December 7, 2019

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

Re: Application to Renew Title V Operating Permit Number P168-R3
Harvest Four Corners, LLC – Carracas Central Delivery Point

Dear Ms. Bisbey-Kuehn,

On behalf of Harvest Four Corners, LLC (HFC), Cirrus Consulting, LLC submits the enclosed application to renew the Title V operating permit for the Carracas Central Delivery Point.

Thank you for your help. If you have questions or need any additional information, please contact Monica Sandoval of HFC at (505) 632-4625.

Sincerely,

CIRRUS CONSULTING, LLC

James W. Newby

Enclosure
Carracas Central Delivery Point Title V Operating Permit Application

c: Monica Sandoval, HFC

Cirrus Consulting, LLC
979 Manchester Road
Kaysville, Utah 84037

Phone: (801) 294-3024
jnewby@cirrusllc.com

Permit Writer's Notes:
This permit application has gone through revision since initial submission. Please find the revised documents starting from Page 252.

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NEW MEXICO 20.2.70 NMAC APPLICATION
TO RENEW OPERATING PERMIT NUMBER P168-R3

CARRACAS CENTRAL DELIVERY POINT

Submitted By:

HARVEST FOUR CORNERS, LLC
1755 Arroyo Drive
Bloomfield, New Mexico 87413

Prepared By:

CIRRUS CONSULTING, LLC
951 Diestel Road
Salt Lake City, Utah 84105
(801) 484-4412

December 2019

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Introduction

The Harvest Four Corners, LLC (HFC) Carracas Central Delivery Point (CDP) currently operates under a construction permit, 968-M5-R7, dated October 12, 2017 and a Title V operating permit, P168-R3, dated January 5, 2016.

This application is being submitted to renew the Title V operating permit.

The facility is currently approved by the Title V permit to operate the following equipment/sources:

- Twelve Waukesha L7042GL natural gas-fired reciprocating engines (Units 1-3, 7, 8 & 14-20), equipped with catalytic convertors to control carbon monoxide (CO), volatile organic compounds (VOC) and hazardous air pollutants (HAP) emissions;
- Two Capstone C65 natural gas-fired microturbine generators (Units 4 & 27);
- Four Enertek (or equivalent) glycol dehydrators with capacities of 12 million standard cubic feet per day (MMSCFD)(Units 5a, 6a, 22a & 24a);
- Four Enertek (or equivalent) dehydrator reboilers rated at 1.09 million British thermal units per hour (MMBtu/hr)(Units 5b, 6b, 22b & 24b);
- Four Enertek (or equivalent) glycol dehydrators with capacities of 20 MMSCFD (Units 9a, 10a, 21a & 23a);
- Four Enertek (or equivalent) dehydrator reboilers rated at 1.48 MMBtu/hr (Units 9b, 10b, 21b & 23b);
- Four Moneyhun process flares (Units 11, 12, 25 & 26), used to control dehydrator VOC and HAP emissions;
- Startup, shutdown and maintenance (SSM) emissions from the compressors and piping associated with the station (Unit SSM); and
- Malfunction emissions (Unit M1).

The station is also equipped with miscellaneous exempt/insignificant liquid storage tanks and gas transmission equipment.

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

Universal Air Quality Permit Application

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

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

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

Acknowledgements:

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

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

☐ Check No.: **XXXX** in the amount of **XXXX**

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

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

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

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

Section 1 – Facility Information

Section 1-A: Company Information

		AI # if known (see 1st 3 to 5 #s of permit IDEA ID No.): **1009**	Updating Permit/NOI #: **P0168-R3**
1	Facility Name: **Carracas Central Delivery Point**	Plant primary SIC Code (4 digits): **1389**	
		Plant NAIC code (6 digits): **211130**	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): **See directions in Section 1-D(4)**		
2	Plant Operator Company Name: **Harvest Four Corners, LLC**	Phone/Fax: **(505) 632-4600 / (505) 632-4782**	
a	Plant Operator Address: **1755 Arroyo Drive, Bloomfield, New Mexico 87413**		

b	Plant Operator's New Mexico Corporate ID or Tax ID: **76-0451075**	
3	Plant Owner(s) name(s): **Same as #2 above**	Phone/Fax: **Same as #2 above**
a	Plant Owner(s) Mailing Address(s): **Same as #2a above**	
4	Bill To (Company): **Same as #2 above**	Phone/Fax: **Same as #2 above**
a	Mailing Address: **Same as #2a above**	E-mail: **N/A**
5	☐ Preparer: ☑ Consultant: **James Newby, Cirrus Consulting, LLC**	Phone/Fax: **(801) 544-5275**
a	Mailing Address: **979 Manchester Road, Kaysville, Utah 84037**	E-mail: **jnewby@cirrusllc.com**
6	Plant Operator Contact: **Monica Smith**	Phone/Fax: **(505) 632-4625 / (505) 632-4782**
a	Address: **Same as #2a above**	E-mail: **msmith@harvestmidstream.com**
7	Air Permit Contact: **Same as #6 above**	Title: **Environmental Specialist**
a	E-mail: **Same as #6a above**	Phone/Fax: **Same as #6 above**
b	Mailing Address: **Same as #2a above**	
c	The designated Air permit Contact will receive all official correspondence (i.e. letters, permits) from the Air Quality Bureau.	

Section 1-B: Current Facility Status

1.a	Has this facility already been constructed? ☑ Yes ☐ No	1.b If yes to question 1.a, is it currently operating in New Mexico? ☑ Yes ☐ No
2	If yes to question 1.a, was the existing facility subject to a Notice of Intent (NOI) (20.2.73 NMAC) before submittal of this application? ☐ Yes ☑ No	If yes to question 1.a, was the existing facility subject to a construction permit (20.2.72 NMAC) before submittal of this application? ☑ Yes ☐ No
3	Is the facility currently shut down? ☐ Yes ☑ No	If yes, give month and year of shut down (MM/YY): **N/A**
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? ☐ Yes ☑ No	
5	If Yes to question 3, has this facility been modified (see 20.2.72.7.P NMAC) or the capacity increased since 8/31/1972? ☐ Yes ☐ No ☑ N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☑ Yes ☐ No	If yes, the permit No. is: **P0168-R3**
7	Has this facility been issued a No Permit Required (NPR)? ☐ Yes ☑ No	If yes, the NPR No. is: **N/A**
8	Has this facility been issued a Notice of Intent (NOI)? ☐ Yes ☑ No	If yes, the NOI No. is: **N/A**
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ☑ Yes ☐ No	If yes, the permit No. is: **968-M5-R7**
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes ☑ No	If yes, the register No. is: **N/A**

Section 1-C: Facility Input Capacity & Production Rate

1	What is the facility's maximum input capacity, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: **4.25 MMSCF[1]**	Daily: **102 MMSCF[1]**	Annually: **37,230 MMSCF[1]**
b	Proposed	Hourly: **4.25 MMSCF[1]**	Daily: **102 MMSCF[1]**	Annually: **37,230 MMSCF[1]**
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**

