

November 15, 2024

New Mexico Environmental Department
Air Quality Bureau, Permit Section
525 Camino de los Marquez, Ste. 1
Santa Fe, New Mexico 87505
Phone: (505) 476-4300

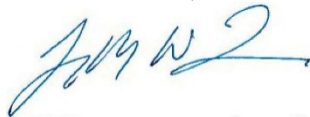
**RE: Application to Renew and Revise
Title V Operating Permit No. P035-R4
Horse Canyon Delivery Point
San Juan County, New Mexico
Harvest Four Corners, LLC**

Attached are two copies of the Horse Canyon Central Delivery Point application to Renew and Revise Title V Operating Permit No. P035-R4. The original signature certification page is included in the original, top bound copy. A copy of the certification page is included in the 3-hole punched working copy of the application.

Electronic versions of the application files will be provided to the state after the application is assigned to a permit reviewer.

Please don't hesitate to call me at (405) 702-1618 or email at Laura.Worthen-Lodes@Altamira-us.com if you have any questions.

Sincerely,
Altamira-US, LLC



Laura Worthen Lodes
Chief Engineering Officer

**APPLICATION TO RENEW AND REVISE
TITLE V OPERATING PERMIT NO. P035-R4
HORSE CANYON CENTRAL DELIVERY POINT
SAN JUAN COUNTY, NM**

November 2024

Submitted to:
New Mexico Environment Department
Air Quality Bureau, Permits Section
525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505

Prepared for:
Harvest Four Corners. LLC
1755 Arroyo Drive
Bloomfield, New Mexico 87413
505-632-4600

Prepared by:
Altamira-US, LLC
525 Central Park Dr., Suite 500
Oklahoma City, OK 73105
405-702-1618

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Mail Application To: 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		For Department use only:
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Universal Air Quality Permit Application

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

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

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: ☐ 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.: [REDACTED] in the amount of [REDACTED]
- ☒ 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: **20.2.70.300.B(2) NMAC** (e.g. application for a new minor source would be 20.2.72.200.A NMAC, one example for a Technical Permit Revision is 20.2.72.219.B.1.b NMAC, a Title V acid rain application would be: 20.2.70.200.C NMAC)

Section 1 – Facility Information

Section 1-A: Company Information		AI # if known: 1274	Updating Permit/NOI #: P035-R4
1	Facility Name: Horse Canyon 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): Drive north from Aztec on Hwy 550 approximately 2 miles, turn right on Hwy 173 and drive to mile marker 13.9, turn left and drive 0.8 miles to site.		

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: Harvest Four Corners, LLC	
3	Plant Owner(s) name(s): Harvest Four Corners, LLC	Phone/Fax: (505) 324-5128 / (505) 632-4782
a	Plant Owner(s) Mailing Address(s): 1755 Arroyo Drive, Bloomfield, New Mexico 87413	
4	Bill To (Company): Harvest Four Corners, LLC	Phone/Fax: (505) 324-5128 / (505) 632-4782
a	Mailing Address: 1755 Arroyo Drive, Bloomfield, New Mexico 87413	E-mail: jdeal@harvestmidstream.com>
5	☐ Preparer: ☒ Consultant: Laura Worthen-Lodes	Phone/Fax: 405.702.1618
a	Mailing Address: 525 Central Park Drive Suite 500 Oklahoma City, OK 73105	E-mail: Laura.Worthen-Lodes@Altamira-US.com
6	Plant Operator Contact: Brandon Pearson	Phone/Fax: (970) 385-3861
a	Address: 1755 Arroyo Drive, Bloomfield, New Mexico 87413	E-mail: brpearson@harvestmidstream.com
7	Air Permit Contact: Jennifer Deal	Title: Environmental Specialist
a	E-mail: jdeal@harvestmidstream.com	Phone/Fax: (505) 324-5128 / (505) 632-4782
b	Mailing Address: 1755 Arroyo Drive, Bloomfield, New Mexico 87413	
c	The designated Air permit Contact will receive all official correspondence (i.e. letters, permits) from the Air Quality Bureau.	

Section 1-B: Current Facility Status

1.a	Has this facility already been constructed? ☒ Yes ☐ No	1.b If yes to question 1.a, is it currently operating in New Mexico? ☒ Yes ☐ No
2	If yes to question 1.a, was the existing facility subject to a Notice of Intent (NOI) (20.2.73 NMAC) before submittal of this application? ☐ Yes ☒ No	If yes to question 1.a, was the existing facility subject to a construction permit (20.2.72 NMAC) before submittal of this application? ☒ Yes ☐ No
3	Is the facility currently shut down? ☐ Yes ☒ No	If yes, give month and year of shut down (MM/YY):
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? ☐ Yes ☒ No	
5	If Yes to question 3, has this facility been modified (see 20.2.72.7.P NMAC) or the capacity increased since 8/31/1972? ☐ Yes ☐ No ☒ N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☒ Yes ☐ No	If yes, the permit No. is: P035-R4
7	Has this facility been issued a No Permit Required (NPR)? ☐ Yes ☒ No	If yes, the NPR No. is:
8	Has this facility been issued a Notice of Intent (NOI)? ☐ Yes ☒ No	If yes, the NOI No. is:
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ☒ Yes ☐ No	If yes, the permit No. is: 868-M5-R6
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes ☒ No	If yes, the register No. is:

Section 1-C: Facility Input Capacity & Production Rate

1	What is the facility's maximum input capacity, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: 2.25 MMCF	Daily: 54.0 MMCF	Annually: 19,700 MMCF
b	Proposed	Hourly: 2.25 MMCF	Daily: 54.0 MMCF	Annually: 19,700 MMCF
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: N/A	Daily: N/A	Annually: N/A

b	Proposed	Hourly: N/A	Daily: N/A	Annually: N/A
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Section 1-D: Facility Location Information

1	Latitude (decimal degrees): 36.7872222	Longitude (decimal degrees): -107.760278	County: San Juan	Elevation (ft): 5,980
2	UTM Zone: ☐ 12 or ☒ 13		Datum: ☒ NAD 83 ☐ WGS 84	
a	UTM E (in meters, to nearest 10 meters): 253,700		UTM N (in meters, to nearest 10 meters): 4,074,825	
3	Name and zip code of nearest New Mexico town: Aztec, 87410			
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): Drive north from Aztec on Hwy 550 approximately 2 miles, turn right on Hwy 173 and drive to mile marker 13.9, turn left and drive 0.8 miles to site.			
5	The facility is 3 (distance) miles northeast (direction) of Bloomfield (nearest town).			
6	Land Status of facility (check one): ☐ Private ☐ Indian/Pueblo ☐ Government ☒ BLM ☐ Forest Service ☐ Military			
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: Bloomfield, Aztec, Navajo Tribe, San Juan County			
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/air-quality/modeling-publications/)? ☐ Yes ☒ No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers:			
9	Name nearest Class I area: Weminuche Wilderness Area			
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): 71.52km			
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: ≈17,000 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?			

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

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

Section 1-F: Other Facility Information

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

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

1	☐ I have filled out Section 18, "Addendum for Streamline Applications." ☒ N/A (This is not a Streamline application.)
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Section 1-H: Current Title V Information - Required for all applications from TV Sources

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

1	Responsible Official (R.O.) (20.2.70.300.D.2 NMAC): Nathan Work		Phone: (505) 215-6107
a	R.O. Title: Operations Manager	R.O. e-mail: nwork@harvestmidstream.com	
b	R. O. Address: 3746 CR 307, Durango, CO 81303		
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 Company		
a	Address of Parent Company: 1111 Travis Street, Houston, Texas 77002		
5	Names of Subsidiary Companies ("Subsidiary Companies" means organizations, branches, divisions or subsidiaries, which are owned, wholly or in part, by the company to be permitted.): N/A		
6	Telephone numbers & names of the owners' agents and site contacts familiar with plant operations: N/A		

7	Affected Programs to include Other States, local air pollution control programs (i.e. Bernalillo) and Indian tribes: Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B)? If yes, state which ones and provide the distances in kilometers: Yes, Colorado (29 km), Navajo Tribe (5 km), Southern Ute Tribe (29 km), Mountain Ute Tribe (30 km) & Jicarilla Apache Tribe (66 km)
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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: **Laura Worthen Lodes**

Email: Laura.Worthen-Lodes@Altamira-US.com

Phone number: [405-702-1618](tel:405-702-1618)

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

- 4) Optionally, the applicant may submit the files with the application on compact disk (CD) or digital versatile disc (DVD) following the instructions above and the instructions in 5 for applications subject to PSD review.
- 5) If **air dispersion modeling** is required by the application type, include the **NMED Modeling Waiver** and/or electronic air dispersion modeling report, input, and output files. The dispersion modeling **summary report only** should be submitted as hard copy(ies) unless otherwise indicated by the Bureau.
- 6) If the applicant submits the electronic files on CD and the application is subject to PSD review under 20.2.74 NMAC (PSD) or NNSR under 20.2.79 NMC include,
 - a. one additional CD copy for US EPA,
 - b. one additional CD copy for each federal land manager affected (NPS, USFS, FWS, USDI) and,
 - c. one additional CD copy for each affected regulatory agency other than the Air Quality Bureau.

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

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

- 1) All required electronic documents shall be submitted as 2 separate CDs or submitted through the AQB secure file transfer service. Submit a single PDF document of the entire application as submitted and the individual documents comprising the application.
- 2) The documents should also be submitted in Microsoft Office compatible file format (Word, Excel, etc.) allowing us to access the text and formulas in the documents (copy & paste). Any documents that cannot be submitted in a Microsoft Office compatible format shall be saved as a PDF file from within the electronic document that created the file. If you are unable to provide Microsoft office compatible electronic files or internally generated PDF files of files (items that were not created electronically: i.e. brochures, maps, graphics, etc.), submit these items in hard copy format. We must be able to review the formulas and inputs that calculated the emissions.
- 3) It is preferred that this application form be submitted as 4 electronic files (**3 MSWord docs**: Universal Application section 1 [UA1], Universal Application section 3-19 [UA3], and Universal Application 4, the modeling report [UA4]) and **1 Excel file** of the tables (Universal Application section 2 [UA2]). Please include as many of the 3-19 Sections as practical in a single MS Word electronic document. Create separate electronic file(s) if a single file becomes too large or if portions must be saved in a file format other than MS Word.
- 4) The **electronic file names** shall be a maximum of 25 characters long (including spaces, if any). The format of the electronic Universal Application shall be in the format: "A-3423-FacilityName". The "A" distinguishes the file as an application submittal, as opposed to other documents the Department itself puts into the database. Thus, all electronic application submittals should begin with "A-". Modifications to existing facilities should use the **core permit number** (i.e. '3423') the Department assigned to the facility as the next 4 digits. Use 'XXXX' for new facility applications. The format of any separate electronic submittals (additional submittals such as non-Word attachments, re-submittals, application updates) and Section document shall be in the format: "A-3423-9-description", where "9" stands for the **section #** (in this case Section 9-Public Notice). Please refrain, as much as possible, from submitting any scanned documents as this file format is extremely large, which uses up too much storage capacity in our database. Please take the time to fill out the **header information** throughout all submittals as this will identify any loose pages, including the Application Date (date submitted) & Revision number (0 for original, 1, 2, etc.; which will help keep track of subsequent partial update(s) to the original submittal. Do not use special symbols (#, @, etc.) in file names. The footer information should not be modified by the applicant.

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Section 17:	Compliance Test History
Section 18:	Addendum for Streamline Applications (streamline applications only)
Section 19:	Requirements for the Title V (20.2.70 NMAC) Program (Title V applications only)
Section 20:	Other Relevant Information
Section 21:	Addendum for Landfill Applications
Section 22:	Certification Page

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 #	Engine Serial # / Package Serial #	Manufacturer's Rated Capacity ³ (Specify Units)	Requested Permitted Capacity ³ (Specify Units)	Date of Manufacture ²	Controlled by Unit #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB) ⁴	Replacing Unit No.
							Date of Construction/Reconstruction ²	Emissions vented to Stack #				
1	Compressor Engine	Waukesha	7042GL	806632 / 335515	1,478 hp	1,390 hp	7/23/1979	N/A	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☒ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
							7/23/1979	1				
2	Compressor Engine	Waukesha	7042GL	TBD - Not Installed	1,478 hp	1,390 hp	TBD	N/A	20200202	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
							TBD	2				
3	Compressor Engine	Waukesha	7042GL	76223 / 233634	1,478 hp	1,390 hp	10/28/1972	N/A	20200202	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
							10/28/1972	3				
4	Compressor Engine	Waukesha	7042GL	804347 / C-11060/2	1,478 hp	1,390 hp	2/20/1998	N/A	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☒ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
							2/20/1998	4				
5	Compressor Engine	Waukesha	7042GL	76225 / C-10607/11	1,478 hp	1,390 hp	7/14/1992	N/A	20200202	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
							7/14/1992	5				
6	Compressor Engine	Waukesha	7042GL	804345 / 365090	1,478 hp	1,390 hp	7/27/1981	N/A	20200202	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
							7/27/1981	6				
7	Compressor Engine	Waukesha	7042GL	804342 / C-12553/4	1,478 hp	1,390 hp	2/20/1998	N/A	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☒ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
							2/20/1998	7				
16a	Dehydrator	Enertek	J2P10M1 1109	40146	10 MMSCFD	10 MMSCFD	10/01/1990	NA	31000227	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							10/01/1990	16a				
16b	Dehydrator Reboiler	Enertek	J2P10M1 1109	40146	0.39 MMBtu/hr	0.39 MMBtu/hr	10/01/1990	NA	31000228	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							10/01/1990	16b				
19a	Dehydrator	Enertek	J2P10M1 1109	41649	10 MMSCFD	10 MMSCFD	04/1992	NA	31000227	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☒ To Be Modified ☐ To be Replaced	N/A	N/A
							04/1992	19a				
19b	Dehydrator Reboiler	Enertek	J2P10M1 1109	41649	0.39 MMBtu/hr	0.39 MMBtu/hr	04/1992	NA	31000228	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							04/1992	19b				
21a	Dehydrator	Enertek	J2P10M1 1109	40452	10 MMSCFD	10 MMSCFD	12/1990	NA	31000227	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☒ To Be Modified ☐ To be Replaced	N/A	N/A
							12/1990	21a				
21b	Dehydrator Reboiler	Enertek	J2P10M1 1109	40452	0.39 MMBtu/hr	0.39 MMBtu/hr	12/1990	NA	31000228	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							12/1990	21b				
25	Wastewater Evaporation Unit			8824	2.48 MMBtu/hr	2.48 MMBtu/hr	7/1994	25	31000299	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							1998	N/A				
F1	Equipment Leaks						N/A	N/A	31000299	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							N/A	N/A				

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 #	Engine Serial # / Package Serial #	Manufacturer's Rated Capacity ³ (Specify Units)	Requested Permitted Capacity ³ (Specify Units)	Date of Manufacture ²	Controlled by Unit #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB) ⁴	Replacing Unit No.
							Date of Construction/Reconstruction ²	Emissions vented to Stack #				
SSM	SSM						N/A	N/A	31000299	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							N/A	N/A				
M1	Malfunctions						N/A	N/A	31000299	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
							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 Activities¹ (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 20.2.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.	Max Capacity	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction ²	For Each Piece of Equipment, Check One
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction ²	
26	Tank Heater			250			☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				Mbtu/hr	#1.a		
27	Tank Heater			250			☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				Mbtu/hr	#1.a		
T1-T7	Lubrication Oil Storage Tank			500			☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a & #5		
T15	Lubrication Oil Storage Tank			4,200			☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a & #5		
T16	Used Oil Storage Tank			6,930			☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a & #5		
T17	Waste Water Storage Tank			6,930			☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a		
T18	Produced Water Storage Tank			12,600			☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a		
T19 & T20	Antifreeze Storage Tank			500			☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a & #5		
T21	Corrosion Inhibitor Storage Tank			125			☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a & #5		
T22	Petroleum Based Solvent Storage Tank			400			☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a & #5		
T25-T34	Glycol Storage Tank			100			☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a & #5		
T35	Glycol Storage Tank			16,800			☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a & #5		
T36	Used Oil Storage Tank			16,800			☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a & #5		
T37	Glycol Storage Tank			1,890			☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a & #5		

Table 2-B: Insignificant Activities¹ (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.	Max Capacity	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction ²	For Each Piece of Equipment, Check One
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction ²	
T38	Evaporator Overflow Storage Tank			1,050			☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a		
T39-T42	Waste Water Storage Tank			16,800			☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a		
T43 & T44	Produced Water Storage Tank			1,890			☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a		
T45 & T46	De-Emulsifier Storage Tank			125			☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a & #5		
T47	Waste Water Storage Tank			16,800			☐ Existing (unchanged) ☐ To be Removed ☒ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a		
T48-T52	Stormwater Storage Tanks			21,000			☐ Existing (unchanged) ☐ To be Removed ☒ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	#1.a		

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.

[illegible]

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

[illegible]

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 TSP unless TSP is set equal to PM10 and PM2.5.

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).

[illegible]

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 TSP unless TSP is set equal to PM10 and PM2.5.

All applications for facilities that have emissions during routine or 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).

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☐ 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.

Stack No.	Serving Unit Number(s) from Table 2-A	NOx		CO		VOC		SOx		TSP		PM10		PM2.5		☐ H ₂ S 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
25a	25	2.22E-01	9.73E-01	1.87E-01	8.18E-01	1.22E-02	5.35E-02	1.33E-03	5.84E-03			1.69E-02	7.40E-02	1.69E-02	7.40E-02	1.11E-06	4.87E-06
25b	25	8.89E-03	3.89E-02	7.47E-03	3.27E-02	4.89E-04	2.14E-03	5.33E-05	2.34E-04			6.76E-04	2.96E-03	6.76E-04	3.00E-03	4.44E-08	1.95E-07
25c	25	2.78E-02	1.22E-01	2.33E-02	1.02E-01	1.53E-03	6.69E-03	1.67E-04	7.30E-04			2.11E-03	9.25E-03	2.11E-03	9.25E-03	1.39E-07	6.08E-07
25d	25	1.67E-02	7.30E-02	1.40E-02	6.13E-02	9.17E-04	4.02E-03	1.00E-04	4.38E-04			1.27E-03	5.55E-03	1.27E-03	5.55E-03	8.33E-08	3.65E-07
Totals:		0.28	1.21	0.23	1.01	1.52E-02	6.64E-02	1.65E-03	7.24E-03			2.09E-02	9.17E-02	2.09E-02	9.18E-02	1.38E-06	6.03E-06

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	No	22	703	129			157	1.02
2	2	V	No	22	703	129			157	1.02
3	3	V	No	22	703	129			157	1.02
4	4	V	No	22	703	129			157	1.02
5	5	V	No	22	703	129			157	1.02
6	6	V	No	22	703	129			157	1.02
7	7	V	No	22	703	129			157	1.02
16b	16b	V	No	10	600	3			6	0.83
19b	19b	V	No	10	600	3			6	0.83
21b	21b	V	No	10	600	3			6	0.83
25a	25a	V	No	15	600	1			6	0.33
25b	25b	V	No	15	600	1			6	0.33
25c	25c	V	No	15	600	1			6	0.33
25d	25d	V	No	15	600	1			6	0.33

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 is 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 ☑ HAP or ☐ TAP		Ethylbenzene ☑ HAP or☐ TAP		Formaldehyde ☑ HAP or☐ TAP		Toluene ☑ HAP or ☐ TAP		Xylenes ☑ 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	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	1	0.5	2.4	1.6E-02	7.0E-02	-	-	0.5	2.3	6.4E-03	2.8E-02	4.3E-03	1.9E-02						
2	2	0.5	2.4	1.6E-02	7.0E-02	-	-	0.5	2.3	6.4E-03	2.8E-02	4.3E-03	1.9E-02						
3	3	0.5	2.4	1.6E-02	7.0E-02	-	-	0.5	2.3	6.4E-03	2.8E-02	4.3E-03	1.9E-02						
4	4	0.5	2.4	1.6E-02	7.0E-02	-	-	0.5	2.3	6.4E-03	2.8E-02	4.3E-03	1.9E-02						
5	5	0.5	2.4	1.6E-02	7.0E-02	-	-	0.5	2.3	6.4E-03	2.8E-02	4.3E-03	1.9E-02						
6	6	0.5	2.4	1.6E-02	7.0E-02	-	-	0.5	2.3	6.4E-03	2.8E-02	4.3E-03	1.9E-02						
7	7	0.5	2.4	1.6E-02	7.0E-02	-	-	0.5	2.3	6.4E-03	2.8E-02	4.3E-03	1.9E-02						
16a	16a	1.20	5.2	0.1	0.5	0.4	1.7	-	-	0.6	2.5	9.6E-02	0.4						
16b	16b	1.4E-04	6.0E-04	-	-	-	-	1.4E-04	6.0E-04	-	-	-	-						
19a	19a	1.20	5.2	0.1	0.5	0.4	1.7			0.6	2.5	9.6E-02	0.4						
19b	19b	1.4E-04	6.0E-04	-	-	-	-	1.4E-04	6.0E-04	-	-	-	-						
21a	21a	1.20	5.2	0.1	0.5	0.4	1.7	-	-	0.6	2.5	9.6E-02	0.4						
21b	21b	1.4E-04	6.0E-04		8.0E-03	-	-	1.4E-04	6.0E-04	-	-	-	-						
25	25	1.5E-02	0.1	1.8E-03	8.1E-03	5.3E-03	2.3E-02	2.1E-03	9.2E-03	2.5E-03	1.1E-02	3.3E-03	1.4E-02						
F1	F1	6.7E-03	1.2E-02	1.4E-03	1.9E-03	-	3.5E-03	-	-	4.8E-03	6.4E-03	4.8E-04	6.5E-04						
SSM	SSM	-	0.1	-	1.2E-02	-	2.1E-02	-	-	-	3.9E-02	-	4.0E-03						
M1	M1	-	0.1	-	1.1E-02	-	-	-	-		3.7E-02		3.7E-03						
Totals:		7.4	32.7	0.4	2.0	1.2	5.1	3.6	16.1	1.9	7.8	0.3	1.4						

Table 2-J: Fuel

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

Unit No.	Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, ...)	Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other	Specify Units				
			Lower Heating Value	Hourly Usage	Annual Usage	% Sulfur	% Ash
1	Natural Gas	field natural gas	900 Btu/scf	11.3 Mscf	99.4 MMscf	Negl.	Negl.
2	Natural Gas	field natural gas	900 Btu/scf	11.3 Mscf	99.4 MMscf	Negl.	Negl.
3	Natural Gas	field natural gas	900 Btu/scf	11.3 Mscf	99.4 MMscf	Negl.	Negl.
4	Natural Gas	field natural gas	900 Btu/scf	11.3 Mscf	99.4 MMscf	Negl.	Negl.
5	Natural Gas	field natural gas	900 Btu/scf	11.3 Mscf	99.4 MMscf	Negl.	Negl.
6	Natural Gas	field natural gas	900 Btu/scf	11.3 Mscf	99.4 MMscf	Negl.	Negl.
7	Natural Gas	field natural gas	900 Btu/scf	11.3 Mscf	99.4 MMscf	Negl.	Negl.
16b	Natural Gas	field natural gas	900 Btu/scf	429 scf	3.8 MMscf	Negl.	Negl.
19b	Natural Gas	field natural gas	900 Btu/scf	429 scf	3.8 MMscf	Negl.	Negl.
21b	Natural Gas	field natural gas	900 Btu/scf	429 scf	3.8 MMscf	Negl.	Negl.
25	Natural Gas	field natural gas	900 Btu/scf	2.8 Mscf	24.1 MMscf	Negl.	Negl.

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

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

Tank No.	SCC Code	Material Name	Composition	Liquid Density (lb/gal)	Vapor Molecular Weight (lb/lb*mol)	Average Storage Conditions		Max Storage Conditions	
						Temperature (°F)	True Vapor Pressure (psia)	Temperature (°F)	True Vapor Pressure (psia)
T1-T7	31000299	Lubrication Oil	Lubrication Oil	Insignificant source					
T15	31000299	Lubrication Oil	Lubrication Oil	Insignificant source					
T16	31000299	Used Oil	Used Oil	Insignificant source					
T17	31000299	Waste Water	H2O & <1% Hydrocarbons	Insignificant source					
T18	31000299	Produced Water	H2O & <1% Hydrocarbons	Insignificant source					
T19 & T20	31000299	Antifreeze	Ethylene Glycol	Insignificant source					
T21	31000299	Corrosion Inhibitor	Naphtha & Methyl Alcohol	Insignificant source					
T22	31000299	Petroleum Based Solvent	Jet Kerosene	Insignificant source					
T25-T34	31000299	Glycol	TEG	Insignificant source					
T35	31000299	Glycol	TEG	Insignificant source					
T36	31000299	Used Oil	Used Oil	Insignificant source					
T37	31000299	Glycol	TEG	Insignificant source					
T38	31000299	Evaporator Overflow	Waste H2O/Lubrication Oil/TEG	Insignificant source					
T39-T42	31000299	Waste Water	H2O & <1% Hydrocarbons	Insignificant source					
T43 & T44	31000299	Produced Water	H2O & <1% Hydrocarbons	Insignificant source					
T45 & T46	31000299	De-Emulsifier	Naphtha & Toluene	Insignificant source					

Table 2-L: Tank Data

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

[illegible]

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

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

Note: 1.00 bbl = 0.159 M³ = 42.0 gal

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

Material Processed				Material Produced			
Description	Chemical Composition	Phase (Gas, Liquid, or Solid)	Quantity (specify units)	Description	Chemical Composition	Phase	Quantity (specify units)
Field Natural Gas		Gas	19,700 MMcf/yr	Residue Gas		Gas	19,700 MMcf/yr
The station capacity is a direct function of available horsepower. The throughput is therefore dependant 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.							

