	53.06	1.00E-04	1.00E-03	219.34	4.13E-04	4.13E-03
21b	Reboiler (12 MMSCFD)	53.06	1.00E-04	1.00E-03	219.34	4.13E-04	4.13E-03
22b	Reboiler (12 MMSCFD)	53.06	1.00E-04	1.00E-03	219.34	4.13E-04	4.13E-03
31b	Reboiler (30 MMSCFD)	53.06	1.00E-04	1.00E-03	315.29	5.94E-04	5.94E-03
32b	Reboiler (30/50 MMSCFD)	53.06	1.00E-04	1.00E-03	315.29	5.94E-04	5.94E-03
33b	Reboiler (30/50 MMSCFD)	53.06	1.00E-04	1.00E-03	315.29	5.94E-04	5.94E-03
34b	Reboiler (30/50 MMSCFD)	53.06	1.00E-04	1.00E-03	315.29	5.94E-04	5.94E-03
	Total				2,577.22	4.86E-03	4.86E-02

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

Unit Numbers	Description	Fuel Types	Operating Times hr/yr	LHV			HHV	
				Fuel Usages, scf/hr	Fuel Heat Contents, Btu/scf	Fuel Usages, MMBtu/hr	Fuel Usages, MMBtu/hr	Fuel Usages, MMBtu/yr
17b	Reboiler (12 MMSCFD)	Nat. Gas	8,760	429	900	0.39	0.43	3,758
18b	Reboiler (12 MMSCFD)	Nat. Gas	8,760	429	900	0.39	0.43	3,758
19b	Reboiler (12 MMSCFD)	Nat. Gas	8,760	429	900	0.39	0.43	3,758
20b	Reboiler (12 MMSCFD)	Nat. Gas	8,760	429	900	0.39	0.43	3,758
21b	Reboiler (12 MMSCFD)	Nat. Gas	8,760	429	900	0.39	0.43	3,758
22b	Reboiler (12 MMSCFD)	Nat. Gas	8,760	429	900	0.39	0.43	3,758
31b	Reboiler (30 MMSCFD)	Nat. Gas	8,760	617	900	0.56	0.62	5,402
32b	Reboiler (30/50 MMSCFD)	Nat. Gas	8,760	617	900	0.56	0.62	5,402
33b	Reboiler (30/50 MMSCFD)	Nat. Gas	8,760	617	900	0.56	0.62	5,402
34b	Reboiler (30/50 MMSCFD)	Nat. Gas	8,760	617	900	0.56	0.62	5,402

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

Green House Gas Emissions Data and Calculations

Pig Launcher & Receiver Emissions

Unit Numbers	Description	Total Gas Losses, scf/yr	CO2 Emission Factors, lb/scf	CH4 Emission Factors, lb/scf	Emission Rates		
					CO2, tpy	N2O, tpy	CH4, tpy
PR	Pig Receiver	15,150	0.0081	0.0387	0.06	-	0.29
	Total				0.06	-	0.29

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

Equipment Leaks Emissions

Unit Numbers	Description	Emission Rates		
		CO2, tpy	N2O, tpy	CH4, tpy
NA	Valves	5.9	-	28.3
NA	Connectors	0.9	-	4.4
NA	Open-Ended Lines	0.4	-	2.0
NA	Pressure Relief Valves	0.9	-	4.4
	Total	8.2	-	39.1

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

Unit Numbers	Description	Number of Components, #	Emission Factors, scf/hr /component	CO2 Contents, mole %	CH4 Contents, mole %	Operating Times, hr/yr	CO2 Density, kg/scf	CH4 Density, kg/scf
NA	Valves	1377	0.121	6.97	91.64	8,760	0.0526	0.0192
NA	Connectors	1527	0.017	6.97	91.64	8,760	0.0526	0.0192
NA	Open-Ended Lines	388	0.031	6.97	91.64	8,760	0.0526	0.0192
NA	Pressure Relief Valves	133	0.193	6.97	91.64	8,760	0.0526	0.0192

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

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	15	13.5	8,760	7.18	-	34.33
NA	Continuous Low Bleed Pneumatic Devices	129	1.39	8,760	6.35	-	30.40
	Total				13.53	-	64.73

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	6.97	91.64	5.262E-05	4.790E-04	1	25
NA	Continuous Low Bleed Pneumatic Devices	6.97	91.64	5.262E-05	4.790E-04	1	25
NA	Intermittent Bleed Pneumatic Devices	6.97	91.64	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	2	13.3	8,760	0.94	-	4.51

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	6.97	91.64	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			
						VOC, tpy	CO2, tpy	N2O, tpy	CH4, tpy
M1	Malfunctions	18.23	0.12	16.83	80.62	10.00	247.46	-	1,185.21

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)

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Section 7

Information Used To Determine Emissions

Information Used to Determine Emissions shall include the following:

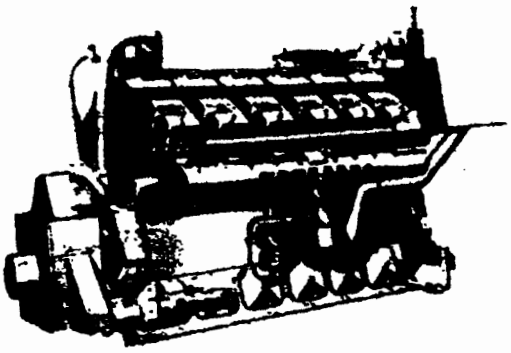
- ☑ If manufacturer data are used, include specifications for emissions units and control equipment, including control efficiencies specifications and sufficient engineering data for verification of control equipment operation, including design drawings, test reports, and design parameters that affect 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 page(s).

Waukesha

7042GL

VHP LEAN COMBUSTION GAS ENGINE
1108 - 1702 BHP



Model 7042GL
Turbocharged and Intercooled,
Twelve Cylinder, Lean Combustion,
Four-Cycle Gas Engine

SPECIFICATIONS

Cylinders	V 12
Piston Displacement	7040 in.^{3} (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	73 gal. (276 L)
Starting System	125 – 150 psi air/gas; 24/32V electric
Dry Weight	21,000 lb. (9525 kg)
Full Load Exhaust Emissions	
NO_x	1.50 g/bhp-hr *
CO	2.65 g/bhp-hr *
HC (non-methane)	1.00 g/bhp-hr *

STANDARD EQUIPMENT

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

BARRING DEVICE – Manual.

BEARINGS – Heavy duty, replaceable, precision type.

BREATHER – Ejector type, extractor breather 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, hardened journals and dynamically balanced.

CYLINDER HEADS – Twelve interchangeable, valve-in-head type. Two stellite-faced intake and two stellite-faced exhaust valves per cylinder. Stellite-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, are wired to a common junction box for jacket water temperature, lube oil temperature, intake manifold temperature, individual cylinder exhaust temperatures and a common pre turbine temperatures, one on each bank. 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 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. 24 VDC 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. 73 gallon (276 litres) capacity including filter.

PAINT – Oilfield Orange Primer.

PISTONS – Aluminum with floating pin. 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.

WATER CIRCULATING SYSTEM, 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.

BRAKE HORSEPOWER RATINGS

130° F (54° C) Intercooler Water Temperature

	700 RPM	800 RPM	900 RPM	1000 RPM	1100 RPM	1200 RPM
High Speed Turbocharger[1]	576	886	1108	1232	1355	1478
Low Speed Turbocharger[2]	622	985	1108	1232	–	–

85° F (29° C) Intercooler Water Temperature

	700 RPM	800 RPM	900 RPM	1000 RPM	1100 RPM	1200 RPM
High Speed Turbocharger[1]	804	929	1160	1289	1418	1547
Low Speed Turbocharger[2]	622	1031	1160	1289	–	–

[1] High speed turbocharger match – 1001–1200 RPM
[2] 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 T_{cm} (clause 10.1) as specified above limited to ± 10° F (5° 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/ft³ (35.3 MJ/nm³) SLHV value, 119 octane (per ASTM D–2700 test method).

For conditions or fuels other than standard, consult the Waukesha Engine Division Application Engineering Department.

7042GL PERFORMANCE

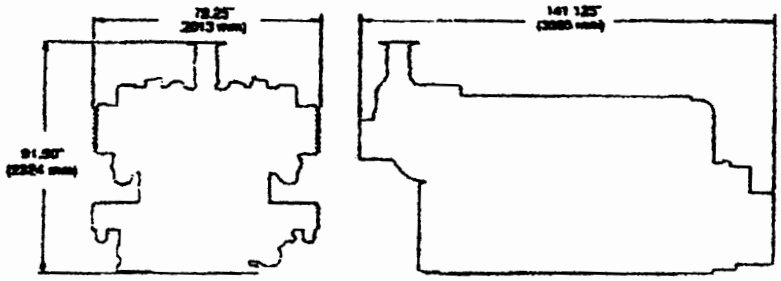
130° F (54° C) Intercooler Water Temperature

	Performance	RPM	
Power	Bhp	1200 / 1478	1000 / 1232
Low NOx Settings	BSFC (Btu/bhp–hr)	7155	6815
	NO_x (grams/bhp–hr)	0.80	0.90
	CO (grams/bhp–hr)	2.75	2.65
	NMHC (grams/bhp–hr)	1.0	1.0
Low Fuel Consumption Settings	BSFC (Btu/bhp–hr)	6910	6615
	NO_x (grams/bhp–hr)	1.50	1.60
	CO (grams/bhp–hr)	3.00	2.75
	NMHC (grams/bhp–hr)	0.70	1.00

85° F (29° C) Intercooler Water Temperature

	Performance	RPM	
Power	Bhp	1200 / 1547	1000 / 1289
Low NOx Settings	BSFC (Btu/bhp–hr)	7180	6840
	NO_x (grams/bhp–hr)	0.70	0.70
	CO (grams/bhp–hr)	2.65	2.55
	NMHC (grams/bhp–hr)	1.1	1.1
Low Fuel Consumption Settings	BSFC (Btu/bhp–hr)	6835	6640
	NO_x (grams/bhp–hr)	1.30	1.40
	CO (grams/bhp–hr)	2.90	2.85
	NMHC (grams/bhp–hr)	0.89	1.10

NOTES: 1) Performance ratings are based on ISO 3046/1–1995 with mechanical efficiency of 90% and Tcra limited to ± 10° F.
2) Fuel consumptions based on ISO 3046/1–1995 with a +5% tolerance for commercial quality natural gas having a 900 Btu/ft3 saturated low heat value.
3) Data based on standard conditions of 77° F (25° C) ambient temperature, 29.53 inches Hg. (100 kPa) barometric pressure, 30% relative humidity (1 kPa /0.3 inches Hg. water vapor pressure).
4) Data will vary due to variations in site conditions. For conditions and/or fuels other than standard, consult the Waukesha Engine Division Application Engineering Department.



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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.

Waukesha

WAUKESHA ENGINE DIVISION
DRESSER INDUSTRIES, INC.
WAUKESHA, WISCONSIN 53188-4999

Bulletin 7005A

DCL International Inc.

Mailing address: P.O. Box 90, Concord, Ontario, Canada, L4K 1B2
Toll free: 1-800-872-1968 *Phone:* 905-660-6450 *Fax:* 905-660-6435 *E-mail:* info@dcl-inc.com

RE: EMISSIONS GUARANTEE

We hereby guarantee that our QUICK-LID™ Model 2-DC66-12 catalytic converter described below:

Catalyst model	2-DC66-12
Catalyst coating	Oxidation
No. of catalyst substrates	2

and sized for the following engine:

Engine model	Waukesha 7042GL
Power	1478 bhp
Fuel	Natural Gas (Fuel Analysis Provided by Customer)
Exhaust Temperature	Min. 709 deg F
Exhaust Flow Rate	Max. 15,890 #/hr

will perform as follows:

Emissions	Reduction
Oxides of Nitrogen (NOx)	0%
Carbon Monoxide (CO)	93%
Volatile Organic Compounds (VOC's)	80%

for a period of 1 year or 8000 hours, whichever comes first, subject to all terms and conditions contained in our warranty documents being respected and met.

Best regards,

Paul Cook
DCL International, Inc.

REF: 6-1001

HEAT REJECTION AND OPERATING DATA
MODEL L7042GL
130° F INTERCOOLER WATER TEMPERATURE
180° F JACKET WATER TEMPERATURE

	BMEP (PSI)	ENGINE SPEED — RPM				
		LOW SPEED TURBOCHARGER			HIGH SPEED TURBOCHARGER	
		700	900	1000	1000	1200
HORSEPOWER (BHP)	152	—	—	1355	1355	1626
	138	—	1108	1232	1232	1478
	125	—	1000	1111	1111	1333
	100	622	800	889	889	1067
	75	467	600	667	667	800
	50	311	400	444	444	533
BRAKE SPEC FUEL CONSUMPTION (BTU/BHP-HR)	152	—	—	7061	6891	7168
	138	—	6889	7151	6984	7274
	125	—	6991	7259	7095	7401
	100	7051	7252	7535	7379	7726
	75	7492	7687	7995	7852	8267
	50	8374	8558	8914	8798	9349
FUEL CONSUMPTION (BTU/HR X 1000)	152	—	—	9565	9335	11650
	138	—	7635	8805	8600	10750
	125	—	6990	8065	7885	9870
	100	4385	5800	6700	6560	8240
	75	3495	4610	5330	5235	6615
	50	2605	3425	3960	3910	4985
HEAT TO JACKET WATER (BTU/HR X 1000)	152	—	—	2510	2400	3010
	138	—	1995	2335	2235	2815
	125	—	1850	2165	2070	2630
	100	1202	1585	1850	1775	2280
	75	1015	1323	1535	1475	1930
	50	829	1059	1219	1177	1585
HEAT TO LUBE OIL (BTU/HR X 1000)	152	—	—	372	358	449
	138	—	277	353	340	430
	125	—	263	334	323	412
	100	177	238	29	291	379
	75	155	213	264	258	346
	50	133	188	229	226	313
HEAT TO INTERCOOLER (BTU/HR X 1000)	152	—	—	532	452	616
	138	—	355	447	368	543
	125	—	291	370	295	472
	100	85	187	244	180	340
	75	25.5	98.5	139	91.5	207
	50	2	26.5	56.5	29.5	73
HEAT TO RADIATION (BTU/HR X 1000)	152	—	—	303	308	332
	138	—	294	302	305	328
	125	—	294	301	304	323
	100	282	292	300	304	314
	75	281	292	303	309	311
	50	280	292	317	318	320

HEAT REJECTION AND OPERATING DATA
MODEL L7042GL
130° F INTERCOOLER WATER TEMPERATURE
180° F JACKET WATER TEMPERATURE

	BMEP (PSI)	ENGINE SPEED — RPM				
		LOW SPEED TURBOCHARGER			HIGH SPEED TURBOCHARGER	
		700	900	1000	1000	1200
TOTAL ENERGY IN EXHAUST (BTU/HR X 1000)	152	—	—	2595	2580	3370
	138	—	2060	2390	2380	3085
	125	—	1890	2190	2180	2805
	100	1179	1575	1830	1830	2310
	75	942	1272	1494	1498	1865
	50	722	985	1188	1198	1485
EXHAUST TEMP AFTER TURBINE (± 50° F)	152	—	—	673	683	719
	138	—	661	669	679	709
	125	—	659	666	676	699
	100	645	656	664	675	684
	75	638	655	671	683	679
	50	620	653	690	704	691
INDUCTION AIR FLOW (SCFM)	152	—	—	3120	3045	3800
	138	—	2485	2865	2800	3500
	125	—	2275	2620	2565	3210
	100	1430	1885	2180	2135	2685
	75	1140	1500	1740	1705	2155
	50	845	1110	1285	1270	1620
EXHAUST GAS FLOW (LBS/HR)	152	—	—	14165	13825	17200
	138	—	11290	13020	12715	15890
	125	—	10330	11920	11645	14580
	100	6485	8585	9910	9710	12195
	75	5170	6830	7890	7750	9795
	50	3855	5050	5840	5765	7350

NOTES:

1. All data are based on ISO standard conditions of 29.54 inches Hg. barometric pressure, 77∞F ambient and induction air temperature, 30% relative humidity (0.3 inches of water vapor pressure), 180∞F engine jacket water outlet temperature, and standard 10∞BTDC ignition timing.
2. Data are average values at the standard conditions and will vary for individual engines and with operating and ambient conditions and with changes to ignition timing or air/fuel ratio. An adequate reserve should be used for cooling system or heat recovery calculations. See also Cooling System Guidelines S-6699-7, latest verison.
3. ISO Standard (continuous) power ratings conform to ISO 3046/1, latest version, with a mechanical efficiency of 90% and auxiliary water temperature, Tcra, of 130∞F limited to ± 10∞F.
4. Fuel rating standard; dry natural gas, 900 Btu/scf saturated lower heating value (SLHV), with a minimum 90 WKI™. Refer to S-7884-7, latest version, for the full fuel specification.
5. For heat rejection changes due to engine jacket water outlet temperature higher than standard (Note 1), refer to S-7613-3, latest version.
6. Total Exhaust Energy includes both recoverable and non-recoverable heat. For a procedure to calculate recoverable heat refer to S-8117-2, latest version.
7. Exhaust oxygen concentration set to 9.8% at rated speed and load at standard timing to provide 1.5 g/bhp-hr NOx, or less. This level is to be measured at the port located in the exhaust manifold, upstream of the turbocharger, for GL engines.
8. Reference curve C-968-19.
9. Exhaust flow at nominal 29.54 inches Hg. barometric pressure:

$$\text{Flow rate: ACFM} = \frac{(\text{Exh. Flow, lb/hr}) \times (\text{Exh. Temp. }^{\circ}\text{F} + 460^{\circ})}{2275}$$

— METRIC —
HEAT REJECTION AND OPERATING DATA — MODEL L7042GL
54° C INTERCOOLER WATER TEMPERATURE — 82° C JACKET WATER TEMPERATURE

	BMEP (bar)	ENGINE SPEED — RPM				
		LOW SPEED TURBOCHARGER			HIGH SPEED TURBOCHARGER	
		700	900	1000	1000	1200
HORSEPOWER (kW)	10.51	—	—	1010	1010	1212
	9.54	—	827	918	918	1102
	8.62	—	746	829	829	994
	6.9	464	597	663	663	795
	5.17	348	447	497	497	597
	3.45	232	298	331	331	398
BRAKE SPEC FUEL CONSUMPTION (kJ/kWh)	10.51	—	—	9990	9750	10142
	9.54	—	9747	10118	9882	10292
	8.62	—	9891	10270	10039	10472
	6.9	9976	10261	10661	10440	10931
	5.17	10600	10877	11311	11110	11697
	3.45	11848	12108	12612	12448	13228
FUEL CONSUMPTION (kW)	10.51	—	—	2803	2736	3415
	9.54	—	2238	2581	2521	3151
	8.62	—	2049	2364	2310	2892
	6.9	1286	1700	1963	1922	2415
	5.17	1025	1352	1562	1534	1938
	3.45	764	1003	1161	1146	1461
HEAT TO JACKET WATER (kW)	10.51	—	—	735	703	882
	9.54	—	585	684	655	825
	8.62	—	543	634	607	770
	6.9	352	465	542	520	668
	5.17	298	388	449	432	566
	3.45	243	310	357	345	464
HEAT TO LUBE OIL (kW)	10.51	—	—	109	105	132
	9.54	—	81	103	100	126
	8.62	—	77	98	95	121
	6.9	52	70	88	85	111
	5.17	45	63	77	76	101
	3.45	39	55	67	66	92
HEAT TO INTERCOOLER (kW)	10.51	—	—	156	132	180
	9.54	—	104	131	108	159
	8.62	—	85	108	86	138
	6.9	25	55	71	53	100
	5.17	7	29	41	27	61
	3.45	1	8	16	9	21
HEAT TO RADIATION (kW)	10.51	—	—	89	90	97
	9.54	—	86	89	89	96
	8.62	—	86	88	89	95
	6.9	83	86	88	89	92
	5.17	82	86	89	90	91
	3.45	82	85	93	93	94

— METRIC —
HEAT REJECTION AND OPERATING DATA — MODEL L7042GL
54° C INTERCOOLER WATER TEMPERATURE — 82° C JACKET WATER TEMPERATURE

	BMEP (bar)	ENGINE SPEED — RPM				
		LOW SPEED TURBOCHARGER			HIGH SPEED TURBOCHARGER	
		700	900	1000	1000	1200
TOTAL ENERGY IN EXHAUST (kW)	10.51	—	—	761	756	988
	9.54	—	603	700	697	904
	8.62	—	554	642	640	822
	6.9	346	462	536	536	677
	5.17	276	373	438	439	547
	3.45	211	289	348	351	435
EXHAUST TEMP AFTER TURBINE (± 30° C)	10.51	—	—	356	362	381
	9.54	—	349	354	360	376
	8.62	—	348	352	358	371
	6.9	341	347	351	357	362
	5.17	337	346	355	362	359
	3.45	327	345	365	373	366
INDUCTION AIR FLOW (nm^3/h)	10.51	—	—	4793	4678	5839
	9.54	—	3818	4403	4301	5375
	8.62	—	3494	4031	3940	4932
	6.9	2195	2904	3352	3283	4125
	5.17	1749	2310	2670	2622	3313
	3.45	1306	1707	1975	1949	2486
EXHAUST GAS FLOW (kg/h)	10.51	—	—	6427	6273	7830
	9.54	—	5120	5905	5768	7209
	8.62	—	4686	5406	5284	6614
	6.9	2943	3894	4496	4403	5532
	5.17	2345	3098	3580	3516	4442
	3.45	1751	2289	2649	2615	3334

NOTES:

1. All data are based on ISO standard conditions of 100 kPa barometric pressure, 25∞C ambient and induction air temperature, 30% relative humidity, (1 kPa water vapor pressure), 82∞C engine jacket water outlet temperature, and standard 10∞BTDC ignition timing.
2. Data are average values at the standard conditions and will vary for individual engines and with operating and ambient conditions and with changes to ignition timing or air/fuel ratio. An adequate reserve should be used for cooling system or heat recovery calculations. See also Cooling System Guidelines S-6699-7, latest version.
3. ISO Standard (continuous) power ratings conform to ISO 3046/1, latest version, with a mechanical efficiency of 90% and auxiliary water temperature, Tcra, of 54∞C limited to ± 5.5∞C.
1. Fuel standard: dry natural gas, 35.38 MJ/m^3 [25, V (0; 101.325)] saturated lower heating value (SLHV), with a minimum Waukesha Knock Index of 91. Refer to S-7884-7, latest version, for the full fuel specification.
5. For heat rejection changes due to engine jacket water outlet temperature higher than standard (Note 1), refer to S-7613-3, latest version.
6. Total Exhaust Energy includes both recoverable and non-recoverable heat. For a procedure to calculate recoverable heat refer to S-8117-2, latest version.
7. Exhaust oxygen concentration set to 9.8% at rated speed and load at standard timing to provide 1.5 g/bhp-hr NOx, or less. This level is to be measured at the port located in the exhaust manifold, upstream of the turbocharger, for GL engines.
8. Reference curve C-968-19.
9. Exhaust flow at nominal 100 kPa barometric pressure:

$$\text{Flow rate: } m^3/hr = \frac{(\text{Exh. Flow, kg/hr}) \times (\text{Exh. Temp. } ^\circ C + 273^\circ)}{336.66}$$