[1] **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.**

Section 1-D: Facility Location Information

1	Section: **34**	Range: **5W**	Township: **32N**	County: **Rio Arriba**	Elevation (ft): **6,366**
2	UTM Zone: ☐ 12 or ☑ 13			Datum: ☐ NAD 27 ☐ NAD 83 ☑ WGS 84	
a	UTM E (in meters, to nearest 10 meters): **290,360**			UTM N (in meters, to nearest 10 meters): **4,090,675**	
b	**AND** Latitude (deg., min., sec.): **36° 56' 19.77"**			Longitude (deg., min., sec.): **-107° 21' 14.65"**	
3	Name and zip code of nearest New Mexico town: **Blanco, New Mexico 87412**				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): **From Ignacio Colorado, drive east on Hwy 151 for 18.4 miles, turn right on CR 500 and drive 11.3 miles, turn right on 557 and drive 4.1 miles, make a hard right at the Eul Point sign and drive 1.1 miles to the Middle Mesa sign, stay to the left and drive 4.3 miles (past the pump jack), turn right and drive 1 mile to the station.**				
5	The facility is ≈**21** (distance) miles **northeast** (direction) of **Blanco, New Mexico** (nearest town).				
6	Status of land at facility (check one): ☐ Private ☐ Indian/Pueblo ☐ Federal BLM ☑ Federal Forest Service ☐ Other (specify)				
7	List all municipalities, Indian tribes, and counties within a ten (10) mile radius (20.2.72.203.B.2 NMAC) of the property on which the facility is proposed to be constructed or operated: **None; Southern Ute Tribe; Jicarilla Apache Tribe; San Juan County, NM, Archuleta County, CO, La Plata County, CO; State of Colorado**				
8	**20.2.72** NMAC applications **only**: Will the property on which the facility is proposed to be constructed or operated be closer than 50 km (31 miles) to other states, Bernalillo County, or a Class I area (see www.env.nm.gov/aqb/modeling/class1areas.html)? ☐ Yes ☐ No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers: **N/A**				
9	Name nearest Class I area: **Weminuche Wilderness**				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): **56.115**				
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: **2,240**				
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? ☐ Yes ☑ No If yes, what is the name and permit number (if known) of the other facility? **N/A**				

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

1	Facility **maximum** operating ($\frac{\text{hours}}{\text{day}}$): **24**	($\frac{\text{days}}{\text{week}}$): **7**	($\frac{\text{weeks}}{\text{year}}$): **52**	($\frac{\text{hours}}{\text{year}}$): **8,760**			
2	Facility's maximum daily operating schedule (if less than 24 $\frac{\text{hours}}{\text{day}}$)? Start: **N/A**		☐AM ☐PM	End: **N/A**	☐AM ☐PM		
3	Month and year of anticipated start of construction: **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: **N/A**		
a	If yes, NOV date or description of issue: **N/A**		NOV Tracking No: **N/A**
b	Is this application in response to any issue listed in 1-F, 1 or 1a above? ☐ Yes ☑ No If Yes, provide the 1c & 1d info below:		
c	Document Title: **N/A**	Date: **N/A**	Requirement # (or page # and paragraph #): **N/A**
d	Provide the required text to be inserted in this permit: **N/A**		
2	Is air quality dispersion modeling or modeling waiver being submitted with this application? ☐ Yes ☑ No		
3	Does this facility require an "Air Toxics" permit under 20.2.72.400 NMAC & 20.2.72.502, Tables A and/or B? ☐ Yes ☑ No		
4	Will this facility be a source of federal Hazardous Air Pollutants (HAP)? ☑ Yes ☐ No		
a	If Yes, what type of source? ☐ **Major** (☐ ≥10 tpy of any single HAP **OR** ☐ ≥25 tpy of any combination of HAPS) **OR** ☑ **Minor** (☑ <10 tpy of any single HAP **AND** ☑ <25 tpy of any combination of HAPS)		
5	Is any unit exempt under 20.2.72.202.B.3 NMAC? ☐ Yes ☑ No		
a	If yes, include the name of company providing commercial electric power to the facility: **N/A** Commercial power is purchased from a commercial utility company, which specifically does not include power generated on site for the sole purpose of the user.		

Section 1-G: Streamline Application

(This section applies to 20.2.72.300 NMAC Streamline applications only)

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

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

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

1	Responsible Official (R.O.) (20.2.70.300.D.2 NMAC): **Travis Jones**		Phone: **(713) 289-2630**
a	R.O. Title: **EH&S Manager**	R.O. e-mail: **trjones@harvestmidstream.com**	
b	R. O. Address: **1111 Travis Street, Houston, Texas 77002**		
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC): **TBD**		Phone: **TBD**
a	A. R.O. Title: **TBD**	A. R.O. e-mail: **TBD**	
b	A. R. O. Address: **TBD**		
3	Company's Corporate or Partnership Relationship to any other Air Quality Permittee (List the names of any companies that have operating (20.2.70 NMAC) permits and with whom the applicant for this permit has a corporate or partnership relationship): **N/A**		
4	Name of Parent Company ("Parent Company" means the primary name of the organization that owns the company to be permitted wholly or in part.): **Hilcorp Energy 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: **Colorado (~ 6.7 km), Southern Ute Indian Reservation (~ 6.7 km), Jicarilla Apache Reservation (~ 14.0 km), Navajo Indian Reservation (~ 48.3 km), and Ute Mountain Ute Indian Reservation (~ 79.7 km)**		

Section 1-I – Submittal Requirements

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

Hard Copy Submittal Requirements:

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

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

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

Electronic files sent by (check one):

☑ CD/DVD attached to paper application

☐ secure electronic transfer. Air Permit Contact Name_____

Email_____

Phone number _____

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

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

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

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

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

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

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

2) The documents should also be submitted in Microsoft Office compatible file format (Word, Excel, etc.) allowing us to access the text and formulas in the documents (copy & paste). Any documents that cannot be submitted in a Microsoft Office compatible format shall be saved as a PDF file from within the electronic document that created the file. If you are unable to provide

Microsoft office compatible electronic files or internally generated PDF files of files (items that were not created electronically: i.e. brochures, maps, graphics, etc,), submit these items in hard copy format. We must be able to review the formulas and inputs that calculated the emissions.

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

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

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Table 2-A: Regulated Emission Sources