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.

[illegible]

Table 2-O: Parametric Emissions Measurement Equipment

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

[illegible]

Table 2-P: Greenhouse 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.

		CO ₂ ton/yr	N ₂ O ton/yr	CH ₄ ton/yr	SF ₆ ton/yr	PFC/HFC ton/yr ²										Total GHG Mass Basis ton/yr ⁴	Total CO ₂ e ton/yr ⁵
Unit No.	GWPs ¹	1	298	25	22,800	footnote 3											
1	mass GHG	6006	1.10E-02	0.11	0	0										6006.12	
	CO ₂ e	6006	3.28	2.83	0	0											6012.10
2	mass GHG	6006	1.10E-02	0.11	0	0										6006.12	
	CO ₂ e	6006	3.28	2.83	0	0											6012.10
3	mass GHG	6006	1.10E-02	0.11	0	0										6006.12	
	CO ₂ e	6006	3.28	2.83	0	0											6012.10
4	mass GHG	6006	1.10E-02	0.11	0	0										6006.12	
	CO ₂ e	6006	3.28	2.83	0	0											6012.10
5	mass GHG	6006	1.10E-02	0.11	0	0										6006.12	
	CO ₂ e	6006	3.28	2.83	0	0											6012.10
6	mass GHG	6006	1.10E-02	0.11	0	0										6006.12	
	CO ₂ e	6006	3.28	2.83	0	0											6012.10
7	mass GHG	6006	1.10E-02	0.11	0	0										6006.12	
	CO ₂ e	6006	3.28	2.83	0	0											6012.10
16a	mass GHG	16.6	0	0.72	0	0										17.32	
	CO ₂ e	16.6	0	18.00	0	0											34.60
16b	mass GHG	219.19	4.13E-04	4.13E-03	0	0										219.19	
	CO ₂ e	219.19	0.12	0.10	0	0											219.42
19a	mass GHG	16.6	0	0.72	0	0										17.32	
	CO ₂ e	16.6	0	18.00	0	0											34.60
19b	mass GHG	219.19	4.13E-04	4.13E-03	0	0										219.19	
	CO ₂ e	219.19	0.12	0.10	0	0											219.42
21a	mass GHG	16.6	0	0.72	0	0										17.32	
	CO ₂ e	16.6	0	18.00	0	0											34.60
21b	mass GHG	219.19	4.13E-04	4.13E-03	0	0										219.19	
	CO ₂ e	219.19	0.12	0.10	0	0											219.42
25	mass GHG	1407.82	2.66E-03	2.66E-02	0	0										1407.85	
	CO ₂ e	1407.82	0.79	0.67	0	0											1409.28
F1	mass GHG	181.85	0	317.31	0	0										499.16	
	CO ₂ e	181.85	0	7932.75	0	0											8114.60
SSM	mass GHG	90.58	0	158.06	0	0										248.64	
	CO ₂ e	90.58	0	3951.50	0	0											4042.08
M1	mass GHG	85.32	0	148.88	0	0										234.20	
	CO ₂ e	85.32	0	3722.00	0	0											3807.32
Total	mass GHG	44,515	8.09E-02	627	0	0										45,142	
	CO ₂ e	44,515	24	15,681	0	0											60,220

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 HFC Horse Canyon CDP is a production-gathering field compressor station that pressurizes and dehydrates natural gas for transport through natural gas pipelines. The facility currently operates under a construction permit, 868-M5, dated December 6, 2011, and a Title V operating permit, P035-R4, dated November 18, 2020.

This application is being submitted to renew the November 2020 Title V permit P035-R4 as per the NMED operating permit regulation 20.2.70 NMAC. The lowest level regulatory citations are 20.2.70.300.B(2) and 20.2.70.404.C(1) NMAC.

The station is currently permitted (under the operating permit) to operate seven Waukesha L7042GL natural gas fired internal combustion compressor engines (Units 1-7), three 10 MMSCFD dehydrators (Units 16a/b, 19a/b and 21a/b), and one wastewater evaporation system heater (Unit 25). The station is also equipped with miscellaneous liquid storage tanks and gas transmission equipment, plus allowable fugitive, SSM and Malfunction emissions.

SSM

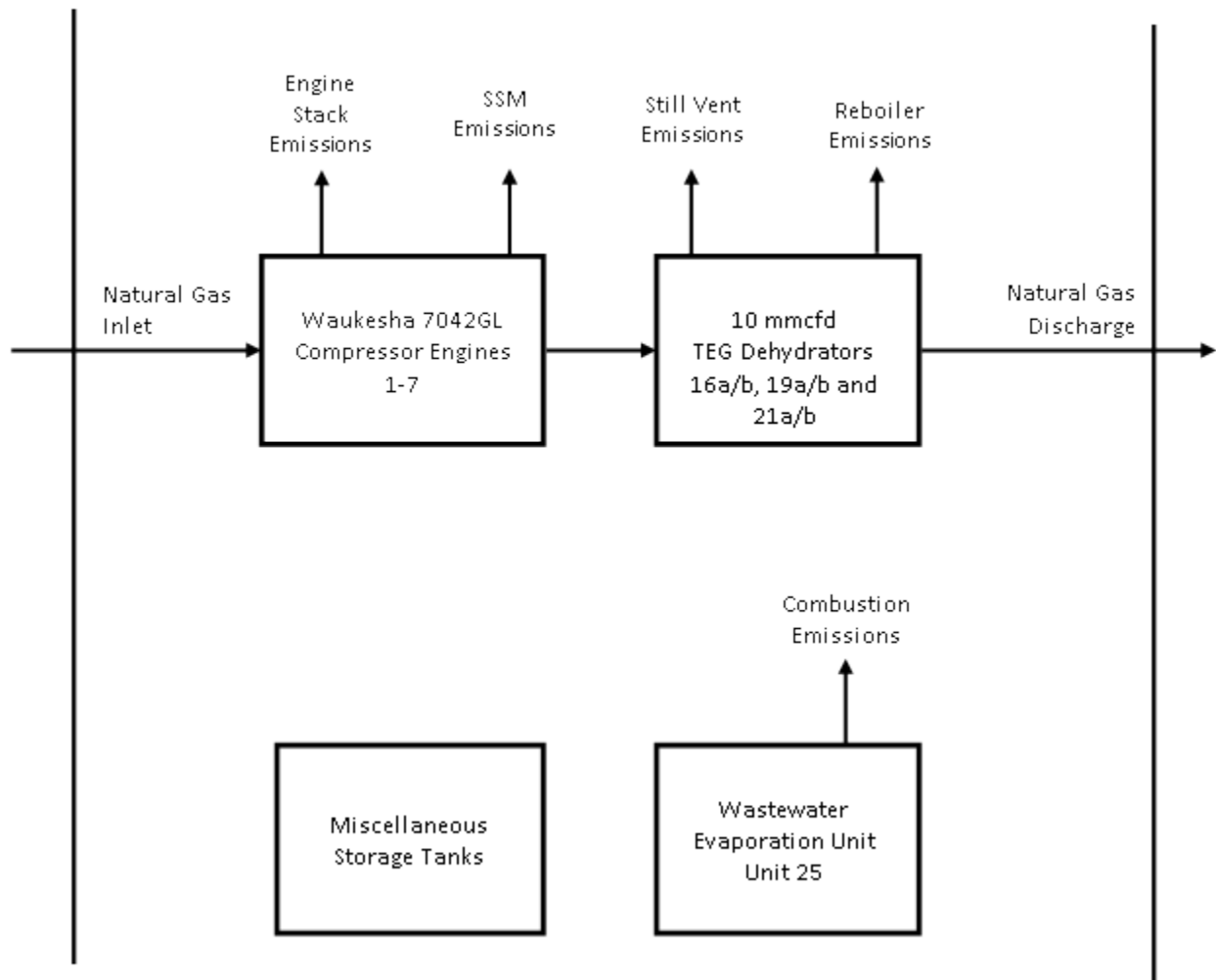
For the reciprocating engines, dehydrators (still vents and reboilers), heaters, equipment leaks (valves, connectors, seals, etc.), and storage tanks, it is concluded that either SSM emissions are not quantifiable or there are no SSM emissions in excess of those identified for steady-state operation as seen in Section 2, Table 2-E. Discussions justifying this conclusion are provided in Section 6.

SSM emissions from compressor blowdowns are calculated from the quantity of gas vented during each event, the composition of the gas, and the number of events. The number of blowdown events is estimated from historical data. A safety factor is included.

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.



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.

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

ATTACHMENT 'A' PRODUCT & WASTE STORAGE

Section	Document No.
SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN	4213001
Effective Date	12-20-99
Issue No.	02
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OPERATIONS

HORSE CANYON COMPRESSOR STATION

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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.

Note that the hydrogen sulfide (H₂S) content of the natural gas at the station is non-detect. Therefore, it is assumed there are no H₂S emissions associated with any of the equipment. Also note that even if H₂S is present, H₂S emissions from the combustion of natural gas are negligible. H₂S is converted to SO₂ during combustion.

Reciprocating Engines

The nitrogen oxides (NO_x), carbon monoxide (CO), and volatile organic compounds (VOC) emissions from the engines (Units 1-9) are calculated from manufacturer's data. The SO₂ and particulate emissions are calculated using AP-42 emission factors from Table 3.2-2. Lead emissions are calculated using the AP-42 emission factor from Table 1.4-2 (even though the engines are internal combustion sources, the emission factor for external combustion is acceptable as lead is not a produced pollutant; rather, emissions are related to the lead content of the natural gas). Hazardous air pollutant (HAP) emissions are calculated using GRI-HAPCalc 3.0. Emissions are calculated assuming the engines all operate at full site capacity for 8,760 hours per year.

The NO_x, CO and VOC emissions from Units 1-9 are carried forward from previous applications.

The engines at the station startup with no load and a rich fuel mixture. As a result, emissions are minimized. Because the engines take only minutes to reach operating temperature, emissions during startup do not 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.

Carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O) engine exhaust emissions are calculated using emission factors from the 40 Code of Federal Regulations (CFR), Part C, Tables C-1 & C-2 and the engine higher heating value (HHV) design heat rates.

Compressors and Piping

SSM emissions from the compressors and associated piping (Unit SSM) occur only during startup and shutdown of a compressor. High pressure gas is used to purge air from the compressors and turn the starters at startup and this gas is then vented to atmosphere. After shutdown, high pressure gas in the compressor and associated piping is released to atmosphere as a safety precaution.

One common reason for compressor startup or shutdown is a change in the amount of compression required from the station due to fluctuations in the pipeline. To prolong the life of equipment and reduce emissions, the compressors are shutdown when not needed. It is "routine or predictable" that the compressors at the station will come on-line and drop off-line many times during the course of operation. It is also standard industry practice.

The compressors are also shut down for maintenance of the engines, compressors or other equipment at the station. This maintenance is scheduled based on time in service and/or monitoring of equipment (visual and automated) in accordance with company and standard industry practice. This maintenance is also "routine or predictable".

SSM emissions from blowdown of the compressors and associated piping at the station are calculated from the quantity of gas vented during each event, the composition of the gas in the compressors, and the number of events. The quantity of gas vented during each event is determined by Harvest engineering. The composition of the blowdown gas is estimated from the most recent extended gas analysis. For each compressor, the annual number of blowdown events is estimated from historical data. A safety factor is 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 the composition of the gas is likely vary. The use of the safety factor is also designed to ensure an adequate emissions limit, which includes any emissions from other non-blowdown miscellaneous startup, shutdown and maintenance activities.

It is estimated each compressor will experience no more than one blowdown per hour. Having all the compressors blowdown during the same hour is a very unlikely event, but possible. The only time the entire site would blow down at once as a planned event is during the annual system shut down. That is part of the permitted activity. If there is an actual emergency, the station would be shut in, but may or may not be blown down depending on the event. If an emergency blow down is required, that would be reportable as excess emissions.

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

GHG emissions from the compressors are calculated from the annual blowdown volumes and gas composition.

Dehydrator Still Vents

The VOC and HAP emissions from the dehydrator still vents (Units 16a, 19a, & 21a) are calculated using GRI-GLYCalc 4.0. Emissions are calculated assuming both the rated throughput and glycol circulation rates of 90 gallons per hour. The dehydrators operate 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 emission rates identified on the application forms are higher than the calculated emissions.

During startup, the dehydrator reboilers are brought up to temperature before allowing glycol into the absorbers. 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 reboilers are 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 units will not be in operation during maintenance or maintenance is limited to tasks for which there are no excess emissions.

CO₂ and CH₄ still vent emissions are calculated using GRI-GLYCalc 4.0. CH₄ gas-assisted pump emissions are calculated from the facility CH₄ gas stream composition using the emission factor and baseline CH₄ content from the API Compendium, Section 5.1.2, Table 5-4. CO₂ gas-assisted pump emissions are calculated from the CH₄ emissions and facility CO₂ gas stream composition.

Dehydrator Reboilers

The NO_x and CO emission factors for the reboilers (Units 16b, 19b, & 21b) are identified from an Enertek letter dated August 19, 1994. The VOC and SO₂ emission factors are identified from an InFab letter dated July 22, 1998. The particulate and lead emissions are calculated using AP-42 emission factors from Table 1.4-2. HAP emissions are calculated using GRI-HAPCalc 3.0. Emissions are calculated assuming the reboilers all operate 8,760 hours per year.

The dehydrator reboilers (uncontrolled) will startup with less fuel input than during steady-state operation, so emissions will be lower than during steady-state operation. During shutdown, the fuel supply will stop 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 will be negligible as the units will not be in operation.

CO₂, CH₄, and N₂O reboiler exhaust emissions are calculated using emission factors from the 40 Code of Federal Regulations (CFR), Part C, Tables C-1 & C-2 and the reboiler higher heating value (HHV) fuel usage rates.

Heaters

The NO_x, CO, VOC, SO₂ and particulate emissions from the heaters (Units 25a-25d) are calculated using AP-42 emissions factors from Tables 1.4-1 and 1.4-2. HAP emissions for heaters are calculated using GRI-HAPCalc 3.0. Emissions are calculated assuming the heater operates at full site capacity for 8,760 hours per year.

The heaters (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.

CO₂, CH₄, and N₂O heater exhaust emissions are calculated using emission factors from the 40 Code of Federal Regulations (CFR), Part C, Tables C-1 & C-2 and the heater higher heating value (HHV) fuel usage rates.

Equipment Leak Emissions

Fugitive VOC and HAP emissions (Unit F1) from equipment leaks (valves, flanges, seals, etc.) are calculated using total organic compounds (TOC) emission factors from Table 2.4 of the 1995 Protocol for Equipment Leak Emission Estimates published by the Environmental Protection Agency (EPA) and the most recent extended gas analysis.

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

CH₄ and CO₂ equipment leaks emissions are also calculated using the TOC emission factors and gas stream composition. CH₄ gas-driven pneumatic device emissions are calculated from the facility CH₄ gas stream composition using the emission factor and baseline CH₄ content from the API Compendium, Section 5.6.1, Table 5-15. CO₂ gas-driven pneumatic device emissions are calculated from the CH₄ emissions and facility CO₂ gas stream composition. CH₄ pressure relief valve emissions are calculated from the facility CH₄ gas stream composition using the emission factor and baseline CH₄ content from the API Compendium, Section 5.7.2, Table 5-24. CO₂ pressure relief valve emissions are calculated from the CH₄ emissions and facility CO₂ gas stream composition.

Malfunctions

Malfunction (Unit M1) emissions are calculated to be maximum 10.0 tons of VOC per year. Based on the gas release rate associated with the calculated maximum emission rate, HAP emissions are estimated using the most recent extended gas analysis.

CO₂ and CH₄ malfunction emissions are calculated from the VOC emissions and facility gas stream composition.

Storage Tanks

Where required, VOC and HAP emissions (working/breathing losses) from the storage tanks are calculated using TANKS 4.0.9d. The following assumptions are made for the emissions calculations:

- Residual oil #6 is used as an estimate for lubrication and used oil. As the vapor pressure of residual oil #6 is less than 0.2 psia, the tanks containing lubrication and used oil are assumed to be insignificant sources;

- The natural gasoline liquid composition identified in HAPCalc 3.0 was used to estimate hydrocarbon emissions from the produced/wastewater tanks (the tanks are estimated to contain 99 percent water and one percent hydrocarbons);
- Propylene glycol is used as an estimate for glycol and antifreeze. As the vapor pressure of propylene glycol is less than 0.2 pounds per square inch absolute (psia), the tanks containing glycol and antifreeze are assumed to be insignificant sources;

As Unit T39 is one of the largest produced/wastewater storage tank at the station, it is used to estimate emissions for all the produced/waste water tanks (Units T17, T18 & T38-T44). In other words, all the produced/wastewater tanks are assumed to have an emission rate equal to that calculated for Unit T39. Using this approach, the combined total VOC emission rate from the produced/wastewater storage tanks is 265 pounds per year. As such, they are insignificant sources.

Emissions from the corrosion inhibitor storage tank are calculated at 12 pounds per year. As such, it is an insignificant source.

Emissions from the de-emulsifier storage tank are calculated at 4 pounds per year. As such, it is an insignificant source.

Due to the nature of operations, startup and shutdown emissions from the storage tanks are assumed to be accounted for in the TANKS 4.0.9d program used to calculate emissions. Emissions due to maintenance will be negligible as the units will not be in operation.

Copies of the TANKS 4.0.9d output files are provided in this section.

Facility Total Projected Emissions

Criteria Pollutant Emissions

Unit Number	Description	NOX, pph	CO, pph	VOC, pph	SOX, pph	PM10, pph	PM2.5, pph	Lead, pph
1	Waukesha L7042GL	4.60	8.12	3.06	6.01E-03	1.02E-01	1.02E-01	
2	Waukesha L7042GL	4.60	8.12	3.06	6.01E-03	1.02E-01	1.02E-01	
3	Waukesha L7042GL	4.60	8.12	3.06	6.01E-03	1.02E-01	1.02E-01	
4	Waukesha L7042GL	4.60	8.12	3.06	6.01E-03	1.02E-01	1.02E-01	
5	Waukesha L7042GL	4.60	8.12	3.06	6.01E-03	1.02E-01	1.02E-01	
6	Waukesha L7042GL	4.60	8.12	3.06	6.01E-03	1.02E-01	1.02E-01	
7	Waukesha L7042GL	4.60	8.12	3.06	6.01E-03	1.02E-01	1.02E-01	
16a	Dehydrator (10 MMSCFD)			2.42				
16b	Reboiler	4.29E-02	8.75E-03	5.42E-03	4.17E-04	3.26E-03	3.26E-03	2.15E-07
19a	Dehydrator (10 MMSCFD)			2.42				
19b	Reboiler	4.29E-02	8.75E-03	5.42E-03	4.17E-04	3.26E-03	3.26E-03	2.15E-07
21a	Dehydrator (10 MMSCFD)			2.42				
21b	Reboiler	4.29E-02	8.75E-03	5.42E-03	4.17E-04	3.26E-03	3.26E-03	2.15E-07
25	Wastewater Evaporation Unit	2.76E-01	2.31E-01	1.52E-02	1.65E-03	2.09E-02	2.09E-02	1.38E-06
F1	Equipment Leaks			0.32				
SSM	SSM Emissions							
M1	Malfunctions							
	Total	32.59	57.11	29.05	4.50E-02	7.45E-01	7.45E-01	2.02E-06

The pph emission rates for malfunction emissions are unspecified. However, in this table as an estimate they are calculated assuming an even distribution over 8,760 hours per year. This estimate is more conservative than assuming zero emissions.

Facility Total Projected Emissions

Criteria Pollutant Emissions

Unit Number	Description	NOX, tpy	CO, tpy	VOC, tpy	SOX, tpy	PM10, tpy	PM2.5, tpy	Lead, tpy
1	Waukesha L7042GL	20.14	35.57	13.42	2.63E-02	4.47E-01	4.47E-01	
2	Waukesha L7042GL	20.14	35.57	13.42	2.63E-02	4.47E-01	4.47E-01	
3	Waukesha L7042GL	20.14	35.57	13.42	2.63E-02	4.47E-01	4.47E-01	
4	Waukesha L7042GL	20.14	35.57	13.42	2.63E-02	4.47E-01	4.47E-01	
5	Waukesha L7042GL	20.14	35.57	13.42	2.63E-02	4.47E-01	4.47E-01	
6	Waukesha L7042GL	20.14	35.57	13.42	2.63E-02	4.47E-01	4.47E-01	
7	Waukesha L7042GL	20.14	35.57	13.42	2.63E-02	4.47E-01	4.47E-01	
16a	Dehydrator (10 MMSCFD)			10.58				
16b	Reboiler	1.88E-01	3.83E-02	2.37E-02	1.83E-03	1.43E-02	1.43E-02	9.40E-07
19a	Dehydrator (10 MMSCFD)			10.58				
19b	Reboiler	1.88E-01	3.83E-02	2.37E-02	1.83E-03	1.43E-02	1.43E-02	9.40E-07
21a	Dehydrator (10 MMSCFD)			10.58				
21b	Reboiler	1.88E-01	3.83E-02	2.37E-02	1.83E-03	1.43E-02	1.43E-02	9.40E-07
25	Wastewater Evaporation Unit	1.21	1.01	6.64E-02	7.24E-03	9.17E-02	9.17E-02	6.03E-06
F1	Equipment Leaks			4.30				
SSM	SSM Emissions			0.03				
M1	Malfunctions			10.00				
	Total	142.73	250.15	140.17	1.97E-01	3.26	3.26	8.85E-06

Facility Total Projected Emissions

HAP Emissions

Unit Number	Description	Total HAPs, pph	Benzene, pph	Ethyl- benzene, pph	Formalde- hyde, pph	Toluene, pph	Xylenes, pph	1,3- Butadiene, pph	2,2,4- Trimethyl- pentane, pph	Acetalde- hyde, pph	n-Hexane, pph	Methanol, pph	Styrene, pph
1	Waukesha L7042GL	0.5	1.6E-02		0.5	6.4E-03	4.3E-03						
2	Waukesha L7042GL	0.5	1.6E-02		0.5	6.4E-03	4.3E-03						
3	Waukesha L7042GL	0.5	1.6E-02		0.5	6.4E-03	4.3E-03						
4	Waukesha L7042GL	0.5	1.6E-02		0.5	6.4E-03	4.3E-03						
5	Waukesha L7042GL	0.5	1.6E-02		0.5	6.4E-03	4.3E-03						
6	Waukesha L7042GL	0.5	1.6E-02		0.5	6.4E-03	4.3E-03						
7	Waukesha L7042GL	0.5	1.6E-02		0.5	6.4E-03	4.3E-03						
16a	Dehydrator (10 MMSCFD)	1.2	0.1	0.4		0.6	9.6E-02		1.1E-03		2.5E-02		
16b	Reboiler	1.4E-04			1.4E-04				2.3E-05	1.1E-04	1.1E-04	1.6E-04	
19a	Dehydrator (10 MMSCFD)	1.2	0.1	0.4		0.6	9.6E-02		1.1E-03		2.5E-02		
19b	Reboiler	1.4E-04			1.4E-04				2.3E-05	1.1E-04	1.1E-04	1.6E-04	
21a	Dehydrator (10 MMSCFD)	1.2	0.1	0.4		0.6	9.6E-02		1.1E-03		2.5E-02		
21b	Reboiler	1.4E-04			1.4E-04				2.3E-05	1.1E-04	1.1E-04	1.6E-04	
25	Wastewater Evaporation Unit	1.5E-02	1.8E-03	5.3E-03	2.1E-03	2.5E-03	3.3E-03	8.4E-04	7.1E-03	1.8E-03	3.5E-03	2.4E-03	5.2E-03
F1	Equipment Leaks	3.2E-03	2.4E-04			1.5E-03	1.5E-03				1.6E-03		
SSM	SSM Emissions												
M1	Malfunctions												
	Total	7.3	0.5	1.1	3.6	1.7	0.3	8.4E-04	1.0E-02	2.2E-03	0.1	2.9E-03	5.2E-03

The pph emission rates for malfunction emissions are unspecified. However, in this table as an estimate they are calculated assuming an even distribution over 8,760 hours per year. This estimate is more conservative than assuming zero emissions.