DRESSER Waukesha

— METRIC — HEAT REJECTION AND OPERATING DATA — MODEL L7042GL 54° C INTERCOOLER WATER TEMPERATURE 82° C JACKET WATER TEMPERATURE	EN: 120301 DATE: 1/03	Ref. S 6124-63

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

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

Table 3.2-2. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE LEAN-BURN ENGINES (Continued)

Pollutant	Emission Factor (lb/MMBtu)[b] (fuel input)	Emission Factor Rating
Acenaphthylene[k]	5.53 E-06	C
Acetaldehyde[k,l]	8.36 E-03	A
Acrolein[k,l]	5.14 E-03	A
Benzene[k]	4.40 E-04	A
Benzo(b)fluoranthene[k]	1.66 E-07	D
Benzo(e)pyrene[k]	4.15 E-07	D
Benzo(g,h,i)perylene[k]	4.14 E-07	D
Biphenyl[k]	2.12 E-04	D
Butane	5.41 E-04	D
Butyr/Isobutyraldehyde	1.01 E-04	C
Carbon Tetrachloride[k]	<3.67 E-05	E
Chlorobenzene[k]	<3.04 E-05	E
Chloroethane	1.87 E-06	D
Chloroform[k]	<2.85 E-05	E
Chrysene[k]	6.93 E-07	C
Cyclopentane	2.27 E-04	C
Ethane	1.05 E-01	C
Ethylbenzene[k]	3.97 E-05	B
Ethylene Dibromide[k]	<4.43 E-05	E
Fluoranthene[k]	1.11 E-06	C
Fluorene[k]	5.67 E-06	C
Formaldehyde[k,l]	5.28 E-02	A
Methanol[k]	2.50 E-03	B
Methylcyclohexane	1.23 E-03	C
Methylene Chloride[k]	2.00 E-05	C
n-Hexane[k]	1.11 E-03	C
n-Nonane	1.10 E-04	C

Table 3.2-2. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE LEAN-BURN ENGINES
(Continued)

Pollutant	Emission Factor (lb/MMBtu)[b] (fuel input)	Emission Factor Rating
n-Octane	3.51 E-04	C
n-Pentane	2.60 E-03	C
Naphthalene[k]	7.44 E-05	C
PAH[k]	2.69 E-05	D
Phenanthrene[k]	1.04 E-05	D
Phenol[k]	2.40 E-05	D
Propane	4.19 E-02	C
Pyrene[k]	1.36 E-06	C
Styrene[k]	<2.36 E-05	E
Tetrachloroethane[k]	2.48 E-06	D
Toluene[k]	4.08 E-04	B
Vinyl Chloride[k]	1.49 E-05	C
Xylene[k]	1.84 E-04	B

[a] Reference 7. Factors represent uncontrolled levels. For NO_x, CO, and PM10, "uncontrolled" means no combustion or add-on controls; however, the factor may include turbocharged units. For all other pollutants, "uncontrolled" means no oxidation control; the data set may include units with control techniques used for NOx control, such as PCC and SCR for lean burn engines, and PSC for rich burn engines. Factors are based on large population of engines. Factors are for engines at all loads, except as indicated. SCC = Source Classification Code. TOC = Total Organic Compounds. PM-10 = Particulate Matter ≤ 10 microns (μm) aerodynamic diameter. A "<" sign in front of a factor means that the corresponding emission factor is based on one-half of the method detection limit.

[b] Emission factors were calculated in units of (lb/MMBtu) based on procedures in EPA Method 19. To convert from (lb/MMBtu) to (lb/10^6 scf), multiply by the heat content of the fuel. If the heat content is not available, use 1020 Btu/scf. To convert from (lb/MMBtu) to (lb/hp-hr) use the following equation:

$$\text{lb/hp-hr} = (\text{lb/MMBtu})\ (\text{heat input, MMBtu/hr})\ (\text{1/operating HP, 1/hp})$$

[c] Emission tests with unreported load conditions were not included in the data set.

[d] Based on 99.5% conversion of the fuel carbon to CO_2. CO_2 [lb/MMBtu] = (3.67)(%CON)(C)(D)(1/h), where %CON = percent conversion of fuel carbon to CO_2, C = carbon content of fuel by weight (0.75), D = density of fuel, 4.1 E+04 lb/10^6 scf, and

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

[e] Based on 100% conversion of fuel sulfur to SO_2. Assumes sulfur content in natural gas of 2,000 gr/10^6scf.

[f] Emission factor for TOC is based on measured emission levels from 22 source tests.

[g] 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.

[h] VOC emission factor is based on the sum of the emission factors for all speciated organic compounds less ethane and methane.

[i] Considered $\leq$ 1 μm in aerodynamic diameter. Therefore, for filterable PM emissions, PM10(filterable) = PM2.5(filterable).

[j] PM Condensable = PM Condensable Inorganic + PM-Condensable Organic

[k] Hazardous Air Pollutant as defined by Section 112(b) of the Clean Air Act.

[l] 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.

VHP EMISSION LEVELS

MODEL	CARBURETOR SETTING	GRAMS/BHP-HR				% OBSERVED DRY		MASS AFR (2)	VOLUME AFR (2)	EXCESS AIR RATIO
		NOx (1)	CO	NMHC (4)	THC	CO	O_2			
G, GSI	Lowest Manifold (Best Power)	8.5	32.0	0.35	2.3	1.15	0.30	15.5:1	9.3:1	0.97
	Equal NOx & CO	12.0	12.0	0.35	2.3	0.45	0.30	15.9:1	9.6:1	0.99
	Catalytic Conv. Input (3-way(3))	13.0	9.0	0.30	2.0	0.38	0.30	15.95:1	9.6:1	0.99
	Standard (Best Economy)	22.0	1.5	0.25	1.5	0.02	1.35	17.0:1	10.2:1	1.06
F3514GSI F3524GSI L7044GSI	Equal NOx & CO	14.0	14.0	0.25	1.1	0.45	0.30	15.85:1	9.5:1	0.99
	Catalytic Conv. Input (3-way(3))	15.0	13.0	0.20	1.0	0.38	0.30	15.95:1	9.6:1	0.99
L5794GSI	Equal NOx & CO	13.5	13.5	0.45	3.0	0.45	0.30	15.85:1	9.5:1	0.99
	Catalytic Conv. Input (3-way(3))	14.5	11.0	0.45	2.9	0.38	0.30	15.95:1	9.6:1	0.99
GL	Standard	1.5	2.65	1.0	5.5	0.06	9.8	28.0:1	16.8:1	1.74
L5774LT#	Standard	2.6	2.0	0.60	4.0	0.04	7.8	24.5:1	14.7:1	1.52
L5794LT#	Standard	2.6	2.0	0.60	4.0	0.04	7.8	24.5:1	14.7:1	1.52

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

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

Prepared For:
Tom Ellis
Harvest Midstream

Date: February 2, 2023

APPLICATION INFORMATION

DRIVER

Make:	WAUKESHA
Model:	L7042GSI
Horsepower:	1,480
RPM:	1,200
Compression Ratio:	8
Exhaust Flow Rate:	7,056
Exhaust Temperature:	1,126
Fuel:	WAUK Natural Gas
Annual Operating Hours:	8,760

UNCONTROLLED EMISSIONS DATA

	g/bhp-hr	lb/hr	Tons/Year
NO_x:	13.00	42.42	185.79
CO:	9.00	29.37	128.62
THC:	2.00	6.53	28.58
NMHC:	0.30	0.98	4.29
NMNEHC:	0.15	0.49	2.14
HCHO:	0.05	0.16	0.71
Oxygen:	0.30%		

CATALYST ELEMENT

Model:	RT-2415-T
Catalyst Type:	NSCR, Standard Precious Metals Group
Substrate Type:	Brazed
Element Size:	Rectangle, 24 x 15 x 3.5
Element Quantity:	3

POST CATALYST EMISSIONS DATA

		g/bhp-hr	lb/hr	Tons/Year
NO_x:	<	0.38	1.24	5.43
CO	<	0.36	1.17	5.14
VOC	<	0.05	0.16	0.71
HCHO	<	0.01	0.03	0.14

Catalyst Temperature: 976 °F

****POST CATALYST EMISSIONS ARE ONLY GUARANTEED FOR CATALYST ELEMENTS SUPPLIED BY EMIT**

WARRANTY

EMIT Technologies,Inc. warrants that the goods supplied will be free from defects in workmanship by EMIT Technologies, Inc. for a period of one (1) year from date of shipment. EMIT Technologies, Inc. will not be responsible for any defects which result from improper use, neglect, failure to properly maintain or which are attributable to defects, errors or omissions in any drawings, specifications, plans or descriptions, whether written or oral, supplied to EMIT Technologies, Inc. by Buyer.

Catalyst performance using an EMIT Air/Fuel ratio controller is dependent upon properly defined set-points, variable with engine and fuel gas composition. Air/fuel ratio controller performance is guaranteed, but not limited, to fuel gas with an HHV content of 1400 BTU/SCF.

Catalyst performance will be guaranteed for a period of 2 years from installation, or 17,000 operating hours, whichever comes first. The catalyst shall be operated with an automatic air/fuel ratio controller. The performance guarantee shall not cover the effects of excessive ash masking due to operation at low load, improper engine maintenance, or inappropriate lubrication oil. The performance guarantee shall not cover the effects of continuous engine misfires (cylinder or ignition) exposing the catalyst to excessive exothermic reaction temperatures.

Unless otherwise stated the exhaust temperature operating range at the converter inlet is 600°F minimum for oxidation catalyst and 750°F for NSCR catalyst and 1250°F maximum.

If a high temperature shut down switch is not installed, thermal deactivation of catalyst at temperatures above 1300 °F is not covered.

The catalyst conversion efficiencies (% reduction) will be guaranteed for engine loads of 50 to 100 percent.

Engine lubrication oil shall contain less than 0.6% ash (by weight) with a maximum allowable specific oil consumption of 0.01 gal/bhp-hr. The maximum ash loading on the catalyst shall be limited to 350 g/m3. Phosphorous and zinc additives are limited to 0.03% (by weight).

The catalyst must not be exposed to the following known poisoning agents, including: iron, nickel, sodium, chromium, arsenic, zinc, lead, phosphorous, silicon, potassium, magnesium, copper, tin, and mercury. Total poison concentrations in the gas are limited to 0.3 ppm.

Shipment - Promised shipping dates are approximate and are not guaranteed and are from the point of manufacture. EMIT Technologies,Inc. will not be liable for any loss, damage or delay in manufacture or delivery resulting from any cause beyond its control including, but not limited to a period equal to the time lost by reason of that delay. All products will be crated as per best practice to prevent any damage during shipment. Unless otherwise specified, Buyer will pay for any special packing and shipping requirements. Acceptance of goods by common carrier constitutes delivery to Buyer. EMIT Technologies,Inc. shall not be responsible for goods damaged or lost in transit.

PAYMENT TERMS AND ADVANCE PAYMENT REQUIREMENT

Terms: Credit is extended to purchaser for net 30 time period. If payment is not received in the net 30 timeframe, interest on the unpaid balance will accrue at a rate of 1.5% per month from the invoice date.

Advance Payment Requirement: Proposals with a project value of $100,000 or greater, and 60 days or greater time to completion, will require an advance payment of 30% of the total value. The advance payment will be invoiced to the customer upon receipt of the customer's purchase order. Advance payment is due 30 days after the date of the invoice. If payment is not received in the net 30 timeframe, interest on the unpaid balance will accrue at teh rate of 1.5% per month from the invoice date. Failure to pay this invoice may delay completion of the project outlined in this proposal.

Order Cancellation Terms: Upon cancellation of an order once submittal of a Purchase Order has occurred, the customer will pay a 25% restocking fee for Catalyst Housings, Catalyst Elements, and Air/Fuel Ratio Controllers; 50% restocking fee for Cooler Top Solutions,Exhaust System Accessories, and other Custom Built Products; 100% of all associated shipping costs incurred by EMIT; 100% of all project expenses incurred by EMIT for Field Services.

HEAT REJECTION AND OPERATING DATA
MODEL L7042GSI WITH OR WITHOUT ESM®
130° F INTERCOOLER WATER TEMPERATURE
STOICHIOMETRIC AIR/FUEL RATIO

	BMEP (psi)	ENGINE SPEED — RPM						
		600	700	800	900	1000	1100	1200
POWER (BHP)	172	917	1070	1223	1376	1528	1681	1834
	152	811	946	1081	1216	1351	1486	1621
	138	739	862	985	1108	1232	1355	1478
	125	667	778	889	1000	1111	1222	1333
	100	533	622	711	800	889	978	1067
	75	400	467	533	600	667	733	800
	50	267	311	356	400	444	489	533
BRAKE SPECIFIC FUEL CONSUMPTION (BTU/BHP-HR)	172	7123	7160	7197	7282	7366	7484	7602
	152	7249	7285	7320	7401	7482	7603	7723
	138	7355	7390	7424	7502	7581	7703	7824
	125	7484	7517	7550	7625	7700	7824	7948
	100	7815	7844	7873	7940	8006	8135	8265
	75	8367	8389	8412	8464	8517	8655	8792
	50	9471	9480	9489	9513	9538	9693	9848
FUEL CONSUMPTION (BTU/HR) X 1000	172	6530	7665	8800	10030	11255	12600	13940
	152	5875	6895	7915	9010	10110	11315	12520
	138	5435	6370	7310	8320	9335	10445	11560
	125	4990	5850	6710	7635	8555	9575	10595
	100	4170	4885	5600	6360	7115	7965	8815
	75	3345	3915	4485	5080	5680	6355	7035
	50	2525	2950	3375	3805	4240	4745	5250
HEAT TO JACKET WATER (BTU/HR) X 1000	172	1760	2155	2550	2965	3380	3755	4125
	152	1625	1980	2330	2700	3075	3410	3745
	138	1530	1855	2185	2525	2865	3175	3490
	125	1439	1735	2035	2345	2655	2945	3230
	100	1267	1510	1760	2015	2270	2515	2755
	75	1095	1289	1483	1685	1885	2080	2275
	50	923	1065	1207	1354	1500	1650	1800
HEAT TO LUBE OIL (BTU/HR) X 1000	172	231	264	296	317	338	360	382
	152	215	246	277	298	319	341	363
	138	204	234	264	285	306	328	349
	125	193	222	251	272	293	315	336
	100	173	200	227	248	269	290	312
	75	153	178	203	224	245	266	287
	50	133	156	179	200	222	242	263
HEAT TO INTERCOOLER (BTU/HR) X 1000	172	53	88	122	167	212	307	403
	152	32	58	83	117	151	221	291
	138	21	41	61	88	116	171	225
	125	11	26	42	63	85	127	169
	100	-2	6	15	28	41	64	86
	75	-8	-5	-1	6	13	23	33
	50	-7	-7	-6	-3	1	5	10

HEAT REJECTION AND OPERATING DATA
MODEL L7042GSI WITH OR WITHOUT ESM®
130° F INTERCOOLER WATER TEMPERATURE
STOICHIOMETRIC AIR/FUEL RATIO

	BMEP (psi)	ENGINE SPEED — RPM						
		600	700	800	900	1000	1100	1200
HEAT TO RADIATION (BTU/HR) X 1000	172	548	568	588	600	611	646	681
	152	480	509	539	562	584	622	660
	138	446	479	511	538	566	605	645
	125	420	453	487	517	546	588	631
	100	385	417	448	479	509	555	601
	75	359	386	413	441	469	517	566
	50	330	353	376	400	425	473	521
TOTAL ENERGY IN EXHAUST (BTU/HR) X 1000	172	1670	1940	2210	2545	2880	3290	3705
	152	1393	1660	1925	2240	2550	2945	3335
	138	1242	1496	1750	2040	2335	2710	3085
	125	1112	1347	1585	1850	2120	2475	2825
	100	900	1093	1286	1505	1725	2030	2335
	75	702	847	993	1162	1331	1580	1825
	50	495	597	699	814	930	1111	1292
EXHAUST TEMP AFTER TURBINE (± 50° F)	172	1054	1070	1086	1091	1096	1121	1145
	152	980	1007	1035	1053	1072	1104	1135
	138	942	974	1006	1030	1055	1090	1125
	125	911	946	980	1009	1037	1075	1113
	100	867	903	938	969	1000	1042	1085
	75	829	862	895	926	956	1003	1049
	50	783	814	845	875	905	955	1005
INDUCTION AIR FLOW (SCFM)	172	1240	1460	1675	1905	2140	2395	2650
	152	1110	1300	1495	1700	1910	2135	2365
	138	1020	1195	1375	1565	1750	1960	2170
	125	930	1095	1255	1425	1600	1790	1980
	100	770	905	1035	1175	1315	1475	1630
	75	615	715	820	930	1040	1165	1290
	50	460	535	610	690	770	860	950
EXHAUST GAS FLOW (LBS/HR)	172	5655	6635	7620	8685	9745	10910	12070
	152	5050	5925	6800	7745	8690	9730	10765
	138	4650	5450	6255	7120	7985	8935	9890
	125	4245	4980	5715	6500	7285	8150	9020
	100	3515	4120	4720	5360	6005	6720	7435
	75	2795	3275	3750	4245	4745	5310	5880
	50	2090	2440	2795	3150	3510	3930	4350

NOTES:

1. All data are based on standard conditions of 29.54 inches Hg. barometric pressure, 77° F ambient and induction air temperature, 30% relative humidity (0.3 inches Hg. water vapor pressure) and 180° F engine jacket water outlet temperature.
2. Data are average values at the standard conditions and will vary for individual engines and with operating and ambient conditions. An adequate reserve should be used for cooling system or heat recovery calculations. See also Cooling System Guidelines S6699-7.
3. For heat rejection changes due to engine jacket water outlet temperature different from standard (Note 1), refer to S7613-3.
4. Exhaust flow at nominal 29.54 inches Hg. atmospheric pressure:

   Flow rate: $ACFM = \frac{(\text{Exh. Flow, lb/hr}) \times (\text{Exh. Temp. } ^{\circ}F + 460^{\circ})}{2250}$

5. Stoichiometric, Lambda = 1.0, air/fuel ratio.
6. Reference C278-J.

DRESSER Waukesha

HEAT REJECTION AND OPERATING DATA **MODEL L7042GSI WITH OR WITHOUT ESM®** **130° F INTERCOOLER WATER TEMPERATURE**	**EN: 142568** **DATE: 7/08**	**Ref. S 6124-57**

— METRIC —
HEAT REJECTION AND OPERATING DATA
MODEL L7042GSI WITH OR WITHOUT ESM®
54° C INTERCOOLER WATER TEMPERATURE
STOICHIOMETRIC AIR/FUEL RATIO

	BMEP (bar)	ENGINE SPEED — RPM						
		600	700	800	900	1000	1100	1200
POWER (kW)	11.86	684	798	912	1026	1139	1254	1368
	10.48	605	705	806	907	1008	1108	1209
	9.55	551	643	735	826	919	1010	1102
	8.62	497	580	663	746	829	911	994
	6.90	398	464	530	597	663	729	795
	5.17	298	348	398	447	497	547	597
	3.45	199	232	265	298	331	365	398
BRAKE SPECIFIC FUEL CONSUMPTION (kJ/kWh)	11.86	10078	10138	10183	10316	10421	10604	10756
	10.48	10256	10314	10357	10485	10587	10772	10927
	9.55	10407	10462	10504	10627	10726	10914	11070
	8.62	10589	10642	10682	10800	10895	11086	11245
	6.90	11058	11104	11139	11244	11328	11527	11693
	5.17	11838	11874	11901	11984	12050	12263	12440
	3.45	13400	13414	13425	13464	13495	13734	13934
FUEL CONSUMPTION (kW)	11.86	1914	2246	2579	2939	3299	3692	4086
	10.48	1722	2021	2319	2641	2963	3316	3670
	9.55	1592	1868	2143	2439	2735	3061	3388
	8.62	1462	1715	1967	2237	2507	2807	3106
	6.90	1222	1431	1641	1863	2086	2335	2584
	5.17	981	1148	1315	1489	1664	1863	2061
	3.45	740	864	989	1116	1242	1391	1539
HEAT TO JACKET WATER (kW)	11.86	516	632	748	869	991	1100	1209
	10.48	476	580	683	792	901	999	1098
	9.55	449	544	640	740	840	931	1022
	8.62	422	509	596	687	779	863	947
	6.90	371	443	515	590	666	736	807
	5.17	321	378	434	494	553	610	667
	3.45	271	312	354	397	440	484	528
HEAT TO LUBE OIL (kW)	11.86	68	77	87	93	99	105	112
	10.48	63	72	81	87	93	100	106
	9.55	60	69	77	84	90	96	102
	8.62	57	65	74	80	84	92	98
	6.90	51	59	67	73	79	85	91
	5.17	45	52	60	66	72	78	84
	3.45	39	46	53	59	65	71	77
HEAT TO INTERCOOLER (kW)	11.86	16	26	36	49	62	90	118
	10.48	10	17	24	34	44	65	85
	9.55	6	12	18	26	34	50	66
	8.62	3	8	12	19	25	37	49
	6.90	-1	2	4	8	12	19	25
	5.17	-2	-1	0	2	4	7	10
	3.45	-2	-2	-2	-1	0	2	3

— METRIC —
HEAT REJECTION AND OPERATING DATA
MODEL L7042GSI WITH OR WITHOUT ESM®
54° C INTERCOOLER WATER TEMPERATURE
STOICHIOMETRIC AIR/FUEL RATIO