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

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
1	Reciprocating Engine	Waukesha	L7042GL	C-10887/3 (pkg. 76789)	1,478 hp	1,373 hp	06/30/92 06/30/92	NA 1	20200202	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
2	Reciprocating Engine	Waukesha	L7042GL	C-10985/9 (pkg. 76788)	1,478 hp	1,373 hp	10/30/93 10/30/93	NA 2	20200202	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
3	Reciprocating Engine	Waukesha	L7042GL	TBD	1,478 hp	1,373 hp	TBD TBD	NA 3	20200202	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
7	Reciprocating Engine	Waukesha	L7042GL	C-12588/7 (pkg. 804373)	1,478 hp	1,373 hp	08/31/98 08/31/98	NA 7	20200202	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
8	Reciprocating Engine	Waukesha	L7042GL	C-11661/4 (pkg. X00428)	1,478 hp	1,373 hp	02/21/92 02/21/92	NA 8	20200202	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
14	Reciprocating Engine	Waukesha	L7042GL	C-12703/1 (pkg. 804503)	1,478 hp	1,373 hp	11/19/98 12/15/98	NA 14	20200202	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
15	Reciprocating Engine	Waukesha	L7042GL	388068 (pkg. 804504)	1,478 hp	1,373 hp	02/27/85 02/27/85	NA 15	20200202	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
16	Reciprocating Engine	Waukesha	L7042GL	TBD	1,478 hp	1,373 hp	TBD TBD	NA 16	20200202	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
17	Reciprocating Engine	Waukesha	L7042GL	TBD	1,478 hp	1,373 hp	TBD TBD	NA 17	20200202	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
18	Reciprocating Engine	Waukesha	L7042GL	TBD	1,478 hp	1,373 hp	TBD TBD	NA 15	20200202	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
19	Reciprocating Engine	Waukesha	L7042GL	TBD	1,478 hp	1,373 hp	TBD TBD	NA 15	20200202	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
20	Reciprocating Engine	Waukesha	L7042GL	TBD	1,478 hp	1,373 hp	TBD TBD	NA 15	20200202	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
4	Turbine Generator	Capstone	C65	0005891	65 kW	65 kW	11/27/01 11/27/01	NA 4	20100201	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
27	Turbine Generator	Capstone	C65	0005892	65 kW	65 kW	11/27/01 11/27/01	NA 27	20100201	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
5a	Dehydrator	Enertek	J2P12M749	41779	12 mmscfd	12 mmscfd	10/01/95 10/01/95	11 11	31000227	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	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 #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
6a	Dehydrator	Enertek (or equivalent)	J2P12M7 49	41716	12 mmscfd	12 mmscfd	06/01/92 06/01/92	12 12	31000227	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
9a	Dehydrator	Moneyhun	N/A	39045	20 mmscfd	20 mmscfd	10/29/09 10/29/09	12 12	31000227	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
10a	Dehydrator	Moneyhun	N/A	3868	20 mmscfd	20 mmscfd	10/29/09 10/29/09	11 11	31000227	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
21a	Dehydrator	Enertek (or equivalent)	TBD	TBD	20 mmscfd	20 mmscfd	TBD TBD	TBD 25	31000227	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
22a	Dehydrator	Enertek (or equivalent)	TBD	TBD	12 mmscfd	12 mmscfd	TBD TBD	TBD 25	31000227	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
23a	Dehydrator	Enertek (or equivalent)	TBD	TBD	20 mmscfd	20 mmscfd	TBD TBD	TBD 26	31000227	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
24a	Dehydrator	Enertek (or equivalent)	TBD	TBD	12 mmscfd	12 mmscfd	TBD TBD	TBD 26	31000227	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
5b	Dehydrator Reboiler	Enertek	J2P12M7 49	41779	12 mmscfd	12 mmscfd	10/01/95 10/01/95	N/A 5b	31000228	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
6b	Dehydrator Reboiler	Enertek (or equivalent)	J2P12M7 49	41716	12 mmscfd	12 mmscfd	06/01/92 06/01/92	N/A 6b	31000228	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
9b	Dehydrator Reboiler	Moneyhun	N/A	39045	20 mmscfd	20 mmscfd	10/29/09 10/29/09	N/A 9b	31000228	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
10b	Dehydrator Reboiler	Moneyhun	N/A	3868	20 mmscfd	20 mmscfd	10/29/09 10/29/09	N/A 10b	31000228	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
21b	Dehydrator Reboiler	Enertek (or equivalent)	TBD	TBD	20 mmscfd	20 mmscfd	TBD TBD	NA 21b	31000228	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
22b	Dehydrator Reboiler	Enertek (or equivalent)	TBD	TBD	12 mmscfd	12 mmscfd	TBD TBD	NA 22b	31000228	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
23b	Dehydrator Reboiler	Enertek (or equivalent)	TBD	TBD	20 mmscfd	20 mmscfd	TBD TBD	NA 23b	31000228	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
24b	Dehydrator Reboiler	Enertek (or equivalent)	TBD	TBD	12 mmscfd	12 mmscfd	TBD TBD	NA 24b	31000228	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	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 #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
11	Process Flare	Moneyhun		36001			10/29/09 10/29/09	NA 11	31000205	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
12	Process Flare	Moneyhun		36002			10/29/09 10/29/09	NA 12	31000205	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
25	Process Flare	Moneyhun	TBD	TBD			TBD TBD	NA 25	31000205	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
26	Process Flare	Moneyhun	TBD	TBD			TBD TBD	NA 26	31000205	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
SSM	Startups, Shutdowns & Malfunctions (Compressors & Associated Piping)	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	31000299	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
M1	Malfunction Emissions	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	31000299	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

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

[2] Specify dates required to determine regulatory applicability.

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

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

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

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

Unit Number	Source Description	Manufacturer	Model No.	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 Onc
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction[2]	
T1	Produced Water			6500			☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				Gallons	Items # 1.a & 1.b		
T2	Wastewater			6300			☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				Gallons	Items # 1.a & 1.b		
T3	Used Oil			6930			☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				Gallons	Items # 1.a, 1.b & 5		
T4	Lube Oil			4200			☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				Gallons	Items # 1.a, 1.b & 5		
T5, T6, T9, T10 & T41-T44	Triethylene Glycol (TEG)			500			☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				Gallons (each)	Items # 1.a, 1.b & 5		
T7 & T49	Antifreeze			500			☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				Gallons (each)	Items # 1.a, 1.b & 5		
T8	Corrosion Inhibitor			800			☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				Gallons	Items # 1.a, 1.b & 5		
T11-T13 & T17-T25	Lube Oil			500			☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				Gallons (each)	Items # 1.a, 1.b & 5		
T14 & T15	Produced Water			12600			☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				Gallons (each)	Items # 1.a & 1.b		
T16	Wastewater			6930			☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				Gallons	Items # 1.a & 1.b		
T29 - T36	Triethylene Glycol (TEG)			100			☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				Gallons (each)	Items # 1.a, 1.b & 5		
F-1	Fugitive Emissions			-			☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				-	Items # 1.a & 1.b		

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

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

Table 2-C: Emissions Control Equipment

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

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
1	EMIT Technologies RE-3350-Z Catalytic Convertor or Equivalent	Unknown	CO, VOC, & HAPs	1	CO 93%, CH2O 80%, VOC & other HAP	Mfg data
2	EMIT Technologies RE-3350-Z Catalytic Convertor or Equivalent	Unknown	CO, VOC, & HAPs	2	CO 93%, CH2O 80%, VOC & other HAP	Mfg data
3	EMIT Technologies RE-3350-Z Catalytic Convertor or Equivalent	Unknown	CO, VOC, & HAPs	3	CO 93%, CH2O 80%, VOC & other HAP	Mfg data
7	EMIT Technologies RE-3350-Z Catalytic Convertor or Equivalent	Unknown	CO, VOC, & HAPs	7	CO 93%, CH2O 80%, VOC & other HAP	Mfg data
8	EMIT Technologies RE-3350-Z Catalytic Convertor or Equivalent	Unknown	CO, VOC, & HAPs	8	CO 93%, CH2O 80%, VOC & other HAP	Mfg data
14	EMIT Technologies RE-3350-Z Catalytic Convertor or Equivalent	TBD	CO, VOC, & HAPs	14	CO 93%, CH2O 80%, VOC & other HAP	Mfg data
15	EMIT Technologies RE-3350-Z Catalytic Convertor or Equivalent	TBD	CO, VOC, & HAPs	15	CO 93%, CH2O 80%, VOC & other HAP	Mfg data
16	EMIT Technologies RE-3350-Z Catalytic Convertor or Equivalent	TBD	CO, VOC, & HAPs	16	CO 93%, CH2O 80%, VOC & other HAP	Mfg data
17	EMIT Technologies RE-3350-Z Catalytic Convertor or Equivalent	TBD	CO, VOC, & HAPs	17	CO 93%, CH2O 80%, VOC & other HAP	Mfg data
18	EMIT Technologies RE-3350-Z Catalytic Convertor or Equivalent	TBD	CO, VOC, & HAPs	18	CO 93%, CH2O 80%, VOC & other HAP	Mfg data
19	EMIT Technologies RE-3350-Z Catalytic Convertor or Equivalent	TBD	CO, VOC, & HAPs	19	CO 93%, CH2O 80%, VOC & other HAP	Mfg data
20	EMIT Technologies RE-3350-Z Catalytic Convertor or Equivalent	TBD	CO, VOC, & HAPs	20	CO 93%, CH2O 80%, VOC & other HAP	Mfg data
11	Dehydrator Still Vent Flare	Unknown	VOC & HAPs	5a & 10a	95%	TCEQ factors
12	Dehydrator Still Vent Flare	Unknown	VOC & HAPs	6a & 9a	95%	TCEQ factors
25	Dehydrator Still Vent Flare	TBD	VOC & HAPs	21a & 22a	95%	TCEQ factors
26	Dehydrator Still Vent Flare	TBD	VOC & HAPs	23a & 24a	95%	TCEQ factors