Facility Total Projected Emissions

HAP Emissions

Unit Number	Description	Total HAPs, tpy	Benzene, tpy	Ethyl- benzene, tpy	Formalde- hyde, tpy	Toluene, tpy	Xylenes, tpy	1,3- Butadiene, tpy	2,2,4- Trimethyl- pentane, tpy	Acetalde- hyde, tpy	n-Hexane, tpy	Methanol, tpy	Styrene, tpy
1	Waukesha L7042GL	2.4	7.0E-02		2.26	2.8E-02	1.9E-02						
2	Waukesha L7042GL	2.4	7.0E-02		2.26	2.8E-02	1.9E-02						
3	Waukesha L7042GL	2.4	7.0E-02		2.26	2.8E-02	1.9E-02						
4	Waukesha L7042GL	2.4	7.0E-02		2.26	2.8E-02	1.9E-02						
5	Waukesha L7042GL	2.4	7.0E-02		2.26	2.8E-02	1.9E-02						
6	Waukesha L7042GL	2.4	7.0E-02		2.26	2.8E-02	1.9E-02						
7	Waukesha L7042GL	2.4	7.0E-02		2.26	2.8E-02	1.9E-02						
16a	Dehydrator (10 MMSCFD)	5.2	0.5	1.7		2.5	0.4		4.7E-03		0.1		
16b	Reboiler	6.0E-04			6.0E-04				1.0E-04	5.0E-04	5.0E-04	7.0E-04	
19a	Dehydrator (10 MMSCFD)	5.2	0.5	1.7		2.5	0.4		4.7E-03		0.1		
19b	Reboiler	6.0E-04			6.0E-04				1.0E-04	5.0E-04	5.0E-04	7.0E-04	
21a	Dehydrator (10 MMSCFD)	5.2	0.5	1.7		2.5	0.4		4.7E-03		0.1		
21b	Reboiler	6.0E-04			6.0E-04				1.0E-04	5.0E-04	5.0E-04	7.0E-04	
25	Wastewater Evaporation Unit	0.1	8.1E-03	2.3E-02	9.2E-03	1.1E-02	1.4E-02	3.7E-03	3.1E-02	8.0E-03	1.5E-02	1.1E-02	2.3E-02
F1	Equipment Leaks	4.6E-03	3.2E-04	2.2E-04		2.1E-03	2.0E-03		2.3E-04		2.1E-03		
SSM	SSM Emissions	0.0	2.0E-05	1.3E-05		1.3E-04	1.2E-04		1.3E-05		0.0		
M1	Malfunctions	0.1	7.5E-03			4.9E-02	4.6E-02		4.8E-03		0.0		
Total		32.3	2.0	5.0	15.8	7.6	1.5	3.7E-03	5.0E-02	9.5E-03	0.4	1.3E-02	2.3E-02

16.62

15.48

RICE contribution to total HAP

NESHAP HH total HAP

Engine Exhaust Emissions Data and Calculations

Unit Number: 1-7

Description: Waukesha L7042GL

Note: Where more than one emissions unit is identified above, this worksheet provides the emission rates and operating parameters for each individual emissions unit.

Horsepower Calculations

5,980 ft above MSL

1,478 hp

1,390 hp

1,346 hp

Elevation

Nameplate hp

Site-rated hp

Site-rated hp

Mfg. data

NMAQB Procedure # 02.002-00

Mfg. product bulletin Power Derate,

S8154-6, April 2001

Engine Specifications

1200 rpm

7040 cu in

130.33 psi

Engine rpm

Engine displacement

BMEP

Mfg. data

Mfg. data

Mfg. data

Fuel Consumption

7349 Btu/hp-hr

10.22 MMBtu/hr

11,352 scf/hr

89,497 MMBtu/yr

99.44 MMscf/yr

900 Btu/scf

Brake specific fuel consumption

Hourly fuel consumption

Hourly fuel consumption

Annual fuel consumption

Annual fuel consumption

Field gas heating value

Mfg. data

Btu/hp-hr x NMAQB site-rated hp / 1,000,000

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

MMBtu/hr x 8,760 hr/yr

scf/hr x 8,760 hr/yr / 1,000,000

Nominal heat content

Steady-State Emission Rates

Pollutant	Uncontrolled,		
	g/hp-hr	pph	tpy
NOX	1.50	4.60	20.14
CO	2.65	8.12	35.57
VOC	1.00	3.06	13.42

NOX, CO & VOC emission factors (g/hp-hr) taken from Waukesha Bulletin 7005 0102

Pollutant	Uncontrolled,		
	lb/MMBtu	pph	tpy
SO2	5.88E-04	6.01E-03	2.63E-02
PM10	9.99E-03	1.02E-01	4.47E-01
PM2.5	9.99E-03	1.02E-01	4.47E-01

Emission factors (lb/MMBtu) taken from AP-42, Table 3.2-2

Particulate factors include both filterable and condensable emissions

Emissions calculated using the NMAQB site-rated hp

Annual emissions based on 8,760 hr/yr operation

Exhaust Parameters

703 °F

7729 acfm

1.02 ft

157.38 fps

22.00 ft

Stack exit temperature

Stack flowrate

Stack exit diameter

Stack exit velocity

Stack height

Mfg. data

Mfg. data

Mfg. data

Stack flowrate / stack area / 60

Mfg. data

Dehydrator Reboiler Exhaust Emissions Data and Calculations

Unit Number: 16b, 19b & 21b

Description: Dehydrator Reboiler (10 MMSCFD)

Note: Where more than one emissions unit is identified above, this worksheet provides the emission rates and operating parameters for each individual emissions unit.

Fuel Consumption

0.39 MMBtu/hr	Capacity	scf/hr x Btu/scf / 1,000,000
429 scf/hr	Hourly fuel consumption	Mfg. data (Enertek)
3,382 MMBtu/yr	Annual fuel consumption	MMBtu/hr x 8,760 hr/yr
3.76 MMscf/yr	Annual fuel consumption	scf/hr x 8,760 hr/yr / 1,000,000
900 Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutant	Uncontrolled,		
	lb/day	pph	tpy
NOX	1.03	4.29E-02	1.88E-01
CO	0.21	8.75E-03	3.83E-02
VOC	0.13	5.42E-03	2.37E-02
SO2	0.01	4.17E-04	1.83E-03

NOX & CO emission factors (lb/day) taken from August 1994 Enertek Letter

TOC and SO2 emission factors (lb/day) taken from July 1998 InFab Letter

Pollutant	Uncontrolled,		
	lb/MMscf	pph	tpy
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 (lb/MMscf) taken from AP-42, Table 1.4-2

Annual emissions based on 8,760 hr/yr operation

Exhaust Parameters

600 °F	Exhaust temperature	Mfg. data (Enertek & InFab)
199.62 cfm	Stack flowrate	Stack velocity x stack area
10 in	Stack diameter	Mfg. data (Enertek & InFab)
6.1 fps	Stack velocity	Mfg. data (Enertek & InFab)
10.0 ft	Stack height	Mfg. data (InFab)

Heater Exhaust Emissions Data and Calculations

Unit Number: 25

Description: Waste Water Treatment Unit

Note: Where more than one emissions unit is identified above, this worksheet provides the emission rates and operating parameters for each individual emissions unit.

Fuel Consumption

2.48 MMBtu/hr	Capacity	Mfg. data
2,756 scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
21,725 MMBtu/yr	Annual fuel consumption	MMBtu/hr x 8,760 hr/yr
24.14 MMscf/yr	Annual fuel consumption	scf/hr x 8,760 hr/yr / 1,000,000
900 Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutant	Uncontrolled,		
	lb/MMscf	pph	tpy
NOX	100	0.28	1.21
CO	84	0.23	1.01
VOC	5.5	1.52E-02	6.64E-02
SO2	0.6	1.65E-03	7.24E-03
PM10	7.60	2.09E-02	9.17E-02
PM2.5	7.60	2.09E-02	9.17E-02
Lead	5.00E-04	1.38E-06	6.03E-06

Emission factors (lb/MMBtu) taken from AP-42, Tables 1.4-1 & 1.4-2

Annual emissions based on 8,760 hr/yr operation

Heater Exhaust Emissions Data and Calculations

Unit Number: 25a

Description: Waste Water Treatment Unit (Evaporator)

Note: Where more than one emissions unit is identified above, this worksheet provides the emission rates and operating parameters for each individual emissions unit.

Fuel Consumption

2.00 MMBtu/hr	Capacity	Mfg. data
2,222 scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
17,520 MMBtu/yr	Annual fuel consumption	MMBtu/hr x 8,760 hr/yr
19.47 MMscf/yr	Annual fuel consumption	scf/hr x 8,760 hr/yr / 1,000,000
900 Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutant	Uncontrolled,		
	lb/MMscf	pph	tpy
NOX	100	2.22E-01	9.73E-01
CO	84	1.87E-01	8.18E-01
VOC	5.5	1.22E-02	5.35E-02
SO2	0.6	1.33E-03	5.84E-03
PM10	7.60	1.69E-02	7.40E-02
PM2.5	7.60	1.69E-02	7.40E-02
Lead	5.00E-04	1.11E-06	4.87E-06

Emission factors (lb/MMBtu) taken from AP-42, Tables 1.4-1 & 1.4-2

Annual emissions based on 8,760 hr/yr operation

Exhaust Parameters

600 °F	Exhaust temperature	Mfg. data
0.33 ft	Stack diameter	Mfg. data
6.1 fps	Stack velocity	Mfg. data
15 ft	Stack height	Mfg. data

Heater Exhaust Emissions Data and Calculations

Unit Number: 25b

Description: Waste Water Treatment Unit (Treater)

Note: Where more than one emissions unit is identified above, this worksheet provides the emission rates and operating parameters for each individual emissions unit.

Fuel Consumption

0.08 MMBtu/hr	Capacity	Mfg. data
89 scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
701 MMBtu/yr	Annual fuel consumption	MMBtu/hr x 8,760 hr/yr
0.78 MMscf/yr	Annual fuel consumption	scf/hr x 8,760 hr/yr / 1,000,000
900 Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutant	Uncontrolled,		
	lb/MMscf	pph	tpy
NOX	100	8.89E-03	3.89E-02
CO	84	7.47E-03	3.27E-02
VOC	5.5	4.89E-04	2.14E-03
SO2	0.6	5.33E-05	2.34E-04
PM10	7.60	6.76E-04	2.96E-03
PM2.5	7.60	6.76E-04	2.96E-03
Lead	5.00E-04	4.44E-08	1.95E-07

Emission factors (lb/MMBtu) taken from AP-42, Tables 1.4-1 & 1.4-2

Annual emissions based on 8,760 hr/yr operation

Exhaust Parameters

600 °F	Exhaust temperature	Mfg. data
0.33 ft	Stack diameter	Mfg. data
6.1 fps	Stack velocity	Mfg. data
15 ft	Stack height	Mfg. data

Heater Exhaust Emissions Data and Calculations

Unit Number: 25c

Description: Waste Water Treatment Unit (Reboiler)

Note: Where more than one emissions unit is identified above, this worksheet provides the emission rates and operating parameters for each individual emissions unit.

Fuel Consumption

0.25 MMBtu/hr	Capacity	Mfg. data
278 scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
2,190 MMBtu/yr	Annual fuel consumption	MMBtu/hr x 8,760 hr/yr
2.43 MMscf/yr	Annual fuel consumption	scf/hr x 8,760 hr/yr / 1,000,000
900 Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutant	Uncontrolled,		
	lb/MMscf	pph	tpy
NOX	100	2.78E-02	1.22E-01
CO	84	2.33E-02	1.02E-01
VOC	5.5	1.53E-03	6.69E-03
SO2	0.6	1.67E-04	7.30E-04
PM10	7.60	2.11E-03	9.25E-03
PM2.5	7.60	2.11E-03	9.25E-03
Lead	5.00E-04	1.39E-07	6.08E-07

Emission factors (lb/MMBtu) taken from AP-42, Tables 1.4-1 & 1.4-2

Annual emissions based on 8,760 hr/yr operation

Exhaust Parameters

600 °F	Exhaust temperature	Mfg. data
0.33 ft	Stack diameter	Mfg. data
6.1 fps	Stack velocity	Mfg. data
15 ft	Stack height	Mfg. data

Heater Exhaust Emissions Data and Calculations

Unit Number: 25d

Description: Waste Water Treatment Unit (Distillation Unit)

Note: Where more than one emissions unit is identified above, this worksheet provides the emission rates and operating parameters for each individual emissions unit.

Fuel Consumption

0.15 MMBtu/hr	Capacity	Mfg. data
167 scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
1,314 MMBtu/yr	Annual fuel consumption	MMBtu/hr x 8,760 hr/yr
1.46 MMscf/yr	Annual fuel consumption	scf/hr x 8,760 hr/yr / 1,000,000
900 Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutant	Uncontrolled,		
	lb/MMscf	pph	tpy
NOX	100	1.67E-02	7.30E-02
CO	84	1.40E-02	6.13E-02
VOC	5.5	9.17E-04	4.02E-03
SO2	0.6	1.00E-04	4.38E-04
PM10	7.60	1.27E-03	5.55E-03
PM2.5	7.60	1.27E-03	5.55E-03
Lead	5.00E-04	8.33E-08	3.65E-07

Emission factors (lb/MMBtu) taken from AP-42, Tables 1.4-1 & 1.4-2

Annual emissions based on 8,760 hr/yr operation

Exhaust Parameters

600 °F	Exhaust temperature	Mfg. data
0.33 ft	Stack diameter	Mfg. data
6.1 fps	Stack velocity	Mfg. data
15 ft	Stack height	Mfg. data

Fugitive Emissions Speciation

Unit Number: **F1**

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

Equipment	Number of Components, #	Emission Factor, kg/hr/source	Emission Factor, pph/source	TOC Emission Rate,	
				pph	tpy
Valves	684	4.50E-03	9.90E-03	6.77	29.66
Connectors	703	2.00E-04	4.40E-04	0.31	1.35
Pump Seals	6	2.40E-03	5.28E-03	0.03	0.14
Compressor Seals	52	8.80E-03	1.94E-02	1.01	4.41
Pressure Relief Valves	58	8.80E-03	1.94E-02	1.12	4.92
Open-Ended Lines	190	2.00E-03	4.40E-03	0.84	3.66
TOTAL				10.08	44.14

Emission factors are from the EPA "1995 Protocol for Equipment Leak Emission Estimates"

Annual emissions are calculated assuming 8,760 hours per year of operation

Component	Mole Percent, %	Molecular Weight, lb/lb-mole	Component Weight, lb/lb-mole	Weight Percent, %	VOC Emission Rate,	
					pph	tpy
Carbon dioxide	18.7401%	44.010	8.248	38.160	--	--
Hydrogen sulfide	0.0000%	34.070	0.000	0.000	--	--
Nitrogen	0.1362%	28.013	0.038	0.177	--	--
Methane	79.4731%	16.043	12.750	58.991	--	--
Ethane	1.2310%	30.070	0.370	1.713	--	--
Propane	0.3070%	44.097	0.135	0.626	6.31E-02	2.76E-01
Isobutane	0.0447%	58.123	0.026	0.120	1.21E-02	5.31E-02
n-Butane	0.0395%	58.123	0.023	0.106	1.07E-02	4.69E-02
Isopentane	0.0099%	72.150	0.007	0.033	3.33E-03	1.46E-02
n-Pentane	0.0067%	72.150	0.005	0.022	2.25E-03	9.87E-03
Cyclopentane	0.0002%	70.134	0.000	0.001	6.54E-05	2.86E-04
n-Hexane	0.0012%	86.177	0.001	0.005	4.82E-04	2.11E-03
Cyclohexane	0.0005%	84.161	0.000	0.002	1.96E-04	8.59E-04
Other hexanes	0.0026%	86.177	0.002	0.010	1.04E-03	4.58E-03
Heptanes	0.0013%	100.204	0.001	0.006	6.07E-04	2.66E-03
Methylcyclohexane	0.0013%	98.188	0.001	0.006	5.95E-04	2.61E-03
2,2,4-Trimethylpentane	0.0001%	114.231	0.000	0.001	5.33E-05	2.33E-04
Benzene	0.0002%	78.114	0.000	0.001	7.28E-05	3.19E-04
Toluene	0.0011%	92.141	0.001	0.005	4.73E-04	2.07E-03
Ethylbenzene	0.0001%	106.167	0.000	0.000	4.95E-05	2.17E-04
Xylenes	0.0009%	106.167	0.001	0.004	4.46E-04	1.95E-03
C8+ Heavies	0.0022%	114.231	0.003	0.012	1.17E-03	5.13E-03
TOTAL	100%		21.613	100.000	9.68E-02	0.42

Gas stream composition obtained from Horse Canyon extended gas analysis dated 5/11/2023

The VOC emissions are calculated as weight percentages of the TOC emissions

Fugitive Emissions Components

Unit Number: **F1**

Description: Valves, Connectors, Seals & Lines

Number of Compression Units at the Facility: **7**Number of Dehydrators at the Facility: **3**

PROCESS EQUIPMENT DESCRIPTION	EQUIPMENT COUNT						INSTRUMENT COUNT		
	Valves	Connectors	Pump Seals	Compressor Seals	Pressure Relief Valves	Open-end	Flow	Level	Pressure
Station inlet, meter run to pulsation dampener	17	14	0	0	1	13	3	0	3
Pulsation dampener	12	8	0	0	0	2	0	4	1
Compressor suction header	7	4	0	0	0	3	0	0	1
Suction header feed to instrument gas header	3	1	0	0	0	1	0	0	0
Compressor discharge header and bypass to station discharge	6	5	0	0	0	3	0	1	1
Compressor discharge header and suction header bypass lines	4	2	0	0	0	2	0	0	1
Fuel gas header	2	2	0	0	1	2	0	0	1
Instrument gas header	2	2	0	0	1	2	0	0	0
Station discharge header	9	5	0	0	1	6	0	0	2
Fuel gas recovery header	2	2	0	0	1	2	0	0	0
Fuel gas feed and filter loop	15	9	0	0	0	1	0	4	1
Instrument gas feed and filter loop	9	11	0	0	0	3	0	0	0
Produced water storage tank	1	0	0	0	0	1	0	1	0
ESD panel	12	0	0	0	0	0	0	0	0
Starting gas header	6	2	0	0	1	3	0	0	0
Hot gas header	2	2	0	0	0	2	0	0	0
Volume bottle lop	12	4	0	24	1	2	0	0	1
Components from Compressors	308	413	0	28	42	77	0	28	63
Components from dehydrators	18	30	6	0	9	18	0	9	12
TOTAL	447	516	6	52	58	143	3	47	87
ADJUSTED TOTAL	684	703	6	52	58	190	--	--	--

The following additions are included in the Adjusted Total:

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

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

Compressor Blowdown Emissions Data and Calculations

Unit Number: **1a-7a**Description: **Compressor & Piping for** **7** compressor packages

Note: Where more than one emissions unit is identified above, this worksheet provides the emission rates and operating parameters for each individual emissions unit.

Emission Rates

Pollutant	Uncontrolled, tpy	Aggregate tpy
VOC	0.00	0.03
2,2,4-Trimethylpentane	1.79E-06	1.25E-05
Benzene	2.79E-06	1.95E-05
Ethylbenzene	0	1.33E-05
n-Hexane	1.84E-05	0.00
Toluene	1.81E-05	1.27E-04
Xylene	1.70E-05	1.19E-04

Emission Rate (tpy) = Total Gas Loss (scf/yr) * Emission Factor (lb/scf) / 2,000 lb/ton

Startups & Shutdowns

210 events/yr

Blowdowns per year

Harvest Four Corners, LLC

Compressor Loss

6,442 scf/event

Gas loss per startup/shutdown

Harvest Four Corners, LLC

Total Gas Loss

1,352,820 scf/yr

Total Gas Loss (scf/hr) = Compressor Loss (scf/event)

* Startups & Shutdowns (events/yr)

Component	Mole Percent, %	Molecular Weight, lb/lb-mole	Emission Factor, lb/scf
Carbon dioxide	18.7401%	44.01	2.17E-04
Hydrogen sulfide	0.0000%	34.07	0.00E+00
Nitrogen	0.1362%	28.01	1.01E-06
Methane	79.4731%	16.04	3.36E-04
Ethane	1.2310%	30.07	9.76E-06
Propane	0.3070%	44.09	3.57E-06
Isobutane	0.0447%	58.12	6.85E-07
n-Butane	0.0395%	58.12	6.05E-07
Isopentane	0.0099%	72.15	1.88E-07
n-Pentane	0.0067%	72.15	1.27E-07
Cyclopentane	0.0002%	70.14	3.70E-09
n-Hexane	0.0012%	86.17	2.73E-08
Cyclohexane	0.0005%	84.16	1.11E-08
Other hexanes	0.0026%	86.18	5.91E-08
Heptanes	0.0013%	100.20	3.43E-08
Methylcyclohexane	0.0013%	98.19	3.37E-08
2,2,4-Trimethylpentane	0.0001%	100.21	2.64E-09
Benzene	0.0002%	78.11	4.12E-09
Toluene	0.0011%	92.14	2.67E-08
Ethylbenzene	0.0001%	106.17	2.80E-09
Xylenes	0.0009%	106.17	2.52E-08
C8+ Heavies	0.0022%	110.00	6.38E-08
Total	100%		5.70E-04
Total VOC			5.47E-06

Gas stream composition obtained from **Horse Canyon** extended gas analysis dated **5/11/2023**

Emission Factor (lb/scf) = [Mole Percent (scf/scf) / 100] * Molecular Weight (lb/lb-mole / 379.3 (scf/lb-mole)

Malfunction Emissions Data and Calculations

Unit Number **M1**Description: **Malfunctions****Maximum Gas Loss Due to Malfunctions:** 9,641,492 scf/yr

Note: Where more than one emissions unit is identified above, this worksheet provides the emission rates and operating parameters for each individual emissions unit.