	BMEP (bar)	ENGINE SPEED — RPM						
		600	700	800	900	1000	1100	1200
HEAT TO RADIATION (kW)	11.86	161	166	172	176	179	189	200
	10.48	141	149	158	165	171	182	193
	9.55	131	140	150	158	166	177	189
	8.62	123	133	143	151	160	172	185
	6.90	113	122	131	140	149	163	176
	5.17	105	113	121	129	137	152	166
	3.45	97	103	110	117	125	139	153
TOTAL ENERGY IN EXHAUST (kW)	11.86	489	569	648	746	844	965	1086
	10.48	408	486	564	656	748	863	978
	9.55	364	438	513	599	684	794	904
	8.62	326	395	464	543	621	725	828
	6.90	264	320	377	441	506	595	684
	5.17	206	248	291	341	390	462	535
	3.45	145	175	205	239	272	325	379
EXHAUST TEMP AFTER TURBINE (± 30° C)	11.86	568	577	585	588	591	605	618
	10.48	527	542	557	567	578	595	613
	9.55	505	523	541	555	568	588	607
	8.62	488	508	527	543	558	579	601
	6.90	464	484	503	520	538	561	585
	5.17	443	461	479	496	513	539	565
	3.45	417	434	452	468	485	513	541
INDUCTION AIR FLOW (nm^3/h)	11.86	1871	2196	2520	2872	3224	3609	3993
	10.48	1670	1960	2249	2561	2874	3216	3559
	9.55	1536	1802	2068	2353	2639	2954	3269
	8.62	1403	1646	1888	2147	2407	2694	2981
	6.90	1161	1360	1560	1771	1982	2219	2456
	5.17	923	1080	1237	1402	1566	1753	1940
	3.45	690	805	921	1039	1158	1296	1434
EXHAUST GAS FLOW (kg/h)	11.86	2565	3011	3456	3938	4421	4948	5475
	10.48	2292	2689	3085	3514	3942	4412	4883
	9.55	2108	2473	2837	3229	3621	4053	4485
	8.62	1927	2259	2591	2947	3304	3698	4092
	6.90	1595	1868	2142	2432	2723	3048	3373
	5.17	1269	1485	1700	1926	2152	2409	2666
	3.45	948	1108	1267	1429	1592	1782	1972

NOTES:

1. All data are based on standard conditions of 100 kPa barometric pressure, 25° C ambient and induction air temperature, 30% relative humidity (1 kPa water vapor pressure) and 82° C engine jacket water outlet temperature.
2. Data are average values at the standard conditions and will vary for individual engines and with operating and ambient conditions. An adequate reserve should be used for cooling system or heat recovery calculations. See also Cooling System Guidelines S6699-7.
3. For heat rejection changes due to engine jacket water outlet temperature different from standard (Note 1), refer to S7613-3.
4. Exhaust flow at nominal 100 kPa atmospheric pressure:

$$\text{Flow rate: } m^3/hr = \frac{(\text{Exh. Flow, kg/hr}) \times (\text{Exh. Temp. } ^\circ C + 273^\circ)}{332.96}$$

5. Stoichiometric, Lambda = 1.0, air/fuel ratio.
6. Reference C278-J.

DRESSER Waukesha

— METRIC — HEAT REJECTION AND OPERATING DATA MODEL L7042GSI WITH OR WITHOUT ESM® 54° C INTERCOOLER WATER TEMPERATURE	EN: 142568 DATE: 7/08	Ref. S 6124-57

Table 3.2-3. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE RICH-BURN ENGINES[a]
(SCC 2-02-002-53)

Pollutant	Emission Factor (lb/MMBtu)[b] (fuel input)	Emission Factor Rating
Criteria Pollutants and Greenhouse Gases		
NO_x[c] 90 - 105% Load	2.21 E+00	A
NO_x[c] <90% Load	2.27 E+00	C
CO[c] 90 - 105% Load	3.72 E+00	A
CO[c] <90% Load	3.51 E+00	C
CO_2[d]	1.10 E+02	A
SO_2[e]	5.88 E-04	A
TOC[f]	3.58 E-01	C
Methane[g]	2.30 E-01	C
VOC[h]	2.96 E-02	C
PM10 (filterable)[i,j]	9.50 E-03	E
PM2.5 (filterable)[j]	9.50 E-03	E
PM Condensable[k]	9.91 E-03	E
Trace Organic Compounds		
1,1,2,2-Tetrachloroethane[l]	2.53 E-05	C
1,1,2-Trichloroethane[l]	<1.53 E-05	E
1,1-Dichloroethane	<1.13 E-05	E
1,2-Dichloroethane	<1.13 E-05	E
1,2-Dichloropropane	<1.30 E-05	E
1,3-Butadiene[l]	6.63 E-04	D
1,3-Dichloropropene[l]	<1.27 E-05	E
Acetaldehyde[l,m]	2.79 E-03	C
Acrolein[l,m]	2.63 E-03	C
Benzene[l]	1.58 E-03	B
Butyr/isobutyraldehyde	4.86 E-05	D
Carbon Tetrachloride[l]	<1.77 E-05	E

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

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

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

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

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

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

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

where:

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

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

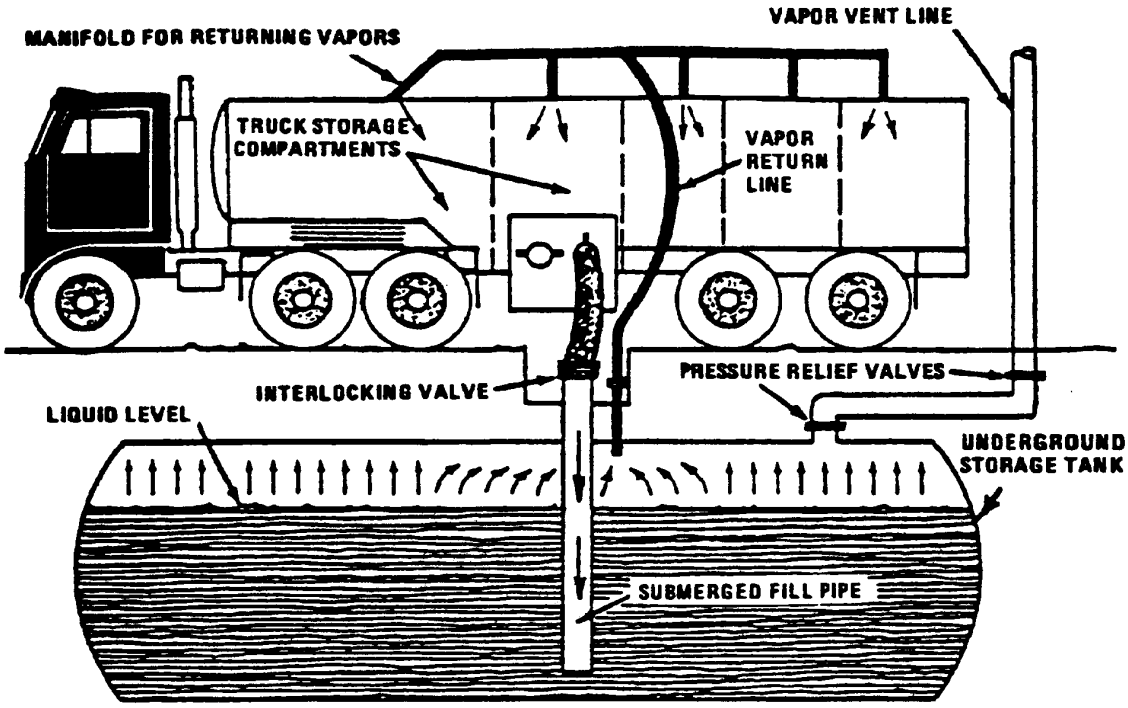

Figure 5.2-5. Tank truck unloading into a service station underground storage tank and practicing "vapor balance" form of emission control.

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

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

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

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

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

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

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

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

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**

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[1] (lb/bbl)[2]		
	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[3]	0.262	0.007	0.022

[1] 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.

[2] Units of lb/bbl means pounds of emissions per barrel of produced water throughput

[3] 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

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

31-6 Combined Inlet Stream Gas Composition

	31-6 CDP		31-6 STRADDLE SUCTION		Mixed Inlet		
Meter # / Sample Date	62205	11/30/2022	62205-001	11/30/2022			
Component	mol%	% gas assumed	mol%	% gas assumed	mol%	MW (lb/lb-mole)	Emission Factor (lb/scf)
Carbon Dioxide	18.2213	**18.9%**	4.3597	**81.1%**	6.9735	44.01	8.09E-03
Hydrogen Sulfide	0.0000		0.0000		0.0000	34.07	0.00E+00
Nitrogen	0.0204		0.148		0.1239	28.01	9.15E-05
Methane	81.1912		94.0671		91.6392	16.04	3.87E-02
Ethane	0.4912		1.1396		1.0173	30.07	8.06E-04
Propane	0.0661		0.2001		0.1748	44.09	2.03E-04
Isobutane	0.0030		0.0293		0.0243	58.12	3.73E-05
n-Butane	0.0067		0.0275		0.0236	58.12	3.61E-05
Isopentane	0.0000		0.0113		0.0092	72.15	1.74E-05
n-Pentane	0.0000		0.0049		0.0040	72.15	7.56E-06
Cyclopentane	0.0000		0.0002		0.0002	70.14	3.00E-07
n-Hexane, C6	0.0000		0.0013		0.0011	86.17	2.40E-06
Cyclohexane	0.0000		0.0005		0.0004	84.16	9.00E-07
Other Hexanes	0.0000		0.0028		0.0023	86.18	5.16E-06
Heptanes	0.0000		0.0013		0.0011	100.20	2.79E-06
Methylcyclohexane	0.0000		0.0014		0.0011	98.19	2.94E-06
2,2,4 Trimethylpentane	0.0000		0.0001		0.0001	100.21	2.14E-07
Benzene, C6	0.0000		0.0004		0.0003	78.11	6.68E-07
Toluene, C7	0.0000		0.0009		0.0007	92.14	1.77E-06
Ethylbenzene, C8	0.0000		0.0006		0.0005	106.17	1.36E-06
Xylenes, C8	0.0000		0.0002		0.0002	106.17	4.54E-07
C8+ Heavies	0.0000		0.0027		0.0022	110.00	6.35E-06
Total	99.9999		99.9999		99.9999	TOC lb/scf:	4.81E-02
Total VOC						VOC lb/scf:	3.27E-04

The blended gas stream composition is based on the 31-6 Straddle Suction & 31-6 Suction gas analyses sampled on Nov. 30, 2022.
The individual gas percentages are from actual 2022 31-6 CDP gas throughputs. The percentages vary over time according to field conditions.
Mixed Inlet mol % =
[(mol % (31-6 CDP) x 2022 12-month flow (31-6 CDP)) + (mol % (31-6 Straddle Suction) x 2022 12-month flow (31-6 Straddle Suction))]
/ (2022 12-month flow (31-6 CDP) + 2022 12-month flow (31-6 Straddle Suction))
Emission Factor (lb/scf) = (MW (lb/lb-mol) x (Mixed Inlet mol % of gas constituent /100)) / (379.4 scf/mol)

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

Analysis No: HM20220115
Cust No: 33700-10430

Well/Lease Information

Customer Name:	HARVEST MIDSTREAM	Source:	Inlet To Station
Well Name:	31-6 CDP	Well Flowing:	
County/State:	Rio Arriba NM	Pressure:	92 PSIG
Location:		Flow Temp:	57 DEG. F
Lease/PA/CA:		Ambient Temp:	39 DEG. F
Formation:		Flow Rate:	55.1 MCF/D
Cust. Stn. No.:	62205	Sample Method:	Purge & Fill
		Sample Date:	11/30/2022
		Sample Time:	12.30 PM
		Sampled By:	Johnny Arenas
Heat Trace:	Y	Sampled by (CO):	Harvest Mid
Remarks:	Calculated Molecular Weight = 21.2329		

Analysis

Component:	Mole%:	Unormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.0204	0.0205	0.0020	0.00	0.0002
CO2	18.2213	18.2682	3.1170	0.00	0.2769
Methane	81.1912	81.4000	13.7950	820.03	0.4497
Ethane	0.4912	0.4925	0.1320	8.69	0.0051
Propane	0.0661	0.0663	0.0180	1.66	0.0010
Iso-Butane	0.0030	0.0030	0.0010	0.10	0.0001
N-Butane	0.0067	0.0067	0.0020	0.22	0.0001
Neopentane 2,2 dmc3	0.0000	0.0000	0.0000	0.00	0.0000
I-Pentane	0.0000	0.0000	0.0000	0.00	0.0000
N-Pentane	0.0000	0.0000	0.0000	0.00	0.0000
Neohexane	0.0000	N/R	0.0000	0.00	0.0000
2-3-Dimethylbutane	0.0000	N/R	0.0000	0.00	0.0000
Cyclopentane	0.0000	N/R	0.0000	0.00	0.0000
2-Methylpentane	0.0000	N/R	0.0000	0.00	0.0000
3-Methylpentane	0.0000	N/R	0.0000	0.00	0.0000
C6	0.0000	0.0000	0.0000	0.00	0.0000
Methylcyclopentane	0.0000	N/R	0.0000	0.00	0.0000
Benzene	0.0000	N/R	0.0000	0.00	0.0000
Cyclohexane	0.0000	N/R	0.0000	0.00	0.0000
2-Methylhexane	0.0000	N/R	0.0000	0.00	0.0000
3-Methylhexane	0.0000	N/R	0.0000	0.00	0.0000
2-2-4-Trimethylpentane	0.0000	N/R	0.0000	0.00	0.0000
i-heptanes	0.0000	N/R	0.0000	0.00	0.0000
Heptane	0.0000	N/R	0.0000	0.00	0.0000

Methylcyclohexane	0.0000	N/R	0.0000	0.00	0.0000
Toluene	0.0000	N/R	0.0000	0.00	0.0000
2-Methylheptane	0.0000	N/R	0.0000	0.00	0.0000
4-Methylheptane	0.0000	N/R	0.0000	0.00	0.0000
i-Octanes	0.0000	N/R	0.0000	0.00	0.0000
Octane	0.0000	N/R	0.0000	0.00	0.0000
Ethylbenzene	0.0000	N/R	0.0000	0.00	0.0000
m, p Xylene	0.0000	N/R	0.0000	0.00	0.0000
o Xylene (& 2,2,4 tmc7)	0.0000	N/R	0.0000	0.00	0.0000
i-C9	0.0000	N/R	0.0000	0.00	0.0000
C9	0.0000	N/R	0.0000	0.00	0.0000
i-C10	0.0000	N/R	0.0000	0.00	0.0000
C10	0.0000	N/R	0.0000	0.00	0.0000
i-C11	0.0000	N/R	0.0000	0.00	0.0000
C11	0.0000	N/R	0.0000	0.00	0.0000
C12P	0.0000	N/R	0.0000	0.00	0.0000
Total	100.00	100.257	17.067	830.70	0.7331

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

COMPRESSIBLITY FACTOR (1/Z):	1.0025	CYLINDER #:	10
BTU/CU.FT IDEAL:	832.6	CYLINDER PRESSURE:	92 PSIG
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	834.7	ANALYSIS DATE:	12/08/2022
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	820.2	ANALYIS TIME:	01:32:59 AM
DRY BTU @ 15.025:	851.4	ANALYSIS RUN BY:	PATRICIA KING
REAL SPECIFIC GRAVITY:	0.7346		

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: 12/08/2022**
GC Method: C12+BTEX Gas

HARVEST MIDSTREAM

WELL ANALYSIS COMPARISON

Lease: 31-6 CDP | Inlet To Station | 12/08/2022

Stn. No.: 62205 | 33700-10430

Mtr. No.:

Smpl Date:	11/30/2022	10/06/2021	10/02/2020	02/06/2020
Test Date:	12/08/2022	10/07/2021	10/06/2020	02/12/2020
Run No:	HM20220115	HM2021085	HM200089	HM200010
Nitrogen:	0.0204	0.0680	0.0403	0.1060
CO2:	18.2213	18.3564	17.2942	4.6174
Methane:	81.1912	81.0431	82.1076	93.6294
Ethane:	0.4912	0.4578	0.4827	1.2577
Propane:	0.0661	0.0670	0.0659	0.2628
I-Butane:	0.0030	0.0021	0.0039	0.0524
N-Butane:	0.0067	0.0057	0.0035	0.0427
2,2 dmc3:	0.0000	0.0000	0.0000	0.0000
I-Pentane:	0.0000	0.0000	0.0000	0.0095
N-Pentane:	0.0000	0.0000	0.0000	0.0054
Neohexane:	0.0000	0.0000	0.0000	0.0004
2-3-Cyclopentane:	0.0000	0.0000	0.0000	0.0003
2-Methylpentane:	0.0000	0.0000	0.0000	0.0003
3-Methylpentane:	0.0000	0.0000	0.0002	0.0020
C6:	0.0000	0.0000	0.0001	0.0008
Methylcyclopentane:	0.0000	0.0000	0.0001	0.0021
Benzene:	0.0000	0.0000	0.0001	0.0015
Cyclohexane:	0.0000	0.0000	0.0000	0.0006
2-Methylhexane:	0.0000	0.0000	0.0000	0.0010
3-Methylhexane:	0.0000	0.0000	0.0000	0.0003
2-2-4-i-heptanes:	0.0000	0.0000	0.0000	0.0000
Heptane:	0.0000	0.0000	0.0000	0.0001
Methylcyclohexane:	0.0000	0.0000	0.0000	0.0003
Toluene:	0.0000	0.0000	0.0002	0.0010
2-Methylheptane:	0.0000	0.0000	0.0002	0.0024
4-Methylheptane:	0.0000	0.0000	0.0002	0.0012
i-Octanes:	0.0000	0.0000	0.0000	0.0004
Octane:	0.0000	0.0000	0.0000	0.0002
Ethylbenzene:	0.0000	0.0000	0.0000	0.0002
m, p Xylene:	0.0000	0.0000	0.0001	0.0006
o Xylene (& 2,2,4 i-C9:	0.0000	0.0000	0.0000	0.0000
C9:	0.0000	0.0000	0.0002	0.0005
i-C10:	0.0000	0.0000	0.0001	0.0001
C10:	0.0000	0.0000	0.0004	0.0001
i-C11:	0.0000	0.0000	0.0000	0.0002
C11:	0.0000	0.0000	0.0001	0.0000
C12P:	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000
BTU:	834.7	832.6	843.9	983.5
GPM:	17.0670	17.0610	17.0630	17.1580
SPG:	0.7346	0.7360	0.7257	0.6108

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

92#

GAS ANALYSIS SERVICE

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

Other _____ Date 11/30/22

Sampled By:(Co.) Harvest Midstream Time 1230 ☐AM ☒PM

Sampled by:(Person) Johnny Arenas Well Flowing: ☐ Yes ☐ No

Company: _____ Heat Trace: ☒ Yes ☐ No

Well Name: _____ Flow Pressure (PSIG): 92

Location: 31-6 Flow Temp (°F): 57

County/State: _____ Ambient Temp (°F): 39

Formation: _____ Flow Rate (MCF/D): 55.1

Source: ☐ Meter Run ☐ Tubing ☐ Casing ☐ Bradenhead ☒ Other _____

Sample Type: ☐ Spot ☐ Composite Sample Method: ☒ Purge & Fill ☐ Other _____

Meter Number: _____ Cylinder Number: 10

Contact: Johnny Arenas 505-787-0546

Remarks: _____

Johnny said its a neg. BTEX Not Liquid!

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

Analysis No: HM20220114
Cust No: 33700-10095

Well/Lease Information

Customer Name:	HARVEST MIDSTREAM	Source:	INLET
Well Name:	31-6 STRADDLE SUCTION	Well Flowing:	
County/State:		Pressure:	22 PSIG
Location:		Flow Temp:	41 DEG. F
Lease/PA/CA:		Ambient Temp:	36 DEG. F
Formation:		Flow Rate:	MCF/D
Cust. Stn. No.:	62205-001	Sample Method:	Purge & Fill
		Sample Date:	11/30/2022
		Sample Time:	12.00 PM
		Sampled By:	Johnny Arenas
Heat Trace:	N	Sampled by (CO):	HARVEST
Remarks:	Calculated Molecular Weight: 17.5394		

Analysis

Component:	Mole%:	Unormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.1480	0.1458	0.0160	0.00	0.0014
CO2	4.3597	4.2942	0.7450	0.00	0.0662
Methane	94.0671	92.6544	15.9780	950.08	0.5210
Ethane	1.1396	1.1225	0.3050	20.17	0.0118
Propane	0.2001	0.1971	0.0550	5.03	0.0030
Iso-Butane	0.0293	0.0289	0.0100	0.95	0.0006
N-Butane	0.0275	0.0271	0.0090	0.90	0.0006
Neopentane 2,2 dmc3	0.0000	0.0000	0.0000	0.00	0.0000
I-Pentane	0.0113	0.0111	0.0040	0.45	0.0003
N-Pentane	0.0049	0.0048	0.0020	0.20	0.0001
Neohexane	0.0001	N/R	0.0000	0.00	0.0000
2-3-Dimethylbutane	0.0002	N/R	0.0000	0.01	0.0000
Cyclopentane	0.0002	N/R	0.0000	0.01	0.0000
2-Methylpentane	0.0011	N/R	0.0000	0.05	0.0000
3-Methylpentane	0.0004	N/R	0.0000	0.02	0.0000
C6	0.0013	0.0123	0.0010	0.06	0.0000
Methylcyclopentane	0.0010	N/R	0.0000	0.05	0.0000
Benzene	0.0004	N/R	0.0000	0.01	0.0000
Cyclohexane	0.0005	N/R	0.0000	0.02	0.0000
2-Methylhexane	0.0002	N/R	0.0000	0.01	0.0000
3-Methylhexane	0.0002	N/R	0.0000	0.01	0.0000
2-2-4-Trimethylpentane	0.0001	N/R	0.0000	0.01	0.0000
i-heptanes	0.0001	N/R	0.0000	0.01	0.0000
Heptane	0.0008	N/R	0.0000	0.04	0.0000

Methylcyclohexane	0.0014	N/R	0.0010	0.07	0.0000
Toluene	0.0009	N/R	0.0000	0.04	0.0000
2-Methylheptane	0.0002	N/R	0.0000	0.01	0.0000
4-Methylheptane	0.0001	N/R	0.0000	0.01	0.0000
i-Octanes	0.0002	N/R	0.0000	0.01	0.0000
Octane	0.0005	N/R	0.0000	0.03	0.0000
Ethylbenzene	0.0006	N/R	0.0000	0.03	0.0000
m, p Xylene	0.0000	N/R	0.0000	0.00	0.0000
o Xylene (& 2,2,4 tmc7)	0.0002	N/R	0.0000	0.01	0.0000
i-C9	0.0005	N/R	0.0000	0.03	0.0000
C9	0.0003	N/R	0.0000	0.02	0.0000
i-C10	0.0007	N/R	0.0000	0.05	0.0000
C10	0.0002	N/R	0.0000	0.02	0.0000
i-C11	0.0000	N/R	0.0000	0.00	0.0000
C11	0.0000	N/R	0.0000	0.00	0.0000
C12P	0.0000	N/R	0.0000	0.00	0.0000
Total	100.00	98.498	17.126	978.43	0.6056