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

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	4.54	19.89	9.08	39.78	3.03	13.26	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
2	4.54	19.89	9.08	39.78	3.03	13.26	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
3	4.54	19.89	9.08	39.78	3.03	13.26	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
7	4.54	19.89	9.08	39.78	3.03	13.26	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
8	4.54	19.89	9.08	39.78	3.03	13.26	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
14	4.54	19.89	9.08	39.78	3.03	13.26	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
15	4.54	19.89	9.08	39.78	3.03	13.26	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
16	4.54	19.89	9.08	39.78	3.03	13.26	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
17	4.54	19.89	9.08	39.78	3.03	13.26	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
18	4.54	19.89	9.08	39.78	3.03	13.26	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
19	4.54	19.89	9.08	39.78	3.03	13.26	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
20	4.54	19.89	9.08	39.78	3.03	13.26	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
4	2.99E-02	1.31E-01	8.13E-02	3.56E-01	6.50E-04	2.85E-03	2.86E-03	1.25E-02	5.56E-03	2.43E-02	5.56E-03	2.43E-02	5.56E-03	2.43E-02	-	-	-	-
27	2.99E-02	1.31E-01	8.13E-02	3.56E-01	6.50E-04	2.85E-03	2.86E-03	1.25E-02	5.56E-03	2.43E-02	5.56E-03	2.43E-02	5.56E-03	2.43E-02	-	-	-	-
5a	-	-	-	-	9.74E-01	4.27	-	-	-	-	-	-	-	-	-	-	-	-
6a	-	-	-	-	9.74E-01	4.27	-	-	-	-	-	-	-	-	-	-	-	-
9a	-	-	-	-	2.02	8.85	-	-	-	-	-	-	-	-	-	-	-	-
10a	-	-	-	-	2.02	8.85	-	-	-	-	-	-	-	-	-	-	-	-
21a	-	-	-	-	2.02	8.85	-	-	-	-	-	-	-	-	-	-	-	-
22a	-	-	-	-	9.74E-01	4.27	-	-	-	-	-	-	-	-	-	-	-	-
23a	-	-	-	-	2.02	8.85	-	-	-	-	-	-	-	-	-	-	-	-
24a	-	-	-	-	9.74E-01	4.27	-	-	-	-	-	-	-	-	-	-	-	-
5b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	9.18E-03	4.02E-02	9.18E-03	4.02E-02	9.18E-03	4.02E-02	-	-	6.04E-07	2.65E-06
6b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	9.18E-03	4.02E-02	9.18E-03	4.02E-02	9.18E-03	4.02E-02	-	-	6.04E-07	2.65E-06
9b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	1.25E-02	5.49E-02	1.25E-02	5.49E-02	1.25E-02	5.49E-02	-	-	8.24E-07	3.61E-06
10b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	1.25E-02	5.49E-02	1.25E-02	5.49E-02	1.25E-02	5.49E-02	-	-	8.24E-07	3.61E-06
21b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	1.25E-02	5.49E-02	1.25E-02	5.49E-02	1.25E-02	5.49E-02	-	-	8.24E-07	3.61E-06
22b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	9.18E-03	4.02E-02	9.18E-03	4.02E-02	9.18E-03	4.02E-02	-	-	6.04E-07	2.65E-06

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
23b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	1.25E-02	5.49E-02	1.25E-02	5.49E-02	1.25E-02	5.49E-02	-	-	8.24E-07	3.61E-06
24b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	9.18E-03	4.02E-02	9.18E-03	4.02E-02	9.18E-03	4.02E-02	-	-	6.04E-07	2.65E-06
11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SSM	-	-	-	-	unspecified	5.00	-	-	-	-	-	-	-	-	-	-	-	-
M1	-	-	-	-	unspecified	5.00	-	-	-	-	-	-	-	-	-	-	-	-
Totals	54.89	240.43	109.45	479.39	48.35	221.79	8.37E-02	3.67E-01	1.31	5.74	1.31	5.74	1.31	5.74	-	-	5.71E-06	2.50E-05

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

Table 2-E: Requested Allowable Emissions

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	4.54	19.89	6.36E-01	2.78	1.06	4.64	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
2	4.54	19.89	6.36E-01	2.78	1.06	4.64	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
3	4.54	19.89	6.36E-01	2.78	1.06	4.64	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
7	4.54	19.89	6.36E-01	2.78	1.06	4.64	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
8	4.54	19.89	6.36E-01	2.78	1.06	4.64	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
14	4.54	19.89	6.36E-01	2.78	1.06	4.64	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
15	4.54	19.89	6.36E-01	2.78	1.06	4.64	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
16	4.54	19.89	6.36E-01	2.78	1.06	4.64	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
17	4.54	19.89	6.36E-01	2.78	1.06	4.64	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
18	4.54	19.89	6.36E-01	2.78	1.06	4.64	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
19	4.54	19.89	6.36E-01	2.78	1.06	4.64	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
20	4.54	19.89	6.36E-01	2.78	1.06	4.64	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
4	2.99E-02	1.31E-01	8.13E-02	3.56E-01	6.50E-04	2.85E-03	2.86E-03	1.25E-02	5.56E-03	2.43E-02	5.56E-03	2.43E-02	5.56E-03	2.43E-02	-	-	-	-
27	2.99E-02	1.31E-01	8.13E-02	3.56E-01	6.50E-04	2.85E-03	2.86E-03	1.25E-02	5.56E-03	2.43E-02	5.56E-03	2.43E-02	5.56E-03	2.43E-02	-	-	-	-
5a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	9.18E-03	4.02E-02	9.18E-03	4.02E-02	9.18E-03	4.02E-02	-	-	6.04E-07	2.65E-06
6b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	9.18E-03	4.02E-02	9.18E-03	4.02E-02	9.18E-03	4.02E-02	-	-	6.04E-07	2.65E-06
9b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	1.25E-02	5.49E-02	1.25E-02	5.49E-02	1.25E-02	5.49E-02	-	-	8.24E-07	3.61E-06
10b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	1.25E-02	5.49E-02	1.25E-02	5.49E-02	1.25E-02	5.49E-02	-	-	8.24E-07	3.61E-06
21b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	1.25E-02	5.49E-02	1.25E-02	5.49E-02	1.25E-02	5.49E-02	-	-	8.24E-07	3.61E-06
22b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	9.18E-03	4.02E-02	9.18E-03	4.02E-02	9.18E-03	4.02E-02	-	-	6.04E-07	2.65E-06
23b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	1.25E-02	5.49E-02	1.25E-02	5.49E-02	1.25E-02	5.49E-02	-	-	8.24E-07	3.61E-06
24b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	9.18E-03	4.02E-02	9.18E-03	4.02E-02	9.18E-03	4.02E-02	-	-	6.04E-07	2.65E-06
11	2.00E-01	7.00E-01	1.40	6.10	6.00E-01	2.40	1.63E-03	7.13E-03	-	-	-	-	-	-	-	-	-	-

Table 2-E: Requested Allowable Emissions

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
12	2.00E-01	7.00E-01	1.40	6.10	6.00E-01	2.40	1.63E-03	7.13E-03	-	-	-	-	-	-	-	-	-	-
25	2.00E-01	7.00E-01	1.40	6.10	6.00E-01	2.40	1.63E-03	7.13E-03	-	-	-	-	-	-	-	-	-	-
26	2.00E-01	7.00E-01	1.40	6.10	6.00E-01	2.40	1.63E-03	7.13E-03	-	-	-	-	-	-	-	-	-	-
SSM	-	-	-	-	unspecified	5.00	-	-	-	-	-	-	-	-	-	-	-	-
M1	-	-	-	-	unspecified	5.00	-	-	-	-	-	-	-	-	-	-	-	-
Totals	55.69	243.23	13.70	59.87	15.16	75.49	9.03E-02	3.95E-01	1.31	5.74	1.31	5.74	1.31	5.74	-	-	5.71E-06	2.50E-05

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

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[2]		PM10[2]		PM2.5[2]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[2]		PM10[2]		PM2.5[2]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
22b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SSM	-	-	-	-	unspecified	5.00	-	-	-	-	-	-	-	-	-	-	-	-
M1	-	-	-	-	unspecified	5.00	-	-	-	-	-	-	-	-	-	-	-	-
Totals	-	-	-	-	unspecified	10.00	-	-	-	-	-	-	-	-	-	-	-	-