Emission Rates

Pollutant	Emission Rate, tpy
VOC	10.00
2,2,4-Trimethylpentane	4.83E-03
Benzene	7.53E-03
Ethylbenzene	5.12E-03
n-Hexane	0.05
Toluene	4.89E-02
Xylene	4.61E-02

HAP Emission Rate (tpy) = VOC Emission Rate (tpy) * [HAP Weight Percent of VOC (%) / 100]

Component	Mole Percent, %	Molecular Weight, lb/lb-mole	Component Weight, lb/lb-mole	Weight Percent of VOC, %
Carbon dioxide	18.7401%	44.01	--	--
Hydrogen sulfide	0.0000%	34.07	--	--
Nitrogen	0.1362%	28.01	--	--
Methane	79.4731%	16.04	--	--
Ethane	1.2310%	30.07	--	--
Propane	0.3070%	44.09	1.35E-03	6.53E+01
Isobutane	0.0447%	58.12	2.60E-04	1.25E+01
n-Butane	0.0395%	58.12	2.30E-04	1.11E+01
Isopentane	0.0099%	72.15	7.14E-05	3.44E+00
n-Pentane	0.0067%	72.15	4.83E-05	2.33E+00
Cyclopentane	0.0002%	70.14	1.40E-06	6.76E-02
n-Hexane	0.0012%	86.17	1.03E-05	4.98E-01
Cyclohexane	0.0005%	84.16	4.21E-06	2.03E-01
Other hexanes	0.0026%	86.18	2.24E-05	1.08E+00
Heptanes	0.0013%	100.20	1.30E-05	6.28E-01
Methylcyclohexane	0.0013%	98.19	1.28E-05	6.15E-01
2,2,4-Trimethylpentane	0.0001%	100.21	1.00E-06	4.83E-02
Benzene	0.0002%	78.11	1.56E-06	7.53E-02
Toluene	0.0011%	92.14	1.01E-05	4.89E-01
Ethylbenzene	0.0001%	106.17	1.06E-06	5.12E-02
Xylenes	0.0009%	106.17	9.56E-06	4.61E-01
C8+ Heavies	0.0022%	110.00	2.42E-05	1.17E+00
Total VOC			0.002	100.00

Gas stream composition obtained from **Horse Canyon** extended gas analysis dated **5/11/2023**

Component Weight (lb/lb-mole) = [Mole Percent (scf/scf) / 100] * Molecular Weight (lb/lb-mole)

Weight Percent of VOC (%) = 100 * Component Weight (lb/lb-mole) / Total VOC (lb/lb-mole)

GRI-HAPCalc® 3.0
Engines Report

Facility ID:	HORSE CANYON	Notes:
Operation Type:	COMPRESSOR STATION	
Facility Name:	HORSE CANYON COMPRESSOR	
User Name:	Williams Four Corners LLC	
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: L7042GL

Hours of Operation:	8,760	Yearly
Rate Power:	1,390	hp
Fuel Type:	FIELD GAS	
Engine Type:	4-Stroke, Lean Burn	
Emission Factor Set:	FIELD > EPA > LITERATURE	
Additional EF Set:	-NONE-	

Calculated Emissions (ton/yr)

<u>Chemical Name</u>	<u>Emissions</u>	<u>Emission Factor</u>	<u>Emission Factor Set</u>
<u>HAPs</u>			
Formaldehyde	2.2569	0.16830000 g/bhp-hr	GRI Literature
Benzene	0.0697	0.00520000 g/bhp-hr	GRI Literature
Toluene	0.0282	0.00210000 g/bhp-hr	GRI Literature
Xylenes(m,p,o)	0.0188	0.00140000 g/bhp-hr	GRI Literature
Total	2.3736		

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Horse Canyon 10 mmcf/d dehy PTE emissions

File Name: P:\HarvestMidstream\New Mexico\Horse Canyon\2024_11 Title V Renewal Application\Gri-GlyCalc\Dehydrator_file.ddf

Date: September 30, 2024

DESCRIPTION:

Description: Units 15, 16, 18,19, 21
 10 mmcf/d & 1.5 gpm
 Gas Sample Date 5/11/2023

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 89.20 deg. F
 Pressure: 879.00 psig
 Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	18.7401
Nitrogen	0.1362
Methane	79.4731
Ethane	1.2310
Propane	0.3070
Isobutane	0.0447
n-Butane	0.0395
Isopentane	0.0099
n-Pentane	0.0067
Cyclopentane	0.0002
n-Hexane	0.0012
Cyclohexane	0.0005
Other Hexanes	0.0026
Heptanes	0.0013
Methylcyclohexane	0.0013
2,2,4-Trimethylpentane	0.0001
Benzene	0.0002
Toluene	0.0011
Ethylbenzene	0.0001
Xylenes	0.0009
C8+ Heavies	0.0022

DRY GAS:

Flow Rate: 10.0 MMSCF/day
 Water Content: 7.0 lbs. H₂O/MMSCF

LEAN GLYCOL:

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

PUMP:

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

FLASH TANK:

Flash Control: Recycle/recompression
Temperature: 68.0 deg. F
Pressure: 64.6 psig

Case Name: Horse Canyon 10 mmcf/d dehy PTE emissions

File Name: P:\HarvestMidstream\New Mexico\Horse Canyon\2024_11 Title V Renewal Application\Gri-GlyCalc\Dehydrator_file.ddf

Date: September 30, 2024

DESCRIPTION:

Description: Units 15, 16, 18, 19, 21
 10 mmcf/d & 1.5 gpm
 Gas Sample Date 5/11/2023

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.1610	3.864	0.7051
Ethane	0.0247	0.593	0.1083
Propane	0.0268	0.644	0.1176
Isobutane	0.0099	0.237	0.0433
n-Butane	0.0134	0.322	0.0588
Isopentane	0.0050	0.121	0.0221
n-Pentane	0.0049	0.118	0.0215
Cyclopentane	0.0009	0.022	0.0039
n-Hexane	0.0023	0.056	0.0102
Cyclohexane	0.0054	0.129	0.0235
Other Hexanes	0.0034	0.083	0.0151
Heptanes	0.0067	0.162	0.0295
Methylcyclohexane	0.0190	0.456	0.0832
2,2,4-Trimethylpentane	0.0002	0.005	0.0009
Benzene	0.0200	0.480	0.0876
Toluene	0.1887	4.529	0.8266
Ethylbenzene	0.0245	0.587	0.1072
Xylenes	0.2970	7.127	1.3007
C8+ Heavies	0.0618	1.483	0.2706
Total Emissions	0.8757	21.018	3.8358
Total Hydrocarbon Emissions	0.8757	21.018	3.8358
Total VOC Emissions	0.6900	16.561	3.0223
Total HAP Emissions	0.5327	12.785	2.3332
Total BTEX Emissions	0.5302	12.724	2.3221

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	17.9975	431.940	78.8291
Ethane	0.6329	15.190	2.7722
Propane	0.2612	6.268	1.1439
Isobutane	0.0542	1.301	0.2375
n-Butane	0.0522	1.252	0.2286
Isopentane	0.0154	0.368	0.0672
n-Pentane	0.0112	0.268	0.0490
Cyclopentane	0.0005	0.013	0.0023
n-Hexane	0.0025	0.059	0.0108
Cyclohexane	0.0014	0.034	0.0063
Other Hexanes	0.0052	0.124	0.0226
Heptanes	0.0029	0.071	0.0129
Methylcyclohexane	0.0035	0.083	0.0151
2,2,4-Trimethylpentane	0.0002	0.005	0.0009
Benzene	0.0005	0.012	0.0023
Toluene	0.0027	0.064	0.0117
Ethylbenzene	0.0002	0.004	0.0008
Xylenes	0.0013	0.032	0.0059
C8+ Heavies	0.0047	0.113	0.0206

Total Emissions	19.0501	457.202	83.4394

Total Hydrocarbon Emissions	19.0501	457.202	83.4394
Total VOC Emissions	0.4197	10.072	1.8382
Total HAP Emissions	0.0074	0.177	0.0323
Total BTEX Emissions	0.0047	0.113	0.0206

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr

Methane	0.1610	3.864	0.7051
Ethane	0.0247	0.593	0.1083
Propane	0.0268	0.644	0.1176
Isobutane	0.0099	0.237	0.0433
n-Butane	0.0134	0.322	0.0588
Isopentane	0.0050	0.121	0.0221
n-Pentane	0.0049	0.118	0.0215
Cyclopentane	0.0009	0.022	0.0039
n-Hexane	0.0023	0.056	0.0102
Cyclohexane	0.0054	0.129	0.0235
Other Hexanes	0.0034	0.083	0.0151
Heptanes	0.0067	0.162	0.0295
Methylcyclohexane	0.0190	0.456	0.0832
2,2,4-Trimethylpentane	0.0002	0.005	0.0009
Benzene	0.0200	0.480	0.0876
Toluene	0.1887	4.529	0.8266
Ethylbenzene	0.0245	0.587	0.1072
Xylenes	0.2970	7.127	1.3007
C8+ Heavies	0.0618	1.483	0.2706

Total Emissions	0.8757	21.018	3.8358

Total Hydrocarbon Emissions	0.8757	21.018	3.8358
Total VOC Emissions	0.6900	16.561	3.0223
Total HAP Emissions	0.5327	12.785	2.3332
Total BTEX Emissions	0.5302	12.724	2.3221

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Methane	79.5342	0.7051	99.11
Ethane	2.8805	0.1083	96.24
Propane	1.2614	0.1176	90.68
Isobutane	0.2808	0.0433	84.59
n-Butane	0.2874	0.0588	79.54
Isopentane	0.0893	0.0221	75.25
n-Pentane	0.0705	0.0215	69.48
Cyclopentane	0.0062	0.0039	36.93
n-Hexane	0.0211	0.0102	51.52
Cyclohexane	0.0298	0.0235	21.10
Other Hexanes	0.0377	0.0151	59.98
Heptanes	0.0424	0.0295	30.38
Methylcyclohexane	0.0984	0.0832	15.37
2,2,4-Trimethylpentane	0.0019	0.0009	49.32
Benzene	0.0898	0.0876	2.53
Toluene	0.8382	0.8266	1.39
Ethylbenzene	0.1080	0.1072	0.70
Xylenes	1.3066	1.3007	0.45
C8+ Heavies	0.2912	0.2706	7.06
Total Emissions	87.2752	3.8358	95.60
Total Hydrocarbon Emissions	87.2752	3.8358	95.60
Total VOC Emissions	4.8606	3.0223	37.82
Total HAP Emissions	2.3656	2.3332	1.37
Total BTEX Emissions	2.3426	2.3221	0.88

EQUIPMENT REPORTS:

ABSORBER

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

Calculated Absorber Stages: 1.25
 Calculated Dry Gas Dew Point: 2.67 lbs. H2O/MMSCF
 Temperature: 89.2 deg. F
 Pressure: 879.0 psig
 Dry Gas Flow Rate: 10.0000 MMSCF/day
 Glycol Losses with Dry Gas: 0.0866 lb/hr
 Wet Gas Water Content: Saturated
 Calculated Wet Gas Water Content: 48.65 lbs. H2O/MMSCF
 Calculated Lean Glycol Recirc. Ratio: 4.68 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	5.48%	94.52%
Carbon Dioxide	99.80%	0.20%
Nitrogen	99.98%	0.02%
Methane	99.99%	0.01%
Ethane	99.95%	0.05%

Propane	99.92%	0.08%
Isobutane	99.89%	0.11%
n-Butane	99.86%	0.14%
Isopentane	99.86%	0.14%
n-Pentane	99.81%	0.19%
Cyclopentane	99.19%	0.81%
n-Hexane	99.69%	0.31%
Cyclohexane	98.64%	1.36%
Other Hexanes	99.77%	0.23%
Heptanes	99.44%	0.56%
Methylcyclohexane	98.51%	1.49%
2,2,4-Trimethylpentane	99.78%	0.22%
Benzene	88.17%	11.83%
Toluene	82.93%	17.07%
Ethylbenzene	78.98%	21.02%
Xylenes	71.70%	28.30%
C8+ Heavies	98.50%	1.50%

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 68.0 deg. F
Flash Pressure: 64.6 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.97%	0.03%
Carbon Dioxide	14.77%	85.23%
Nitrogen	0.85%	99.15%
Methane	0.89%	99.11%
Ethane	3.76%	96.24%
Propane	9.32%	90.68%
Isobutane	15.41%	84.59%
n-Butane	20.46%	79.54%
Isopentane	24.96%	75.04%
n-Pentane	30.74%	69.26%
Cyclopentane	63.23%	36.77%
n-Hexane	48.67%	51.33%
Cyclohexane	79.52%	20.48%
Other Hexanes	40.43%	59.57%
Heptanes	69.75%	30.25%
Methylcyclohexane	85.21%	14.79%
2,2,4-Trimethylpentane	51.17%	48.83%
Benzene	97.60%	2.40%
Toluene	98.72%	1.28%
Ethylbenzene	99.38%	0.62%
Xylenes	99.61%	0.39%
C8+ Heavies	93.73%	6.27%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
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Water	39.69%	60.31%
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	1.12%	98.88%
n-Pentane	1.01%	98.99%
Cyclopentane	0.69%	99.31%
n-Hexane	0.75%	99.25%
Cyclohexane	3.72%	96.28%
Other Hexanes	1.66%	98.34%
Heptanes	0.60%	99.40%
Methylcyclohexane	4.37%	95.63%
2,2,4-Trimethylpentane	1.94%	98.06%
Benzene	5.08%	94.92%
Toluene	7.95%	92.05%
Ethylbenzene	10.41%	89.59%
Xylenes	12.90%	87.10%
C8+ Heavies	11.99%	88.01%

STREAM REPORTS:

WET GAS STREAM

Temperature: 89.20 deg. F
 Pressure: 893.70 psia
 Flow Rate: 4.17e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.02e-001	2.03e+001
Carbon Dioxide	1.87e+001	9.06e+003
Nitrogen	1.36e-001	4.19e+001
Methane	7.94e+001	1.40e+004
Ethane	1.23e+000	4.07e+002
Propane	3.07e-001	1.49e+002
Isobutane	4.47e-002	2.85e+001
n-Butane	3.95e-002	2.52e+001
Isopentane	9.89e-003	7.85e+000
n-Pentane	6.69e-003	5.31e+000
Cyclopentane	2.00e-004	1.54e-001
n-Hexane	1.20e-003	1.14e+000
Cyclohexane	4.99e-004	4.62e-001
Other Hexanes	2.60e-003	2.46e+000
Heptanes	1.30e-003	1.43e+000
Methylcyclohexane	1.30e-003	1.40e+000
2,2,4-Trimethylpentane	9.99e-005	1.26e-001
Benzene	2.00e-004	1.72e-001
Toluene	1.10e-003	1.11e+000
Ethylbenzene	9.99e-005	1.17e-001
Xylenes	8.99e-004	1.05e+000

C8+ Heavies	2.20e-003	4.12e+000

Total Components	100.00	2.38e+004

DRY GAS STREAM

Temperature: 89.20 deg. F
 Pressure: 893.70 psia
 Flow Rate: 4.17e+005 scfh

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

Water	5.62e-003	1.11e+000
Carbon Dioxide	1.87e+001	9.04e+003
Nitrogen	1.36e-001	4.19e+001
Methane	7.95e+001	1.40e+004
Ethane	1.23e+000	4.06e+002
Propane	3.07e-001	1.49e+002
Isobutane	4.47e-002	2.85e+001
n-Butane	3.95e-002	2.52e+001
Isopentane	9.89e-003	7.84e+000
n-Pentane	6.69e-003	5.30e+000
Cyclopentane	1.98e-004	1.53e-001
n-Hexane	1.20e-003	1.13e+000
Cyclohexane	4.93e-004	4.56e-001
Other Hexanes	2.60e-003	2.46e+000
Heptanes	1.29e-003	1.42e+000
Methylcyclohexane	1.28e-003	1.38e+000
2,2,4-Trimethylpentane	9.98e-005	1.25e-001
Benzene	1.76e-004	1.51e-001
Toluene	9.13e-004	9.23e-001
Ethylbenzene	7.90e-005	9.21e-002
Xylenes	6.46e-004	7.53e-001
C8+ Heavies	2.17e-003	4.06e+000

Total Components	100.00	2.37e+004

LEAN GLYCOL STREAM

Temperature: 89.20 deg. F
 Flow Rate: 1.50e+000 gpm

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

TEG	9.85e+001	8.30e+002
Water	1.50e+000	1.26e+001
Carbon Dioxide	2.17e-010	1.82e-009
Nitrogen	7.92e-014	6.67e-013
Methane	8.00e-018	6.74e-017
Ethane	1.06e-008	8.90e-008
Propane	5.63e-010	4.74e-009
Isobutane	1.11e-010	9.36e-010
n-Butane	1.08e-010	9.06e-010
Isopentane	6.77e-006	5.70e-005
n-Pentane	5.94e-006	5.01e-005
Cyclopentane	7.43e-007	6.26e-006
n-Hexane	2.09e-006	1.76e-005
Cyclohexane	2.46e-005	2.07e-004

Other Hexanes	6.92e-006	5.83e-005
Heptanes	4.79e-006	4.03e-005
Methylcyclohexane	1.03e-004	8.68e-004
2,2,4-Trimethylpentane	5.08e-007	4.28e-006
Benzene	1.27e-004	1.07e-003
Toluene	1.94e-003	1.63e-002
Ethylbenzene	3.38e-004	2.85e-003
Xylenes	5.22e-003	4.40e-002
C8+ Heavies	9.99e-004	8.41e-003

Total Components	100.00	8.42e+002

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 89.20 deg. F
 Pressure: 893.70 psia
 Flow Rate: 1.64e+000 gpm
 NOTE: Stream has more than one phase.

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

TEG	9.11e+001	8.29e+002
Water	3.50e+000	3.18e+001
Carbon Dioxide	3.15e+000	2.87e+001
Nitrogen	6.05e-003	5.50e-002
Methane	2.00e+000	1.82e+001
Ethane	7.23e-002	6.58e-001
Propane	3.17e-002	2.88e-001
Isobutane	7.05e-003	6.41e-002
n-Butane	7.21e-003	6.56e-002
Isopentane	2.25e-003	2.05e-002
n-Pentane	1.77e-003	1.61e-002
Cyclopentane	1.57e-004	1.43e-003
n-Hexane	5.30e-004	4.82e-003
Cyclohexane	7.71e-004	7.01e-003
Other Hexanes	9.52e-004	8.67e-003
Heptanes	1.07e-003	9.71e-003
Methylcyclohexane	2.56e-003	2.33e-002
2,2,4-Trimethylpentane	4.72e-005	4.30e-004
Benzene	2.37e-003	2.16e-002
Toluene	2.28e-002	2.08e-001
Ethylbenzene	3.02e-003	2.75e-002
Xylenes	3.76e-002	3.42e-001
C8+ Heavies	8.23e-003	7.49e-002

Total Components	100.00	9.10e+002

FLASH TANK OFF GAS STREAM

Temperature: 68.00 deg. F
 Pressure: 79.30 psia
 Flow Rate: 6.49e+002 scfh

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

Water	3.47e-002	1.07e-002
Carbon Dioxide	3.25e+001	2.45e+001
Nitrogen	1.14e-001	5.45e-002

Methane	6.56e+001	1.80e+001
Ethane	1.23e+000	6.33e-001
Propane	3.46e-001	2.61e-001
Isobutane	5.46e-002	5.42e-002
n-Butane	5.25e-002	5.22e-002
Isopentane	1.24e-002	1.54e-002
n-Pentane	9.06e-003	1.12e-002
Cyclopentane	4.38e-004	5.26e-004
n-Hexane	1.68e-003	2.48e-003
Cyclohexane	9.98e-004	1.44e-003
Other Hexanes	3.50e-003	5.16e-003
Heptanes	1.71e-003	2.94e-003
Methylcyclohexane	2.06e-003	3.45e-003
2,2,4-Trimethylpentane	1.07e-004	2.10e-004
Benzene	3.88e-004	5.19e-004
Toluene	1.69e-003	2.66e-003
Ethylbenzene	9.46e-005	1.72e-004
Xylenes	7.41e-004	1.34e-003
C8+ Heavies	1.61e-003	4.70e-003

Total Components	100.00	4.36e+001

FLASH TANK GLYCOL STREAM

Temperature: 68.00 deg. F
Flow Rate: 1.54e+000 gpm

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

TEG	9.57e+001	8.29e+002
Water	3.67e+000	3.18e+001
Carbon Dioxide	4.89e-001	4.24e+000
Nitrogen	5.39e-005	4.67e-004
Methane	1.86e-002	1.61e-001
Ethane	2.85e-003	2.47e-002
Propane	3.10e-003	2.68e-002
Isobutane	1.14e-003	9.88e-003
n-Butane	1.55e-003	1.34e-002
Isopentane	5.89e-004	5.11e-003
n-Pentane	5.73e-004	4.96e-003
Cyclopentane	1.04e-004	9.04e-004
n-Hexane	2.71e-004	2.35e-003
Cyclohexane	6.44e-004	5.58e-003
Other Hexanes	4.04e-004	3.50e-003
Heptanes	7.82e-004	6.77e-003
Methylcyclohexane	2.29e-003	1.99e-002
2,2,4-Trimethylpentane	2.54e-005	2.20e-004
Benzene	2.43e-003	2.11e-002
Toluene	2.37e-002	2.05e-001
Ethylbenzene	3.15e-003	2.73e-002
Xylenes	3.94e-002	3.41e-001
C8+ Heavies	8.10e-003	7.02e-002

Total Components	100.00	8.66e+002

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: 4.48e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.03e+001	1.92e+001
Carbon Dioxide	8.15e+000	4.24e+000
Nitrogen	1.41e-003	4.67e-004
Methane	8.50e-001	1.61e-001
Ethane	6.97e-002	2.47e-002
Propane	5.16e-002	2.68e-002
Isobutane	1.44e-002	9.88e-003
n-Butane	1.96e-002	1.34e-002
Isopentane	5.93e-003	5.05e-003
n-Pentane	5.76e-003	4.91e-003
Cyclopentane	1.08e-003	8.97e-004
n-Hexane	2.29e-003	2.33e-003
Cyclohexane	5.40e-003	5.37e-003
Other Hexanes	3.39e-003	3.45e-003
Heptanes	5.69e-003	6.73e-003
Methylcyclohexane	1.64e-002	1.90e-002
2,2,4-Trimethylpentane	1.60e-004	2.16e-004
Benzene	2.17e-002	2.00e-002
Toluene	1.73e-001	1.89e-001
Ethylbenzene	1.95e-002	2.45e-002
Xylenes	2.37e-001	2.97e-001
C8+ Heavies	3.07e-002	6.18e-002
Total Components	100.00	2.43e+001

GRI-HAPCalc® 3.0
External Combustion Devices Report

Facility ID:	HORSE CANYON	Notes:
Operation Type:	COMPRESSOR STATION	
Facility Name:	HORSE CANYON COMPRESSOR	
User Name:	Williams Four Corners LLC	
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: EVAPORATOR

Hours of Operation:	8,760 Yearly
Heat Input:	2.48 MMBtu/hr
Fuel Type:	NATURAL GAS
Device Type:	HEATER
Emission Factor Set:	FIELD > EPA > LITERATURE
Additional EF Set:	-NONE-

Calculated Emissions (ton/yr)

<u>Chemical Name</u>	<u>Emissions</u>	<u>Emission Factor</u>	<u>Emission Factor Set</u>
HAPs			
3-Methylchloranthrene	0.0000	0.0000000018 lb/MMBtu	EPA
7,12-Dimethylbenz(a)anthracene	0.0000	0.0000000157 lb/MMBtu	EPA
Formaldehyde	0.0092	0.0008440090 lb/MMBtu	GRI Field
Methanol	0.0105	0.0009636360 lb/MMBtu	GRI Field
Acetaldehyde	0.0080	0.0007375920 lb/MMBtu	GRI Field
1,3-Butadiene	0.0037	0.0003423350 lb/MMBtu	GRI Field
Benzene	0.0081	0.0007480470 lb/MMBtu	GRI Field
Toluene	0.0110	0.0010163310 lb/MMBtu	GRI Field
Ethylbenzene	0.0230	0.0021128220 lb/MMBtu	GRI Field
Xylenes(m,p,o)	0.0143	0.0013205140 lb/MMBtu	GRI Field
2,2,4-Trimethylpentane	0.0309	0.0028417580 lb/MMBtu	GRI Field
n-Hexane	0.0153	0.0014070660 lb/MMBtu	GRI Field
Phenol	0.0000	0.0000001070 lb/MMBtu	GRI Field
Styrene	0.0226	0.0020788960 lb/MMBtu	GRI Field
Naphthalene	0.0000	0.0000005100 lb/MMBtu	GRI Field
2-Methylnaphthalene	0.0000	0.0000001470 lb/MMBtu	GRI Field
Acenaphthylene	0.0000	0.0000000670 lb/MMBtu	GRI Field
Biphenyl	0.0000	0.0000004730 lb/MMBtu	GRI Field
Acenaphthene	0.0000	0.0000000900 lb/MMBtu	GRI Field
Fluorene	0.0000	0.0000000800 lb/MMBtu	GRI Field
Anthracene	0.0000	0.0000000870 lb/MMBtu	GRI Field
Phenanthrene	0.0000	0.0000000600 lb/MMBtu	GRI Field
Fluoranthene	0.0000	0.0000000900 lb/MMBtu	GRI Field
Pyrene	0.0000	0.0000000830 lb/MMBtu	GRI Field
Benz(a)anthracene	0.0000	0.0000000870 lb/MMBtu	GRI Field
Chrysene	0.0000	0.0000001170 lb/MMBtu	GRI Field

Benzo(a)pyrene	0.0000	0.0000000700	lb/MMBtu	GRI Field
Benzo(b)fluoranthene	0.0000	0.0000001500	lb/MMBtu	GRI Field
Benzo(k)fluoranthene	0.0000	0.0000007600	lb/MMBtu	GRI Field
Benzo(g,h,i)perylene	0.0000	0.0000002600	lb/MMBtu	GRI Field
Indeno(1,2,3-c,d)pyrene	0.0000	0.0000001200	lb/MMBtu	GRI Field
Dibenz(a,h)anthracene	0.0000	0.0000001030	lb/MMBtu	GRI Field
Lead	0.0000	0.0000004902	lb/MMBtu	EPA

Total	0.1566			
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Criteria Pollutants

VOC	0.0586	0.0053921569	lb/MMBtu	EPA
PM	0.0809	0.0074509804	lb/MMBtu	EPA
PM, Condensable	0.0607	0.0055882353	lb/MMBtu	EPA
PM, Filterable	0.0202	0.0018627451	lb/MMBtu	EPA
CO	0.3515	0.0323636360	lb/MMBtu	GRI Field
NMHC	0.0926	0.0085294118	lb/MMBtu	EPA
NOx	1.0538	0.0970167730	lb/MMBtu	GRI Field
SO2	0.0064	0.0005880000	lb/MMBtu	EPA

Other Pollutants

Dichlorobenzene	0.0000	0.0000011765	lb/MMBtu	EPA
Methane	0.1143	0.0105212610	lb/MMBtu	GRI Field
Acetylene	0.1521	0.0140000000	lb/MMBtu	GRI Field
Ethylene	0.0103	0.0009476310	lb/MMBtu	GRI Field
Ethane	0.0286	0.0026312210	lb/MMBtu	GRI Field
Propylene	0.0255	0.0023454550	lb/MMBtu	GRI Field
Propane	0.0116	0.0010686280	lb/MMBtu	GRI Field
Isobutane	0.0159	0.0014640770	lb/MMBtu	GRI Field
Butane	0.0150	0.0013766990	lb/MMBtu	GRI Field
Cyclopentane	0.0123	0.0011304940	lb/MMBtu	GRI Field
Pentane	0.0377	0.0034671850	lb/MMBtu	GRI Field
n-Pentane	0.0154	0.0014221310	lb/MMBtu	GRI Field
Cyclohexane	0.0100	0.0009183830	lb/MMBtu	GRI Field
Methylcyclohexane	0.0239	0.0022011420	lb/MMBtu	GRI Field
n-Octane	0.0310	0.0028538830	lb/MMBtu	GRI Field
1,2,3-Trimethylbenzene	0.0372	0.0034224540	lb/MMBtu	GRI Field
1,2,4-Trimethylbenzene	0.0372	0.0034224540	lb/MMBtu	GRI Field
1,3,5-Trimethylbenzene	0.0372	0.0034224540	lb/MMBtu	GRI Field
n-Nonane	0.0398	0.0036604170	lb/MMBtu	GRI Field
CO2	1,277.9294	117.6470588235	lb/MMBtu	EPA