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

COMPRESSIBLITY FACTOR (1/Z):	1.0022	CYLINDER #:	102
BTU/CU.FT IDEAL:	980.7	CYLINDER PRESSURE:	24 PSIG
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	982.9	ANALYSIS DATE:	12/02/2022
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	965.8	ANALYIS TIME:	01:40:51 AM
DRY BTU @ 15.025:	1002.6	ANALYSIS RUN BY:	ELAINE MORRISON
REAL SPECIFIC GRAVITY:	0.6067		

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: 12/05/2022**
GC Method: C12+BTEX Gas

HARVEST MIDSTREAM

WELL ANALYSIS COMPARISON

Lease: 31-6 STRADDLE SUCTION INLET 12/05/2022

Stn. No.: 62205-001 33700-10095

Mtr. No.:

Smpl Date:	11/30/2022	10/06/2021	10/02/2020	07/10/2020	12/26/2018
Test Date:	12/02/2022	10/07/2021	10/06/2020	07/13/2020	12/28/2018
Run No:	HM20220114	HM2021084	HM200088	HM200063	HM180020
Nitrogen:	0.1480	0.1194	0.1173	0.1155	0.0920
CO2:	4.3597	4.4942	4.3087	3.9918	4.2055
Methane:	94.0671	93.9195	93.8666	94.1841	93.7409
Ethane:	1.1396	1.1680	1.3252	1.3719	1.4234
Propane:	0.2001	0.2163	0.2467	0.2361	0.2857
I-Butane:	0.0293	0.0288	0.0484	0.0384	0.0493
N-Butane:	0.0275	0.0312	0.0448	0.0317	0.0483
2,2 dmc3:	0.0000	0.0000	0.0000	0.0000	0.1198
I-Pentane:	0.0113	0.0072	0.0114	0.0115	0.0160
N-Pentane:	0.0049	0.0029	0.0056	0.0052	0.0104
Neohexane:	0.0001	0.0002	0.0007	0.0001	0.0001
2-3-Cyclopentane:	0.0002	0.0002	0.0001	0.0003	0.0001
2-Methylpentane:	0.0002	0.0002	0.0001	0.0003	0.0001
3-Methylpentane:	0.0011	0.0014	0.0009	0.0017	0.0010
C6:	0.0004	0.0006	0.0017	0.0007	0.0003
Methylcyclopentane:	0.0013	0.0014	0.0031	0.0015	0.0010
Benzene:	0.0010	0.0010	0.0022	0.0011	0.0008
Cyclohexane:	0.0004	0.0005	0.0015	0.0006	0.0003
2-Methylhexane:	0.0005	0.0006	0.0019	0.0007	0.0004
3-Methylhexane:	0.0002	0.0002	0.0007	0.0003	0.0002
2-2-4-i-heptanes:	0.0000	0.0000	0.0001	0.0000	0.0000
Heptane:	0.0001	0.0001	0.0003	0.0000	0.0001
Methylcyclohexane:	0.0001	0.0002	0.0004	0.0002	0.0001
Toluene:	0.0008	0.0006	0.0017	0.0010	0.0005
2-Methylheptane:	0.0014	0.0021	0.0035	0.0017	0.0010
4-Methylheptane:	0.0009	0.0008	0.0015	0.0010	0.0004
i-Octanes:	0.0002	0.0003	0.0007	0.0003	0.0003
Octane:	0.0001	0.0001	0.0004	0.0002	0.0001
Ethylbenzene:	0.0002	0.0002	0.0005	0.0002	0.0003
m, p Xylene:	0.0005	0.0004	0.0010	0.0006	0.0004
o Xylene (& 2,2,4	0.0006	0.0000	0.0001	0.0001	0.0000
i-C9:	0.0000	0.0006	0.0007	0.0004	0.0003
C9:	0.0002	0.0001	0.0001	0.0001	0.0000
i-C10:	0.0005	0.0001	0.0004	0.0002	0.0002
C10:	0.0003	0.0002	0.0004	0.0002	0.0002
i-C11:	0.0007	0.0000	0.0003	0.0002	0.0000
C11:	0.0002	0.0000	0.0001	0.0001	0.0001
C12P:	0.0000	0.0000	0.0001	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000
BTU:	982.9	982.1	987.2	989.6	993.1
GPM:	17.1300	17.1360	17.1640	17.1620	17.1570
SPG:	0.6067	0.6080	0.6083	0.6047	0.6101

GAS ANALYSIS SERVICE

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

24#

10 PSIG Precharge

C6+ ☐ C9+ ☐ C12+ ☐ C12+ BTEX ☐ Helium ☐

Other _____ Date 11/30/22

Sampled By:(Co.) Harvest Midstream Time 1200 ☐AM ☐PM

Sampled by:(Person) Johnny Arenas Well Flowing: ☐ Yes ☐ No

Company: Harvest Heat Trace: ☐ Yes ☐ No

Well Name: _____ Flow Pressure (PSIG): 82

Location: 31-6 straddle Flow Temp (°F): 41

County/State: NM Ambient Temp (°F): 36

Formation: _____ Flow Rate (MCF/D): _____

Source: ☐ Meter Run ☐ Tubing ☐ Casing ☐ Bradenhead ☒ Other _____

Sample Type: ☒ Spot ☐ Composite Sample Method: ☒ Purge & Fill ☐ Other _____

Meter Number: _____ Cylinder Number 102

Contact: Johnny Arenas 505-787-0540

Remarks:

33700.- 10095 HX 20220114

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

Analysis No: HM2021091
Cust No: 33700-10435

Well/Lease Information

Customer Name:	HARVEST MIDSTREAM	Source:	METER RUN
Well Name:	Laguna Seca CDP	Well Flowing:	Y
County/State:	Rio Arriba NM	Pressure:	95 PSIG
Location:		Flow Temp:	65 DEG. F
Lease/PA/CA:		Ambient Temp:	60 DEG. F
Formation:		Flow Rate:	3.5 MCF/D
Cust. Stn. No.:	02013-01	Sample Method:	
		Sample Date:	10/18/2021
		Sample Time:	11.15 AM
		Sampled By:	D. Valencia
Heat Trace:	N	Sampled by (CO):	Harvest Mid
Remarks:	Calculated Molecular Weight: = 17.1334		

Analysis

Component:	Mole%:	Unormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.2513	0.2530	0.0280	0.00	0.0024
CO2	3.6895	3.7147	0.6310	0.00	0.0561
Methane	95.9097	96.5652	16.2900	968.69	0.5312
Ethane	0.1228	0.1236	0.0330	2.17	0.0013
Propane	0.0000	0.0000	0.0000	0.00	0.0000
Iso-Butane	0.0000	0.0000	0.0000	0.00	0.0000
N-Butane	0.0000	0.0000	0.0000	0.00	0.0000
Neopentane 2,2 dmc3	0.0268	0.0270	0.0100	1.07	0.0007
I-Pentane	0.0000	0.0000	0.0000	0.00	0.0000
N-Pentane	0.0000	0.0000	0.0000	0.00	0.0000
Neohexane	0.0000	N/R	0.0000	0.00	0.0000
2-3-Dimethylbutane	0.0000	N/R	0.0000	0.00	0.0000
Cyclopentane	0.0000	N/R	0.0000	0.00	0.0000
2-Methylpentane	0.0000	N/R	0.0000	0.00	0.0000
3-Methylpentane	0.0000	N/R	0.0000	0.00	0.0000
C6	0.0000	0.0000	0.0000	0.00	0.0000
Methylcyclopentane	0.0000	N/R	0.0000	0.00	0.0000
Benzene	0.0000	N/R	0.0000	0.00	0.0000
Cyclohexane	0.0000	N/R	0.0000	0.00	0.0000
2-Methylhexane	0.0000	N/R	0.0000	0.00	0.0000
3-Methylhexane	0.0000	N/R	0.0000	0.00	0.0000
2-2-4-Trimethylpentane	0.0000	N/R	0.0000	0.00	0.0000
i-heptanes	0.0000	N/R	0.0000	0.00	0.0000
Heptane	0.0000	N/R	0.0000	0.00	0.0000

Methylcyclohexane	0.0000	N/R	0.0000	0.00	0.0000
Toluene	0.0000	N/R	0.0000	0.00	0.0000
2-Methylheptane	0.0000	N/R	0.0000	0.00	0.0000
4-Methylheptane	0.0000	N/R	0.0000	0.00	0.0000
i-Octanes	0.0000	N/R	0.0000	0.00	0.0000
Octane	0.0000	N/R	0.0000	0.00	0.0000
Ethylbenzene	0.0000	N/R	0.0000	0.00	0.0000
m, p Xylene	0.0000	N/R	0.0000	0.00	0.0000
o Xylene (& 2,2,4 tmc7)	0.0000	N/R	0.0000	0.00	0.0000
i-C9	0.0000	N/R	0.0000	0.00	0.0000
C9	0.0000	N/R	0.0000	0.00	0.0000
i-C10	0.0000	N/R	0.0000	0.00	0.0000
C10	0.0000	N/R	0.0000	0.00	0.0000
i-C11	0.0000	N/R	0.0000	0.00	0.0000
C11	0.0000	N/R	0.0000	0.00	0.0000
C12P	0.0000	N/R	0.0000	0.00	0.0000
Total	100.00	100.684	16.992	971.93	0.5917

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

COMPRESSIBLITY FACTOR (1/Z):	1.0021	CYLINDER #:	0163
BTU/CU.FT IDEAL:	974.2	CYLINDER PRESSURE:	90 PSIG
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	976.2	ANALYSIS DATE:	10/20/2021
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	959.2	ANALYIS TIME:	12:42:01 AM
DRY BTU @ 15.025:	995.8	ANALYSIS RUN BY:	ELAINE MORRISON
REAL SPECIFIC GRAVITY:	0.5927		

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: 10/26/2021**
GC Method: C12+BTEX Gas

HARVEST MIDSTREAM

WELL ANALYSIS COMPARISON

Lease: Laguna Seca CDP METER RUN 10/26/2021

Stn. No.: 02013-01 33700-10435

Mtr. No.:

Smpl Date:	10/18/2021	04/16/2021	02/06/2020
Test Date:	10/20/2021	04/21/2021	02/13/2020
Run No:	HM2021091	HM2021025	HM200011
Nitrogen:	0.2513	0.0701	0.0654
CO2:	3.6895	4.1404	5.1009
Methane:	95.9097	95.5707	93.9967
Ethane:	0.1228	0.2188	0.7593
Propane:	0.0000	0.0000	0.0641
I-Butane:	0.0000	0.0000	0.0075
N-Butane:	0.0000	0.0000	0.0024
2,2 dmc3:	0.0268	0.0000	0.0000
I-Pentane:	0.0000	0.0000	0.0000
N-Pentane:	0.0000	0.0000	0.0000
Neohexane:	0.0000	0.0000	0.0001
2-3-Cyclopentane:	0.0000	0.0000	0.0000
2-Methylpentane:	0.0000	0.0000	0.0000
3-Methylpentane:	0.0000	0.0000	0.0003
C6:	0.0000	0.0000	0.0001
Methylcyclopentane:	0.0000	0.0000	0.0003
Benzene:	0.0000	0.0000	0.0003
Cyclohexane:	0.0000	0.0000	0.0004
2-Methylhexane:	0.0000	0.0000	0.0001
3-Methylhexane:	0.0000	0.0000	0.0001
2-2-4-i-heptanes:	0.0000	0.0000	0.0000
Heptane:	0.0000	0.0000	0.0000
Methylcyclohexane:	0.0000	0.0000	0.0000
Toluene:	0.0000	0.0000	0.0002
2-Methylheptane:	0.0000	0.0000	0.0005
4-Methylheptane:	0.0000	0.0000	0.0005
i-Octanes:	0.0000	0.0000	0.0000
Octane:	0.0000	0.0000	0.0001
Ethylbenzene:	0.0000	0.0000	0.0001
m, p Xylene:	0.0000	0.0000	0.0002
o Xylene (& 2,2,4 i-C9:	0.0000	0.0000	0.0000
C9:	0.0000	0.0000	0.0001
i-C10:	0.0000	0.0000	0.0001
C10:	0.0000	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:	976.2	973.4	969.3
GPM:	16.9820	17.0070	17.0710
SPG:	0.5927	0.5962	0.6091

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

90#

GAS ANALYSIS SERVICE

C6+ ☐ C9+ ☐ C12+ BTEX ☐ Helium ☐
N2 Flowback ☐ Sulfurs ☐ Ext. Liquid ☐
Other Extended gas Analysis

Sampled By:(Co.) Harvest Midstream
Sampled by:(Person) D. Valencia
Company: Harvest Midstream
Well Name: A59 / Laguna Seca
Lease#: Navajo
County: Rio Arriba Formation: Mancos / CDP
State: NM Location: A59 / Laguna Seca
Source: ☑ Meter Run ☐ Tubing ☐ Casing ☐ Bradenhead ☐ Other
Sample Type: ☑ Spot ☐ Composite Sample Method: ☐ Purge & Fill ☐ Other
Meter Number: 02129-01
Contact: D. Valencia 505-419-8357
Remarks: Extended Gas Analysis

Date 10/18/2021
Time 1115 ☑AM ☐PM
Well Flowing: ☑ Yes ☐ No
Heat Trace: ☐ Yes ☑ No
Flow Pressure (PSIG): 95
Flow Temp (°F): 105
Ambient Temp (°F): 100
Flow Rate (MCF/D): 3.5
Cylinder Number: 0163
33700-10435
HM2021091

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

GLOBAL WARMING POTENTIALS

[100-Year Time Horizon]

Name	CAS No.	Chemical formula	Global warming potential (100 yr.)
Carbon dioxide	124-38-9	CO_2	1
Methane	74-82-8	CH_4	[a]25
Nitrous oxide	10024-97-2	N_2O	[a]298
HFC-23	75-46-7	CHF_3	[a]14,800
HFC-32	75-10-5	CH_2F_2	[a]675
HFC-41	593-53-3	CH_3F	[a]92
HFC-125	354-33-6	C_2HF_5	[a]3,500
HFC-134	359-35-3	$C_2H_2F_4$	[a]1,100
HFC-134a	811-97-2	CH_2FCF_3	[a]1,430
HFC-143	430-66-0	$C_2H_3F_3$	[a]353
HFC-143a	420-46-2	$C_2H_3F_3$	[a]4,470
HFC-152	624-72-6	CH_2FCH_2F	53
HFC-152a	75-37-6	CH_3CHF_2	[a]124
HFC-161	353-36-6	CH_3CH_2F	12
HFC-227ea	431-89-0	C_3HF_7	[a]3,220
HFC-236cb	677-56-5	$CH_2FCF_2CF_3$	1,340
HFC-236ea	431-63-0	CHF_2CHFCF_3	1,370
HFC-236fa	690-39-1	$C_3H_2F_6$	[a]9,810
HFC-245ca	679-86-7	$C_3H_3F_5$	[a]693
HFC-245fa	460-73-1	$CHF_2CH_2CF_3$	1,030
HFC-365mfc	406-58-6	$CH_3CF_2CH_2CF_3$	794
HFC-43-10mee	138495-42-8	$CF_3CFHCFHCF_2CF_3$	[a]1,640
Sulfur hexafluoride	2551-62-4	SF_6	[a]22,800
Trifluoromethyl sulphur pentafluoride	373-80-8	SF_5CF_3	17,700
Nitrogen trifluoride	7783-54-2	NF_3	17,200
PFC-14 (Perfluoromethane)	75-73-0	CF_4	[a]7,390
PFC-116 (Perfluoroethane)	76-16-4	C_2F_6	[a]12,200
PFC-218 (Perfluoropropane)	76-19-7	C_3F_8	[a]8,830
Perfluorocyclopropane	931-91-9	$C\text{-}C_3F_6$	17,340
PFC-3-1-10 (Perfluorobutane)	355-25-9	C_4F_{10}	[a]8,860
PFC-318 (Perfluorocyclobutane)	115-25-3	$C\text{-}C_4F_8$	[a]10,300
PFC-4-1-12 (Perfluoropentane)	678-26-2	C_5F_{12}	[a]9,160
PFC-5-1-14 (Perfluorohexane, FC-72)	355-42-0	C_6F_{14}	[a]9,300
PFC-9-1-18	306-94-5	$C_{10}F_{18}$	7,500
HCFE-235da2 (Isoflurane)	26675-46-7	$CHF_2OCHClCF_3$	350
HFE-43-10pccc (H-Galden 1040x, HG-11)	E1730133	$CHF_2OCF_2OC_2F_4OCHF_2$	1,870

HFE-125	3822-68-2	CHF_2OCF_3	14,900
HFE-134 (HG-00)	1691-17-4	CHF_2OCHF_2	6,320
HFE-143a	421-14-7	CH_3OCF_3	756
HFE-227ea	2356-62-9	$CF_3CHFOCF_3$	1,540
HFE-236ca12 (HG-10)	78522-47-1	$CHF_2OCF_2OCHF_2$	2,800
HFE-236ea2 (Desflurane)	57041-67-5	$CHF_2OCHFCF_3$	989
HFE-236fa	20193-67-3	$CF_3CH_2OCF_3$	487
HFE-245cb2	22410-44-2	$CH_3OCF_2CF_3$	708
HFE-245fa1	84011-15-4	$CHF_2CH_2OCF_3$	286
HFE-245fa2	1885-48-9	$CHF_2OCH_2CF_3$	659
HFE-254cb2	425-88-7	$CH_3OCF_2CHF_2$	359
HFE-263fb2	460-43-5	$CF_3CH_2OCH_3$	11
HFE-329mcc2	134769-21-4	$CF_3CF_2OCF_2CHF_2$	919
HFE-338mcf2	156053-88-2	$CF_3CF_2OCH_2CF_3$	552
HFE-338pcc13 (HG-01)	188690-78-0	$CHF_2OCF_2CF_2OCHF_2$	1,500
HFE-347mcc3 (HFE-7000)	375-03-1	$CH_3OCF_2CF_2CF_3$	575
HFE-347mcf2	171182-95-9	$CF_3CF_2OCH_2CHF_2$	374
HFE-347pcf2	406-78-0	$CHF_2CF_2OCH_2CF_3$	580
HFE-356mec3	382-34-3	$CH_3OCF_2CHFCF_3$	101
HFE-356pcc3	160620-20-2	$CH_3OCF_2CF_2CHF_2$	110
HFE-356pcf2	50807-77-7	$CHF_2CH_2OCF_2CHF_2$	265
HFE-356pcf3	35042-99-0	$CHF_2OCH_2CF_2CHF_2$	502
HFE-365mcf3	378-16-5	$CF_3CF_2CH_2OCH_3$	11
HFE-374pc2	512-51-6	$CH_3CH_2OCF_2CHF_2$	557
HFE-449s1 (HFE-7100)	163702-07-6	$C_4F_9OCH_3$	297
Chemical blend	163702-08-7	$(CF_3)_2CFCF_2OCH_3$	
HFE-569sf2 (HFE-7200)	163702-05-4	$C_4F_9OC_2H_5$	59
Chemical blend	163702-06-5	$(CF_3)_2CFCF_2OC_2H_5$	
Sevoflurane (HFE-347mmz1)	28523-86-6	$CH_2FOCH(CF_3)_2$	345
HFE-356mm1	13171-18-1	$(CF_3)_2CHOCH_3$	27
HFE-338mmz1	26103-08-2	$CHF_2OCH(CF_3)_2$	380
(Octafluorotetramethy-lene) hydroxymethyl group	NA	$X\text{-}(CF_2)_4CH(OH)\text{-}X$	73
HFE-347mmy1	22052-84-2	$CH_3OCF(CF_3)_2$	343
Bis(trifluoromethyl)-methanol	920-66-1	$(CF_3)_2CHOH$	195
2,2,3,3,3-pentafluoropropanol	422-05-9	$CF_3CF_2CH_2OH$	42
PFPMIE (HT-70)	NA	$CF_3OCF(CF_3)CF_2OCF_2OCF_3$	10,300

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

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

DEFAULT CO_2 EMISSION FACTORS AND HIGH HEAT VALUES FOR VARIOUS TYPES OF FUEL

Fuel type	Default high heat value	Default CO_2 emission factor
Coal and coke	mmBtu/short ton	kg CO_2/mmBtu
Anthracite	25.09	103.69
Bituminous	24.93	93.28
Subbituminous	17.25	97.17
Lignite	14.21	97.72
Coal Coke	24.80	113.67
Mixed (Commercial sector)	21.39	94.27
Mixed (Industrial coking)	26.28	93.90
Mixed (Industrial sector)	22.35	94.67
Mixed (Electric Power sector)	19.73	95.52
Natural gas	mmBtu/scf	kg CO_2/mmBtu
(Weighted U.S. Average)	1.026×10^{-3}	53.06
Petroleum products	mmBtu/gallon	kg CO_2/mmBtu
Distillate Fuel Oil No. 1	0.139	73.25
Distillate Fuel Oil No. 2	0.138	73.96
Distillate Fuel Oil No. 4	0.146	75.04
Residual Fuel Oil No. 5	0.140	72.93
Residual Fuel Oil No. 6	0.150	75.10
Used Oil	0.138	74.00
Kerosene	0.135	75.20
Liquefied petroleum gases (LPG)[1]	0.092	61.71
Propane[1]	0.091	62.87
Propylene[2]	0.091	67.77
Ethane[1]	0.068	59.60
Ethanol	0.084	68.44
Ethylene[2]	0.058	65.96
Isobutane[1]	0.099	64.94
Isobutylene[1]	0.103	68.86
Butane[1]	0.103	64.77
Butylene[1]	0.105	68.72
Naphtha (<401 deg F)	0.125	68.02
Natural Gasoline	0.110	66.88
Other Oil (>401 deg F)	0.139	76.22
Pentanes Plus	0.110	70.02

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

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

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

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

[4]Reporters subject to subpart X of this part that are complying with §98.243(d) or subpart Y of this part may only use the default HHV and the default CO_2 emission factor for fuel gas combustion under the conditions prescribed in §98.243(d)(2)(i) and (d)(2)(ii) and §98.252(a)(1) and (a)(2), respectively. Otherwise, reporters subject to subpart X or subpart Y shall use either Tier 3 (Equation C-5) or Tier 4.

[5]Use the following formula to calculate a wet basis HHV for use in Equation C-1: $HHV_w = ((100 - M)/100)*HHV_d$where HHV_w = wet basis HHV, M = moisture content (percent) and HHV_d = dry basis HHV from Table C-1.