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

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

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

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

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

Stack No.	Serving Unit Number(s) from Table 2-A	NOx		CO		VOC		SOx		PM		PM10		PM2.5		☐ H_2S or ☐ Lead	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
5a	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6a	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9a	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10a	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21a	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22a	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23a	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24a	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	6a, 9a & 11	2.00E-01	7.00E-01	1.40	6.10	6.00E-01	2.40	1.63E-03	7.13E-03	-	-	-	-	-	-	-	-
12	5a, 10a & 12	2.00E-01	7.00E-01	1.40	6.10	6.00E-01	2.40	1.63E-03	7.13E-03	-	-	-	-	-	-	-	-
25	21a, 22a & 25	2.00E-01	7.00E-01	1.40	6.10	6.00E-01	2.40	1.63E-03	7.13E-03	-	-	-	-	-	-	-	-
26	23a, 24a & 26	2.00E-01	7.00E-01	1.40	6.10	6.00E-01	2.40	1.63E-03	7.13E-03	-	-	-	-	-	-	-	-
Totals:		8.00E-01	2.80	5.60	24.40	2.40	9.60	6.51E-03	2.85E-02	-	-	-	-	-	-	-	-

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	26	702	127			156	1.02
2	2	V	No	26	702	127			156	1.02
3	3	V	No	26	702	127			156	1.02
7	7	V	No	26	702	127			156	1.02
8	8	V	No	26	702	127			156	1.02
14	14	V	No	26	702	127			156	1.02
15	15	V	No	26	702	127			156	1.02
16	16	V	No	26	702	127			156	1.02
17	17	V	No	26	702	127			156	1.02
18	18	V	No	26	702	127			156	1.02
19	19	V	No	26	702	127			156	1.02
20	20	V	No	26	702	127			156	1.02
4	4	V	No	7.5	588	33			95	0.67
27	27	V	No	7.5	588	33			95	0.67
5b	5b	V	No	18	600	3			6	0.83
6b	6b	V	No	18	600	3			6	0.83
9b	9b	V	No	18	600	5			6	0.83
10b	10b	V	No	18	600	5			6	0.83
21b	21b	V	No	18	600	5			6	0.83
22b	22b	V	No	18	600	3			6	0.83
23b	23b	V	No	18	600	5			6	0.83
24b	24b	V	No	18	600	3			6	0.83
11	5a, 10a & 11	V	No	20	1832				66	1.22
12	6a, 9a, & 12	V	No	20	1832				66	1.22
25	21a, 22a & 25	V	No	20	1832				66	1.22
26	23a, 24a & 26	V	No	20	1832				66	1.22

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

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

Stack No.	Unit No.(s)	Total HAPs		Formaldehyde ☑ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	1	0.1	0.5	0.1	0.4														
2	2	0.1	0.5	0.1	0.4														
3	3	0.1	0.5	0.1	0.4														
7	7	0.1	0.5	0.1	0.4														
8	8	0.1	0.5	0.1	0.4														
14	14	0.1	0.5	0.1	0.4														
15	15	0.1	0.5	0.1	0.4														
16	16	0.1	0.5	0.1	0.4														
17	17	0.1	0.5	0.1	0.4														
18	18	0.1	0.5	0.1	0.4														
19	19	0.1	0.5	0.1	0.4														
20	20	0.1	0.5	0.1	0.4														
4	4																		
27	27																		
5a	5a																		
6a	6a																		
9a	9a																		
10a	10a																		
21a	21a																		
22a	22a																		
23a	23a																		
24a	24a																		
5b	5b																		
6b	6b																		
9b	9b																		
10b	10b																		

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

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

Stack No.	Unit No.(s)	Total HAPs		Formaldehyde ☑ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		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
21b	21b																		
22b	22b																		
23b	23b																		
24b	24b																		
11	11		0.2																
12	12		0.2																
25	25		0.2																
26	26		0.2																
SSM	SSM		0.1																
M1	M1		0.1																
Totals:		1.5	6.8	1.2	5.4														

Table 2-J: Fuel

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

Unit No.	Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, …)	Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other	Specify Units				
			Lower Heating Value	Hourly Usage	Annual Usage	% Sulfur	% Ash
1	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	11.24 Mscf	98.43 MMscf	Negligible	Negligible
2	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	11.24 Mscf	98.43 MMscf	Negligible	Negligible
3	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	11.24 Mscf	98.43 MMscf	Negligible	Negligible
7	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	11.24 Mscf	98.43 MMscf	Negligible	Negligible
8	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	11.24 Mscf	98.43 MMscf	Negligible	Negligible
14	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	11.24 Mscf	98.43 MMscf	Negligible	Negligible
15	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	11.24 Mscf	98.43 MMscf	Negligible	Negligible
16	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	11.24 Mscf	98.43 MMscf	Negligible	Negligible
17	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	11.24 Mscf	98.43 MMscf	Negligible	Negligible
18	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	11.24 Mscf	98.43 MMscf	Negligible	Negligible
19	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	11.24 Mscf	98.43 MMscf	Negligible	Negligible
20	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	11.24 Mscf	98.43 MMscf	Negligible	Negligible
4	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	825.49 scf	7.23 MMscf	Negligible	Negligible
27	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	825.49 scf	7.23 MMscf	Negligible	Negligible
5b	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	1.21 Mscf	10.58 MMscf	Negligible	Negligible
6b	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	1.21 Mscf	10.58 MMscf	Negligible	Negligible
9b	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	1.65 Mscf	14.44 MMscf	Negligible	Negligible
10b	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	1.65 Mscf	14.44 MMscf	Negligible	Negligible
21b	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	1.65 Mscf	14.44 MMscf	Negligible	Negligible
22b	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	1.21 Mscf	10.58 MMscf	Negligible	Negligible
23b	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	1.65 Mscf	14.44 MMscf	Negligible	Negligible
24b	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	1.21 Mscf	10.58 MMscf	Negligible	Negligible
11	Natural Gas	Pipeline & Raw/Field Natural Gas	876 Btu/scf	2.71 Mscf	23.76 MMscf	Negligible	Negligible
12	Natural Gas	Pipeline & Raw/Field Natural Gas	876 Btu/scf	2.71 Mscf	23.76 MMscf	Negligible	Negligible
25	Natural Gas	Pipeline & Raw/Field Natural Gas	876 Btu/scf	2.71 Mscf	23.76 MMscf	Negligible	Negligible
26	Natural Gas	Pipeline & Raw/Field Natural Gas	876 Btu/scf	2.71 Mscf	23.76 MMscf	Negligible	Negligible

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	31000299	Produced Water	99% H2O & 1% Hydrocarbons	Insignificant source					
T2	31000299	Wastewater	99% H2O & 1% Hydrocarbons	Insignificant source					
T3	31000299	Used Oil	Hydrocarbons	Insignificant source					
T4	31000299	Lube Oil	Hydrocarbons	Insignificant source					
T5, T6, T9, T10 & T41-T44	31000299	Triethylene Glycol (TEG)	Triethylene Glycol (TEG)	Insignificant source					
T7 & T49	31000299	Antifreeze	Glycol	Insignificant source					
T8	31000299	Corrosion Inhibitor	Glycol	Insignificant source					
T11 - T13 & T17 - T25	31000299	Lube Oil	Hydrocarbons	Insignificant source					
T14 & T15	31000299	Produced Water	99% H2O & 1% Hydrocarbons	Insignificant source					
T16	31000299	Wastewater	99% H2O & 1% Hydrocarbons	Insignificant source					
T29 & T36	31000299	Triethylene Glycol (TEG)	Triethylene Glycol (TEG)	Insignificant source					