Unit Name: REBOILER

Hours of Operation: 8,760 Yearly
Heat Input: 0.39 MMBtu/hr
Fuel Type: NATURAL GAS
Device Type: BOILER
Emission Factor Set: FIELD > EPA > LITERATURE
Additional EF Set: -NONE-

Calculated Emissions (ton/yr)

<u>Chemical Name</u>	<u>Emissions</u>	<u>Emission Factor</u>	<u>Emission Factor Set</u>
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HAPs

7,12-Dimethylbenz(a)anthracene	0.0000	0.0000000157	lb/MMBtu	EPA
Formaldehyde	0.0006	0.0003522500	lb/MMBtu	GRI Field
Methanol	0.0007	0.0004333330	lb/MMBtu	GRI Field
Acetaldehyde	0.0005	0.0002909000	lb/MMBtu	GRI Field
1,3-Butadiene	0.0000	0.0000001830	lb/MMBtu	GRI Field
Benzene	0.0000	0.0000062550	lb/MMBtu	GRI Field
Toluene	0.0000	0.0000053870	lb/MMBtu	GRI Field
Ethylbenzene	0.0000	0.0000000720	lb/MMBtu	GRI Field
Xylenes(m,p,o)	0.0000	0.0000010610	lb/MMBtu	GRI Field
2,2,4-Trimethylpentane	0.0001	0.0000323000	lb/MMBtu	GRI Field
n-Hexane	0.0005	0.0003214790	lb/MMBtu	GRI Field
Phenol	0.0000	0.0000000950	lb/MMBtu	GRI Field
Naphthalene	0.0000	0.0000002950	lb/MMBtu	GRI Field
2-Methylnaphthalene	0.0000	0.0000000700	lb/MMBtu	GRI Field
Acenaphthylene	0.0000	0.0000000550	lb/MMBtu	GRI Field
Biphenyl	0.0000	0.0000011500	lb/MMBtu	GRI Field
Acenaphthene	0.0000	0.0000000800	lb/MMBtu	GRI Field
Fluorene	0.0000	0.0000000700	lb/MMBtu	GRI Field
Anthracene	0.0000	0.0000000750	lb/MMBtu	GRI Field
Phenanthrene	0.0000	0.0000000550	lb/MMBtu	GRI Field
Fluoranthene	0.0000	0.0000000800	lb/MMBtu	GRI Field
Pyrene	0.0000	0.0000000750	lb/MMBtu	GRI Field
Benz(a)anthracene	0.0000	0.0000000750	lb/MMBtu	GRI Field
Chrysene	0.0000	0.0000001000	lb/MMBtu	GRI Field
Benzo(a)pyrene	0.0000	0.0000000600	lb/MMBtu	GRI Field
Benzo(b)fluoranthene	0.0000	0.0000001350	lb/MMBtu	GRI Field
Benzo(k)fluoranthene	0.0000	0.0000004400	lb/MMBtu	GRI Field
Benzo(g,h,i)perylene	0.0000	0.0000001500	lb/MMBtu	GRI Field
Indeno(1,2,3-c,d)pyrene	0.0000	0.0000001000	lb/MMBtu	GRI Field
Dibenz(a,h)anthracene	0.0000	0.0000000950	lb/MMBtu	GRI Field
Lead	0.0000	0.0000004902	lb/MMBtu	EPA
Total	0.0024			

Criteria Pollutants

VOC	0.0092	0.0053921569	lb/MMBtu	EPA
PM	0.0127	0.0074509804	lb/MMBtu	EPA
PM, Condensable	0.0095	0.0055882353	lb/MMBtu	EPA
PM, Filterable	0.0032	0.0018627451	lb/MMBtu	EPA
CO	0.0525	0.0307275000	lb/MMBtu	GRI Field
NMHC	0.0146	0.0085294118	lb/MMBtu	EPA
NOx	0.1508	0.0882553330	lb/MMBtu	GRI Field
SO2	0.0010	0.0005880000	lb/MMBtu	EPA

Other Pollutants

Dichlorobenzene	0.0000	0.0000011765	lb/MMBtu	EPA
Methane	0.0100	0.0058790650	lb/MMBtu	GRI Field
Acetylene	0.0091	0.0053314000	lb/MMBtu	GRI Field
Ethylene	0.0009	0.0005264000	lb/MMBtu	GRI Field
Ethane	0.0029	0.0016804650	lb/MMBtu	GRI Field
Propylene	0.0016	0.0009333330	lb/MMBtu	GRI Field
Propane	0.0021	0.0012019050	lb/MMBtu	GRI Field
Butane	0.0024	0.0013866350	lb/MMBtu	GRI Field
Cyclopentane	0.0001	0.0000405000	lb/MMBtu	GRI Field

Pentane	0.0035	0.0020656400	lb/MMBtu	GRI Field
n-Pentane	0.0034	0.0020000000	lb/MMBtu	GRI Field
Cyclohexane	0.0001	0.0000451000	lb/MMBtu	GRI Field
Methylcyclohexane	0.0003	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	200.9647	117.6470588235	lb/MMBtu	EPA

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

Identification

User Identification: Horse Canyon Tank T39 (waste water)
City: Bloomfield
State: New Mexico
Company: Williams Four Corners, LLC
Type of Tank: Vertical Fixed Roof Tank
Description: 16,800 Gallon Waste Water Storage Tank

Tank Dimensions

Shell Height (ft): 16.00
Diameter (ft): 14.00
Liquid Height (ft) : 14.00
Avg. Liquid Height (ft): 7.00
Volume (gallons): 16,800.00
Turnovers: 52.00
Net Throughput(gal/yr): 873,600.00
Is Tank Heated (y/n): N

Paint Characteristics

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

Roof Characteristics

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

Breather Vent Settings

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

Meteorological 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

Horse Canyon Tank T39 (waste water) - Vertical Fixed Roof Tank
Bloomfield, New Mexico

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Produced/Waste Water	All	64.94	53.24	76.64	58.39	0.3262	0.2169	0.4803	20.8128			18.15	
Benzene						1.3372	0.9653	1.8208	78.1100	0.0001	0.0002	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Butane						28.6704	23.0459	35.2667	58.1300	0.0008	0.0584	58.13	Option 1: VP60 = 26.098 VP70 = 31.306
Ethylbenzene						0.1286	0.0854	0.1894	106.1700	0.0000	0.0000	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.1727	1.6003	2.9030	86.1700	0.0042	0.0245	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Pentane (-n)						7.6199	5.8716	9.7769	72.1500	0.0049	0.0990	72.15	Option 3: A=27691, B=7.558
Toluene						0.3844	0.2666	0.5435	92.1300	0.0001	0.0001	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Water						0.3089	0.2032	0.4584	18.0200	0.9900	0.8178	18.02	Option 1: VP60 = .2561 VP70 = .3629
Xylenes (mixed isomers)						0.1073	0.0710	0.1586	106.1700	0.0000	0.0000	106.17	Option 2: A=7.009, B=1462.266, C=215.11

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

Horse Canyon Tank T39 (waste water) - Vertical Fixed Roof Tank
Bloomfield, New Mexico

Annual Emission Calculations	
Standing Losses (lb):	56.1571
Vapor Space Volume (cu ft):	1,385.4424
Vapor Density (lb/cu ft):	0.0012
Vapor Space Expansion Factor:	0.1064
Vented Vapor Saturation Factor:	0.8653
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,385.4424
Tank Diameter (ft):	14.0000
Vapor Space Outage (ft):	9.0000
Tank Shell Height (ft):	16.0000
Average Liquid Height (ft):	7.0000
Roof Outage (ft):	0.0000
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.0000
Roof Height (ft):	0.0000
Roof Slope (ft/ft):	0.0000
Shell Radius (ft):	7.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0012
Vapor Molecular Weight (lb/lb-mole):	20.8128
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3262
Daily Avg. Liquid Surface Temp. (deg. R):	524.6094
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):	518.0642
Tank Paint Solar Absorptance (Shell):	0.5400
Tank Paint Solar Absorptance (Roof):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.1064
Daily Vapor Temperature Range (deg. R):	46.7976
Daily Vapor Pressure Range (psia):	0.2634
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3262
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.2169
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.4803
Daily Avg. Liquid Surface Temp. (deg R):	524.6094
Daily Min. Liquid Surface Temp. (deg R):	512.9100
Daily Max. Liquid Surface Temp. (deg R):	536.3088
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.8653
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3262

Vapor Space Outage (ft):	9.0000
Working Losses (lb):	105.0086
Vapor Molecular Weight (lb/lb-mole):	20.8128
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3262
Annual Net Throughput (gal/yr.):	873,600.0000
Annual Turnovers:	52.0000
Turnover Factor:	0.7436
Maximum Liquid Volume (gal):	16,800.0000
Maximum Liquid Height (ft):	14.0000
Tank Diameter (ft):	14.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	161.1657

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

Emissions Report for: Annual

Horse Canyon Tank T39 (waste water) - Vertical Fixed Roof Tank
Bloomfield, New Mexico

Components	Losses(lbs)		
	Working Loss	Breathing Loss	Total Emissions
Produced/Waste Water	105.01	56.16	161.17
Water	85.88	45.92	131.80
Butane	6.13	3.28	9.41
Pentane (-n)	10.40	5.56	15.96
Hexane (-n)	2.57	1.38	3.95
Benzene	0.02	0.01	0.04
Toluene	0.01	0.00	0.01
Ethylbenzene	0.00	0.00	0.00
Xylenes (mixed isomers)	0.00	0.00	0.00

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

Identification

User Identification: 125 gal Corrosion Inhibitor Tank
City: Bloomfield
State: New Mexico
Company: Williams
Type of Tank: Horizontal Tank
Description: Horse Canyon

Tank Dimensions

Shell Length (ft): 5.00
Diameter (ft): 3.00
Volume (gallons): 125.00
Turnovers: 6.00
Net Throughput(gal/yr): 750.00
Is Tank Heated (y/n): N
Is Tank Underground (y/n): N

Paint Characteristics

Shell Color/Shade: Gray/Light
Shell Condition: Good

Breather Vent Settings

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

Meteorological 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

125 gal Corrosion Inhibitor Tank - Horizontal Tank
Bloomfield, New Mexico

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Corrosion Inhibitor	All	64.94	53.24	76.64	58.39	1.2063	0.8476	1.6749	41.6020			68.63	Option 2: A=7.04383, B=1573.267, C=208.56
1,2,4-Trimethylbenzene						0.0248	0.0155	0.0388	120.1900	0.4000	0.0136	120.19	Option 1: VP60 = 1.3 VP70 = 1.6
Jet naphtha (JP-4)						1.4482	1.0972	1.7992	80.0000	0.2700	0.3565	120.00	Option 2: A=7.897, B=1474.08, C=229.13
Methyl alcohol						1.6820	1.1617	2.3895	32.0400	0.2700	0.6211	32.04	Option 2: A=7.009, B=1462.266, C=215.11
Xylene (-m)						0.1073	0.0710	0.1586	106.1700	0.0600	0.0088	106.17	

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

125 gal Corrosion Inhibitor Tank - Horizontal Tank
Bloomfield, New Mexico

Annual Emission Calculations	
Standing Losses (lb):	10.6472
Vapor Space Volume (cu ft):	22.5114
Vapor Density (lb/cu ft):	0.0089
Vapor Space Expansion Factor:	0.1593
Vented Vapor Saturation Factor:	0.9125
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	22.5114
Tank Diameter (ft):	3.0000
Effective Diameter (ft):	4.3713
Vapor Space Outage (ft):	1.5000
Tank Shell Length (ft):	5.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0089
Vapor Molecular Weight (lb/lb-mole):	41.6020
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.2063
Daily Avg. Liquid Surface Temp. (deg. R):	524.6094
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):	518.0642
Tank Paint Solar Absorptance (Shell):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.1593
Daily Vapor Temperature Range (deg. R):	46.7976
Daily Vapor Pressure Range (psia):	0.8272
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.2063
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.8476
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	1.6749
Daily Avg. Liquid Surface Temp. (deg R):	524.6094
Daily Min. Liquid Surface Temp. (deg R):	512.9100
Daily Max. Liquid Surface Temp. (deg R):	536.3088
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9125
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.2063
Vapor Space Outage (ft):	1.5000
Working Losses (lb):	
Vapor Molecular Weight (lb/lb-mole):	0.8961
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	41.6020
Annual Net Throughput (gall/yr.):	1.2063 750.0000

Annual Turnovers:	6.0000
Turnover Factor:	1.0000
Tank Diameter (ft):	3.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	11.5433

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

Emissions Report for: Annual

125 gal Corrosion Inhibitor Tank - Horizontal Tank
Bloomfield, New Mexico

		Losses(lbs)	
Components	Working Loss	Breathing Loss	Total Emissions
Corrosion Inhibitor	0.90	10.65	11.54
1,2,4- Trimethylbenzene	0.01	0.14	0.16
Methyl alcohol	0.56	6.61	7.17
Jet naphtha (JP-4)	0.32	3.80	4.12
Xylene (-m)	0.01	0.09	0.10

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

Identification

User Identification: 125 gal De-emulsifier Tank
City: Bloomfield
State: New Mexico
Company: Williams
Type of Tank: Horizontal Tank
Description: Horse Canyon

Tank Dimensions

Shell Length (ft): 5.00
Diameter (ft): 4.00
Volume (gallons): 125.00
Turnovers: 6.00
Net Throughput(gal/yr): 750.00
Is Tank Heated (y/n): N
Is Tank Underground (y/n): N

Paint Characteristics

Shell Color/Shade: Gray/Light
Shell Condition: Good

Breather Vent Settings

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

Meteorological 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

125 gal De-emulsifier Tank - Horizontal Tank
Bloomfield, New Mexico

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
De-emulsifier	All	64.94	53.24	76.64	58.39	0.3741	0.2549	0.5353	35.4918			27.97	
Jet naphtha (JP-4)						1.4482	1.0972	1.7992	80.0000	0.2300	0.4678	120.00	Option 1: VP60 = 1.3 VP70 = 1.6
Toluene						0.3844	0.2666	0.5435	92.1300	0.2000	0.1619	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Water						0.3084	0.2031	0.4583	18.0000	0.5700	0.3703	18.00	Option 1: VP60 = .255246 VP70 = .362758

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

125 gal De-emulsifier Tank - Horizontal Tank
Bloomfield, New Mexico

Annual Emission Calculations	
Standing Losses (lb):	3.5761
Vapor Space Volume (cu ft):	40.0203
Vapor Density (lb/cu ft):	0.0024
Vapor Space Expansion Factor:	0.1079
Vented Vapor Saturation Factor:	0.9619
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	40.0203
Tank Diameter (ft):	4.0000
Effective Diameter (ft):	5.0475
Vapor Space Outage (ft):	2.0000
Tank Shell Length (ft):	5.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0024
Vapor Molecular Weight (lb/lb-mole):	35.4918
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3741
Daily Avg. Liquid Surface Temp. (deg. R):	524.6094
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):	518.0642
Tank Paint Solar Absorptance (Shell):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.1079
Daily Vapor Temperature Range (deg. R):	46.7976
Daily Vapor Pressure Range (psia):	0.2805
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3741
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.2549
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.5353
Daily Avg. Liquid Surface Temp. (deg R):	524.6094
Daily Min. Liquid Surface Temp. (deg R):	512.9100
Daily Max. Liquid Surface Temp. (deg R):	536.3088
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9619
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3741
Vapor Space Outage (ft):	2.0000
Working Losses (lb):	
Vapor Molecular Weight (lb/lb-mole):	0.2371
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	35.4918
Annual Net Throughput (gall/yr.):	0.3741
	750.0000

Annual Turnovers:	6.0000
Turnover Factor:	1.0000
Tank Diameter (ft):	4.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	3.8132

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

Emissions Report for: Annual

125 gal De-emulsifier Tank - Horizontal Tank
Bloomfield, New Mexico

		Losses(lbs)	
Components	Working Loss	Breathing Loss	Total Emissions
De-emulsifier	0.24	3.58	3.81
Jet naphtha (JP-4)	0.11	1.67	1.78
Toluene	0.04	0.58	0.62
Water	0.09	1.32	1.41

TANKS 4.0.9d

Emissions Report - Detail Format

Tank Identification and Physical Characteristics

Identification

User Identification:

Horse Canyon 500-bbl snow tanks

City:

Bloomfield

State:

New Mexico

Company:

ConocoPhillips

Type of Tank:

Vertical Fixed Roof Tank

Description:

Horse Canyon 500-bbl produced water tanks to handle excessive storm (rain & snowmelt) runoff from facilities for the Wastewater Evaporation Unit

Tank Dimensions

Shell Height (ft):

15.50

Diameter (ft):

15.00

Liquid Height (ft) :

15.00

Avg. Liquid Height (ft):

8.00

Volume (gallons):

19,828.82

Turnovers:

52.00

Net Throughput(gal/yr):

1,031,098.60

Is Tank Heated (y/n):

Y

Paint Characteristics

Shell Color/Shade:

Gray/Light

Shell Condition

Good

Roof Color/Shade:

Gray/Light

Roof Condition:

Good

Roof Characteristics

Type:

Cone

Height (ft)

0.00

Slope (ft/ft) (Cone Roof)

0.06

Breather Vent Settings

Vacuum Settings (psig):

0.00

Pressure Settings (psig)

0.00

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

Horse Canyon 500-bbl snow tanks - Vertical Fixed Roof Tank
Bloomfield, New Mexico

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
produced water	All	64.94	53.24	76.64	58.39	0.3095	0.2042	0.4596	19.0221			18.17	
2,3-Dimethylbutane		3.4384	2.5896	4.4997		3.4384		4.4997	86.1800	0.0001	0.0011	86.18	Option 2: A=6.8098, B=1127.187, C=228.9
2-Methylpentane		3.0810	2.3028	4.0606		3.0810		4.0606	86.1800	0.0005	0.0048	86.18	Option 2: A=6.8391, B=1135.41, C=226.57
Decane (-n)		0.0374	0.0286	0.0489		0.0374		0.0489	142.2900	0.0006	0.0001	142.29	Option 1: VP60 = .033211 VP70 = .041762
Heptane (-n)		0.7080	0.4981	0.9910		0.7080		0.9910	100.2000	0.0037	0.0081	100.20	Option 3: A=37358, B=8.2585
Hexane (-n)		2.1727	1.6003	2.9030		2.1727		2.9030	86.1700	0.0005	0.0034	86.17	Option 2: A=6.876, B=1171.17, C=224.41
i-butane		28.6704	23.0459	35.2667		28.6704		35.2667	58.1300	0.0002	0.0177	58.13	Option 1: VP60 = 26.098 VP70 = 31.306
Isopentane		11.2522	8.5746	14.3915		11.2522		14.3915	72.1500	0.0003	0.0104	72.15	Option 1: VP60 = 10.005 VP70 = 12.53
n-butane		28.6704	23.0459	35.2667		28.6704		35.2667	58.1300	0.0002	0.0177	58.13	Option 1: VP60 = 26.098 VP70 = 31.306
Nonane (-n)		0.0741	0.0558	0.0981		0.0741		0.0981	128.2600	0.0013	0.0003	128.26	Option 1: VP60 = .065278 VP70 = .08309
Octane (-n)		0.1666	0.1231	0.2250		0.1666		0.2250	114.2300	0.0022	0.0011	114.23	Option 1: VP60 = .145444 VP70 = .186224
Pentane (-n)		7.6199	5.8716	9.7769		7.6199		9.7769	72.1500	0.0003	0.0071	72.15	Option 3: A=27691, B=7.558
water		0.3038	0.1997	0.4526		0.3038		0.4526	18.0200	0.9901	0.9284	18.02	Option 2: A=8.07131, B=1730.63, C=233.426

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

Horse Canyon 500-bbl snow tanks - Vertical Fixed Roof Tank
Bloomfield, New Mexico

Annual Emission Calculations	
Standing Losses (lb):	30.3580
Vapor Space Volume (cu ft):	1,352.9711
Vapor Density (lb/cu ft):	0.0010
Vapor Space Expansion Factor:	0.0662
Vented Vapor Saturation Factor:	0.8884
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,352.9711
Tank Diameter (ft):	15.0000
Vapor Space Outage (ft):	7.6563
Tank Shell Height (ft):	15.5000
Average Liquid Height (ft):	8.0000
Roof Outage (ft):	0.1563
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.1563
Roof Height (ft):	0.0000
Roof Slope (ft/ft):	0.0625
Shell Radius (ft):	7.5000
Vapor Density	
Vapor Density (lb/cu ft):	0.0010
Vapor Molecular Weight (lb/lb-mole):	19.0221
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3095
Daily Avg. Liquid Surface Temp. (deg. R):	524.6094
Daily Average Ambient Temp. (deg. F):	56.1542
Ideal Gas Constant R (psia cu ft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	518.0642
Tank Paint Solar Absorptance (Shell):	0.5400
Tank Paint Solar Absorptance (Roof):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0662
Daily Vapor Temperature Range (deg. R):	23.3988
Daily Vapor Pressure Range (psia):	0.2554
Breather Vent Press. Setting Range(psia):	0.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3095
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.2042
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.4596
Daily Avg. Liquid Surface Temp. (deg R):	524.6094
Daily Min. Liquid Surface Temp. (deg R):	512.9100
Daily Max. Liquid Surface Temp. (deg R):	536.3088
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.8884
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3095
Vapor Space Outage (ft):	7.6563

Working Losses (lb):	107.4645
Vapor Molecular Weight (lb/lb-mole):	19.0221
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3095
Annual Net Throughput (gall/yr.):	1,031,098.6030
Annual Turnovers:	52.0000
Turnover Factor:	0.7436
Maximum Liquid Volume (gal):	19,828.8193
Maximum Liquid Height (ft):	15.0000
Tank Diameter (ft):	15.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	137.8226

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

Emissions Report for: Annual

Horse Canyon 500-bbl snow tanks - Vertical Fixed Roof Tank
Bloomfield, New Mexico

Components	Losses(lbs)		
	Working Loss	Breathing Loss	Total Emissions
produced water	107.46	30.36	137.82
2,3-Dimethylbutane	0.11	0.03	0.15
2-Methylpentane	0.51	0.14	0.66
i-butane	1.90	0.54	2.44
n-butane	1.90	0.54	2.44
Pentane (-n)	0.76	0.21	0.97
Hexane (-n)	0.36	0.10	0.46
Isopentane	1.12	0.32	1.44
Heptane (-n)	0.87	0.25	1.11
Octane (-n)	0.12	0.03	0.16
Nonane (-n)	0.03	0.01	0.04
Decane (-n)	0.01	0.00	0.01
water	99.77	28.18	127.95

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 (CO₂), nitrous oxide (N₂O), methane (CH₄), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

Calculating GHG Emissions:

1. Calculate the ton per year (tpy) GHG mass emissions and GHG CO₂e 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 CO₂e 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 CO₂e 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 CO₂ 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)

Greenhouse Gas (GHG) Emissions

Greenhouse gas (GHG) emissions are provided. Carbon dioxide (CO₂), methane (CH₄) emissions, nitrous oxide (N₂O) (combustion sources only), and total GHG are reported in tons per year (tpy). Carbon dioxide equivalent (CO₂e) emissions (including CO₂, N₂O and CH₄) are reported in metric tons per year. The CO₂e is calculated by summing the estimated CO₂ emissions with the CH₄ emissions (adjusted for the Global Warming Potential (GWP) of the CH₄) and the N₂O emissions (adjusted for the GWP of the N₂O). The GWPs are from Title 40, Part 98 (40 CFR 98), *Mandatory Greenhouse Gas Reporting*, Table A-1.

The portion of 40 CFR 98, Table A-1 that includes the GWPs for CH₄ and N₂O is included in Section 7. 40 CFR 98, Subpart A (including Table A-1) is available for download in its entirety through the U.S. Government Publications Office (GPO) website at <http://ecfr.gpoaccess.gov/> under the “Code of Federal Regulations” link.

Combustion Equipment GHG. GHG emissions, including carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O) exhaust emissions from the combustion equipment (reciprocating internal combustion engines and the dehydrator reboilers) are calculated from emission factors from 40 CFR 98, Part C, Tables C-1 & C-2, and the engine higher heating value (HHV) design heat rate.

Emission factors and methodologies from 40 CFR 98, Table C-1 and C-2 are included in Section 7. 40 CFR 98, Subpart C (including Tables C-1 and C-2) is available for download in its entirety through the U.S. Government Publications Office (GPO) website at <http://ecfr.gpoaccess.gov/> under the “Code of Federal Regulations” link.

Non-Combustion Equipment GHG (General). The non-combustion GHG emissions from the facility are based on 40 CFR 98, Subpart W, *Petroleum and Natural Gas Systems*, or an appropriate method published in the American Petroleum Institute’s 2009 *Compendium of Greenhouse Gas Emission Estimates Methodologies for the Oil and Gas Industry* (API Compendium). The emission calculation methods are noted in the GHG calculations spreadsheets.

40 CFR 98, Subpart W is published and available for download in its entirety through the U.S. Government Publications Office (GPO) website at <http://ecfr.gpoaccess.gov/> under the “Code of Federal Regulations” link. The API Compendium in its entirety is available at

<http://www.api.org/environment-health-and-safety/climate-change/whats-new/compendium-ghg-methodologies-oil-and-gas-industry>

Excerpts of the cited 40 CFR 98 and API Compendium materials are provided in Section 7.