[78 FR 71950, Nov. 29, 2013]

Back to Top

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

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

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

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

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

Connector (other)	0.007
Open-ended Line	0.05
Pump	0.01
Other[5]	0.30
Population Emission Factors—All Components, Heavy Crude Service[6]	
Valve	0.0005
Flange	0.0009
Connector (other)	0.0003
Open-ended Line	0.006
Other[5]	0.003

[1]For multi-phase flow that includes gas, use the gas service emissions factors.

[2]Emission Factor is in units of “scf/hour/device.”

[3]Emission Factor is in units of “scf/hour/pump.”

[4]Hydrocarbon liquids greater than or equal to 20°API are considered “light crude.”

[5]“Others” category includes instruments, loading arms, pressure relief valves, stuffing boxes, compressor seals, dump lever arms, and vents.

[6]Hydrocarbon liquids less than 20°API are considered “heavy crude.”

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Section 8

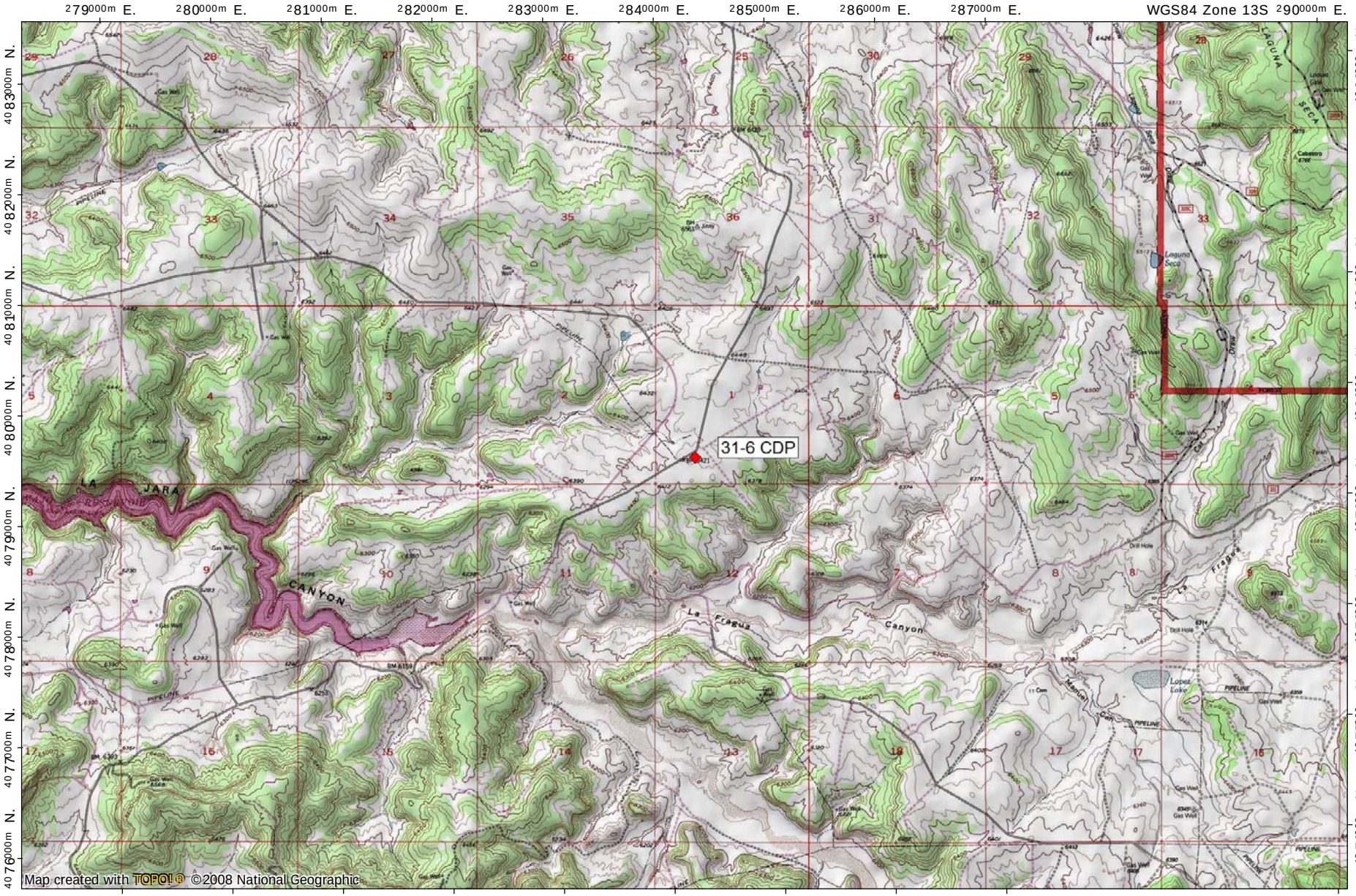
Map(s)

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

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

Please see the following page(s).

HARVEST FOUR CORNERS LLC - 31-6 CENTRAL DELIVERY POINT (CDP) - Rio Arriba County., NM T 30 N, R 06 W, Section 01



0.0 0.5 1.0 1.5 miles
0.0 0.5 1.0 1.5 2.0 2.5 km

TN MN
9°
10/05/17

Section 9

Proof of Public Notice

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

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

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

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

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

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

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

Rio Arriba County is classified as an "A" county, according to the New Mexico Department of Finance and Administration (http://www.nmdfa.state.nm.us/County_Classifications.aspx). As such, according to 20.2.72.203.B(1)(a) NMAC, public notice must be provided by certified mail to the owners of record within one hundred (100) feet of the property on which the facility is located.

Table 1 identifies the land owners within 100 feet of the property on which the facility is located, that received public notice letters of the proposed permit modification. Land owner information was obtained

from the Rio Arriba County Assessor's Office Eagle Web online parcel map viewer at http://www.rio-arriba.org/departments_and_divisions/assessor/eagle_web_property_search.html. Please refer to the attached maps and property owner listings.

Table 1

Land Owners Receiving Public Notice Letters Within 100 Feet of the Property on Which the Facility is Located
Bureau of Land Management

20.2.72.203.B(2) NMAC requires public notice be provided by certified mail to all municipalities, counties in which the facility is located, and to municipalities, counties and Indian Tribes within a 10 mile radius of the property on which the facility is located.

Table 2 identifies the counties, municipalities and tribes located within ten miles of the facility that received public notice letters.

Table 2

Municipalities, Counties and Tribes Within 10 Miles of the Facility Receiving Public Notice Letters	
Municipalities	**Addressed to**
None	
Counties	**Addressed to**
San Juan County	County Clerk
Rio Arriba County	County Clerk
Tribes	**Addressed to**
None	

Harvest Four Corners, LLC
1755 Arroyo Drive
Bloomfield, NM 87413
Phone: 505/632-4600
Fax: 505/209632-4782
harvestmidstream.com

CERTIFIED MAIL 7022 1670 0001 9923 3358

April 20, 2023

Bureau of Land Management
6251 College Blvd., Suite A
Farmington, NM 87402

Dear Madam or Sir,

Harvest Four Corners, LLC (HFC) announces its application to the New Mexico Environment Department (NMED) for an air quality permit modification for its natural gas gathering and compression station known as the **31-6 Central Delivery Point (CDP)**. The expected date of application submittal to the Air Quality Bureau is on or near April 21, 2023.

The exact location of the facility is latitude 36° 50' 10" latitude and -107° 25' 12" longitude, approximately 5.2 miles north-northeast of the intersection of NM 527 and Co. Rd. 362, in Rio Arriba County.

The facility is currently permitted for sixteen (16) 4-stroke, lean burn (4SLB) compressor engines (8 of which are equipped with emission controls), and seven (7) triethylene glycol (TEG) dehydrators. The proposed permit modifications include the replacement of four of the current 4SLB engines with 4-stroke, rich burn engines equipped with emission controls; the addition of emission controls on any remaining currently uncontrolled 4SLB engines, and the addition of three (3) TEG dehydrators.

The estimated maximum quantities of any regulated air contaminant will be as follows in pound per hour (pph) and tpy and could change slightly during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year
Nitrogen Oxides (NO_X)	39.6	173.3
Carbon Monoxide (CO)	14.9	65.2
Volatile Organic Compounds (VOC)	25.0	132.1
Sulfur Dioxide (SO_2)	0.1	0.5
Particulate Matter (PM)	2.2	9.4
Particulate Matter less than 10 um diameter (PM_{10})	2.2	9.4
Particulate Matter less than 10 um diameter ($PM_{2.5}$)	2.2	9.4
Total sum of all Hazardous Air Pollutants (HAPs)	2.9	13.2
Green House Gas Emissions as Total CO2e	n/a	196,516

The standard and maximum operating schedule of the facility will continue to be from midnight to midnight (24 hours a day), seven days a week, 52 weeks a year.

The owner/operator of the facility is

Harvest Four Corners LLC, 1755 Arroyo Drive, Bloomfield, New Mexico, 87413.

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez,

Suite 1; Santa Fe, New Mexico; 87505-1816; (505) 476-4300; 1 800 224-7009; https://www.env.nm.gov/aqb/permit/aqb_draft_permits.html. Other comments and questions may be submitted verbally.

Please refer to the company name and facility name, or send a copy of this notice along with your comments, since the Department may have not yet received the permit application. Please include a legible return mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.

Attención

Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-476-5557.

Sincerely,

Jennifer Deal
Environmental Specialist

Harvest Four Corners LLC
1755 Arroyo Drive
Bloomfield, NM 87413

Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@state.nm.us. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

Harvest Four Corners, LLC
1755 Arroyo Drive
Bloomfield, NM 87413
Phone: 505/632-4600
Fax: 505/209632-4782
harvestmidstream.com

CERTIFIED MAIL 7022 1670 0001 9923 3129

April 20, 2023

County Clerk
Rio Arriba County
P.O. Box 158
Tierra Amarilla, NM 87575

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Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816; (505) 476-4300; 1 800 224-7009; https://www.env.nm.gov/aqb/permit/aqb_draft_permits.html. Other comments and questions may be submitted verbally.

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Sincerely,

Jennifer Deal
Environmental Specialist

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1755 Arroyo Drive
Bloomfield, NM 87413

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PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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04/20/2023
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P.O. Box 158
City, State, ZIP+4®
Tierra Amarilla, NM 87575

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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Postage $0.63

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APR 20 2023
04/20/2023
COLORADO SPRINGS, CO 80920

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100 S. Oliver Drive
City, State, ZIP+4®
Aztec, NM 87410

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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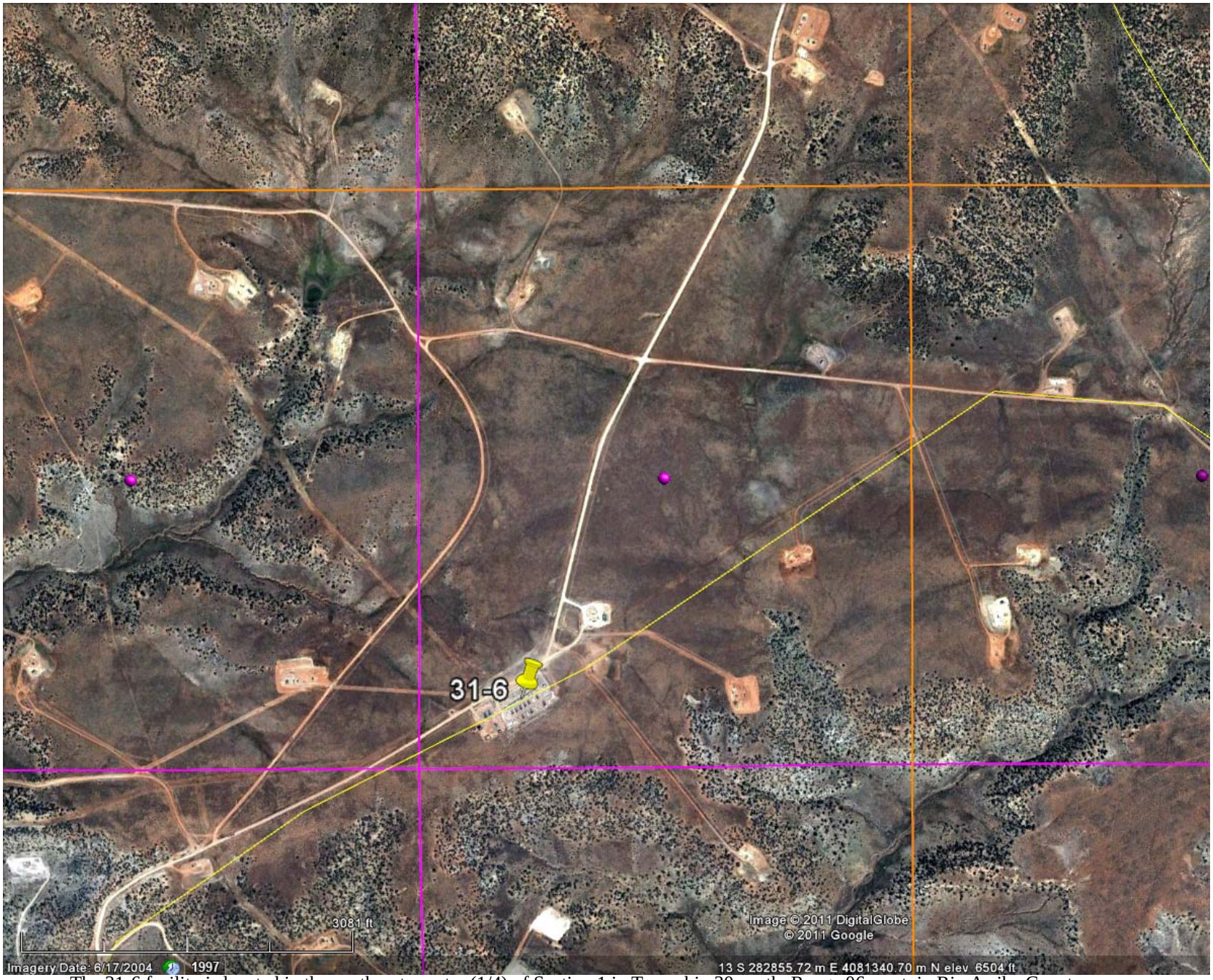
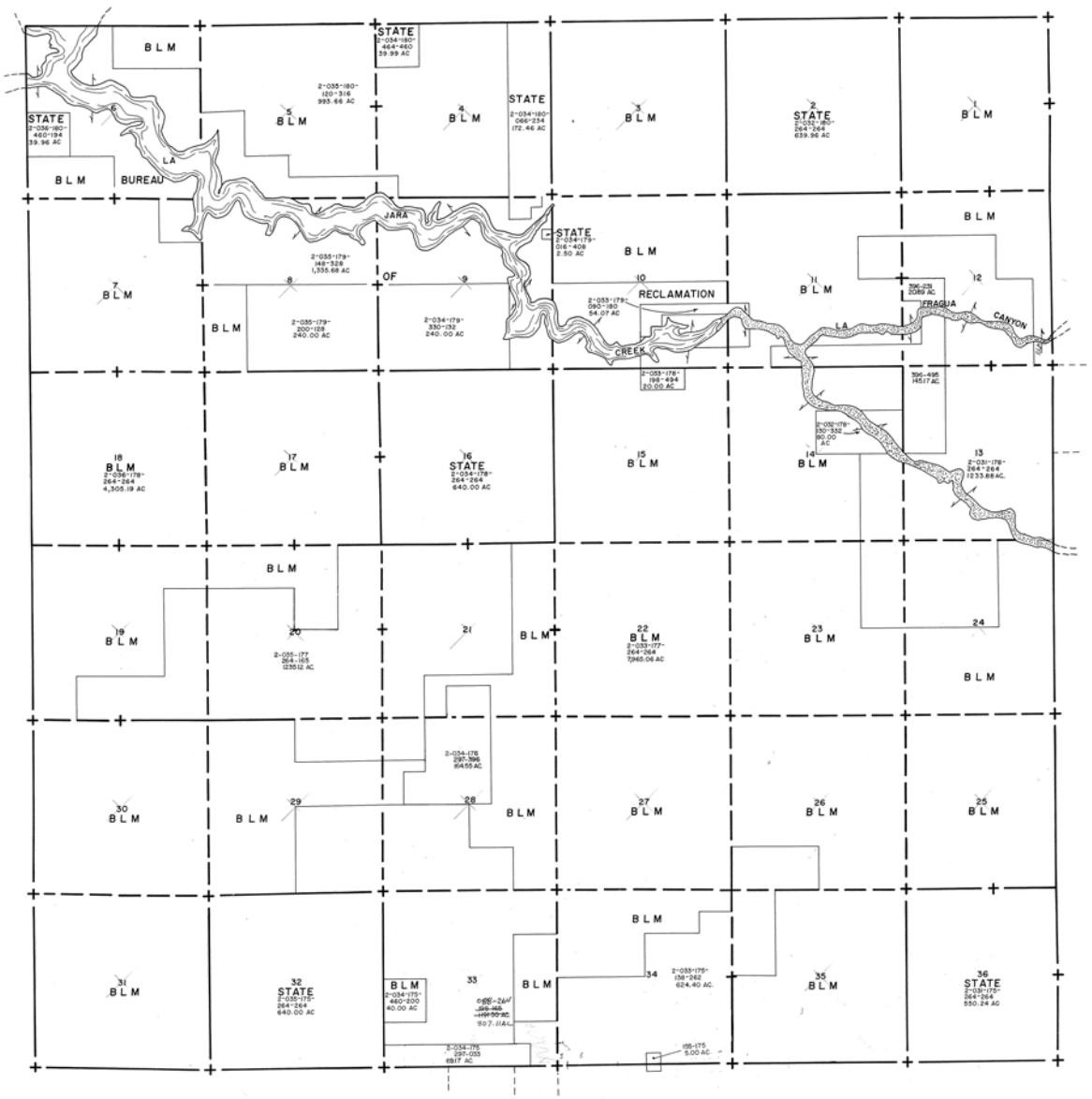


The 31-6 facility is located in the southeast quarter (1/4) of Section 1 in Township 30-north, Range 06-west, in Rio Arriba County. The pink dot is the center of Section 1. The boundaries of Section 1 are outlined in pink and orange.

Requested information from the R.A. Co. Assessors'Offices includes

- Parcel map that includes the parcel 31-6 is on and the immediate neighboring parcels
- Names and addresses of the neighboring parcel owners.

00 30 06W
MAP NUMBER



36	31	32	33	34	35	36	31
1	6	5	4	3	2	1	6
12	7	8	9	10	11	12	7
13	18	17	16	15	14	13	18
24	19	20	21	22	23	24	19
25	30	29	28	27	26	25	30
36	31	32	33	34	35	36	31
1	6	5	4	3	2	1	6

NOTE:
This map should not be used in preparing legal descriptions. Section and property lines may be unsurveyed.

DRAWN BY
CHECKED BY
DATE

PROPERTY CODE NUMBER

SECTION
TOWNSHIP 30N
RANGE 06W

PROPERTY IDENTIFICATION MAP

RIO ARRIBA COUNTY
NEW MEXICO

PREPARED FOR
RIO ARRIBA COUNTY
ASSESSORS OFFICE
BY

Western Tel-Com Services of New Mexico, Inc.
P.O. BOX 5752
Santa Fe,N.Mex.87502
(505) 988-1099

MAP NUMBER
00 30 06W

00-30N-06W 27

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Please refer to the company name and site name, or send a copy of this notice along with your comments, since the Department may have not yet received the permit application. Please include a legible return mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.
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Attención
Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-629-3395.
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TX-GCI1050069-01

Report

Continued from Page 1A

In a statement to *The Daily Times*, Farmington City Manager Rob Mayes noted he had not seen the report and was limited in how he could respond to it. But he did add, "I would remind the public, we have recently lauded similar reports from the American Lung Association saying we have some of the cleanest air in the nation. So these reports need to be taken in balance recognizing the truth is likely somewhere in the middle; avoiding extreme reaction either way."

San Juan County Manager Mike Stark declined to comment on the report. Officials with the Rio Grande Chapter of the Sierra Club did not respond to a request for comment from *The Daily Times*.

There was a bit of a silver lining to this year's data for San Juan County. Each of the county's high-ozone days were rated as orange days, which the ALA characterizes as unhealthy for sensitive groups. Red days are characterized as unhealthy, while purple days are very unhealthy and maroon days are hazardous. San Juan County had none of the latter three over those three years.

This was the fourth year in a row San Juan County has been assigned an "F" grade, but it was the third year in a row that the county's average number of high-ozone days decreased. The weighted average was 6.7 days in last year's report.

San Juan County last received a passing grade in 2019, a year that reflected data from 2015 to 2017. San Juan County also received passing grades in 2017 and 2018.

The county largely has been on a downward trend since hitting a peak in the 2009 report, which reflected data from 2005 to 2007. The weighted average for that year was 23.8 high ozone days, so this year's number was approximately one-sixth of that figure.

By the 2012 report, the county's average had plummeted to one day, but it climbed to 9.7 days in the 2015 report before beginning another decline that was reflected in those passing grades the county received from 2017 through 2019.

The average increased again in the 2020 report but has been declining steadily since then.

Eddy County, on the other hand, continued to trend in the other direction. It had a weighted average of 19.2 high ozone days from 2019 to 2021, the fifth straight year it has experienced an increase. Eddy County last drew a passing grade in 2018, a year that reflected data from 2014 to 2016. It ranked as the 19th most-polluted county in America for ozone, according to this year's report and is one of only two rural counties in the country to rank among the top 25. From 2019 to 2021, the county experienced 53 orange ozone days and three red ozone days.

Doña Ana County had a weighted average of 16.7 high-ozone days in this year's report. That was the second year in a row the number has declined, but Doña Ana County has never received a passing grade in the 24 years the ALA has been issuing the air quality report. The county peaked in the first year of the report, 2000, when its weighted average was 32.3 days. It experienced 41 orange ozone days from 2019 to 2021 and six red ozone days.

Bernalillo County, the state's most-populous county, had a weighted average of 7.8 high-ozone days in this year's report, compared to eight days in last year's report and 7.7 days in the 2021 report. Its long-term trend has been downward since it peaked at an average of 28 days in the 2005 report for the years 2001 to 2003. Bernalillo County experienced 22 orange ozone days and one red ozone days from 2019 to 2021.

Doña Ana County also received an "F" grade from the ALA for 24-hour particle pollution days. The county experienced a weighted average of 4.2 days per year in this year's report, while a passing grade is 3.2 days per year. Doña Ana County had received a passing grade for the previous eight years.

Bernalillo County narrowly received a passing grade of "D" for its average number of particle pollution days, but the Albuquerque-Santa Fe-Las Vegas Metropolitan Statistical Area had perhaps the worst all-around showing of any of the state's four MSAs. It ranked 24th worst in the country for high-ozone days out of 227 markets, 55th worst for 24-hour particle pollution out of 223 markets and 63rd worst for annual particle pollution out of 200 markets.