Table 2-L: Tank Data

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

Tank No.	Date Installed	Materials Stored	Seal Type (refer to Table 2-LR below)	Roof Type (refer to Table 2-LR below)	Capacity		Diameter (M)	Vapor Space (M)	Color (from Table VI-C)		Paint Condition (from Table VI-C)	Annual Throughput (gal/yr)	Turn-overs (per year)
					(bbl)	(M^3)			Roof	Shell			
T1		Produced Water	NA	FX	155	24.6	Insignificant Source						
T2		Wastewater	NA	FX	150	23.8	Insignificant Source						
T3		Used Oil	NA	FX	165	26.2	Insignificant Source						
T4		Lube Oil	NA	FX	100	15.9	Insignificant Source						
T5, T6, T9, T10 & T41-T44		Triethylene Glycol (TEG)	NA	FX	11.9	1.9	Insignificant Source						
T7 & T49		Antifreeze	NA	FX	11.9	1.9	Insignificant Source						
T8		Corrosion Inhibitor	NA	FX	19	3.0	Insignificant Source						
T11 - T13 & T17 - T25		Lube Oil	NA	FX	11.9	1.9	Insignificant Source						
T14 & T15		Produced Water	NA	FX	300	47.7	Insignificant Source						
T16		Wastewater	NA	FX	165	26.2	Insignificant Source						
T29 & T36		Triethylene Glycol (TEG)	NA	FX	2.4	0.4	Insignificant Source						

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

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

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

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

Material Processed				Material Produced			
Description	**Chemical Composition**	**Phase (Gas, Liquid, or Solid)**	**Quantity (specify units)**	**Description**	**Chemical Composition**	**Phase**	**Quantity (specify units)**
Low pressure natural gas	C1-C6+	Gas	37,230 MMCF/yr[1]	High pressure natural gas	C1-C6+	Gas	37,230 MMCF/yr[1]

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

Table 2-N: CEM Equipment

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

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

Table 2-O: Parametric Emissions Measurement Equipment

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

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

Table 2-P: 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_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]									**Total GHG** Mass Basis ton/yr[4]	**Total CO_2e** ton/yr[5]
Unit No.	**GWPs** [1]	**1**	**298**	**25**	**22,800**	**footnote 3**										
1	**mass GHG**	6010.45	1.13E-02	1.13E-01	-	-									6010.58	-
	CO_2e	6010.45	3.38	2.83	-	-									-	6016.66
2	**mass GHG**	6010.45	1.13E-02	1.13E-01	-	-									6010.58	-
	CO_2e	6010.45	3.38	2.83	-	-									-	6016.66
3	**mass GHG**	6010.45	1.13E-02	1.13E-01	-	-									6010.58	-
	CO_2e	6010.45	3.38	2.83	-	-									-	6016.66
7	**mass GHG**	6010.45	1.13E-02	1.13E-01	-	-									6010.58	-
	CO_2e	6010.45	3.38	2.83	-	-									-	6016.66
8	**mass GHG**	6010.45	1.13E-02	1.13E-01	-	-									6010.58	-
	CO_2e	6010.45	3.38	2.83	-	-									-	6016.66
14	**mass GHG**	6010.45	1.13E-02	1.13E-01	-	-									6010.58	-
	CO_2e	6010.45	3.38	2.83	-	-									-	6016.66
15	**mass GHG**	6010.45	1.13E-02	1.13E-01	-	-									6010.58	-
	CO_2e	6010.45	3.38	2.83	-	-									-	6016.66
16	**mass GHG**	6010.45	1.13E-02	1.13E-01	-	-									6010.58	-
	CO_2e	6010.45	3.38	2.83	-	-									-	6016.66
17	**mass GHG**	6010.45	1.13E-02	1.13E-01	-	-									6010.58	-
	CO_2e	6010.45	3.38	2.83	-	-									-	6016.66
18	**mass GHG**	6010.45	1.13E-02	1.13E-01	-	-									6010.58	-
	CO_2e	6010.45	3.38	2.83	-	-									-	6016.66
19	**mass GHG**	6010.45	1.13E-02	1.13E-01	-	-									6010.58	-
	CO_2e	6010.45	3.38	2.83	-	-									-	6016.66
20	**mass GHG**	6010.45	1.13E-02	1.13E-01	-	-									6010.58	-
	CO_2e	6010.45	3.38	2.83	-	-									-	6016.66
4	**mass GHG**	551.05	1.04E-03	1.04E-02	-	-									551.06	-
	CO_2e	551.05	3.09E-01	2.60E-01	-	-									-	551.62

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_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]									**Total GHG** Mass Basis ton/yr[4]	**Total CO_2e** ton/yr[5]
Unit No.	**GWPs** [1]	**1**	**298**	**25**	**22,800**	**footnote 3**										
27	**mass GHG**	551.05	1.04E-03	1.04E-02	-	-									551.06	-
	CO_2e	551.05	3.09E-01	2.60E-01	-	-									-	551.62
5a	**mass GHG**	409.97	-	6.61	-	-									416.57	-
	CO_2e	409.97	-	165.17	-	-									-	575.14
6a	**mass GHG**	409.97	-	6.61	-	-									416.57	-
	CO_2e	409.97	-	165.17	-	-									-	575.14
9a	**mass GHG**	876.00	-	14.15	-	-									890.15	-
	CO_2e	876.00	-	353.67	-	-									-	1229.67
10a	**mass GHG**	876.00	-	14.15	-	-									890.15	-
	CO_2e	876.00	-	353.67	-	-									-	1229.67
21a	**mass GHG**	876.00	-	14.15	-	-									890.15	-
	CO_2e	876.00	-	353.67	-	-									-	1229.67
22a	**mass GHG**	409.97	-	6.61	-	-									416.57	-
	CO_2e	409.97	-	165.17	-	-									-	575.14
23a	**mass GHG**	876.00	-	14.15	-	-									890.15	-
	CO_2e	876.00	-	353.67	-	-									-	1229.67
24a	**mass GHG**	409.97	-	6.61	-	-									416.57	-
	CO_2e	409.97	-	165.17	-	-									-	575.14
5b	**mass GHG**	617.63	1.16E-03	1.16E-02	-	-									617.65	-
	CO_2e	617.63	3.47E-01	2.91E-01	-	-									-	618.27
6b	**mass GHG**	617.63	1.16E-03	1.16E-02	-	-									617.65	-
	CO_2e	617.63	3.47E-01	2.91E-01	-	-									-	618.27
9b	**mass GHG**	842.60	1.59E-03	1.59E-02	-	-									842.62	-
	CO_2e	842.60	4.73E-01	3.97E-01	-	-									-	843.47
10b	**mass GHG**	842.60	1.59E-03	1.59E-02	-	-									842.62	-
	CO_2e	842.60	4.73E-01	3.97E-01	-	-									-	843.47

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_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]									**Total GHG** Mass Basis ton/yr[4]	**Total CO_2e** ton/yr[5]
Unit No.	**GWPs** [1]	**1**	**298**	**25**	**22,800**	**footnote 3**										
21b	**mass GHG**	842.60	1.59E-03	1.59E-02	-	-									842.62	-
	CO_2e	842.60	4.73E-01	3.97E-01	-	-									-	843.47
22b	**mass GHG**	617.63	1.16E-03	1.16E-02	-	-									617.65	-
	CO_2e	617.63	3.47E-01	2.91E-01	-	-									-	618.27
23b	**mass GHG**	842.60	1.59E-03	1.59E-02	-	-									842.62	-
	CO_2e	842.60	4.73E-01	3.97E-01	-	-									-	843.47
24b	**mass GHG**	617.63	1.16E-03	1.16E-02	-	-									617.65	-
	CO_2e	617.63	3.47E-01	2.91E-01	-	-									-	618.27
11	**mass GHG**	1214.60	2.43E-03	-	-	-									1214.60	-
	CO_2e	1214.60	7.24E-01	-	-	-									-	1215.32
12	**mass GHG**	1214.60	2.43E-03	-	-	-									1214.60	-
	CO_2e	1214.60	7.24E-01	-	-	-									-	1215.32
25	**mass GHG**	1214.60	2.43E-03	-	-	-									1214.60	-
	CO_2e	1214.60	7.24E-01	-	-	-									-	1215.32
26	**mass GHG**	1214.60	2.43E-03	-	-	-									1214.60	-
	CO_2e	1214.60	7.24E-01	-	-	-									-	1215.32
SSM	**mass GHG**	167.98	-	760.21	-	-									928.19	-
	CO_2e	167.98	-	19005.22	-	-									-	19173.20
M1	**mass GHG**	168.07	-	760.61	-	-									928.67	-
	CO_2e	168.07	-	19015.13	-	-									-	19183.20
F1	**mass GHG**	176.41	-	799.43	-	-									975.83	-
	CO_2e	176.41	-	19985.68	-	-									-	20162.09
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															

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_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]									Total GHG Mass Basis ton/yr[4]	Total CO_2e ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**22,800**	**footnote 3**										
Totals	**mass GHG**	89583.20	1.59E-01	2404.75	-	-									91988.10	
	CO_2e	89583.20	47.30	60118.66	-	-										149749.16

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

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

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

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

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

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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.