Dehydrator Still Vent GHG. Emissions of GHG from the dehydrator still vents are calculated in accordance with the methods of 40 CFR 98, subpart W, *Petroleum and Natural Gas Systems*, §98.233(e), including GRI-GLYCalc 4.0 emissions estimation software, the natural gas stream composition, and dehydrator operating parameters corresponding to the Potential To Emit emission calculations.

SSM Compressor Blowdown GHG. Compressor blowdown emissions (unit SSM), including emissions from SSM and compressor venting and associated piping, are calculated from the estimated total annual gas losses (scf/yr) and the molar fraction of CO₂ and CH₄ in the natural gas extended analysis. The SSM emissions are estimated from the annual blowdown volume of gas. The emission calculations are provided in this section. The extended gas analysis used in the emission estimates is in Section 7.

Reciprocating Compressor Venting Emissions. Annual GHG emissions from reciprocating compressor vented emissions, including compressor blowdown valve leaks, rod packing leaks and isolation valve leaks, are estimated from the number of compressors; the estimated compressor operating times; the CO₂ and CH₄ molar composition of the gas stream; and the density of the GHG gases according to 40 CFR 98, Subpart W, equation W-36.

Isolation valve leakage occurs when the compressors are not in operation, i.e., when the compressors operate zero hours. The GHG emissions from isolation valve leakage are less than the combined blowdown valve leakage and rod packing emissions that occur when compressor(s) are in operation. Therefore, the PTE is calculated assuming 8,760 hours per year of compressor operation (corresponding with isolation valve leakage occurring zero hours per year).

Equipment Leaks Emissions. GHG emissions from facility-wide equipment leaks (unit F1) are based on the estimated total annual gas losses (scf/yr) associated with the estimated number of components, the corresponding emission factors from the EPA's 1995 *Protocol for Equipment Leak Emission Estimates*, and the molar fraction of CO₂ and CH₄ contained in the natural gas extended analysis.

Natural Gas Driven Pneumatic Device Venting Emissions and Natural Gas Driven Pneumatic Pump Venting Emissions. Gas-driven pneumatic device and pneumatic pump emissions are calculated from the facility gas stream composition for CO₂ and CH₄, the estimated number of devices, and the appropriate emission factors from 40 CFR 98, Subpart W, Table W-1A (Western U.S. - Gas Service).

Storage Tank and Truck Loading GHG. GHG emissions from the working and breathing losses from the produced water, wastewater, lube oil, used lube oil, TEG, antifreeze and corrosion inhibitor storage tanks are considered to be zero, based on the stored contents are either non-flashing liquids or post-flashed liquid. Similarly, any liquids transferred during truck loading do not contain appreciable amounts of any gases, including GHG.

Malfunction Emissions GHG. GHG emissions from the malfunction VOC emissions (unit M1) are calculated based on the estimated total volume of annual gas (scf/yr) associated with the specified tpy of VOC emissions and the molar fractions of CO₂ and CH₄ in the natural gas extended analysis.

Green House Gas Emissions Data and Calculations

Sources	Facility Total Emissions				
	CO2, tpy	CH4, tpy	N2O, tpy	GHG, tpy	CO2e, tpy
Engines	42,041.45	0.79	7.93E-02	42,042.32	42,084.91
Compressor Blowdowns (SSM)	1.03	1.59	0	2.62	40.81
Heaters & Boilers	1,407.82	2.66E-02	2.66E-03	1,407.84	1,409.27
Dehydrators	55.71	2.12	0	57.83	108.60
Reboilers	657.53	1.24E-02	1.24E-03	657.54	658.21
Equipment Leaks	16.85	26.04	0	42.88	667.80
Dehydrator Glycol Gas-Assisted Pump Emissions	1.49	2.30	0	3.78	58.91
Gas Driven Pneumatic Devices (Compressor Station Only)	0.40	0.62	0	1.02	15.84
Pressure Relief Valves (Compressor Station Only)	3.55E-04	5.49E-04	0	9.05E-04	0.01
Malfunctions	397.59	614.52	0	1,012.12	15,760.69
Total	44,579.86	648.02	8.32E-02	45,227.96	60,805.05
add pneumatics and PRVs to Euiptment Leaks (F1) for Table 2-P	18.73	28.95	0.00	47.69	742.57

Engine & Turbine Exhaust Emissions

Unit Number	Description	Emission Factors			Emission Rates		
		CO ₂ , kg/MMBtu	CH ₄ , kg/MMBtu	N ₂ O, kg/MMBtu	CO ₂ , tpy	CH ₄ , tpy	N ₂ O, tpy
1	Waukesha L7042GL	53.02	1.00E-03	1.00E-04	6,005.92	1.13E-01	1.13E-02
2	Waukesha L7042GL	53.02	1.00E-03	1.00E-04	6,005.92	1.13E-01	1.13E-02
3	Waukesha L7042GL	53.02	1.00E-03	1.00E-04	6,005.92	1.13E-01	1.13E-02
4	Waukesha L7042GL	53.02	1.00E-03	1.00E-04	6,005.92	1.13E-01	1.13E-02
5	Waukesha L7042GL	53.02	1.00E-03	1.00E-04	6,005.92	1.13E-01	1.13E-02
6	Waukesha L7042GL	53.02	1.00E-03	1.00E-04	6,005.92	1.13E-01	1.13E-02
7	Waukesha L7042GL	53.02	1.00E-03	1.00E-04	6,005.92	1.13E-01	1.13E-02
Total		53.02	1.00E-03	1.00E-04	42,041.45	0.79	7.93E-02

The emissions factors are taken from 40 CFR 98, Subpart C, Tables C-1 & C-2

Emission Rate (tpy) = Emission Factor (kg/MMBtu) * 2.2 lb/kg * Fuel Usage (MMBtu/yr) / 2,000 lb/ton

Unit Number	Description	Fuel Type	Operating Time, hr/yr	LHV Design Heat Rate, MMBtu/hr	HHV	
					Design Heat Rate, MMBtu/hr	Fuel Usage, MMBtu/yr
1	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
2	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
3	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
4	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
5	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
6	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
7	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979

The fuel types and operating times are provided by Harvest

The LHV design heat rates are taken from manufacturers data

HHV Design Heat Rate (MMBtu/hr) = LHV Design Heat Rate (MMBtu/hr) / 0.9 LHV/HHV

HHV Fuel Usage (MMBtu/yr) = HHV Design Heat Rate (MMBtu/hr) * Operating Time (hr/yr)

Green House Gas Emissions Data and Calculations

Compressor Blowdown Emissions (SSM)

Unit Number	Description	Total Gas Loss, scf/yr	Emission Rates	
			CO ₂ , tpy	CH ₄ , tpy
1a	Compressor	1,352,820	0.15	0.23
2a	Compressor	1,352,820	0.15	0.23
3a	Compressor	1,352,820	0.15	0.23
4a	Compressor	1,352,820	0.15	0.23
5a	Compressor	1,352,820	0.15	0.23
6a	Compressor	1,352,820	0.15	0.23
7a	Compressor	1,352,820	0.15	0.23
Total			1.03	1.59

Annual blowdown volumes are calculated from data provided by Harvest

Emission Rate (tpy) = Total Gas Loss (scf/yr) * Emission Factor (lb/scf) / 2,000 lb/ton

Heater & Boiler Exhaust Emissions

Unit Number	Description	Emission Factors			Emission Rates		
		CO ₂ , kg/MMBtu	CH ₄ , kg/MMBtu	N ₂ O, kg/MMBtu	CO ₂ , tpy	CH ₄ , tpy	N ₂ O, tpy
NA	Wastewater Treatment	53.02	1.00E-03	1.00E-04	1,407.82	2.66E-02	2.66E-03

The emissions factors are taken from 40 CFR 98, Subpart C, Tables C-1 & C-2

Emission Rate (tpy) = Emission Factor (kg/MMBtu) * 2.2 lb/kg * Fuel Usage (MMBtu/yr) / 2,000 lb/ton

Unit Number	Description	Fuel Type	Operating Time, hr/yr	LHV Design Heat Rate, MMBtu/hr	HHV	
					Design Heat Rate, MMBtu/hr	Fuel Usage, MMBtu/yr
NA	Wastewater Treatment	Nat. Gas	8,760	2.480	2.756	24,139

The fuel type and operating time are provided by Harvest

The LHV design heat rate is taken from manufacturers data

HHV Design Heat Rate (MMBtu/hr) = LHV Design Heat Rate (MMBtu/hr) / 0.9 LHV/HHV

HHV Fuel Usage (MMBtu/yr) = HHV Design Heat Rate (MMBtu/hr) * Operating Time (hr/yr)

Dehydrator Emissions

Unit Number	Description	Emission Rates	
		CO ₂ , tpy	CH ₄ , tpy
16a	Dehydrator (10 MMSCFD)	18.57	0.71
19a	Dehydrator (10 MMSCFD)	18.57	0.71
21a	Dehydrator (10 MMSCFD)	18.57	0.71
Total		55.71	2.12

The emission rates are taken from the GRI-GLYCalc output file, Regenerator Overheads Stream

Green House Gas Emissions Data and Calculations

Reboiler Exhaust Emissions

Unit Number	Description	Emission Factors			Emission Rates		
		CO ₂ , kg/MMBtu	CH ₄ , kg/MMBtu	N ₂ O, kg/MMBtu	CO ₂ , tpy	CH ₄ , tpy	N ₂ O, tpy
16b	Reboiler (10 MMSCFD)	53.02	1.00E-03	1.00E-04	219.18	4.13E-03	4.13E-04
19b	Reboiler (10 MMSCFD)	53.02	1.00E-03	1.00E-04	219.18	4.13E-03	4.13E-04
21b	Reboiler (10 MMSCFD)	53.02	1.00E-03	1.00E-04	219.18	4.13E-03	4.13E-04
Total					657.53	1.24E-02	1.24E-03

The emissions factors are taken from 40 CFR 98, Subpart C, Tables C-1 & C-2

Emission Rate (tpy) = Emission Factor (kg/MMBtu) * 2.2 lb/kg * Fuel Usage (MMBtu/yr) / 2,000 lb/ton

Unit Number	Description	Description	Fuel Type	Operating Time, hr/yr	LHV		HHV	
					Fuel Usage, scf/hr	Fuel Heat Content, Btu/scf	Fuel Usage, MMBtu/hr	Fuel Usage, MMBtu/yr
16b	Reboiler (10 MMSCFD)		Nat. Gas	8,760	429	900	0.39	3,758
19b	Reboiler (10 MMSCFD)		Nat. Gas	8,760	429	900	0.39	3,758
21b	Reboiler (10 MMSCFD)		Nat. Gas	8,760	429	900	0.39	3,758

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 Usage (MMBtu/hr) = LHV Fuel Usage (scf/hr) * LHV Fuel Heat Content (Btu/scf) / 1,000,000 Btu/MMBtu

HHV Fuel Usage (MMBtu/hr) = LHV Fuel Usage (MMBtu/hr) / 0.9 LHV/HHV

HHV Fuel Usage (MMBtu/yr) = HHV Fuel Usage (MMBtu/hr) * Operating Time (hr/yr)

Equipment Leaks Emissions

Unit Number	Description	Emission Rates	
		CO ₂ , tpy	CH ₄ , tpy
F1	Equipment Leaks	16.85	26.04

CO₂ Emission Rate (tpy) = Total TOC Emission Rate (tpy) * (Weight Percent CH₄ (%) / 100)

* [(CO₂ Content (mole %) / 100) * CO₂ Molecular Weight (ton/ton-mole)]
/ [(CH₄ Content (mole %) / 100) * CH₄ Molecular Weight (ton/ton-mole)]

CH₄ Emission Rate (tpy) = Total TOC Emission Rate (tpy) * (Weight Percent CH₄ (%) / 100)

Equipment	Number of Components, #	Emission Factor, kg/hr/source	Emission Factor, pph/source	TOC Emission Rate,	
				pph	tpy
Valves	684	4.50E-03	9.90E-03	6.772	29.660
Connectors	703	2.00E-04	4.40E-04	0.309	1.355
Pump Seals	6	2.40E-03	5.28E-03	0.032	0.139
Compressor Seals	52	8.80E-03	1.94E-02	1.007	4.409
Pressure Relief Valves	58	8.80E-03	1.94E-02	1.123	4.918
Open-Ended Lines	190	2.00E-03	4.40E-03	0.836	3.662
Total				10.078	44.143

The number of components are calculated from the number of compressors and dehydrators (see calculations workbook)

The emission factors are taken from the EPA "1995 Protocol for Equipment Leak Emission Estimates"

TOC Emission Rate (pph) = Number of Components (#) * Emission Factor (pph/source)

TOC Emission Rate (tpy) = Emission Rate (pph) * 8,760 hr/yr / 2,000 lb/ton

Green House Gas Emissions Data and Calculations

Dehydrator Glycol Gas-Assisted Pump Emissions

Unit Number	Description	CH4 Molecular Weight, lb/lb-mole	CO2 Molecular Weight, lb/lb-mole	Emission Rates	
				CO2, tpy	CH4, tpy
16	Dehydrator (10 MMSCFD)	16.04	44.01	0.50	0.77
19	Dehydrator (10 MMSCFD)	16.04	44.01	0.50	0.77
21	Dehydrator (10 MMSCFD)	16.04	44.01	0.50	0.77
	Total			1.49	2.30

CO2 Emission Rate (tpy) = Production Rate (MMscfd) * 365 day/yr * CH4 Emission Factor (tonne/MMscf)

* [Facility CH4 Content (mole %) / Baseline CH4 Content (mole %)]

* [(Facility CO2 Content (mole %) / 100) * CO2 Molecular Weight (tonne/tonne-mole)]

/ [(Facility CH4 Content (mole %) / 100) * CH4 Molecular Weight (tonne/tonne-mole)]

* 2,204.6 lb/tonne / 2,000 lb/ton

CH4 Emission Rate (tpy) = Production Rate (MMscfd) * 365 day/yr * CH4 Emission Factor (tonne/MMscf)

* [Facility CH4 Content (mole %) / Baseline CH4 Content (mole %)]

* 2,204.6 lb/tonne / 2,000 lb/ton

The CH4 and CO2 molecular weights are calculated from the periodic table

Unit Number	Description	Production Rate, MMscfd	CH4 Emission Factor, tonne/MMscf	Baseline CH4 Content, mole %	Facility CH4 Content, mole %	Facility CO2 Content, mole %
16	Dehydrator (10 MMSCFD)	10	1.903E-02	79.5	0.8	0.2
19	Dehydrator (10 MMSCFD)	10	1.903E-02	79.5	0.8	0.2
21	Dehydrator (10 MMSCFD)	10	1.903E-02	79.5	0.8	0.2

The production rates are provided by Harvest

The CH4 emission factor and baseline CH4 content are taken from the API Compendium, Section 5.1.2, Table 5-4

Facility CH4 and CO2 contents are obtained from the extended gas analysis

Gas Driven Pneumatic Devices and Pressure Relief Valve Emissions (Compressor Stations Only)

Unit Number	Description	CH4 Molecular Weight, lb/lb-mole	CO2 Molecular Weight, lb/lb-mole	Emission Rates	
				CO2, tpy	CH4, tpy
NA	Gas Driven Devices	16.04	44.01	0.40	0.62
NA	Pressure Relief Valves	16.04	44.01	3.55E-04	5.49E-04

CO2 Emission Rate (tpy) = (Number of Devices (#) * CH4 Emission Factor (tonne/device-yr)

* [Facility CH4 Content (mole %) / Baseline CH4 Content (mole %)]

* [(Facility CO2 Content (mole %) / 100) * CO2 Molecular Weight (tonne/tonne-mole)]

/ [(Facility CH4 Content (mole %) / 100) * CH4 Molecular Weight (tonne/tonne-mole)]

* 2,204.6 lb/tonne / 2,000 lb/ton

CH4 Emission Rate (tpy) = (Number of Devices (#) * CH4 Emission Factor (tonne/device-yr)

* [Facility CH4 Content (mole %) / Baseline CH4 Content (mole %)]

* 2,204.6 lb/tonne / 2,000 lb/ton

The CH4 and CO2 molecular weights are calculated from the periodic table

Green House Gas Emissions Data and Calculations

Unit Number	Description	Number of Devices, #	CH ₄ Emission Factor, tonne/device-yr	Baseline CH ₄ Content, mole %	Facility CH ₄ Content, mole %	Facility CO ₂ Content, mole %
NA	Gas Driven Devices	23	2.415	78.8	0.8	0.2
NA	Pressure Relief Valves	76	0.00065	78.8	0.8	0.2

The number of devices are provided by Harvest

The gas driven pneumatic devices CH₄ emission factor and baseline CH₄ content are taken from the API Compendium, Section 5.6.1, Table 5-15

The pressure relief valve CH₄ emission factor and baseline CH₄ content are taken from the API Compendium, Section 5.7.2, Table 5-24
Facility CH₄ and CO₂ contents are obtained from the extended gas analysis

Malfunction Emissions

Unit Number	Description	Emission Rates		
		VOC, tpy	CO ₂ , tpy	CH ₄ , tpy
M1	Malfunctions	10.00	397.59	614.52

VOC emission rate is estimated (see calculations workbook)

GHG Emission Rate (tpy) = VOC Emission Rate (tpy) * (Total Component Weight (lb/lb-mole) / VOC Component Weight (lb-lb-mole))
* (GHG Weight Percent of Total (%) / 100)

Gas Stream Composition

Component	Mole Percent, %	Molecular Weight, lb/lb-mole	Component Weight, lb/lb-mole	Weight Percent of Total, %	Emission Factor, lb/scf
Carbon Dioxide	18.7401%	44.01	0.08	38.1640	2.17E-04
Hydrogen Sulfide	0.0000%	34.07	0.000	0.0000	0.00E+00
Nitrogen	0.1362%	28.01	3.8150E-04	0.1765	1.01E-06
Methane	79.4731%	16.04	0.13	58.9868	3.36E-04
Ethane	1.2310%	30.07	3.7016E-03	1.7129	9.76E-06
Propane	0.3070%	44.09	1.3536E-03	0.6263	3.57E-06
IsoButane	0.0447%	58.12	2.5980E-04	0.1202	6.85E-07
Normal Butane	0.0395%	58.12	2.2957E-04	0.1062	6.05E-07
IsoPentane	0.0099%	72.15	7.1429E-05	0.0331	1.88E-07
Normal Pentane	0.0067%	72.15	4.8341E-05	0.0224	1.27E-07
Cyclopentane	0.0002%	70.14	1.4028E-06	0.0006	3.70E-09
n-Hexane	0.0012%	86.17	1.0340E-05	0.0048	2.73E-08
Cyclohexane	0.0005%	84.16	4.2080E-06	0.0019	1.11E-08
Other Hexanes	0.0026%	86.18	2.2407E-05	0.0104	5.91E-08
Heptanes	0.0013%	100.20	1.3026E-05	0.0060	3.43E-08
Methylcyclohexane	0.0013%	98.19	1.2765E-05	0.0059	3.37E-08
2,2,4-Trimethylpentane	0.0001%	100.21	1.0021E-06	0.0005	2.64E-09
Benzene	0.0002%	78.11	1.5622E-06	0.0007	4.12E-09
Toluene	0.0011%	92.14	1.0135E-05	0.0047	2.67E-08
Ethylbenzene	0.0001%	106.17	1.0617E-06	0.0005	2.80E-09
Xylenes	0.0009%	106.17	9.5553E-06	0.0044	2.52E-08
C8+ heavies	0.0022%	110.00	2.4200E-05	0.0112	6.38E-08
Total	100%		0.22	100.0000	5.70E-04
VOC			2.0744E-03	--	5.47E-06

Gas stream composition obtained from **Horse Canyon** extended gas analysis dated 5/11/2023

Component Weight (lb/lb-mole) = [Mole Percent (scf/scf) / 100] * Molecular Weight (lb/lb-mole)

Weight Percent of Total (%) = 100 * Component Weight (lb/lb-mole) / Total (lb/lb-mole)

Weight Percent of VOC (%) = 100 * Component Weight (lb/lb-mole) / Total VOC (lb/lb-mole)

Emission Factor (lb/scf) = [Mole Percent (mole/mole) / 100] * Molecular Weight (lb/lb-mole) / 379.3 scf/lb-mole

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.
-

HAP emissions from the engines, reboilers, and heater are calculated using GRI-HAPCalc. Emissions from the dehydrators are calculated using GRI-GLYCalc 4.0. Emissions from the storage tanks are calculated using TANKS 4.0.9d. All information currently available for the models is provided in Section 6.

STANDARD EQUIPMENT

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

BARRING DEVICE – Manual.

BEARINGS – Heavy duty, replaceable, precision type.

BREATHER – Closed system.

CONNECTING RODS – Drop forged steel, rifle drilled.

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

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

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

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

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

ENGINE ROTATION – Counterclockwise when facing flywheel.

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

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

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

FLYWHEEL HOUSING – No. 00 SAE.

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

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

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

INTERCOOLER – Air-to-water.

LEVELING BOLTS

LIFTING EYES

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

MANIFOLDS – Exhaust, (2) water cooled.

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

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

PAINT – Oilfield orange primer.

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

SHIPPING SKID – Steel for domestic truck or rail.

TURBOCHARGERS – Two, dry type. Wastegate controlled.

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

WATER CIRCULATING SYSTEM

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

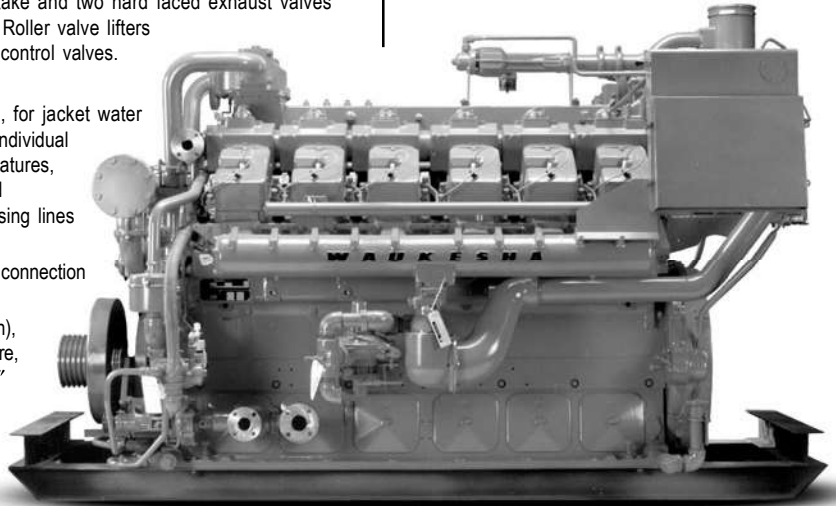
Engine Jacket – Belt driven water circulating pump, cluster type thermostatic temperature regulating valve, full flow bypass type. Flange connections and mating flanges for (2) 4" (102 mm) inlets and (1) 5" (127 mm) outlet.

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

Waukesha
VHP

L7042GL

VHP™ Series Gas Engine
886 - 1547 BHP



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

SPECIFICATIONS

Cylinders

V 12

Piston Displacement

7040 cu. in.

(115 L)

Bore & Stroke

9.375" x 8.5"

(238 x 216 mm)

Compression Ratio

10.5:1

Jacket Water

System Capacity

107 gal.

(405 L)

Lube Oil Capacity

90 gal.

(340 L)

Starting System

125 - 150 psi air/gas

24/32V electric

Dry Weight

21,000 lb.

(9525 kg)

Full Load Exhaust

Emissions

Nox - 1.50 g/bhp-hr

CO - 2.65 g/bhp-hr

HC - 1.00 g/bhp-hr
(non-methane)

Waukesha Engine
ISO 9001
CERTIFIED

POWER RATINGS: L7042GL VHP SERIES GAS ENGINES

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

¹High speed turbocharger match – 1001-1200 rpm

²Low speed turbocharger match – 700-1000 rpm

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

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

All natural gas engine ratings are based on a fuel of 900 Btu/ft³ (35.3 MJ/nm³) SLHV value, with a 91 Waukesha Knock Index®.

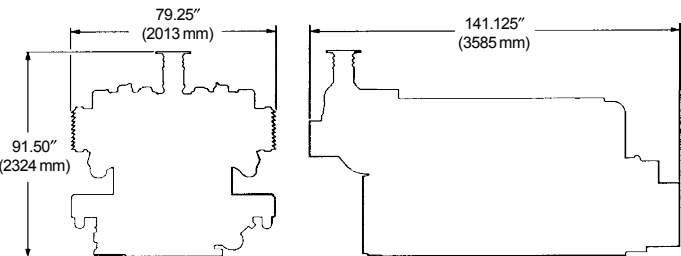
For conditions or fuels other than standard, the Waukesha Engine Sales Engineering Department.