"As we can see from this year's report data, there is much work to be done in Albuquerque to improve our air quality," JoAnna Strother, senior advocacy director for the ALA, stated in a news release announcing the release of the report. "Even one poor air quality day is one too many for our residents at highest risk, such as children, older adults, those who are pregnant and those living with chronic disease. That's why we are calling on lawmakers at the local, state and federal levels to take action to ensure that everyone has clean air to breathe."

The entire report can be found online at https://www.lung.org/research/sota.

Mike Easterling can be reached at 505-564-4610 or measterling@daily-times.com .

Taliban

Continued from Page 1A

that work is more complicated by the fact that the State Department and U.S. Agency for International Development have not been cooperating with his probe since withdrawal and asked for lawmakers' help in getting access to the necessary documents and testimony.

"We cannot abide a situation in which agencies are allowed to pick and choose what information an IG gets, or who an IG can interview, or what an IG may report on," Sopko said in his opening testimony. "If permitted to continue, it will end SIGAR's work in Afghanistan but also Congress's access to independent and credible oversight of any administration."

Sopko, who previously served in oversight roles in the House and Senate, testified that he had never seen this level of "obfuscation and delay" from any of the other previous administrations.

Republicans were quick to join in Sopko's criticism of the administration. Even one committee Democrat, Rep. Kweisi Mfume, D-Md., said he regretted the agencies' refusal to cooperate.

"I'm going to go on the record and urge all three of those agencies today to cooperate more so that we might not be in a position of hearing what we've heard today or in a position of frustration like I am right now," Mfume told Sopko during the hearing.

The White House on Wednesday called the hearing, led by Oversight Chairman James Comer, another example of House Republicans' "political stunts."

"You can expect they will continue to falsely claim that the Biden Administration has 'obstructed' oversight – despite the fact that we have provided thousands of pages of documents, analyses, spreadsheets, and written responses to questions, as well as hundreds of briefings to bipartisan Members and staff and public congressional testimony by senior officials, all while consistently providing updates and information to numerous inspectors general," Ian Sams, spokesperson for the White House counsel's office, said in a statement.

A spokesperson for USAID said Wednesday that the agency "has consistently provided SIGAR responses to hundreds of questions, as well as thousands of pages of responsive documents, analyses, and spreadsheets describing dozens of programs that were part of the U.S. government's reconstruction effort in Afghanistan."

A request for comment from the State Department was not returned.

Since the withdrawal, SIGAR has released several reports, nearly all of them critical of both Biden and Trump's handling of how to remove U.S. troops from Afghanistan in its final months.

Over the past two years, Sopko said his staff has requested numerous documents and interviews with officials who were involved in the withdrawal but had been stonewalled. He said those requests involved information about the evacuation and resettlement of Afghan nationals as well as ongoing humanitarian aid and questions about whether that assistance might be transferred to the Taliban.

"It sounds like you're a Republican member of Congress because Republican members of Congress send letters over to the administration and we don't get answers either," Rep. Byron Donalds, R-Fla., told Sopko during his testimony.

Sopko said he and his agents have been able to compile interviews with around 800 current and former U.S. employees who were involved both in the war in Afghanistan and the withdrawal.

"I think we had more sources in Afghanistan than all the other IGs combined and the GAO. So we're still trying to get that information, but the best information, like actual contract data, and actually the names of people is best and it should by law come from State and AID," Sopko said.

Calendar

Continued from Page 2A

competition will take place from 9 a.m. to 6 p.m. Saturday, April 22 at Lions Wilderness Park Amphitheater, 5800 College Blvd. in Farmington. The event is a fundraiser for families battling medical debt and medical-related expenses. It includes vendors and food trucks.

A ranger-led tour of the Aztec East great house will take place at 10 a.m. Saturday, April 22 beginning from the Visitor Center at Aztec Ruins National Monument, 725 Ruins Road in Aztec. Participation is limited to the first 15 people who sign up. Call 505-334-6174 to reserve a spot. Free.

The Health and Safety Fair will be presented from 11 a.m. to 2 p.m. Saturday, April 22 at the Sycamore Park Community Center, 1051 Sycamore St. in Farmington. The event includes vendors providing health and safety information. Free. Call 505-566-2482.

The Fools Gold Band performs at 6 p.m. Saturday, April 22 at Locke Street Eats, 112 N. Locke Ave. in downtown Farmington. Free.

40 oz. to Freedom performs at 8 p.m. Saturday, April 22 at the Lauter Haus Brewing Co., 1806 E. 20th St. in Farmington. Tickets are $10. Call 505-326-2337.

The San Juan Symphony performs at 3 p.m. Sunday, April 23 at the Henderson Performing Arts Center Performance Hall on the San Juan College campus, 4601 College Blvd. in Farmington. The San Juan Symphony Youth Orchestra will perform side by side with the symphony. Tickets are $30 at sanjuansymphony.org.

The Aztec Quilting Bee takes place at 9:30 a.m. Monday, April 24 at the Bloomfield Public Library, 333 S. 1st St. in Bloomfield. Free. Call 505-632-8315.

The Tuesday Morning Birders group meets at 9 a.m. Tuesday, April 25 at the Riverside Nature Center in Animas Park off Browning Parkway in Farmington. Participation is free to experienced and novice birders. Free. Call 505-599-1422.

Solar

Continued from Page 1A

Energy Technologies Office.

Jones-Albertus said she's particularly excited about the support for community solar projects, since half of Americans don't live in a situation where they can buy their own solar and put in on the roof.

Michael Jung, executive director of the ICF Climate Center agreed. "Community solar can help address equity concerns, as most current rooftop solar panels benefit owners of single-family homes," he said.

In typical community solar projects, households can invest in or subscribe to part of a larger solar array offsite. "What we're doing here is trying to unlock the community solar market," Jones-Albertus said.

The U.S. has 5.3 gigawatts of installed community solar capacity currently, according to the latest estimates. The goal is that by 2025, 5 million households will have access to it – about three times as many as today – saving $1 billion on their electricity bills, according to Jones-Albertus.

The new funding also highlights investment in a next generation of solar technologies, intended to wring more electricity out of the same amount of solar panels. Currently only about 20% of the sun's energy is converted to electricity in crystalline silicon solar cells, which is what most solar panels are made of. There has long been hope for higher efficiency, and Thursday's announcement puts some money towards developing two alternatives: perovskite and cadmium telluride solar cells. Zaidi said this will allow the U.S. to be "the innovation engine that tackles the climate crisis."

Joshua Rhodes, a scientist at the University of Texas at Austin said the investment in perovskites is good news. They can be produced more cheaply than silicon and are far more tolerant of defects, he said. They can also be built into textured and curved surfaces, which opens up more applications for their use than traditional rigid panels. Most silicon is produced in China and Russia, Rhodes pointed out.

Cadmium telluride solar can be made quickly and at a low cost, but further research is needed to improve how efficient the material is at converting sunlight to electrons.

Cadmium is also toxic and people shouldn't be exposed to it. Jones-Albertus said that in cadmium telluride solar technology, the compound is stable and encapsulated in glass and additional protective layers.

The new funds will also help recycle solar panels and reuse rare earth elements and materials. "One of the most important ways we can make sure CdTe remains in a safe compound form is ensuring that all solar panels made in the U.S. can be reused or recycled at the end of their life cycle," Jones-Albertus said.

Recycling solar panels also reduces the waste from solar and can provide materials for new panels. Eight of the projects in Thursday's announcement focus on improving solar panel recycling, for a total of about $10 million.

Clean energy is a fit for every state in the country, the administration said. One solar project in Shungnak, Alaska, was able to eliminate the need to keep making electricity by burning diesel fuel, a method sometimes used in remote communities that is not healthy for people and contributes to climate change.

"Alaska is not a place that folks often think of when they think about solar, but this energy can be an economic and affordable resource in all parts of the country," said Jones-Albertus.

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Legal Notices Legal Notices Legal Notices

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Harvest Four Corners, LLC, 1755 Arroyo Drive, Bloomfield, NM 87413

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816; (505) 476-4300; 1 800 224-7009; https://www.env.nm.gov/aqb/permit/aqb_draft_permits.html. Other comments and questions may be submitted verbally.

Please refer to the company name and site name, or send a copy of this notice along with your comments, since the Department may have not yet received the permit application. Please include a legible return mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.

General information about air quality and the permitting process can be found at the Air Quality Bureau's web site. The regulation dealing with public participation in the permit review process is 20.2.72.206 NMAC. This regulation can be found in the "Permits" section of this web site.

Attención

Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-629-3395.

Notice of Non-Discrimination

NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@env.nm.gov. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.

No. 5670728, The Daily Times, April 21, 2023

Classifieds

To Advertise, visit our website: **classifieds.daily-times.com**
▮ Public Notices/Legals email: **legals@daily-times.com**
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▮ To post job openings, visit: **daily-times.com/jobs**

Assorted Stuff
all kinds of things...

Miscellaneous

AVON NOW AVAILABLE IN SAN JUAN COUNTY!, Current brochures and products are available! Please contact me at the phone number below or check out my website www.avon.com/repstore/lauriechandler, $0-$30.. (928)716-2284

Automotive Wheels
best deal for you...

Cars

KIA 2004 Optima, $1,000. Call 505-486-2008

Trucks

FORD 1963 3/4 Ton TRUCK, all original. $1200
FORD 1952 Classic 8N TRACTOR, $1500. 505-486-2008

FORD 2005 Powerstroke crew cab Lariat, CM flat bed, $12,000 or best offer. 505-486-2008

Your Source Public Notices
for the latest...

Legal Notices

Notice of Sale
NOTICE IS HEREBY GIVEN, pursuant to the Self-Service Storage Lien Act [48-11-1 to 48-11-9 NMSA1978], that the following personal property is in Lien. The property is located at Armored Storage 4200 U.S. Highway 64, Kirtland, NM 87417.
Peter Lee
PO Box 4767
Shiprock, NM 87420
Metal folding chair, lounger, mop, sleeping bag, Misc.
Nastashia Hoskie
PO Box 2377
Kirtland, NM 87417
Misc furniture, Xmas decoration, toys, Lrg. flat screen TV, Kitchenware's, Misc.
All monies owed must be paid BEFORE 2PM Friday May 6, 2023 or the above property will become the sole property of Armored Storage, to be sold or disposition to satisfy the lien on said unit. Contact Armored Storage at 505-598-9983 for date of posting to **storageauctions.com** .
#5671500, Daily Times, April 21,28, 2023

Legal Notices

ELEVENTH JUDICIAL DISTRICT COURT COUNTY OF SAN JUAN STATE OF NEW MEXICO

IN THE MATTER OF THE ESTATE OF ROBERT YOUNG FERGUSON, DECEASED

CASE NO.: D-1116-PB-2023-00035

NOTICE TO CREDITORS

NOTICE IS HEREBY GIVEN that the undersigned has been appointed Personal Representative of this Estate. All persons having claims against this estate are required to present their claims within four (4) months after the date of the first publication of this notice, or the claims will be forever barred. Claims must be presented either to the undersigned Personal Representative at the address listed below or filed with the Eleventh Judicial District Court of San Juan County, New Mexico, located at the following address: 103 S. Oliver, Aztec, New Mexico 87410.

Rebecca Ferguson, Personal Representative
c/o The Risley Law Firm, P.C.
2705 Rabbitbrush Drive.
Farmington, NM 87402
505-326-1776
#5658024, The Daily Times, April 7, 14, 21, 2023

General

Legal Notices

STATE OF NEW MEXICO
COUNTY OF SAN JUAN
ELEVENTH JUDICIAL DISTRICT
NO. D-1116-CV-2023-00408-4
IN THE MATTER OF THE PETITION
OF NAH-GLEEN-YILTH-DEZ-BAH SUCCO
A/K/A LORENA HENRY
A/K/A LORENA H. ANTONIO
FOR NAME CHANGE

NOTICE OF PETITION TO CHANGE NAME (ADULT)

NOTICE IS HEREBY GIVEN that, Nah-Gleen-Yilth-Dez-Bah Succo, Resident of Lake Valley, County of San Juan, State of New Mexico has filed a Petition to Change Nme in the Eleventh Judicial District Court, San Juan County, New Mexico, wherein he/she seeks to change his/her name as follows:
Current Name: Nah-Gleen-Yilth-Dez-Bah Succo
Proposed Name: Lorena Henry Antonio
No. 5663381, The Daily Times, April 14, 21, 2023

Legal Notices

NOTICE OF PUBLIC HEARING BEFORE THE CITY LIQUOR HEARING OFFICER REGARDING LIQUOR LICENSE CITY OF FARMINGTON, NEW MEXICO

Notice is hereby given that the City Liquor Hearing Officer will hold a public hearing in the Council Chamber at the Municipal Building, 800 Municipal Drive, Farmington, New Mexico at 8:30 a.m. on Monday, April 24, 2023 to consider the following request:

Application for Wholesaler Liquor License from Premier Distributing Company, LLC, to do business at 1200 Troy King Road, Farmington, New Mexico.

The Director of the Alcoholic Beverage Control Division of the New Mexico Regulation and Licensing Department has given this application preliminary approval. Further details regarding this application may be examined at the aforementioned hearing or by contacting Tyson K. Gobble, Attorney (505) 932-7772, 4801 North Butler Avenue, Farmington, New Mexico.

Andrea Jones, City Clerk
#5639165, Daily Times, 3/23, 4/21/2023

STATE OF NEW MEXICO
COUNTY OF SAN JUAN
ELEVENTH JUDICIAL DISTRICT
21ST MORTGAGE CORPORATION,
Petitioner,
vs. **No. D-1116-CV-2022-00936**
ARMANDO SEGOVIA AND MARIA BEAS
Respondents.

NOTICE OF PENDENCY OF SUIT

TO RESPONDENT ARMANDO SEGOVIA:
NOTICE IS HEREBY GIVEN that the above-named Petitioner filed a Petition for Replevin and Complaint for Debt and Money Due in the above Court on October 31, 2022, against the above named Respondents. The general object of the Petition is to collect debt and money and to replevee the mobile home 2001 Fleet Annvie, VIN #1TXFLY66B06784AN13, TITLE #082243M02530309, located in San Juan County, New Mexico, commonly known as 2370 Meadow Lark Avenue, Farmington, New Mexico 87401.
FURTHER, the above-named Respondent Armando Segovia is hereby notified that he has until thirty (30) days from date of completion of publication of this Notice in which to file an answer or other pleading responsive to the Petition and should said Respondent choose not to file an answer or other responsive pleading to the Petition on or before thirty (30) days from date of completion of publication of this Notice, judgment or other appropriate relief may be rendered against the above-named Respondent.
Kelley L. Thurston of the law firm of Frazier & Ramirez Law, whose address and phone number is 2440 Louisiana Blvd NE, Suite 530, Albuquerque, New Mexico 87110, (505) 830-6563 is the attorney for the Petitioner.
WITNESS the Honorable Sarah V. Weaver, District Judge of the Eleventh Judicial District Court of the State of New Mexico and the Seal of the District Court of said County.

CLERK OF THE DISTRICT COURT
Daily Times, 4/7, 4/14, 4/21/2023 #5657511

Legal Notices

NOTICE OF AIR QUALITY PERMIT APPLICATION

Harvest Four Corners, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the modification of its natural gas compressor station facility known as the **31-6 Central Delivery Point (CDP).** The expected date of application submittal to the Air Quality Bureau is on or near April 21, 2023.

The exact location of the 31-6 CDP is 36° 50' 10" latitude and -107° 25' 12" longitude, approximately 5.2 miles north-northeast of the intersection of NM 527 and Co. Rd. 362, in Rio Arriba County.

The facility is currently permitted for sixteen (16) 4-stroke, lean burn (4SLB) compressor engines (8 of which are equipped with emission controls), and seven (7) triethylene glycol (TEG) dehydrators. The proposed modifications include the replacement of four of the current 4SLB engines with 4-stroke, rich burn engines equipped with emission controls; the addition of emission controls on the remaining currently uncontrolled 4SLB engines, and the addition of three (3) TEG dehydrators.
The estimated maximum quantities of any regulated air contaminant will be as follows in pound per hour (pph) and tpy and could change slightly during the course of the Department's review:

Pollutant:	Pounds per hour	Tons per year
Nitrogen Oxides (NOx)	39.6	173.3
Carbon Monoxide (CO)	14.9	65.2
Volatile Organic Compounds (VOC)	25.0	132.1
Sulfur Dioxide (SO2)	0.1	0.5
Particulate Matter (PM)	2.2	9.4
PM 10	2.2	9.4
PM 2.5	2.2	9.4
Total sum of all Hazardous Air Pollutants (HAPs)	2.9	13.2
Green House Gas Emissions as Total CO2e	n/a	196,516

The standard and maximum operating schedules of the facility will be from midnight to midnight, 7 days a week, 52 weeks per year
The owner and/or operator of the Facility is:
Harvest Four Corners, LLC, 1755 Arroyo Drive, Bloomfield, NM 87413
If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816; (505) 476-4300; 1 800 224-7009; https://www.env.nm.gov/aqb/permit/aqb_draft_permits.html. Other comments and questions may be submitted verbally.
Please refer to the company name and site name, or send a copy of this notice along with your comments, since the Department may have not yet received the permit application. Please include a legible return mailing address with your comments. Once the Department has performed a preliminary review of the application and its air quality impacts, the Department's notice will be published in the legal section of a newspaper circulated near the facility location.
General information about air quality and the permitting process can be found at the Air Quality Bureau's web site. The regulation dealing with public participation in the permit review process is 20.2.72.206 NMAC. This regulation can be found in the "Permits" section of this web site.
Attención
Este es un aviso de la oficina de Calidad del Aire del Departamento del Medio Ambiente de Nuevo México, acerca de las emisiones producidas por un establecimiento en esta área. Si usted desea información en español, por favor comuníquese con esa oficina al teléfono 505-629-3395.
Notice of Non-Discrimination
NMED does not discriminate on the basis of race, color, national origin, disability, age or sex in the administration of its programs or activities, as required by applicable laws and regulations. NMED is responsible for coordination of compliance efforts and receipt of inquiries concerning non-discrimination requirements implemented by 40 C.F.R. Part 7, including Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975, Title IX of the Education Amendments of 1972, and Section 13 of the Federal Water Pollution Control Act Amendments of 1972. If you have any questions about this notice or any of NMED's non-discrimination programs, policies or procedures, or if you believe that you have been discriminated against with respect to a NMED program or activity, you may contact: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, nd.coordinator@env.nm.gov. You may also visit our website at https://www.env.nm.gov/non-employee-discrimination-complaint-page/ to learn how and where to file a complaint of discrimination.
No. 5670738, The Daily Times, April 21, 2023

General

Business & Service Directory

to advertise, email: **servicedirectory@daily-times.com**

Home Improvement

WALDVOGEL'S HANDYMAN SERVICES
Home & Mobile Homes
CALL
505-608-1025
Home Repairs and Remodeling. Paint, Drywall, Texture, Tile, Trim, Roofs and Repairs, Siding, Flooring, Plumbing, Fencing, Cabinets, Guiters, Swampcoolers
WE GET IT DONE RIGHT AT THE RIGHT PRICE
www.facebook.com/waldvogels handyman11

Landscaping

T&R Tree and Landscaping
33 Years Experience
Free Estimates
Licensed & Bonded
Handyman Services Available
Yard Cleanup, Powerraking, Pruning & Debris Removal
No Job Too Big or Small!
We Take Emergency Calls!
505-360-7900

Lawn - Garden Care

Aztec/Farmington Home Serv ices
Swamp Cooler Services
Sprinkler Systems & Repairs
Gutters & Chimneys Cleaned
Roof Repairs, Shingles Replaced,
Painting, Plumbing, Moving,
Hauling & Yard Clean-Up
505-334-4000
Helper Wanted $15/$20 an hour

HAUL IT OUT YARD CLEAN UP
LANDSCAPING & LAWN SERVICE
Commercial & Residential
Scheduled Lawn Maintenance, Yard & Leaf Cleanup, Brush Hogging, Gravel Work
Tree Pruning & Junk Removal
License & Insured
10 + Years of Experience
Call for FREE Estimate
505-419-4769
haulitout@yahoo.com

Painting

PLP Stucco & Painting
Specializing in Stucco & Painting.
Stucco with CrackMaster Mesh,
Parapit Repair, Recolor Coat.
Crack Repair. Venetian Plaster,
Interior & Exterior Painting
FREE ESTIMATES
Call - 505-360-0909

Roofing - Siding

THE BEST ROOF MONEY CAN BUY!!
RELIABLE ROOFING
CALL (505) 716-3977
PRO-PANEL METAL ROOFS
PROTECT & PRESERVE YOUR HOME FOR 50 YEARS & GENERATIONS TO COME!

(See Our Ad in Farmington Craigslist under Services & Skilled Trade)
FREE ESTIMATES & SENIOR DISCOUNTS
* Also - Seamless Gutter System & Exterior House Painting

Tree Service

R and J tree service

Tree Trimming & Removal,
Leaf Clean-up, Lawn Care, Gravel
Licensed & Insured
Reasonable Prices - - Free Estimates
505-326-2142 or 505-402-3513
R & J TREE SERVICE

NOTICE

Harvest Four Corners, LLC announces its intent to apply to the New Mexico Environment Department (NMED) for an air quality permit modification for its natural gas compressor station facility known as the **31-6 Central Delivery Point (CDP)**. The expected date of application submittal to the Air Quality Bureau is on or near April 21, 2023.

The exact location of the 31-6 CDP is 36° 50' 10" latitude and -107° 25' 12" longitude, approximately 5.2 miles north-northeast of the intersection of NM 527 and Co. Rd. 362, in Rio Arriba County.

The facility is currently permitted for sixteen (16) 4-stroke, lean burn (4SLB) compressor engines (8 of which are equipped with emission controls), and seven (7) triethylene glycol (TEG) dehydrators. The proposed permit modifications include the replacement of four of the current 4SLB engines with 4-stroke, rich burn engines equipped with emission controls; the addition of emission controls on any remaining currently uncontrolled 4SLB engines, and the addition of three (3) TEG dehydrators.

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Sulfur Dioxide (SO_2)	0.1	0.5
Particulate Matter (PM)	2.2	9.4
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$PM_{2.5}$	2.2	9.4
Total sum of all Hazardous Air Pollutants (HAPs)	2.9	13.2
Green House Gas Emissions as Total CO_2e	n/a	196,516

The standard and maximum operating schedules of the facility will be from midnight to midnight, 7 days a week, 52 weeks per year

The owner and/or operator of the Facility is: Harvest Four Corners, LLC, 1755 Arroyo Drive, Bloomfield, NM 87413

If you have any comments about the construction or operation of this facility, and you want your comments to be made as part of the permit review process, you must submit your comments in writing to this address: Permit Programs Manager; New Mexico Environment Department; Air Quality Bureau; 525 Camino de los Marquez, Suite 1; Santa Fe, New Mexico; 87505-1816; (505) 476-4300; 1 800 224-7009; https://www.env.nm.gov/aqb/permit/aqb_draft_permits.html. Other comments and questions may be submitted verbally.