The HFC Carracas CDP currently operates under a construction permit, 968-M5-R7, dated October 12, 2017 and a Title V operating permit, P168-R3, dated January 5, 2016.

This application is being submitted to renew the Title V operating permit. The applicable regulation is 20.2.70 New Mexico Administrative Code (NMAC). The lowest level regulatory citation is 20.2.70.300.B(2) NMAC.

The facility is currently approved by the Title V permit to operate the following equipment/sources:

- Twelve Waukesha L7042GL natural gas-fired reciprocating engines (Units 1-3, 7, 8 & 14-20), equipped with catalytic convertors to control CO, VOC and HAP emissions;
- Two Capstone C65 natural gas-fired microturbine generators (Units 4 & 27);
- Four Enertek (or equivalent) glycol dehydrators with capacities of 12 MMSCFD (Units 5a, 6a, 22a & 24a);
- Four Enertek (or equivalent) dehydrator reboilers rated at 1.09 MMBtu/hr (Units 5b, 6b, 22b & 24b);
- Four Enertek (or equivalent) glycol dehydrators with capacities of 20 MMSCFD (Units 9a, 10a, 21a & 23a);
- Four Enertek (or equivalent) dehydrator reboilers rated at 1.48 MMBtu/hr (Units 9b, 10b, 21b & 23b);
- Four Moneyhun process flares (Units 11, 12, 25 & 26), used to control dehydrator VOC and HAP emissions;
- SSM emissions from the compressors and piping associated with the station (Unit SSM); and
- Malfunction emissions (Unit M1).

The station is also equipped with miscellaneous exempt/insignificant liquid storage tanks and gas transmission equipment.

There are no modifications to de-bottleneck impacts or change the facility's major/minor status (both prevention of significant deterioration [PSD] & Title V).

Startup, Shutdown and Maintenance Emissions

For the engines, microturbines, dehydrators, flares, equipment leaks (valves, connectors, seals, etc.), malfunctions, and storage tanks, it is concluded 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.

Blowdown SSM emissions from the compressors and piping associated with the station are calculated from the quantity of gas vented during each event, the composition of the gas, and the number of events.

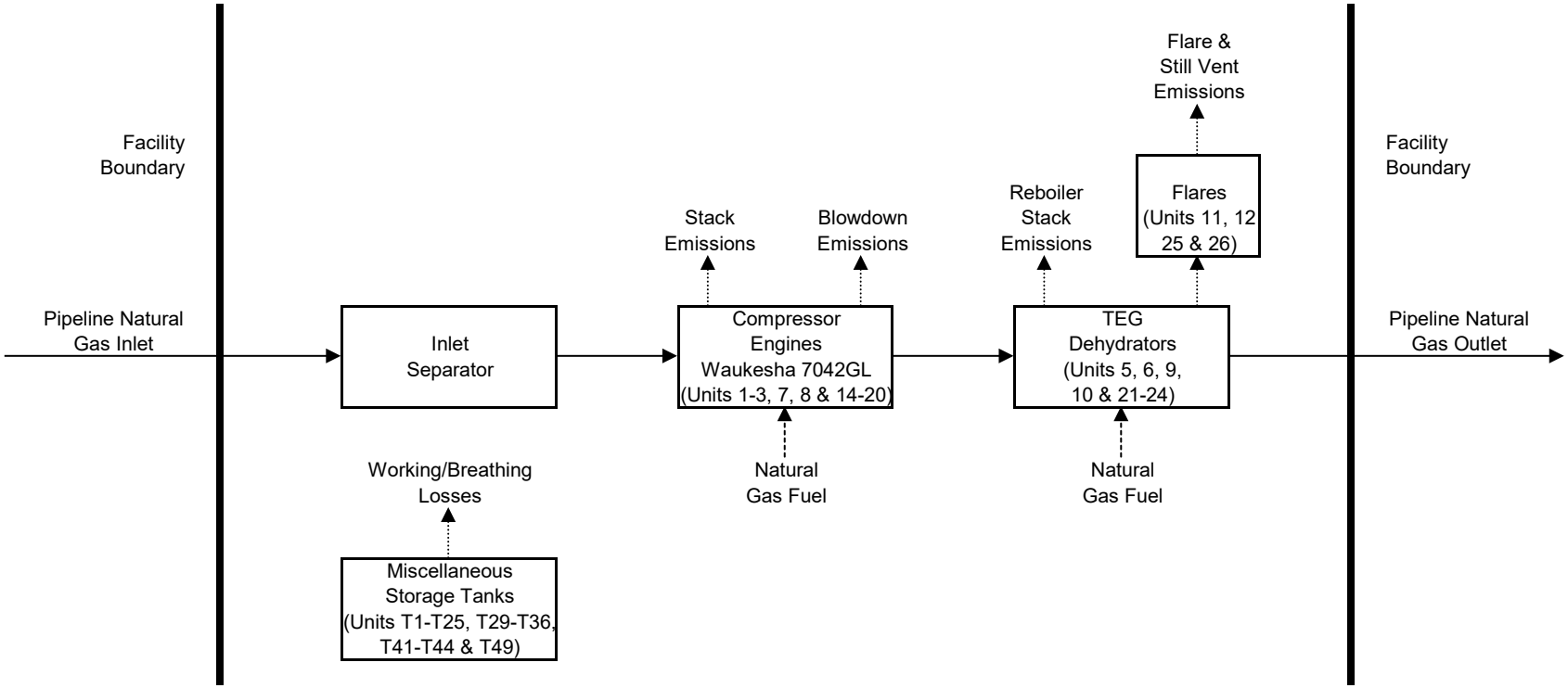
Section 4

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.