PERFORMANCE: L7042GL VHP SERIES GAS ENGINES

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

NOTES:

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



Waukesha

**WAUKESHA ENGINE
DRESSER, INC.**

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

Bulletin 7005 0102

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

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

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

Table 3.2-2. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE LEAN-BURN ENGINES^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

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



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

August 19, 1994

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

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

Dehydrator	NO _x #/Day	CO #/Day	Fuel SCEH	Total Stack Gas ACEH	Stack Ht. Ft	Stack Dia Inches	Stack Temp F	Stack Velocity FPM
J2P10M11109	0.86	0.17	357	10010	15'-8"	8	600	5.1
J2P10M749	1.03	0.21	429	12012	19'-1"	10	600	6.1
J2P12M11109	0.86	0.17	357	10010	15'-8"	8	600	5.1
J2P12M749	1.03	0.21	429	12012	19'-1"	10	600	6.1
J2P20M11109	1.03	0.21	429	12012	19'-1"	10	600	6.1

Please call me if you need additional information.

Sincerely,

F. Heath

Frosty Heath

FH/ab

5928 U.S. Highway 54
Farmington, NM 87401

InFab

INDUSTRIAL FABRICATION

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

July 22, 1998

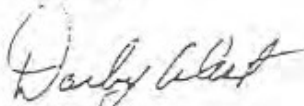
Mr. Bobby Myers
Williams Field Services
Environmental Affairs
295 Chipeta Way
P O Box 58900
Salt Lake City, UT 84158-0900

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

Unit Description	SO lb/day	NO _x lb/ Day	CO lb/ Day	Fuel SCFH	Total Organic Comp. Lb/d	Stack Ht. Ft.	Stack Dia inches	Stack Temp °F	Stack Velocity
10 MM LP	.01	.27	.43	659	.13	10'	8	600	5.1
10 MM HP	.01	.27	.43	659	.13	10'	10	600	6.1
12 MM LP	.02	.49	.78	1208	.23	10'	8	600	5.1
12 MM HP	.02	.49	.78	1208	.23	10'	10	600	6.1
15 MM	.02	.54	.85	1318	.25	10'	8	600	5.1
20 MM LP	.02	.67	1.07	1648	.31	10'	8	600	5.1
20 MM HP	.02	.67	1.07	1648	.31	10'	12	600	6.1

If you need any additional information please call me.

Sincerely,



Darby West
VP Engineering

Table 1.4-1. EMISSION FACTORS FOR NITROGEN OXIDES (NO_x) AND CARBON MONOXIDE (CO)
FROM NATURAL GAS COMBUSTION^a

Combustor Type (MMBtu/hr Heat Input) [SCC]	NO _x ^b		CO	
	Emission Factor (lb/10 ⁶ scf)	Emission Factor Rating	Emission Factor (lb/10 ⁶ scf)	Emission Factor Rating
Large Wall-Fired Boilers (>100) [1-01-006-01, 1-02-006-01, 1-03-006-01]				
Uncontrolled (Pre-NSPS) ^c	280	A	84	B
Uncontrolled (Post-NSPS) ^c	190	A	84	B
Controlled - Low NO _x burners	140	A	84	B
Controlled - Flue gas recirculation	100	D	84	B
Small Boilers (<100) [1-01-006-02, 1-02-006-02, 1-03-006-02, 1-03-006-03]				
Uncontrolled	100	B	84	B
Controlled - Low NO _x burners	50	D	84	B
Controlled - Low NO _x burners/Flue gas recirculation	32	C	84	B
Tangential-Fired Boilers (All Sizes) [1-01-006-04]				
Uncontrolled	170	A	24	C
Controlled - Flue gas recirculation	76	D	98	D
Residential Furnaces (<0.3) [No SCC]				
Uncontrolled	94	B	40	B

^a Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. To convert from lb/10⁶ scf to kg/10⁶ m³, multiply by 16. Emission factors are based on an average natural gas higher heating value of 1,020 Btu/scf. To convert from lb/10⁶ scf to lb/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. SCC = Source Classification Code. ND = no data. NA = not applicable.

^b Expressed as NO_x. For large and small wall fired boilers with SNCR control, apply a 24 percent reduction to the appropriate NO_x emission factor. For tangential-fired boilers with SNCR control, apply a 13 percent reduction to the appropriate NO_x emission factor.

^c NSPS=New Source Performance Standard as defined in 40 CFR 60 Subparts D and Db. Post-NSPS units are boilers with greater than 250 MMBtu/hr of heat input that commenced construction modification, or reconstruction after August 17, 1971, and units with heat input capacities between 100 and 250 MMBtu/hr that commenced construction modification, or reconstruction after June 19, 1984.

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

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

^a Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from lb/10⁶ scf to kg/10⁶ m³, multiply by 16. To convert from lb/10⁶ scf to lb/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. TOC = Total Organic Compounds.

VOC = Volatile Organic Compounds.

^b Based on approximately 100% conversion of fuel carbon to CO₂. CO₂[lb/10⁶ scf] = (3.67) (CON) (C)(D), where CON = fractional conversion of fuel carbon to CO₂, C = carbon content of fuel by weight (0.76), and D = density of fuel, 4.2x10⁴ lb/10⁶ scf.

^c All PM (total, condensable, and filterable) is assumed to be less than 1.0 micrometer in diameter. Therefore, the PM emission factors presented here may be used to estimate PM₁₀, PM_{2.5} or PM₁ emissions. Total PM is the sum of the filterable PM and condensable PM. Condensable PM is the particulate matter collected using EPA Method 202 (or equivalent). Filterable PM is the particulate matter collected on, or prior to, the filter of an EPA Method 5 (or equivalent) sampling train.

^d Based on 100% conversion of fuel sulfur to SO₂.

Assumes sulfur content is natural gas of 2,000 grains/10⁶ scf. The SO₂ emission factor in this table can be converted to other natural gas sulfur contents by multiplying the SO₂ emission factor by the ratio of the site-specific sulfur content (grains/10⁶ scf) to 2,000 grains/10⁶ scf.



PUMPS AVAILABLE:

“PV” SERIES GLYCOL PUMPS					
Catalog Number	Model Number	Capacity Gal. / Hr.		Working Pressure	
		Min.	Max. **	Min.	Max.
GAA	315 PV	3	13	100	1500
GAD	1715 PV	8	40	300	1500
GAB	4015 PV	12	40	300	1500
GAF	9015 PV	27	90	300	1500
GAH	21015 PV	66	210	400	1500
GAJ	45015 PV	166	450	400	1500

“SC” SERIES GLYCOL PUMPS					
Catalog Number	Model Number	Capacity Gal. / Hr.		Working Pressure	
		Min.	Max. **	Min.	Max.
GAC	2015 SC*	8	20	100	500
GAG	5015 SC*	12	50	100	500
GAI	10015 SC*	22	100	100	500
GAK	20015 SC*	60	200	100	500

**Maximum output is affected by system pressure drops. See system operation parameter for maximum output curves.

NOTE: To order a Pump with Viton O Rings add 1 to Catalog number. Example: To order GAA with Viton O Rings, specify: GAA1.

MAXIMUM DESIGN PRESSURE FOR P.V. AND S.C. MODELS IS 1500 psig

APPLICATIONS:

- Circulating pump for gas glycol dehydrators
- Circulating pump for gas amine desulphurizers

FEATURES:

- Eliminates absorber liquid level controls
- No auxiliary power supply required
- Low gas consumption
- Completely sealed system prevents loss glycol
- No springs or toggles, only two moving assemblies
- Hydraulic “cushioned” check valves with removable seats of hardened stainless steel

OPERATION:

Materials for the vital working parts have been selected for greatest wear resistance. These materials include stainless steel, hard chrome plating, satellite, nylon and teflon. Moving “O” Ring seals are compounded specifically for ethylene glycol service. A complete operational check is given each pump after assembly.

“O” Ring sealed check valve darts are standard in all except the model 315 PV. Teflon sealed darts are available. Capsule type ball checks are used in the 315 PV and are available for 1715 PV, 2015 SC and 4015 PV.

*These pumps are designed for operating pressures between 100 and 500 psig maximum design pressure for all models is 1500 psig.

‡Configuration of Glycol Pump is a trademark of Kimray, Inc.

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

^aWater/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.

^bThese 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.

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

biogenic fuels, you shall report the results of each quarterly sample analysis, expressed as a decimal fraction (e.g., if the biogenic fraction of the CO₂emissions is 30 percent, report 0.30).

(3) Within 30 days of receipt of a written request from the Administrator, you shall submit explanations of the following:

(i) An explanation of how company records are used to quantify fuel consumption, if the Tier 1 or Tier 2 Calculation Methodology is used to calculate CO₂emissions.

(ii) An explanation of how company records are used to quantify fuel consumption, if solid fuel is combusted and the Tier 3 Calculation Methodology is used to calculate CO₂emissions.

(iii) An explanation of how sorbent usage is quantified.

(iv) An explanation of how company records are used to quantify fossil fuel consumption in units that uses CEMS to quantify CO₂emissions and combusts both fossil fuel and biomass.

(v) An explanation of how company records are used to measure steam production, when it is used to calculate CO₂mass emissions under §98.33(a)(2)(iii) or to quantify solid fuel usage under §98.33(c)(3).

(4) Within 30 days of receipt of a written request from the Administrator, you shall submit the verification data and information described in paragraphs (e)(2)(iii), (e)(2)(v), and (e)(2)(vii) of this section.

[, as amended at 75 FR 79151, Dec. 17, 2010]

§ 98.37 Records that must be retained.

In addition to the requirements of §98.3(g), you must retain the applicable records specified in §§98.34(f) and (g), 98.35(b), and 98.36(e).

§ 98.38 Definitions.

All terms used in this subpart have the same meaning given in the Clean Air Act and subpart A of this part.

Table C–1 to Subpart C of Part 98—Default CO₂Emission Factors and High Heat Values for Various Types of Fuel

Table C–1 to Subpart C—Default CO₂ Emission Factors and High Heat Values for Various Types of Fuel

Fuel type	Default high heat value	Default CO₂ emission factor
Coal and coke	mmBtu/short ton	kg CO ₂ /mmBtu
Anthracite	25.09	103.54
Bituminous	24.93	93.40
Subbituminous	17.25	97.02
Lignite	14.21	96.36
Coke	24.80	102.04
Mixed (Commercial sector)	21.39	95.26

Mixed (Industrial coking)	26.28	93.65
Mixed (Industrial sector)	22.35	93.91
Mixed (Electric Power sector)	19.73	94.38
Natural gas	mmBtu/scf	kg CO ₂ /mmBtu
(Weighted U.S. Average)	1.028×10^{-3}	53.02
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	0.135	74.00
Kerosene	0.135	75.20
Liquefied petroleum gases (LPG)	0.092	62.98
Propane	0.091	61.46
Propylene	0.091	65.95
Ethane	0.069	62.64
Ethanol	0.084	68.44
Ethylene	0.100	67.43
Isobutane	0.097	64.91
Isobutylene	0.103	67.74
Butane	0.101	65.15
Butylene	0.103	67.73
Naphtha (<401 deg F)	0.125	68.02
Natural Gasoline	0.110	66.83
Other Oil (>401 deg F)	0.139	76.22
Pentanes Plus	0.110	70.02
Petrochemical Feedstocks	0.129	70.97
Petroleum Coke	0.143	102.41
Special Naphtha	0.125	72.34
Unfinished Oils	0.139	74.49
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	74.49
Other fuels-solid	mmBtu/short ton	kg CO ₂ /mmBtu

Municipal Solid Waste	9.95 ¹	90.7
Tires	26.87	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 ²	1.388×10^{-3}	59.00
Biomass fuels—solid	mmBtu/short ton	kg CO ₂ /mmBtu
Wood and Wood Residuals	15.38	93.80
Agricultural Byproducts	8.25	118.17
Peat	8.00	111.84
Solid Byproducts	25.83	105.51
Biomass fuels—gaseous	mmBtu/scf	kg CO ₂ /mmBtu
Biogas (Captured methane)	0.841×10^{-3}	52.07
Biomass Fuels—Liquid	mmBtu/gallon	kg CO ₂ /mmBtu
Ethanol	0.084	68.44
Biodiesel	0.128	73.84
Biodiesel (100%)	0.128	73.84
Rendered Animal Fat	0.125	71.06
Vegetable Oil	0.120	81.55

¹Use 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.

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

[74 FR 56374, Oct. 30, 2009, as amended at 75 FR 79153, Dec. 17, 2010]

Table C–2 to Subpart C of Part 98—Default CH₄ and N₂O Emission Factors for Various Types of Fuel

Table C–2 to Subpart C—Default CH₄ and N₂O Emission Factors for Various Types of Fuel

	Default CH ₄ emission factor (kg	Default N ₂ O emission factor (kg
--	---	--

Fuel type	CH ₄ /mmBtu)	N ₂ O/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}
Municipal Solid Waste	3.2×10^{-02}	4.2×10^{-03}
Tires	3.2×10^{-02}	4.2×10^{-03}
Blast Furnace Gas	2.2×10^{-05}	1.0×10^{-04}
Coke Oven Gas	4.8×10^{-04}	1.0×10^{-04}
Biomass Fuels—Solid (All fuel types in Table C–1)	3.2×10^{-02}	4.2×10^{-03}
Biogas	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 CH₄/mmBtu.

[74 FR 56374, Oct. 30, 2009, as amended at 75 FR 79154, Dec. 17, 2010]

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

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default CH₄ content that can be used for adjusting the emission factors to other CH₄ contents. The default CH₄ content and associated uncertainties for each industry segment are provided in Table E-4. The GRI/EPA study did not observe any active gas-assisted pumps in the transmission and storage segments, so no emission factors are presented for these industry segments.

Table 5-4. GRI/EPA Kimray Pump CH₄ Emission Factors

Industry Segment	CH ₄ Emission Factor ^a , Original Units	CH ₄ Emission Factor ^b , Converted to Tonnes Basis	CH ₄ Content Basis for Industry Segment	Uncertainty ^c (+/- %)
Production	992.0 scf/10 ⁶ scf gas processed	0.01903 tonnes/10 ⁶ scf gas processed	78.8 mole %	82.8
		0.6720 tonnes/10 ⁶ m ³ gas processed		
Processing	177.75 scf/10 ⁶ scf gas processed	0.0034096 tonnes/10 ⁶ scf gas processed	86.8 mole %	61.5
		0.12041 tonnes/10 ⁶ m ³ gas processed		

Footnotes and Sources:

^a Myers, D.B. and M.R. Harrison. *Methane Emissions from the Natural Gas Industry, Volume 15: Gas Assisted Glycol Pumps*, Final Report, GRI-94/0257.33 and EPA-600/R-96-080o, Gas Research Institute and U.S. Environmental Protection Agency, June 1996.

^b CH₄ emission factors converted from scfy are based on 60°F and 14.7 psia.

^c Uncertainty is based on a 95% confidence interval; however, because the data used to calculate the reference emission factor were unavailable, the uncertainty at a 95% confidence interval was calculated based on the uncertainty at a 90% confidence interval presented in the source assuming a data set size of 10.

An example calculation for glycol dehydrator Kimray pump CH₄ emissions is given below.

EXHIBIT 5.2: Sample Calculation for Dehydration Kimray Vent Emissions

INPUT DATA:

From the previous example, a glycol dehydrator at a gas processing plant treats 25×10⁶ scf/day of gas. This dehydration unit includes a gas-operated pump but does not include a flash separator. Calculate the vented emissions from the pump and from the dehydrator as a whole.

CALCULATION METHODOLOGY:

1. *Calculate emissions from the pump.* Assuming the pump is a Kimray or similar type, Table 5-4 provides an appropriate emission factor. The CH₄ emissions are calculated by multiplying this emission factor by the annual gas throughput and adjusting for the facility CH₄ concentration, as shown below.

$$E_{\text{CH}_4, \text{pump}} = \frac{25 \times 10^6 \text{ scf}}{\text{day}} \times \frac{365 \text{ day}}{\text{yr}} \times \frac{0.0034096 \text{ tonne CH}_4}{10^6 \text{ scf}} \times \frac{0.90 \text{ tonne mole CH}_4 \text{ (facility)}}{0.868 \text{ tonne mole CH}_4 \text{ (default)}}$$

$$E_{\text{CH}_4, \text{pump}} = 32.26 \text{ tonnes CH}_4 / \text{yr}$$

factors. The emission factors can be adjusted based on the CH₄ content of the site-specific gas used to drive the devices if the natural gas is significantly different from the default basis. Also, if the pneumatic devices are driven with gas that contains significant quantities of CO₂, the CH₄ emission factors can be adjusted based on the relative concentrations of CH₄ and CO₂ in the gas to estimate the CO₂ emissions.

In production, the continuous bleed, intermittent bleed, and average pneumatic device emission factors shown in Table 5-15 are taken from the 1996 GRI/EPA report (Volumes 2 and 12) (Harrison, 1996; Shires, 1996). The pneumatic device emission factors from the GRI/EPA reports were derived using vendor and/or measured data for both intermittent and continuous bleed devices. The instrument controller emission factor (pressure unspecified) is taken from a 2002 CAPP document and is based on data collected in Alberta, Canada (CAPP, 2002). Other pneumatic device emission factors such as transmitters and controllers are taken from a 2003 CAPP report (CAPP, 2003). The emission factors from the 2003 CAPP document are most appropriate for standard (high-bleed) components that were common prior to 1985 and are a function of the device operating pressure (factors are given at 140 kPa or 240 kPa, both gauge pressure).

Table 5-15. Gas-Driven Pneumatic Device CH₄ Emission Factors

Device Type	Emission Factor ^a , Original Units	Uncertainty ^b (±%)	Emission Factor ^c , Converted to Tonnes Basis
Production Segment			Based on 78.8 mole% CH ₄ ^a
Continuous bleed ^a	654 scfd gas/device	40.3	3.608 tonnes/device-yr
Continuous bleed, low/no-bleed ^d	33.4 scfd gas/device	107	0.184 tonnes/device-yr
Continuous bleed, high-bleed ^d	896 scfd gas/device	33.1	4.941 tonnes/device-yr
Intermittent bleed ^a	323 scfd gas/device	41.2	1.782 tonnes/device-yr
<i>Production average^a (if device type is unknown)</i>	<i>345 scfd CH₄/device</i>	<i>49.5</i>	<i>2.415 tonnes/device-yr</i>
Transmitter (140 kPag) ^e	0.12 m ³ gas/hr/device	Uncertainty not specified	0.56 tonnes/device-yr
Transmitter (240 kPag) ^e	0.2 m ³ gas/hr/device		0.94 tonnes/device-yr
Controller (140 kPag) ^e	0.6 m ³ gas/hr/device		2.8 tonnes/device-yr
Controller (240 kPag) ^e	0.8 m ³ gas/hr/device		3.7 tonnes/device-yr
Controller (pressure not specified) ^f	0.1996 m ³ gas/hr/device		0.9333 tonnes/device-yr
I/P Transducer (140 kPag) ^e	0.6 m ³ gas/hr/device		2.8 tonnes/device-yr
I/P Transducer (240 kPag) ^e	0.8 m ³ gas/hr/device		3.7 tonnes/device-yr
P/P Positioner (140 kPag) ^e	0.32 m ³ gas/hr/device		1.5 tonnes/device-yr

Table 5-15. Gas-Driven Pneumatic Device CH₄ Emission Factors, continued

Device Type	Emission Factor ^a , Original Units	Uncertainty ^b (±%)	CH ₄ Emission Factor ^c , Converted to Tonnes Basis
Production Segment, continued			Based on 78.8 mole% CH ₄ ^a
P/P Positioner (240 kPag) ^e	0.5 m ³ gas/hr/device		2.3 tonnes/device-yr
I/P Positioner (140 kPag) ^e	0.4 m ³ gas/hr/device		1.9 tonnes/device-yr
I/P Positioner (240 kPag) ^e	0.6 m ³ gas/hr/device		2.8 tonnes/device-yr
Processing			Based on 86.8 mole% CH ₄ ^a
Continuous bleed	497,584 scf gas/device-yr	35.5	8.304 tonnes/device-yr
Piston valve operator	48 scf gas/device-yr	60.9	8.010E-04 tonnes/device-yr
Pneumatic/hydraulic valve operator	5,627 scf gas/device-yr	134	0.0939 tonnes/device-yr
Turbine valve operator	67,599 scf gas/device-yr	407	1.128 tonnes/device-yr
Processing average (if device type is unknown)	164,949 scf CH ₄ /plant-yr	170	3.164 tonnes/plant-yr
	7.431 ^g scf CH ₄ /MMscf processed		1.425E-04 tonnes/10 ⁶ scf processed 5.034E-03 tonnes/10 ⁶ m ³ processed
Transmission and Storage			Based on 93.4 mole% CH ₄ ^a
Continuous bleed	497,584 scf gas/device-yr	35.5	8.915 tonnes/device-yr
Pneumatic/hydraulic valve operator	5,627 scf gas/device-yr	134	0.1008 tonnes/device-yr
Turbine valve operator	67,599 scf gas/device-yr	407	1.211 tonnes/device-yr
Transmission or Storage average (if device type is unknown)	162,197 scf CH ₄ /device-yr	96.3	3.111 tonnes/device-yr
Distribution			
Pneumatic isolation valves ^h based on 93.4 mole% CH ₄	0.366 tonnes CH ₄ /device-yr	Uncertainty not specified	0.366 tonnes/device-yr
Pneumatic control loops ^h based on 94.4 mole% CH ₄	3.465 tonnes CH ₄ /device-yr		3.465 tonnes/device-yr
Distribution average (if device type is unknown) based on 94.9 mole% CH ₄ weighted avg.	2.941 tonnes CH ₄ /device-yr		2.941 tonnes/device-yr

Footnotes and Sources:

^a Shires, T.M. and M.R. Harrison. *Methane Emissions from the Natural Gas Industry, Volume 12: Pneumatic Devices, Final Report*, GRI-94/0257.29 and EPA-600/R-96-080I, Gas Research Institute and U.S. Environmental Protection Agency, June 1996; and Harrison, M.R., L.M. Campbell, T.M. Shires, and R.M. Cowgill. *Methane Emissions from the Natural Gas Industry, Volume 2: Technical Report, Final Report*, GRI-94/0257.1 and EPA-600/R-96-080b, Gas Research Institute and U.S. Environmental Protection Agency, June 1996. The average CH₄ concentration associated with these emission factors is provided in Table E-4.

^b Uncertainty based on 95% confidence interval converted from the 90% confidence intervals for the data used to develop the original emission factor.

^c CH₄ emission factors converted from scf or m³ are based on 60°F and 14.7 psia.

^d High-bleed devices refer to devices with leak rates greater than 6 scf/hr while low-bleed devices are 6 scf/hr or lower. Developed from data used for Volume 12 of the GRI/EPA natural gas industry CH₄ emissions study (Shires, 1996). Refer to Appendix B for the development of these emission factors.

^e Canadian Association of Petroleum Producers (CAPP), *Calculating Greenhouse Gas Emissions*, Table 1-12, Canadian Association of Petroleum Producers, Publication Number 2003-03, April 2003. Note that the emission factors provided by this source are for the total gas emitted and were converted to a CH₄ basis using the CH₄ content shown in the table. I/P refers to a device that converts electric current to pneumatic pressure. P/P refers to a device that converts pneumatic pressure to pneumatic pressure.

^f Canadian Association of Petroleum Producers (CAPP), *Estimation of Flaring and Venting Volumes from Upstream Oil and Gas Facilities*, Table 3-4, Canadian Association of Petroleum Producers, Publication Number 2002-0009, May 2002. Factor shown is based on data collected in Alberta, and was converted from a total gas basis to a CH₄ basis using the CH₄ content shown in the table.

^g Shires, T.M. and C.J. Loughran. *Updated Canadian National Greenhouse Gas Inventory for 1995, Emission Factor Documentation, Technical Memorandum*, August 23, 2001.

^h Derived from estimated processing pneumatic devices vented CH₄ emissions (0.1196 ± 133% Bscf/YR) (Harrison, et al., Vol 2, 1996), and estimated annual gas processed (16,450.855 Bscf/YR (DOE, 1993)).

Similarly, the GRI/EPA study developed a PRV emission factor based on the average size and duration of release events at production facilities. The amount of gas released through a PRV is highly dependent on upstream gas pressure and valve size. A more detailed estimation method for PRV releases is provided in Appendix B (CAPP, 2002, Section 3.2.3).

Table 5-24. Production Segment CH₄ Emission Factors for Other Non-Routine Releases

Source	CH ₄ Emission Factor ^a , Original Units	CH ₄ Emission Factor ^b , Converted to Tonnes Basis	CH ₄ Content Basis of Factor	Uncertainty ^c (±%)
Pressure relief valves releases	34 scfy/PRV	0.00065 tonnes/PRV-yr	78.8 mole %	310
Gathering gas pipeline mishaps (dig-ins)	669 scfy/mile	0.0128 tonnes/mile-yr 0.00797 tonnes/km-yr	78.8 mole %	2,350
Offshore emergency shutdown (ESD)	256,888 scfy/platform	4.9276 tonnes/platform-yr	78.8 mole %	276

Footnotes and Sources:

^a Shires, T.M. *Methane Emissions from the Natural Gas Industry, Volume 7: Blow and Purge Activities, Final Report*, GRI-94/0257.24 and EPA-600/R-96-080g, Gas Research Institute and U.S. Environmental Protection Agency, June 1996.