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General Posting of Notices – Certification

I, Monica Smith, the undersigned, certify that on April 20, 2023, I posted a true and correct copy of the attached Public Notice in the following publicly accessible and conspicuous places in Farmington of San Juan County, State of New Mexico on the following dates:

	Posting Location	Date of Posting
1.	Facility Entrance	4/20/2023
2.	Blanco Post Office	4/20/2023
3.	Bloomfield Library	4/20/2023
4.	Bloomfield Post Office	4/20/2023

Signed this 20th day of April, 2023,

Signature

4/20/2023
Date

Monica Smith
Printed Name

Environmental Specialist
Title (Applicant or Relationship to Applicant)

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MIDSTREAM
NO TRESPASSING
In Case of Emergency: 1-713-289-2921
NOTICE
Harvest Four Corners, LLC
Pollutant
Pounds per hour
Tons per year
Nitrogen Oxides (NOx)
39.6
173.5
Carbon Monoxide (CO)
14.9
65.2
Volatile Organic Compounds (VOC)
28.0
132.1
Sulfur Dioxide (SO2)
0.1
0.5
Particulate Matter (PM)
2.2
9.6
PM 10
2.2
9.6
PM 2.5
2.3
9.6
Total HAPs
3.9
13.2
Total tpy of all Hazardous Air Pollutants (HAPs)
n/a
196.316
Green House Gas Emissions as Total CO2e
n/a
Attención
Notice of Non-Discrimination

PSA submitted in online form 4/25/2023 to https://radiodurango.com/public-service-announcements/

FOUR CORNERS BROADCASTING LLC
KIQX • KIUP • KKDC • KRSJ
101.3FM 930AM 93.3FM 100.5FM

Send a Public Service Announcement

Name	Submitted by Cirrus Consulting, (801) 294-3024
Organization	On behalf of Harvest Four Corners, LLC
Date and day (Example: Tuesday, April 25th, 2018)	Application to NMED Tuesday April 25th, 2023
Time	Business Hours M-F, 8 AM - 5 PM
Location	See PSA Below
Event contact person	See PSA Below
Phone number	See PSA Below

Untitled Harvest Four Corners, LLC, located at 1755 Arroyo Drive in Bloomfield, New Mexico (87413), announces its intent to apply to the New Mexico Environment Department for a modification to its air quality permit for the 31-6 CDP, a natural gas pipeline compressor facility, located at latitude 36° 50' 10" latitude and -107° 25' 12" longitude, approximately 5.2 miles north-northeast of the intersection of NM 527 and Co. Rd. 362, in Rio Arriba County.

The facility is currently permitted for sixteen (16) 4-stroke, lean burn (4SLB) compressor engines (8 of which are equipped with emission controls), and seven (7) triethylene glycol (TEG) dehydrators. The proposed permit modifications include the replacement of four of the current 4SLB engines with 4-stroke, rich burn engines equipped with emission controls; the addition of emission controls on any remaining currently uncontrolled 4SLB engines, and the addition of three (3) TEG dehydrators.

Public notices have been posted at the following locations:

Posting Location, Date of Posting

* 31-6 CDP Entrance, 4/20/2023

* Blanco Post Office, 4/20/2023

* Bloomfield Library, 4/20/2023

* Bloomfield Post Office, 4/20/2023

Questions and comments regarding this notice may be directed to the

Program Manager, New Source Review section of the New Mexico Environment Department Air Quality Bureau,

525 Camino de los Marquez, Suite 1

Santa Fe, New Mexico, 87505-1816

Phone: (505) 476-4300 /

Fax: (505) 476-4375

Submittal of Public Service Announcement – Certification

I, James Newby, the undersigned, certify that on April 25, 2023, I submitted a public service announcement to Four Corners Broadcasting that serves Rio Arriba County, State of New Mexico, in which the source is or is proposed to be located and that Four Corners Broadcasting did not respond.

Signed this 25th day of April, 2023.

James W. Newby
Signature

4/25/2023
Date

James W. Newby
Printed Name

Consultant
Title (Applicant or Relationship to Applicant)

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Section 10

Written Description of the Routine Operations of the Facility

---

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

The 31-6 CDP is a production field facility that receives natural gas collected in production gathering fields via pipeline. The facility 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 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 routed to the compressors for pressurization, and then sent to TEG dehydrators before exiting the facility for transport via pipeline to a downstream gas processing facility. A portion of the natural gas is routed to the compressor engines for use as fuel. The TEG dehydrator still vent emissions are routed to a condenser, which functions as a knock-out drum for produced water.

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, antifreeze tanks, corrosion inhibitor tank, and solvent tank also have low volatility. A storage tank containing methanol is also at the facility.

Other emission sources include: startups, shutdowns and routine maintenance (SSM) from the compressors and piping, 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)**:**

31-6 CDP – natural gas compression and dehydration facility

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

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

☑ **Yes** ☐ **No**

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

☑ **Yes** ☐ **No**

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

☑ **Yes** ☐ **No**

C. Make a determination:

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

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

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Section 12.A

PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

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

A. This facility is:

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

B. This facility [is or is not] one of the listed 20.2.74.501 Table I – PSD Source Categories. The "project" emissions for this modification are **not significant because the project emissions are below significant emissions levels**. The "project" emissions listed below result from the changes described in this permit application and do not include emissions from other revisions or modifications, past or future, to this facility. Also, the project does not result in "de-bottlenecking", or other associated emissions resulting in higher emissions. The project emissions (before netting) for this project are as follows [see Table 2 in 20.2.74.502 NMAC for a complete list of significance levels]:

a. **NOx: -18.8 TPY**
b. **CO: -235.6 TPY**
c. **VOC: -82.1 TPY**
d. **SOx: +0.1 TPY**
e. **PM: +2.2 TPY**
f. **PM10: +2.2 TPY**
g. **PM2.5: +2.2 TPY**
h. **Fluorides: 0 TPY**
i. **Lead: 0 TPY**
j. **Sulfur compounds (listed in Table 2): 0 TPY**
k. **GHG: +34,219 TPY**

C. **Netting is not required** (project is not significant).

D. **BACT is not required for this modification, as this application is a minor modification**.

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. **With this permit modification, the facility will be below PSD emission levels for all criteria pollutants.**

The 31-6 CDP is currently a PSD major source of CO emissions prior to the modifications proposed in this application.

- For each engine undergoing a modification, the modifications in this permit application result in either an emissions reduction of the permitted emissions of the engines, or an emission increase that is well below the significance levels of Table 2 – Significant Emission Rates of 20.2.74.502 NMAC.

- The three (3) proposed new TEG dehydrators are each an exempt/insignificant source of VOC. The VOC emissions increases from the new TEG dehydrators are not a Significant Emissions Increase under Table 2 – Significant Emission Rates of 20.2.74.502 NMAC.

As a result of the proposed permit modifications and associated Requested Allowable Emissions shown in Table 2-E, the total facility emissions (including enforceable emission controls) will be reduced to below 250 tpy PSD thresholds for each regulated PSD pollutant, resulting in a Synthetic Minor PSD source.

Section 12.B

Special Requirements for a PSD Application

(Submitting under 20.2.74 NMAC)

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

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

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

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

Not applicable.

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Section 13

Determination of State & Federal Air Quality Regulations

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

Required Information for Specific Equipment:

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

Required Information for Regulations that Apply to the Entire Facility:

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

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

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

Regulatory Citations for Emission Standards:

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

Federally Enforceable Conditions:

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

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

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

State Regulations

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

Table for STATE REGULATIONS:

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

STATE REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
20.2.50 NMAC	Oil and Gas Sector – Ozone Precursor Pollutants	Yes	Engines 1, 3-16 & 33; Reciprocating compressor seals; F1 Fugitive emissions; Glycol dehydrators 17-22 & 31-34; Pneumatic controllers & pumps	This regulation establishes emission standards for volatile organic compounds (VOC) and oxides of nitrogen (NOx) for oil and gas production, processing, compression, and transmission sources. 20.2.50 NMAC subparts: 113 – Engines and Turbines 114 – Compressor Seals 115 – Control Devices and Closed Vent Systems 116 – Equipment Leaks and Fugitive Emissions 117 – Natural Gas Well Liquid Unloading 118 – Glycol Dehydrators 119 – Heaters 120 – Hydrocarbon Liquid Transfers 121 – Pig Launching and Receiving 122 – Pneumatic Controllers and Pumps 123 – Storage Vessels 124 – Well Workovers 125 – Small Business Facilities 126 – Produced Water Management Units 127 – Flowback Vessels and Preproduction Operations This regulation is applicable because the facility is equipped with affected equipment as defined by the regulation, including engines, reciprocating compressor seals, equipment leaks and fugitive emissions, glycol dehydrators, and pneumatic controllers & pumps.
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	Engines 1, 3-16 & 33; Dehydrator reboilers 17b-25b & 31b-34b	This regulation is applicable because the facility is equipped with stationary combustion sources. Emissions from these combustion sources are limited to less than 20% opacity (see 20.2.61.109 NMAC). The regulation is not applicable to Title V insignificant heaters (see 20.2.61.111.D NMAC).
20.2.70 NMAC	Operating Permits	Yes	Facility	This regulation is applicable because the facility is a major source of NOx, VOC, and HAP emissions (see 20.2.70.200 NMAC).
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	This regulation is applicable because the facility is subject to 20.2.70 NMAC (see 20.2.71.6 NMAC).
20.2.72 NMAC	Construction Permits	Yes	Facility	This regulation is applicable because the facility has potential emission rates (PER) greater than 10 pph or 25 tpy for pollutants subject to a state or federal ambient air quality standards (does not include VOCs or HAPs).
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	The Notice of Intent portion of this regulation is not applicable because the facility is subject to 20.2.72 NMAC. 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	Although this regulation is applicable to the facility because its currently permitted emissions of CO exceeds the 250 tpy PSD major source threshold, with the permit resulting from this application the facility will be a [synthetic] minor source under PSD.
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	No	N/A	This regulation is not applicable because it adopts by reference the federal NSPS codified in 40 CFR 60 (see 20.2.77.6 NMAC). The facility is not subject to 40 CFR 60.
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.

STATE REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
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	Yes	Engines 1, 3-16 & 33; Dehydrator reboilers 17b-25b & 31b-34b	This regulation is 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) imposed when modeling is required as a part of the application; and this application includes dispersion modeling.
20.2.82 NMAC	MACT Standards for Source Categories of HAPS	Yes	Dehy units 17-25 & 31-34; Potentially applicable to engine units 4, 6, 13 & 14	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 includes emission sources that are subject to one or more subparts under 40 CFR 63.

Federal Regulations

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

FEDERAL REGULATIONS APPLICABILITY CHECKLIST

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 50	NAAQS	Yes	Facility	This regulation is applicable because it applies to all sources in the state of New Mexico.
40 CFR 52	Approval and Promulgation of Implementation Plans	No	N/A	40 CFR 52.21 *Prevention of Significant Deterioration of Air Quality* is not applicable because the facility is not a major Prevention of Significant Deterioration source. The remainder of 40 CFR 52 is not applicable because it addresses approval and promulgation of implementation plans.
NSPS 40 CFR 60, Subpart A	General Provisions	No	N/A	This regulation is not applicable because no other 40 CFR Part 60 subparts apply.
NSPS 40 CFR 60, Subpart GG	Standards of Performance for Stationary Gas Turbines	No	N/A	This regulation is not applicable because it applies to stationary gas turbines constructed after October 3, 1977 with a peak input load greater than 10.15 MMBtu/hr. There are no stationary gas turbine affected sources at the facility.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
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))).
NSPS 40 CFR 60, Subpart KKK	Standards of Performance for Equipment Leaks of VOC from Onshore Gas Plants	No	N/A	This regulation is not applicable because the facility is not an onshore natural gas processing plant as defined by the subpart (see §60.630(a)(1)). Natural gas processing plant (gas plant) means any processing site engaged in the extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids to natural gas products, or both (see §60.631).
NSPS 40 CFR 60, Subpart LLL	Standards of Performance for Onshore Natural Gas Processing: SO_2 Emissions	No	N/A	This regulation is not applicable because the facility is not a natural gas processing plant as defined by the subpart. It is not equipped with a sweetening unit (see §60.640(a)).
NSPS 40 CFR 60, Subpart IIII	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	No	N/A	This regulation is not applicable because the facility is not equipped with stationary compression ignition (CI) internal combustion engines (ICE) that commenced construction after July 11, 2005 and were manufactured after April 1, 2006 (see §60.4200(a)(2)(i)). For the purpose of this subpart, construction commences on the date the engine is ordered by the owner or operator (see §60.4200(a)).

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
NSPS 40 CFR 60, Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	Potentially applicable	Engine units 4, 6, 13 & 14	This regulation applies to spark ignition (SI) internal combustion engines (ICE) constructed, modified, or reconstructed after June 12, 2006 (§60.4230(a)(4) and (a)(5)). Units 1, 3, 5, 7-12, 15, 16, and 33 were constructed prior to the applicability date and have not been modified or reconstructed. Therefore, these engines are not subject to the regulation. Units 4, 6, 13 and 14 are not installed. The applicability of the subpart will be evaluated upon their installation. See the definitions of construction, modification, and reconstruction referenced in Subpart OOOO below.
NSPS 40 CFR 60, Subpart KKKK	Standards of Performance for Stationary Combustion Turbines	No	N/A	This regulation is not applicable because there are no turbine affected sources.
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).
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 applicable	Fugitive emissions components	This regulation is applicable to "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). The regulation may apply if existing affected equipment is replaced or new affected equipment is installed. In particular, the regulation applies to fugitive emissions components at the facility if any engines and compressors are installed. Fugitive components monitoring is required if a compressor station is modified. For the purpose of fugitive components monitoring as required by this subpart, modification of a compressor station is the addition of a compressor or replacement of a compressor with a larger unit (greater total horsepower) (see §60.5365a(j)). Note that the facility is not a natural gas processing plant as defined by the subpart (see §60.5430a). See the definitions of construction, modification, and reconstruction referenced in Subpart OOOO above.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
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	This regulation is not applicable because none of the listed equipment at the facility is in VHAP service. The provisions of this subpart apply to each of the following sources that are intended to operate in volatile hazardous air pollutant (VHAP) service: pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, and control devices or systems required by 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).
MACT 40 CFR 63, Subpart A	General Provisions	Yes	Dehy units 17-25 & 31-34; Potentially applicable to engine units 4, 6, 13 & 14	This regulation is applicable because one or more 40 CFR 63 subparts apply (see §63.1(b)).
MACT 40 CFR 63, Subpart HH	National Emission Standards for Hazardous Air Pollutants For Oil and Natural Gas Production Facilities	Yes *(limited to record-keeping to support exemption)*	Dehy units 17-25 & 31-34	This regulation is applicable because the facility is equipped with dehydrators. As defined in the subpart, the facility is an **area** source of HAP. Under the definitions provided in §63.761, the facility is a natural gas production field facility. Under §63.762, only HAP emissions from glycol dehydration units and storage vessels are aggregated for a major source determination. At a HAP area source facility, the regulation is only applicable to dehydrators (see §63.760(b)(2)). The facility is located in an area that is not within an UA plus offset and UC boundary (as defined in §63.761). Dehydrator units 17-22 and 31 are each an "existing" source. Dehydrator units 32-34 will be "new" sources for which compliance with the subpart is required upon initial startup (§63.760(f)(6)). Under §63.764(e)(1)(ii), the owner or operator of an affected area source [TEG dehydrator] with actual average benzene emissions from the process vent to the atmosphere of less than 0.90 megagrams per year (~1 tpy) is exempt from the operational, recordkeeping and notification requirements in §63.764(d), provided that documentation of the exemption determination is maintained as required in §63.774(d)(1). The existing dehydrator units 17-22 and 31 are exempt under §63.764(e)(1)(ii). Harvest complies with the operational, recordkeeping and reporting requirements as required. The calculated benzene PTE for each of the new dehydrator units 32, 33 and 34 indicates that the actual emissions of benzene will be well below the 1 tpy exemption threshold of §63.764(e)(1)(ii); therefore, Harvest will comply with the operational, recordkeeping and reporting requirements for these units as well.
MACT 40 CFR 63, Subpart HHH	National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities	No	N/A	This regulation is not applicable because the facility is not a natural gas transmission and storage facility as defined by the subpart. A compressor station that transports natural gas prior to the point of custody transfer or to a natural gas processing plant (if present) are not considered a part of the natural gas transmission and storage source category (see §63.1270(a)).

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
MACT 40 CFR 63, Subpart YYYY	National Emission Standards for Hazardous Air Pollutants From Stationary Combustion Turbines	No	N/A	The regulation applies at major HAP facilities equipped with a stationary combustion turbine. The facility is not a major source of HAP and/or does not have a stationary combustion turbine.
MACT 40 CFR 63, Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT)	Potentially applicable	Engine units 4, 6, 13 & 14	This regulation is not applicable because the facility is not equipped with affected sources. As defined at §63.6585(c), the station is a **major** source of HAP. For production field facilities, only HAP emissions from engines, turbines, dehydrators, and storage vessels with the potential for flash emissions are aggregated for the HAP major source determination (see §63.6675). 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 engine at another location.) Each of the engines that have been installed at the facility is an "existing" engine under the regulation. The installed RICE (units 1, 3, 5, 7-12, 15, 16, and 33) are each an existing 4-stroke, lean burn (4SLB) spark ignition (SI) RICE, site-rated at more than 500 hp, constructed prior to December 19, 2002. Under §63.6590(b)(3)(ii), existing 4SLB stationary RICE with site ratings of more than 500 hp located at major HAP sources do not have to meet the requirements of the subpart and of subpart A, including initial notification requirements. The proposed 4-stroke, rich burn (4SRB) RICE (units 4, 6, 13 and 14) are not yet installed, and the applicability of the regulation to the units will be evaluated upon installation.
MACT 40 CFR 63, Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	No	N/A	This regulation is not applicable both because the facility is an area HAP source as defined by the subpart (see §63.7480) and is not equipped with boilers and process heaters. Since the facility is a natural gas production facility, only HAP emissions from dehydrators and storage vessels with the potential for flash emissions are aggregated for a major source determination (see §63.7575).
MACT 40 CFR 63, Subpart JJJJJJ	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers at Area Sources	No	N/A	This regulation is not applicable because the facility is not equipped with industrial, commercial, or institutional boilers.
40 CFR 64	Compliance Assurance Monitoring	No	N/A	This regulation is not applicable because no equipment at the facility requires a control device to achieve compliance with emission limits or standards where pre control emissions equal or exceed the major source threshold (100 tons per year). (see §64.2(a)).
40 CFR 68	Chemical Accident Prevention	No	N/A	This regulation is not applicable because the facility does not store any of the identified toxic and flammable substances in quantities exceeding the applicability thresholds (see §68.10(a), §68.115(a), and §68.130 Tables 1-4).
40 CFR 70	State Operating Permit Programs	No	N/A	This regulation is not applicable, as the requirements associated with Title V are delegated to the State of New Mexico and implemented under 20 NMAC 2.70.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
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).
40 CFR 98	**Mandatory Greenhouse Gas Reporting**	Yes	Facility	40 CFR 98, *Mandatory Greenhouse Gas Reporting*, is a federal requirement that is applicable to facilities that include source categories listed in Subpart A, Table A-3, or to facilities with annual emissions of 25,000 metric tons (mt) of CO_2 equivalent (CO_2e) or more in combined emissions from stationary fuel combustion units, miscellaneous uses of carbonate, and all applicable source categories listed in Table A–3 and Table A–4 of Subpart A. The regulation applies because the annual CO2e of the facility exceeds the major source threshold as defined in Subpart A, General Provision, Subpart C, General Stationary Fuel Combustion Sources, and, as applicable, Subpart W, Petroleum Oil and Natural Gas Systems. The GHG emissions inventory is reported annually.

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Section 14

Operational Plan to Mitigate Emissions

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

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

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

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Section 15

Alternative Operating Scenarios

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

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

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

Not applicable.

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Section 16

Air Dispersion Modeling

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

What is the purpose of this application?	Enter an X for each purpose that applies
New PSD major source or PSD major modification (20.2.74 NMAC). See #1 above.	
New Minor Source or significant permit revision under 20.2.72 NMAC (20.2.72.219.D NMAC). See #1 above. **Note:** Neither modeling nor a modeling waiver is required for VOC emissions.	✓
Reporting existing pollutants that were not previously reported.	
Reporting existing pollutants where the ambient impact is being addressed for the first time.	
Title V application (new, renewal, significant, or minor modification. 20.2.70 NMAC). See #3 above.	
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.

Please refer to the attached dispersion modeling report included with this application.

Universal Application 4

Air Dispersion Modeling Report

Refer to and complete Section 16 of the Universal Application form (UA3) to assist your determination as to whether modeling is required. If, after filling out Section 16, you are still unsure if modeling is required, e-mail the completed Section 16 to the AQB Modeling Manager for assistance in making this determination. If modeling is required, a modeling protocol would be submitted and approved prior to an application submittal. The protocol should be emailed to the modeling manager. A protocol is recommended but optional for minor sources and is required for new PSD sources or PSD major modifications. Fill out and submit this portion of the Universal Application form (UA4), the "Air Dispersion Modeling Report", only if air dispersion modeling is required for this application submittal. This serves as your modeling report submittal and should contain all the information needed to describe the modeling. No other modeling report or modeling protocol should be submitted with this permit application.

Introduction

The 31-6 Central Delivery Point (CDP) permit is being modified to install three additional dehydrators, replace four of the Waukesha 7042GL engines with Waukesha 7042GSI engines (with catalysts), and equip seven of the existing engines with catalyst. This report summarizes the modeling conducted to demonstrate compliance with the applicable NO2, CO, PM10, PM2.5 and lead standards. A SO2 modeling waiver request was submitted under a separate cover.