^b CH₄ emission factors converted from scf or m³ are based on 60°F and 14.7 psia. The CH₄ emission factors can be adjusted based on the relative concentrations of CH₄ and CO₂ to estimate CO₂ emissions.

^c Uncertainty based on 95% confidence interval converted from the 90% confidence intervals for the data used to develop the original emission factor.

Dig-ins of gathering gas lines in production are unintentional mishaps that result in gas being released to the atmosphere. Gathering crude pipelines may emit CH₄, entrained in the crude at pipeline pressure, but dig-in or leak emission factors for these pipelines are not readily available.

As with the maintenance emission factors presented earlier, the other release emission factors can be adjusted based on the CH₄ content of the site-specific gas, if the natural gas has a significantly different CH₄ content from the default basis (if given). Also, if the facility gas contains a significant quantity of CO₂, the CH₄ emission factor can be adjusted based on the relative concentrations of CH₄ and CO₂ in the gas to estimate the CO₂ emissions.

An example calculation is given in Exhibit 5.32 that illustrates the use of emission factors from other production segment non-routine emission sources.

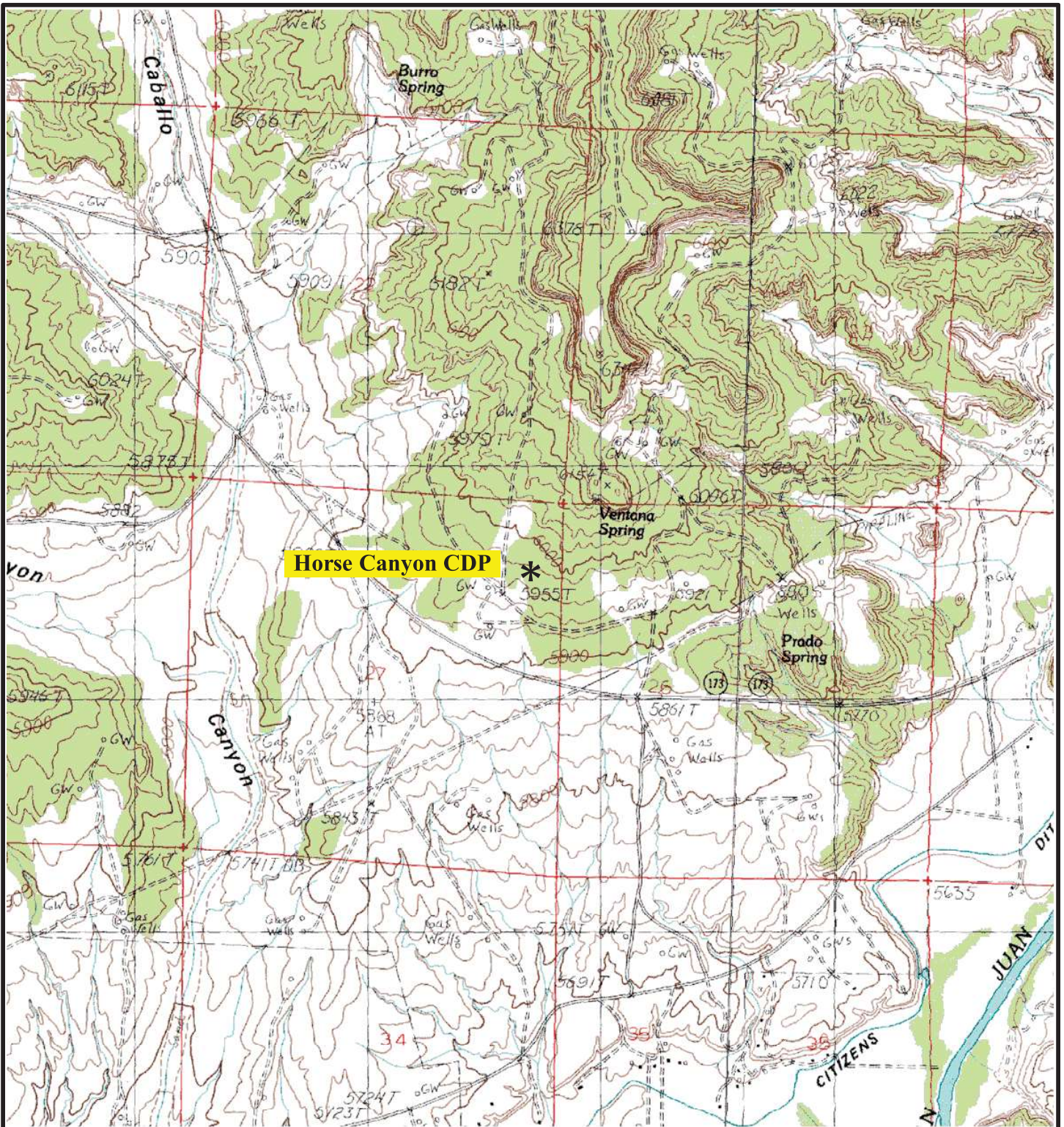
Section 8

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	

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



Source: USGS Archuleta and Turley, NM Quadrangles

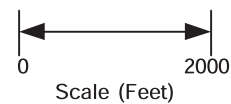


Figure 1 Site Vicinity / Topographic Map
Horse Canyon CDP Compressor Station
 Section 27, Township 30N Range 9W
 San Juan County, New Mexico

Section 9

Proof of Public Notice

(for NSR applications submitting under 20.2.72 or 20.2.74 NMAC)

(This proof is required by: 20.2.72.203.A.14 NMAC "Documentary Proof of applicant's public notice")

☐ **I have read the AQB "Guidelines for Public Notification for Air Quality Permit Applications"**

This document provides detailed instructions about public notice requirements for various permitting actions. It also provides public notice examples and certification forms. Material mistakes in the public notice will require a re-notice before issuance of the permit.

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

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

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

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

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

Not applicable since this is a Title V permit application.

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 Horse Canyon CDP compresses and dehydrates natural gas for pipeline transmission.

The facility is being permitted for operation of seven natural gas fired engines, all driving compressors, and three dehydrators. Other emission sources at the facility will include a heater, miscellaneous storage tanks and fugitive equipment leaks from process piping (valves, flanges, seals, etc.). The storage tanks will be used to store lubrication and used oil, produced/wastewater, antifreeze, corrosion inhibitor, solvent, glycol and de-emulsifier.

The facility typically operates 24 hours per day, seven days per week, 52 weeks per year, 8,760 hours per year.

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):

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):

Section 12

Section 12.A

PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

Not applicable since this is a Title V permit application.

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 RELEVANT TO YOUR FACILITY'S NOTICE OF INTENT OR PERMIT.

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

To save paper and to standardize the application format, delete this sentence, and begin your submittal for this attachment on this page.

Example of a Table for State Regulations:

State Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
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.
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. These requirements are not applicable under 20.2.70 NMAC (see 20..2.3.9 NMAC).
20.2.7 NMAC	Excess Emissions	Yes	Facility	This regulation is applicable because it prohibits excess emissions unless proper notification procedures are followed.
20.2.23 NMAC	Fugitive Dust Control	No	Facility	This regulation may apply if, this is an application for a notice of intent (NOI) per 20.2.73 NMAC, if the activity or facility is a fugitive dust source listed at 20.2.23.108.A NMAC, and if the activity or facility is located in an area subject to a mitigation plan pursuant to 40 CFR 51.930. As of January 2019, the only areas of the State subject to a mitigation plan per 40 CFR 51.930 are in Doña Ana and Luna Counties. Sources exempt from 20.2.23 NMAC are activities and facilities subject to a permit issued pursuant to the NM Air Quality Control Act, the Mining Act, or the Surface Mining Act (20.2.23.108.B NMAC). 20.2.23.108 APPLICABILITY: A. This part shall apply to persons owning or operating the following fugitive dust sources in areas requiring a mitigation plan in accordance with 40 CFR Part 51.930: (1) disturbed surface areas or inactive disturbed surface areas, or a combination thereof, encompassing an area equal to or greater than one acre; (2) any commercial or industrial bulk material processing, handling, transport or storage operations. B. The following fugitive dust sources are exempt from this part: (1) agricultural facilities, as defined in this part; (2) roadways, as defined in this part; (3) operations issued permits pursuant to the state of New Mexico Air Quality Control Act, Mining Act or Surface Mining Act; and (4) lands used for state or federal military activities. [20.2.23.108 NMAC - N, 01/01/2019]
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No	1-3 & 20	This regulation does not apply to the station because the compressor station does not include new or existing gas burning equipment (external combustion emission sources, such as gas fired boilers and heaters) having a heat input of greater than 1,000,000 million British Thermal Units per year per unit.
20.2.34 NMAC	Oil Burning Equipment: NO ₂	No	N/A	This regulation does not apply to internal combustion equipment such as engines. It only applies to external combustion equipment such as heaters or boilers. This facility has oil burning equipment (external combustion emission sources, such as oil fired boilers and heaters) having a heat input of greater than 1,000,000 million British Thermal Units per year per unit.
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.

State Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
20.2.37 and 20.2.36 NMAC	Petroleum Processing Facilities and Petroleum Refineries	N/A	N/A	These regulations were repealed by the Environmental Improvement Board. If you had equipment subject to 20.2.37 NMAC before the repeal, your combustion emission sources are now subject to 20.2.61 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.
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.
20.2.50 NMAC	Oil and Gas Sector – Ozone Precursor Pollutants			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 below: Include the construction status of applicable units as “New”, “Existing”, “Relocation of Existing”, or “Reconstructed” as defined by this Part in your justification: Check the box for the subparts that are applicable: ☐ 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 Unit ☐ 127 – Flowback Vessels and Preproduction Operations
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	1-3, 9a-11a, 20 & 31b	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 the Title V insignificant heaters (see 20.2.61.111.D).
20.2.70 NMAC	Operating Permits	Yes	Facility	This regulation is applicable because the facility is a Title V major source of NOX, CO, and HAP. Landfills and Air Curtain Incinerators are not Title V Major Sources, but it would apply pursuant to 20.2.70.200.B NMAC.
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	This regulation is applicable because the facility is subject to 20.2.70 NMAC..
20.2.72 NMAC	Construction Permits	Yes	Facility	20.2.72 NMAC, <i>Construction Permits</i>, requires a construction [NSR] permit for stationary source with emissions greater than 10 pounds per hour or 25 tons per year of criteria pollutants. The station emissions exceed the permit requirement thresholds; therefore, the station is required to apply for and obtain an NSR permit. The construction (NSR) permit issued under 20.2.72 for this facility is permit No. 868-M5-R5.

State Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	20.2.73 NMAC requires that owners/operators intending to construct a new stationary source that has a potential emission rate (uncontrolled emissions) greater than 10 tons per year of any regulated air contaminant, or 1 ton per year of lead, must file a notice of intent (NOI) with the department. The station emits regulated air pollutants in amounts greater than 10 tons per year. Therefore, the facility is subject to the regulation. The requirement to file an NOI with the Department is fulfilled with the application for a construction permit under 20.2.72 NMAC.
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	Yes	Facility	20.2.74 NMAC, Permits, Prevention of Significant Deterioration (PSD), provides requirements for sources subject to permit requirements for PSD facilities. The facility has federally enforceable permit emissions in excess of the 250 tpy PSD permitting threshold level. Therefore, the regulation potentially applies. NSR permit applications must determine if a major modification, as defined at 20.2.74.7.AE NMAC, as part of the permit modification process.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	This regulation is applicable because the facility is subject to 20.2.72 NMAC.
20.2.77 NMAC	New Source Performance	Yes	20 & 31b	This regulation is applicable because it adopts by reference the federal NSPS codified in 40 CFR 60. The facility is subject to 40 CFR 60, Subparts A, Db & IIII.
20.2.78 NMAC	Emission Standards for HAPS	No		This regulation is not applicable because it incorporates by reference the NESHAPS codified under 40 CFR 61. The facility is not subject to 40 CFR 61.
20.2.79 NMAC	Permits – Nonattainment Areas	No		This regulation is not applicable because the facility is neither located in nor has a significant impact on a non-attainment area.
20.2.80 NMAC	Stack Heights	Yes	Facility	This regulation is applicable because it establishes guidelines for the selection of an appropriate stack height for the purposes of atmospheric dispersion modeling.
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	1-7, 16a, 19a & 21a	This regulation is applicable because it adopts by reference the federal MACT Standards for source categories codified in 40 CFR 63. The affected units at the facility are subject to 40 CFR 63, Subparts A, HH & ZZZZ.

Example of a Table for Applicable Federal Regulations (Note: This is not an exhaustive list):

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
40 CFR 50	NAAQS	Yes	Facility	This regulation applies because the facility is subject to 20.2.70, 20.2.72 and 20.2.74 NMAC.
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	Facility	This regulation applies because 40 CFR 60, Subparts Db and IIII apply (see §60.1(a)).
NSPS 40 CFR 60.40a, Subpart Da	Subpart Da, Performance Standards for Electric Utility Steam Generating Units	No	N/A	This regulation is not applicable because the facility is not equipped with electric utility steam generating units with heat input rates greater than the threshold capacity of 250 MMBtu/hr (see §60.40Da(a)).

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
NSPS 40 CFR 60.40b Subpart Db	Electric Utility Steam Generating Units	No		The subpart applies to each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 MW (100 million Btu/hour). The compressor station is not an affected facility as defined in the regulation; therefore, the subpart does not apply.
40 CFR 60.40c, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	No		This regulation is not applicable because the facility is not equipped with steam generating units with heat input rates greater than the threshold capacity of 10 MMBtu/hr but less than or equal to 100 MMBtu/hr (see §60.40c(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		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		The affected facility to which this subpart applies is any storage vessels with a capacity greater than or equal to 75 cubic meters (m³) used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984. All of the storage tanks at the facility are below 75 m³ capacity, and the regulation does not apply.
NSPS 40 CFR 60.330 Subpart GG	Stationary Gas Turbines	No		This regulation is not applicable because there are no stationary gas turbines at the plant.
NSPS 40 CFR 60, Subpart KKK	Leaks of VOC from Onshore Gas Plants	No		This regulation is not applicable because the facility is not a natural gas processing plant as defined by the subpart.
NSPS 40 CFR Part 60 Subpart LLL	Standards of Performance for Onshore Natural Gas Processing: SO₂ Emissions	No		This regulation is not applicable because the facility is not a natural gas processing plant as defined by the subpart.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
NSPS 40 CFR Part 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 before September 18, 2015	No		This regulation does not apply because the facility is not equipped with “affected” sources that are constructed, modified, or reconstructed after Aug 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).
NSPS 40 CFR Part 60 Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015	No		This regulation does not apply because the facility is not equipped with “affected” sources that are constructed, modified, or reconstructed after September 18, 2015: gas wells, centrifugal or reciprocating compressors, pneumatic controllers, storage vessels, pneumatic pumps, and equipment leaks (see §60.5365a). Note that the facility is not a natural gas processing plant as defined by the subpart (see §60.5430).
NSPS 40 CFR 60 Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	No		There are no compression ignition units. Therefore, the regulation does not apply
NSPS 40 CFR Part 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	Yes		Under § 60.4230, the requirements of the subpart apply to spark-ignition (SI), reciprocating internal combustion engines (RICE) constructed, modified or reconstructed after June 12, 2006. As reflected in Table 2-A of the application, compressor RICE units 1, 3, 4, 5, 6 and 7 were constructed prior to the regulatory applicability date. Therefore, the regulation is not applicable to these units. The engines have not undergone either “modification” or “reconstruction” under NSPS. Engine unit 2 is not installed. The applicability of subpart JJJJ will be evaluated upon installation.
NSPS 40 CFR 60 Subpart TTTT	Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units	No		There will be no electric generating units at the site.
NSPS 40 CFR 60 Subpart UUUU	Emissions Guidelines for Greenhouse Gas Emissions and	No		There will be no electric generating units at the site.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
	Compliance Times for Electric Utility Generating Units			
NSPS 40 CFR 60, Subparts WWW, XXX, Cc, and Cf	Standards of performance for Municipal Solid Waste (MSW) Landfills	No		The facility is not a municipal solid waste landfill
NESHAP 40 CFR 61 Subpart A	General Provisions	No		40 CFR 61 National Emission Standards for Hazardous Air Pollutants (NESHAP) provides standards for equipment that emits hazardous air pollutants by specific source types. Subpart A, General Provisions, applies if any other 40 CFR 61 NESHAP subpart applies. Subpart A is not applicable because there are no stationary sources at this facility for which a standard is prescribed under this part.
NESHAP 40 CFR 61 Subpart E	National Emission Standards for Mercury	No		The provisions of this subpart are applicable to those stationary sources which process mercury ore to recover mercury, use mercury chlor-alkali cells to produce chlorine gas and alkali metal hydroxide, and incinerate or dry wastewater treatment plant sludge
NESHAP 40 CFR 61 Subpart V	National Emission Standards for Equipment Leaks (Fugitive Emission Sources)	No		40 CFR 61, subpart V provides equipment standards, and monitoring, recordkeeping and reporting standards for specified equipment in VHAP service, including fugitive emissions from pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, and required control devices or systems. Subpart V is not applicable because none of the potentially affected sources are in VHAP service.
MACT 40 CFR 63, Subpart A	General Provisions	Yes	Units 16a, 19a & 21a Potentially Unit 2	Applies if any other 40 CFR 63 (NESHAP/MACT) subpart applies. The area source provisions of subpart HH apply to the TEG dehydrators. The major source provisions of subpart ZZZZ are applicable to the compressor engines.
MACT 40 CFR 63.760 Subpart HH	Oil and Natural Gas Production Facilities	Yes	Units 16a, 19a & 21a	This regulation is applicable because the station is equipped with dehydrators; however, as the station is an area HAP source as defined by the Subpart and as actual annual average benzene emissions from each unit are less than one ton per year, the dehydrators are exempt per paragraph 63.764(e). The station does not contain storage vessels with the potential for flashing losses or compressors or ancillary equipment in volatile HAP service as defined by the subpart, thus these portions of the regulation are not applicable.
MACT 40 CFR 63 Subpart HHH	National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities	No		This regulation does not apply as the facility is not a natural gas transmission and storage facility as defined by the subpart.
MACT 40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional	No		This regulation does not apply because the facility is an area HAP source as defined by the subpart (see §63.7480).

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
	Boilers & Process Heaters			
MACT 40 CFR 63 Subpart UUUUU	National Emission Standards for Hazardous Air Pollutants Coal & Oil Fire Electric Utility Steam Generating Unit	No		This subpart establishes national emission limitations and work practice standards for hazardous air pollutants (HAP) emitted from coal- and oil-fired electric utility steam generating units (EGUs) as defined in §63.10042 of this subpart. This facility does not contain the affected source. This regulation does not apply.
MACT 40 CFR 63 Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT)	No	Potentially Unit 2	This regulation applies because the station is a major HAP source equipped with stationary RICE. Under paragraph 63.6590(b)(3), the existing (commenced construction prior to December 19, 2002) spark ignition 4SLB stationary RICE at the plant (Units 1, 3, 4, 5, 6 and 7)) are not required to meet the requirements of Subparts A or ZZZZ (including initial notification requirements). Upon installation of Unit 2, applicability will be re-evaluated.
40 CFR 64	Compliance Assurance Monitoring	No		This regulation is not applicable because none of the equipment at the facility uses 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).
40 CFR 68	Chemical Accident Prevention	No		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.
Title IV – Acid Rain 40 CFR 72	Acid Rain	No		This regulation is not applicable because the facility no longer generates commercial electric power and is no longer an acid rain source.
Title IV – Acid Rain 40 CFR 73	Sulfur Dioxide Allowance Emissions	No		This regulation is not applicable because the facility no longer generates commercial electric power and is no longer an acid rain source.
Title IV-Acid Rain 40 CFR 75	Continuous Emissions Monitoring	No		This regulation is not applicable because the facility no longer generates commercial electric power and is no longer an acid rain source.
Title IV – Acid Rain 40 CFR 76	Acid Rain Nitrogen Oxides Emission Reduction Program	No		This regulation is not applicable because the facility no longer generates commercial electric power and is no longer an acid rain source.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
Title VI – 40 CFR 82	Protection of Stratospheric Ozone	No		This regulation is not applicable because the facility does not produce, manufacture, transform, destroy, import, or export ozone-depleting substances; does not maintain or service motor vehicle air conditioning units or refrigeration equipment; and does not sell, distribute, or offer for sale or distribution any product that contains ozone-depleting substances.

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: www.env.nm.gov/air-quality/permitting-section-procedures-and-guidance/. 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, since there are no alternate operating scenarios.

Section 16

Air Dispersion Modeling

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

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

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.

Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

To save paper and to standardize the application format, delete this sentence and the samples in the Compliance Test History Table, and begin your submittal for this attachment on this page.

Compliance Test History Table

Unit No.	Test Description	Test Date
1	Tested in accordance with EPA test methods for NOx and CO as required by Title V permit P035-R4.	5/22/2023
3	Tested in accordance with EPA test methods for NOx and CO as required by Title V permit P035-R4.	6/2/2010
4	Tested in accordance with EPA test methods for NOx and CO as required by Title V permit P035-R4.	5/22/2023
5	Tested in accordance with EPA test methods for NOx and CO as required by Title V permit P035-R4.	6/3/2010
6	Tested in accordance with EPA test methods for NOx and CO as required by Title V permit P035-R4.	6/29/2017
7	Tested in accordance with EPA test methods for NOx and CO as required by Title V permit P035-R4.	5/22/2023
2	Units not currently installed.	

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, as this is not a streamline application.

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 a 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 www.env.nm.gov/air-quality/air-quality-title-v-operating-permits-guidance-page/. 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.
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19.1 - 40 CFR 64, Compliance Assurance Monitoring (CAM) (20.2.70.300.D.10.e NMAC)

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

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

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

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

The Horse Canyon CDP is in compliance with all applicable requirements affecting the facility.

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

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

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

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

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

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

19.5 - Stratospheric Ozone and Climate Protection

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

1. Does your facility have any air conditioners or refrigeration equipment that uses CFCs, HCFCs or other ozone-depleting substances? ☐ Yes ☒ No
 2. Does any air conditioner(s) or any piece(s) of refrigeration equipment contain a refrigeration charge greater than 50 lbs? ☐ Yes ☒ No
(If the answer is yes, describe the type of equipment and how many units are at the facility.)
 3. Do your facility personnel maintain, service, repair, or dispose of any motor vehicle air conditioners (MVACs) or appliances ("appliance" and "MVAC" as defined at 82. 152)? ☐ Yes ☒ No
 4. Cite and describe which Title VI requirements are applicable to your facility (i.e. 40 CFR Part 82, Subpart A through G.)
N/A
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The station does not produce, manufacture, transform, destroy, import, or export any stratospheric ozone-depleting substances (CFCs, HCFCs); does not maintain or service motor vehicle air conditioning units or refrigeration equipment; and does not sell, distribute, or offer for sale any product that may contain stratospheric ozone depleting substances.

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

19.6 - Compliance Plan and Schedule

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

A. Description of Compliance Status: (20.2.70.300.D.11.a NMAC)

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

B. Compliance plan: (20.2.70.300.D.11.B NMAC)

A narrative description of the means by which your facility will achieve compliance with applicable requirements with which it is not in compliance at the time you submit your permit application package.

C. Compliance schedule: (20.2.70.300D.11.c NMAC)

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

D. Schedule of Certified Progress Reports: (20.2.70.300.D.11.d NMAC)

A proposed schedule for submission to the department of certified progress reports must also be included in the compliance schedule. The proposed schedule must call for these reports to be submitted at least every six (6) months.

E. Acid Rain Sources: (20.2.70.300.D.11.e NMAC)

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

NOTE: The Acid Rain program has additional forms. See www.env.nm.gov/air-quality/air-quality-title-v-operating-permits-guidance-page/. Sources that are subject to both the Title V and Acid Rain regulations are **encouraged** to submit both applications **simultaneously**.

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

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

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

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

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

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

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

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

Yes, the property on which the station is constructed and operated on is closer than 80 km (50 miles) from other states, local pollution control programs and Indian tribes and pueblos as described below:

Colorado (24.1 km)

Navajo Tribe (17.7 km)

Southern Ute Tribe (24.1 km)

Ute Mountain Tribe (45.1 km)

Jicarilla Apache Tribe (51.5 km)

19.9 - Responsible Official

Provide the Responsible Official as defined in 20.2.70.7.AD NMAC: **Nate Work, Operations Manager**

Section 20

Other Relevant Information

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

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

Not applicable.

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: www.epa.gov/stationary-sources-air-pollution/clean-air-act-guidelines-and-standards-waste-management

NM Solid Waste Bureau Website: www.env.nm.gov/solid-waste/

Not applicable, as this facility is not a landfill.

Section 22: Certification

Company Name: Harvest Four Corners, LLC

I, _____, 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 ____ day of _____, _____, upon my oath or affirmation, before a notary of the State of

_____.

*Signature

Date

Printed Name

Title

Scribed and sworn before me on this ____ day of _____, _____.

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

_____ day of _____, _____.

Notary's Signature

Date

Notary's Printed Name

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