16-A: Identification

1	Name of facility:	**31-6 Central Delivery Point**
2	Name of company:	**Harvest Four Corners, LLC**
3	Current Permit number:	**1031-M9**
4	Name of applicant's modeler:	**James Newby**
5	Phone number of modeler:	**(801) 294-3024**
6	E-mail of modeler:	**jnewby@cirrusllc.com**

16-B: Brief

1	Was a modeling protocol submitted and approved?	**Yes☒**	No☐
2	Why is the modeling being done?	Adding New Equipment	
3	Describe the permit changes relevant to the modeling.		
	The existing NSR permit approves seventeen Waukesha 7042GL reciprocating internal combustion engines (Units 1-16) and seven dehydrators (Units 17-21 & 31) for operation at the facility. This modification will allow Harvest to replace four of the permitted engines with Waukesha 7042GSI engines, add catalysts to another seven of the existing engines, and add three additional dehydrators (Units 32-34).		

4	What geodetic datum was used in the modeling?	**WGS84**	
5	How long will the facility be at this location?	**Indefinitely**	
6	Is the facility a major source with respect to Prevention of Significant Deterioration (PSD)?	Yes☐	**No☒**
7	Identify the Air Quality Control Region (AQCR) in which the facility is located:	**014**	
8	List the PSD baseline dates for this region (minor or major, as appropriate).		
	NO2	**6/6/1989**	
	SO2	**N/A**	
	PM10	**8/7/1978**	
	PM2.5	**Not established**	
9	Provide the name and distance to Class I areas within 50 km of the facility (300 km for PSD permits).		
	Weminuche Wilderness Area (66 km)		
10	Is the facility located in a non-attainment area? If so, describe below	Yes☐	**No☒**
	N/A		
11	Describe any special modeling requirements, such as streamline permit requirements.		
	N/A		

16-C: Modeling History of Facility

1. Describe the modeling history of the facility, including the air permit numbers, the pollutants modeled, the National Ambient Air Quality Standards (NAAQS), New Mexico AAQS (NMAAQS), and PSD increments modeled. (Do not include modeling waivers).

Pollutant	Latest permit and modification number that modeled the pollutant facility-wide.	Date of Permit	Comments
CO	**1031-M7**	**2005**	**It is not known what pollutants were modeled in 2005. It is assumed the modeling would have included CO, NO2, PM10 and PM2.5.**
NO_2	**1031-M7**	**2005**	
SO_2	**N/A**		**It is assumed, based on current permitted emissions, that a modeling waiver would have been obtained for SO2.**
H_2S	**N/A**		
PM2.5	**1031-M7**	**2005**	
PM10	**1031-M7**	**2005**	
Lead	**Unknown**		
Ozone (PSD only)	**N/A**		
NM Toxic Air Pollutants (20.2.72.402 NMAC)	**N/A**		

16-D: Modeling performed for this application

1. For each pollutant, indicate the modeling performed and submitted with this application. Choose the most complicated modeling applicable for that pollutant, i.e., culpability analysis assumes ROI and cumulative analysis were also performed.

Pollutant	ROI	Cumulative analysis	Culpability analysis	Waiver approved	Pollutant not emitted or not changed.
CO	☒	☐	☐	☐	☐
NO_2	☐	☒	☐	☐	☐
SO_2	☐	☐	☐	☒	☐
H_2S	☐	☐	☐	☐	☒
PM2.5	☐	☒	☐	☐	☐
PM10	☒	☐	☐	☐	☐
Lead	☒	☐	☐	☐	☐
Ozone	☐	☐	☐	☐	☒
State air toxic(s) (20.2.72.402 NMAC)	☐	☐	☐	☐	☒

The modeling was conducted in accordance with the modeling protocol and the current NMAQB modeling guidelines. A copy of the modeling protocol is provided as a part of this report.

16-E: New Mexico toxic air pollutants modeling

1. List any New Mexico toxic air pollutants (NMTAPs) from Tables A and B in 20.2.72.502 NMAC that are modeled for this application. **N/A**

2. List any NMTAPs that are emitted but not modeled because stack height correction factor. Add additional rows to the table below, if required.

Pollutant	Emission Rate (pounds/hour)	Emission Rate Screening Level (pounds/hour)	Stack Height (meters)	Correction Factor	Emission Rate/ Correction Factor
N/A					

16-F: Modeling options

1	Was the latest version of AERMOD used with regulatory default options? If not explain below.	**Yes☒**	No☐
	N/A		

Both significant and cumulative impact modeling were conducted using the latest version of the AMS/EPA Regulatory Model (AERMOD). The Beeline Software BEEST for Windows modeling manager was used to prepare the input files and manage processing. The EPA recommended defaults were used. As the station is located in a rural area, urban area modeling was not conducted.

16-G: Surrounding source modeling

1	Date of surrounding source retrieval:	**2/17/2023**
2	If the surrounding source inventory provided by the Air Quality Bureau was believed to be inaccurate, describe how the sources modeled differ from the inventory provided. If changes to the surrounding source inventory were made, use the table below to describe them. Add rows as needed.	

	AQB Source ID	Description of Corrections
	N/A	

Neighboring sources were obtained from MergeMaster.

For NO2 PSD modeling, all neighboring sources within 25 km of the facility were included in the cumulative impact modeling.

For PM2.5 NAAQS modeling, all neighboring sources within 10 km of the facility were included in the cumulative impact modeling.

16-H: Building and structure downwash

1	How many buildings are present at the facility?	**6 (in addition to the engines and dehydrators that were also treated as structures)**	
2	How many above ground storage tanks are present at the facility?	**11**	
3	Was building downwash modeled for all buildings and tanks? If not explain why below.	**Yes☒**	No☐
	N/A		
4	Building comments	**N/A**	

16-I: Receptors and modeled property boundary

1	"Restricted Area" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with a 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. A Restricted Area is required in order to exclude receptors from the facility property. If the facility does not have a Restricted Area, then receptors shall be placed within the property boundaries of the facility. Describe the fence or other physical barrier at the facility that defines the restricted area.					
	Fence					
2	Receptors must be placed along publicly accessible roads in the restricted area. Are there public roads passing through the restricted area?				Yes☐	**No☒**
3	Are restricted area boundary coordinates included in the modeling files?				**Yes☒**	No☐
4	Describe the receptor grids and their spacing. The table below may be used, adding rows as needed.					
	Grid Type	Shape	Spacing	Start distance from restricted area or center of facility	End distance from restricted area or center of facility	Comments
	Cartesian	**Rectangle**	**50 m**	**0 m**	**500 m**	
	Cartesian	**Rectangle**	**100 m**	**500 m**	**1,000 m**	
	Cartesian	**Rectangle**	**250 m**	**1,000 m**	**3,000 m**	
	Cartesian	**Rectangle**	**500 m**	**3,000 m**	**5,000 m**	
	Cartesian	**Rectangle**	**1,000 m**	**5,000 m**	**13,000 m**	
5	Describe receptor spacing along the fence line.					

	Maximum 25 m spacing
6	Describe the PSD Class I area receptors.
	N/A

The discrete cartesian grid described above was used to evaluate significant impacts around the facility. There were no significant impacts outside the area described above.

Note: To the northeast of the facility there was a large area where NO2 1-hour average cumulative impacts exceeded 75% of the standard. A grid with 50-meter spacing, surrounding that entire area, was added to the grid described above (prior to identifying significant impact receptors).

Cumulative impact modeling was conducted using only those receptors from the grid defined in the paragraphs above for which there were significant impacts.

The coordinate system used to reference receptor locations was of the UTM convention.

16-J: Sensitive areas

1	Are there schools or hospitals or other sensitive areas near the facility? If so describe below. This information is optional (and purposely undefined) but may help determine issues related to public notice.	Yes☐	**No☒**
	N/A		
2	The modeling review process may need to be accelerated if there is a public hearing. Are there likely to be public comments opposing the permit application?	Yes☐	**No☒**

16-K: Modeling Scenarios

1	Identify, define, and describe all modeling scenarios. Examples of modeling scenarios include using different production rates, times of day, times of year, simultaneous or alternate operation of old and new equipment during transition periods, etc. Alternative operating scenarios should correspond to all parts of the Universal Application and should be fully described in Section 15 of the Universal Application (UA3).											
	Significant impact modeling was conducted using one scenario with the four replacement engines and the three additional dehydrators. Cumulative impact modeling was conducted using one scenario that included all facility sources.											
2	Which scenario produces the highest concentrations? Why?											
	N/A											
3	Were emission factor sets used to limit emission rates or hours of operation? (This question pertains to the "SEASON", "MONTH", "HROFDY" and related factor sets, not to the factors used for calculating the maximum emission rate.)								Yes☐		**No☒**	
4	If so, describe factors for each group of sources. List the sources in each group before the factor table for that group. (Modify or duplicate table as necessary. It's ok to put the table below section 16-K if it makes formatting easier.) Sources: **N/A**											
5	Hour of Day	Factor	Hour of Day	Factor								
	1		13									
	2		14									
	3		15									

	4		16									
	5		17									
	6		18									
	7		19									
	8		20									
	9		21									
	10		22									
	11		23									
	12		24									
	If hourly, variable emission rates were used that were not described above, describe them below.											
	N/A											

6	Were different emission rates used for short-term and annual modeling? If so describe below.	Yes☐	**No☒**
	N/A		

16-L: NO_2 Modeling

1	Which types of NO_2 modeling were used? Check all that apply.	
	☒	ARM2
	☐	100% NO_X to NO_2 conversion
	☐	PVMRM
	☐	OLM
	☐	Other:
2	Describe the NO_2 modeling.	
	Significant impact modeling was evaluated using ARM2 and high-first-high impacts. Cumulative annual average impacts were evaluated using ARM2 and the high impacts. Cumulative 1-hour average impacts were evaluated using AMR2 and the 98th percentile of the annual distribution of daily maximum 1-hour average concentrations (high-eighth-highs).	

3	Were default NO_2/NO_X ratios (0.5 minimum, 0.9 maximum or equilibrium) used? If not describe and justify the ratios used below.	**Yes☒**	No☐
	N/A		
4	Describe the design value used for each averaging period modeled.		
	1-hour: High eighth high **Annual: One Year Annual Average**		

16-M: Particulate Matter Modeling

1	Select the pollutants for which plume depletion modeling was used. **N/A**	
	☐	PM2.5
	☐	PM10
	☐	None

2	Describe the particle size distributions used. Include the source of information.		
	N/A		
3	Does the facility emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2? Sources that emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2 are considered to emit significant amounts of precursors and must account for secondary formation of PM2.5.	**Yes☒**	No☐
4	Was secondary PM modeled for PM2.5?	**Yes☒**	No☐

5 — If MERPs were used to account for secondary PM2.5 fill out the information below. If another method was used describe below.

NO_X (ton/yr)	SO_2 (ton/yr)	$[PM2.5]_{annual}$	$[PM2.5]_{24\text{-hour}}$
173.22	**0.47**	**0.000792 µg/m³**	**0.00623 µg/m³**

16-N: Setback Distances

1	Portable sources or sources that need flexibility in their site configuration requires that setback distances be determined between the emission sources and the restricted area boundary (e.g. fence line) for both the initial location and future locations. Describe the setback distances for the initial location.
	N/A
2	Describe the requested, modeled, setback distances for future locations, if this permit is for a portable stationary source. Include a haul road in the relocation modeling.
	N/A

16-O: PSD Increment and Source IDs

1	The unit numbers in the Tables 2-A, 2-B, 2-C, 2-E, 2-F, and 2-I should match the ones in the modeling files. Do these match? If not, provide a cross-reference table between unit numbers if they do not match below.	Yes☐	**No☒**

Unit Number in UA-2	Unit Number in Modeling Files
See the "Point Sources" tab in the "31-6 – Modeling – Data & Results (2023-04).xlsx" file.	

2	The emission rates in the Tables 2-E and 2-F should match the ones in the modeling files. Do these match? If not, explain why below.	**Yes☒**	No☐
	N/A		
3	Have the minor NSR exempt sources or Title V Insignificant Activities" (Table 2-B) sources been modeled?	Yes☐	**No☒**

4 — Which units consume increment for which pollutants?

Unit ID	NO_2	SO_2	PM10	PM2.5
N/A				

5	PSD increment description for sources (for unusual cases, i.e., baseline unit expanded emissions after baseline date).	**It was assumed that all facility sources will consume NO2 increment. Facility PM10 impacts were insignificant. The baseline date for PM2.5 has not been established.**			
6	Are all the actual installation dates included in Table 2A of the application form, as required? This is necessary to verify the accuracy of PSD increment modeling. If not please explain how increment consumption status is determined for the missing installation dates below.			**Yes☒**	No☐
	N/A				

16-P: Flare Modeling

1	For each flare or flaring scenario, complete the following:			
	Flare ID (and scenario)	Average Molecular Weight	Gross Heat Release (cal/s)	Effective Flare Diameter (m)
	N/A			

16-Q: Volume and Related Sources

1	Were the dimensions of volume sources different from standard dimensions in the Air Quality Bureau (AQB) Modeling Guidelines? If not please explain how increment consumption status is determined for the missing installation dates below.	Yes☐	No☐
	N/A – No volume sources were used in the modeling.		
2	Describe the determination of sigma-Y and sigma-Z for fugitive sources.		
	N/A		
3	Describe how the volume sources are related to unit numbers. Or say they are the same.		
	N/A		
4	Describe any open pits.		
	N/A		
5	Describe emission units included in each open pit.		
	N/A		

16-R: Background Concentrations

1	Were NMED provided background concentrations used? Identify the background station used below. If non-NMED provided background concentrations were used describe the data that was used.	**Yes☒**	No☐
	CO: Choose an item.		
	NO_2: Navajo Dam (350450018)		
	PM2.5: Choose an item.		
	PM10: Choose an item.		
	SO_2: Choose an item.		
	Other:		

	Comments:	**The NO2 data for NAAQS and NMAAQS modeling was obtained from Table 31 of the modeling guidelines. Navajo Dam data was selected both because Navajo Dam is fairly close to 31-6 CDP and because, like 31-6 CDP, Navajo Dam is a fairly rural area (more so than is Bloomfield).** **The PM2.5 data for NAAQS modeling was obtained from Table 33 of the modeling guidelines. Consistent with the guidelines, Farmington Environment Department Office data was selected.**

2	Were background concentrations refined to monthly or hourly values? If so describe below.	Yes☐	**No☒**
	N/A		

16-S: Meteorological Data

1	Was NMED provided meteorological data used? If so, select the station used.	**Yes☒**	No☐
2	If NMED provided meteorological data was not used describe the data set(s) used below. Discuss how missing data were handled, how stability class was determined, and how the data were processed.		
	N/A		

Modeling was conducted using Bloomfield meteorological data. Since all stacks at the facility are fairly short, less than 30 feet high, the modeling was originally conducted using only 2019 data. Later, when NO2 1-hour average impacts were shown to exceed 95% of the NAAQS, NO2 1-hour average modeling was conducted using Bloomfield meteorological data from 2015 – 2019.

16-T: Terrain

1	Was complex terrain used in the modeling? If not, describe why below.	**Yes☒**	No☐
	N/A		
2	What was the source of the terrain data?		
	Terrain elevation data was obtained from NED data (1/3 second) taken from the USGS website. The AERMOD Terrain Preprocessor (AERMAP) was used to calculate the receptor elevations and terrain maximums. The domain used to calculate terrain maximums was sufficient to identify all terrain nodes that create a slope greater than or equal to 10 percent. **This data was used to obtain both the receptor and neighboring source elevations.**		

16-U: Modeling Files

Describe the modeling files:

File name (or folder and file name)	Pollutant(s)	Purpose (ROI/SIA, cumulative, culpability analysis, other)
31-6 – Modeling – AERMAP Files.zip	**N/A**	**N/A**
31-6 – Modeling – AERMOD Files (ROI).zip	**NO2, CO, PM10, PM2.5 & Lead**	**ROI/SIA**
31-6 – Modeling – AERMOD Files (NAAQS).zip	**NO2 & PM2.5**	**Cumulative**
31-6 – Modeling – AERMOD Files (PSD)	**NO2**	**Cumulative**
31-6 – Modeling – Data & Results.zip	**N/A**	**N/A**
31-6 – Modeling – Protocol.zip	**N/A**	**N/A**
31-6 – Modeling – SO2 Waiver Request.zip	**N/A**	**N/A**

	31-6 – Modeling – Report.zip	**N/A**	**N/A**

The 31-6 – Modeling – Data & Results.xlsx workbook contains summaries of the results, input parameters, receptor locations, etc.

16-V: PSD New or Major Modification Applications

1	A new PSD major source or a major modification to an existing PSD major source requires additional analysis. Was preconstruction monitoring done (see 20.2.74.306 NMAC and PSD Preapplication Guidance on the AQB website)?	Yes☐	**No☒**
2	If not, did AQB approve an exemption from preconstruction monitoring?	Yes☐	**No☒**
3	Describe how preconstruction monitoring has been addressed or attach the approved preconstruction monitoring or monitoring exemption.		
	N/A – PSD modeling for a major modification was not required.		
4	Describe the additional impacts analysis required at 20.2.74.304 NMAC.		
	N/A		
5	If required, have ozone and secondary PM2.5 ambient impacts analyses been completed? If so describe below.	Yes☐	**No☒**
	N/A		

16-W: Modeling Results

1	If ambient standards are exceeded because of surrounding sources, a culpability analysis is required for the source to show that the contribution from this source is less than the significance levels for the specific pollutant. Was culpability analysis performed? If so, describe below.	Yes☐	**No☒**
	N/A		
2	Identify the maximum concentrations from the modeling analysis. Rows may be modified, added and removed from the table below as necessary.		

Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration with Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
NO2 1-Hour NAAQS)	**141.65**	**N/A**	**N/A**	**43.9**	**185.55**	**188.03**	**98.68**	**284350**	**4079400**	**6423**
NO2 Annual NMAAQS	**12.63**	**N/A**	**N/A**	**10.8**	**23.43**	**94.02**	**24.92**	**284350**	**4079400**	**6423**
NO2 Annual PSD	**12.62**	**17.94**	**N/A**	**N/A**	**17.94**	**25**	**71.75**	**284350**	**4079400**	**6423**
CO 1-Hour NMAAQS	**64.25**	**Below SIL**								
CO 8-Hour NMAAQS	**52.64**	**Below SIL**								
PM10 24-Hour NAAQS	**3.45**	**Below SIL**								
PM10 24-Hour PSD	**3.45**	**Below SIL**								
PM10 Annual PSD	**0.39**	**Below SIL**								
PM2.5 24-Hour NAAQS	**4.02**	**4.07**	**0.00623**	**11.77**	**15.85**	**35**	**45.29**	**284400**	**4079400**	**6423**
PM2.5 Annual NAAQS	**0.83**	**0.91**	**0.000792**	**4.19**	**5.10**	**12**	**42.52**	**284293**	**4079450**	**6425**

16-X: Summary/conclusions/	
1	A statement that modeling requirements have been satisfied and that the permit can be issued.
	The modeling requirements have been satisfied and the permit can be issued.

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Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

Compliance Test History Table

Unit No.	Test Description	Test Date
1	Compliance test for NOx and CO, in accordance with Title V Permit P027-R5, Condition A201.A(1)(a)	5/19/2022
3	↓	1/18/2023
4	↓	Not Installed
5	↓	1/18/2023
6	↓	Not Installed
7	↓	5/19/2022
8	↓	Did Not Operate
9	↓	TBD
10	↓	1/19/2023
11	↓	1/19/2023
12	↓	1/19/2023
13	↓	Not Installed
14	↓	Not Installed
15	↓	1/20/2023
16	↓	5/19/2022
33	↓	5/19/2022

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Section 18

Addendum for Streamline Applications

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

Not applicable.

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Section 19

Requirements for Title V Program

Who Must Use this Attachment:

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

Not applicable.

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Section 20

Other Relevant Information

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

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

This section contains the NMAQB *Compliance History Disclosure Form* required for all permit applications submitted on or after October 24, 2022.

Air Permit Application
Compliance History Disclosure Form

Pursuant to Subsection 74-2-7(S) of the New Mexico Air Quality Control Act ("AQCA"), NMSA §§ 74-2-1 to -17, the New Mexico Environment Department ("Department") may deny any permit application or revoke any permit issued pursuant to the AQCA if, within ten years immediately preceding the date of submission of the permit application, the applicant met any one of the criteria outlined below. In order for the Department to deem an air permit application administratively complete, or issue an air permit for those permits without an administrative completeness determination process, the applicant must complete this Compliance History Disclosure Form as specified in Subsection 74-2-7(P). An existing permit holder (permit issued prior to June 18, 2021) shall provide this Compliance History Disclosure Form to the Department upon request.

Permittee/Applicant Company Name		**Expected Application Submittal Date**
Harvest Four Corners, LLC		April, 2023
Permittee/Company Contact	**Phone**	**Email**
Jennifer Deal	505-324-5128	jdeal@harvestmidstream.com

	Within the 10 years preceding the expected date of submittal of the application, has the permittee or applicant:	
1	Knowingly misrepresented a material fact in an application for a permit?	☐ Yes ☑ No
2	Refused to disclose information required by the provisions of the New Mexico Air Quality Control Act?	☐ Yes ☑ No
3	Been convicted of a felony related to environmental crime in any court of any state or the United States?	☐ Yes ☑ No
4	Been convicted of a crime defined by state or federal statute as involving or being in restraint of trade, price fixing, bribery, or fraud in any court of any state or the United States?	☐ Yes ☑ No
5a	Constructed or operated any facility for which a permit was sought, including the current facility, without the required air quality permit(s) under 20.2.70 NMAC, 20.2.72 NMAC, 20.2.74 NMAC, 20.2.79 NMAC, or 20.2.84 NMAC?	☐ Yes ☑ No
5b	If "No" to question 5a, go to question 6. If "Yes" to question 5a, state whether each facility that was constructed or operated without the required air quality permit met at least one of the following exceptions: a. The unpermitted facility was discovered after acquisition during a timely environmental audit that was authorized by the Department; or b. The operator of the facility estimated that the facility's emissions would not require an air permit, **and** the operator applied for an air permit within 30 calendar days of discovering that an air permit was required for the facility.	☐ Yes ☑ No
6	Had any permit revoked or permanently suspended for cause under the environmental laws of any state or the United States?	☐ Yes ☑ No
7	For each "yes" answer, please provide an explanation and documentation.	

Section 21

Addendum for Landfill Applications

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

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

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

Not applicable.

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Section 22: Certification

Company Name: HARVEST MIDSTREAM, 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 11 day of APRIL, 2023, upon my oath or affirmation, before a notary of the State of TEXAS.

*Signature — Date: 4/11/2023

Printed Name: TRAVIS JONES — Title: EHS MANAGER

Scribed and sworn before me on this 11 day of April, 2023.

My authorization as a notary of the State of Texas expires on the 24 day of February, 2024.

AMY HEROD
Notary Public, State of Texas
Comm. Expires 02-24-2024
Notary ID 132371315

Notary's Signature — Date: 4/11/2023

Notary's Printed Name: Amy Herod

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