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

Flow Diagram

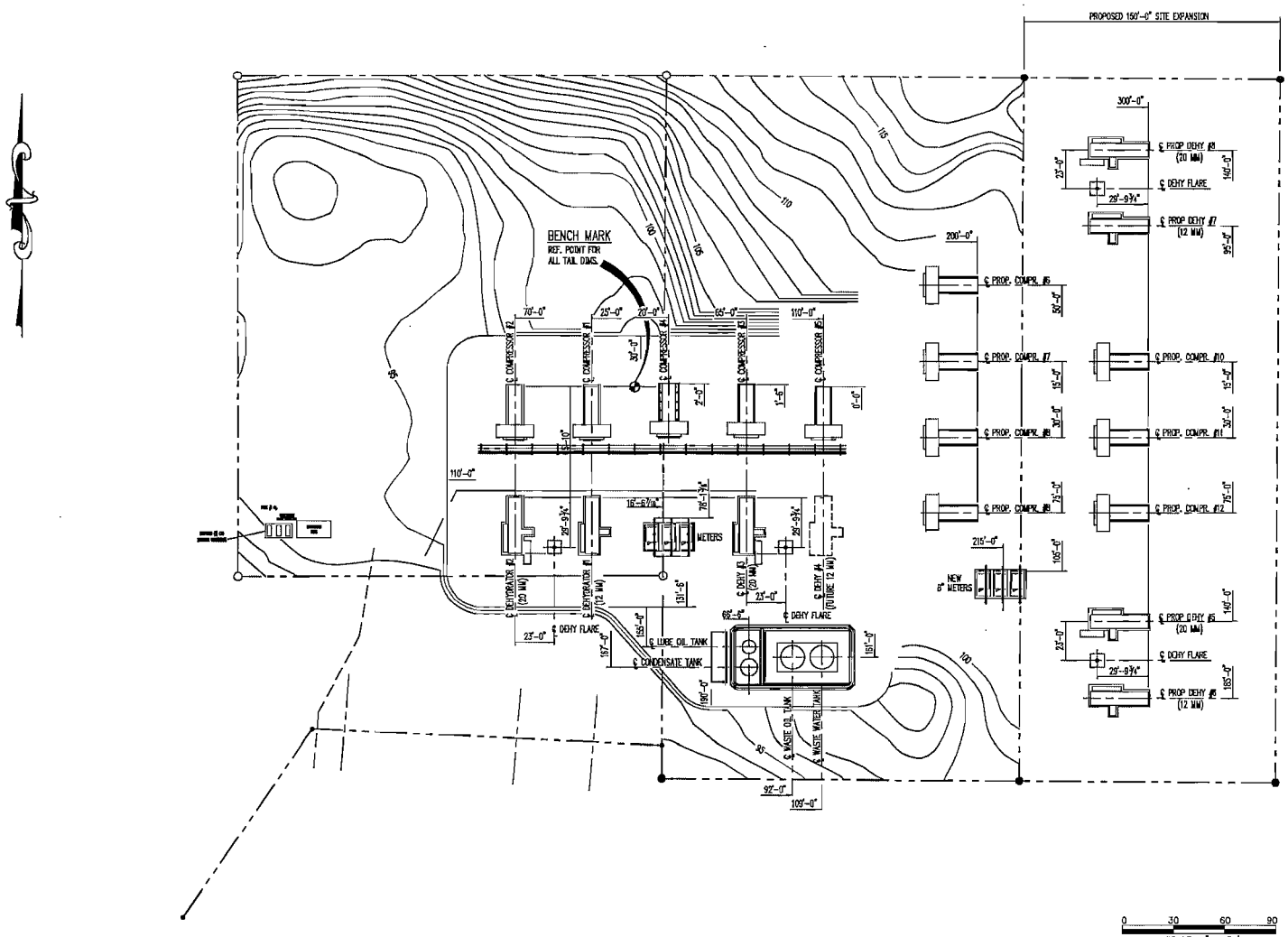


Section 5

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.



AREA = 114,846.21 Sq.Ft.
OR 2.64 ACRES

EXTERRAN.
1250 Troy King Road
Farmington, New Mexico 87401 (505) 325-3220

DWG.No.	DESCRIPTION
REFERENCE DRAWINGS	

NO.	DATE	BY	DESCRIPTION	W.O. #	APP.
8	02/09/11	DDA	REVISED DEHY ARRANGEMENT, ADD 7 & 8		
7	01/25/11	DDA	ADDED PROPOSED CAPSTONE GENERATORS		
6	12/01/10	DDA	ADDED PROPOSED EXPANSION COMPR. #6 THRU #12, DEHYS #4 & #5 & NEW 6" METERS		
5	8/21/09	DDA	ADDED COMPRESSOR #4, DEHY #2 & #3, NEW METERS AND DEHY FLARES		

REVISIONS

NO.	DATE	BY	DESCRIPTION	W.O. #	APP.
4	8/21/07	CJM	REPLACED COMPRESSOR #3, REMOVED PULSATION DAMPNER		
3	6/06/07	JGA	AS BUILT PER FIELD		
2	5/22/07	JGA	ADDED COMPR.# 3 & DEHY# 1		
1	10/24/57	RWH	RELOCATED COMP. #2	13656	
0	7/24/02	HPM	ISSUED FOR CONSTRUCTION		

REVISIONS

	BY	DATE
DRAFTING		
DRAWN	SAT	4/1/82
CHECKED		
APPROVED		
ENGINEERING	BY	DATE
C & S REVIEW		
PROJECT APPROVED		
PLOT DATE/TIME		

WILLIAMS ENERGY SERVICES
ONE OF THE WILLIAMS COMPANIES, INC.

CARRACAS MESA EXPANSION
EXCAVATION & SITE LAYOUT

SCALE: 1:=30'
W.O. # 1388-10048
DWG. NO. CAR-1-M1

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.

Reciprocating Engines

The nitrogen oxides (NO_X), CO and VOC emissions from the reciprocating engines (Units 1-3, 7, 8 & 14-20) were calculated using manufacturer's data. The sulfur dioxide (SO_2) and particulate emissions were calculated using AP-42 emission factors from Table 3.2-2. HAP emissions were calculated using GRI-HAPCalc 3.0. Emissions were calculated assuming the engines all operate at full site capacity for 8,760 hours per year.

The engines start up with no load and a rich fuel mixture. As a result, emissions are minimized. Because the engines take only minutes to reach operating temperature, emissions during startup are not expected to exceed the steady-state allowable emission rate limits. Also, there are no Environmental Protection Agency (EPA) approved test methods available to measure emissions during startup. Similarly, emissions during shut down 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.

Criteria pollutant and HAP emission rates from all the units are carried forward and not revised.

Turbine Generators

The NO_X, CO and VOC emissions from the microturbine generators (Units 4, 27 & 28) were calculated using manufacturer's data identified in previous applications. The SO_2 and particulate emissions were calculated using AP-42 emission factors from Table 3.1-2a. HAP emissions were calculated using GRI-HAPCalc 3.0. Emissions were calculated assuming the microturbines all operate at full site capacity for 8,760 hours per year.

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

Criteria pollutant and HAP emission rates from all the units are carried forward and not revised.

SSM Emissions

VOC and HAP emissions from blowdowns of the compressors and piping associated with the station (Unit SSM) occur during startups and shutdowns. SSM emissions occur when high pressure gas is used to purge air from the compressors and associated piping prior to startups. This gas is vented to atmosphere. SSM emissions from the compressors also occur after shutdowns when high pressure gas in the compressors and associated piping is released to atmosphere as a safety precaution.

SSM emissions from blowdowns of the compressors and piping associated with the station were calculated from the quantity of gas vented during each event, the composition of the gas, and the number of events. The quantity of gas vented during each event was determined by HFC engineering. The composition of the gas was determined from an extended gas analysis. The annual number of blowdown events was estimated based on historical operations. A safety factor was added because VOC and HAP emissions from each blowdown event are dependent on the composition of the gas in the pipeline and because the number of blowdowns in a year may vary. Experience indicates the composition of the gas is likely to vary. The use of the safety factor was also designed to ensure an adequate emissions limit, which includes emissions from other miscellaneous startup, shutdown and maintenance activities.

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

The VOC emissions are carried forward and not revised. The HAP emissions were updated using a recent extended gas analysis.

Dehydrator Still Vents and Flash Tanks

The VOC and HAP emissions from the dehydrator still vents (Units 5a, 6a, 9a, 10a, 21a, 22a, 23a, and 24a) were calculated using GRI-GLYCalc 4.0 and a recent extended gas analysis. Emissions were calculated assuming the dehydrators all operate at full capacity for 8,760 hours per year. To allow for variability in the composition of the inlet gas stream, a safety factor was added to the VOC emissions identified in Table 2-E.

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.

IMPORTANT NOTE: To control emissions, the dehydrator still vent and flash tank emissions are routed to a process flare (via a closed vent system). Consequently, the dehydrator still vent and flash tank emissions are included with the flare emissions in Table 2-E.

Dehydrator Reboilers

The NO_X and CO emission factors for the reboilers (Units 5b, 6b, 9b, 10b, 21b, 22b, 23b, and 24b) were identified from an Enertek letter dated August 19, 1994. The VOC and SO_2 emission factors were identified from an InFab letter dated July 22, 1998. The particulate emissions were calculated using AP-42 emission factors from Table 1.4-2. HAP emissions were calculated using GRI-HAPCalc 3.0. Emissions were calculated assuming the reboilers all operate 8,760 hours per year.

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

The criteria pollutant and HAP emission rates are carried forward and not revised.

Flares

Each flare is permitted to control two dehydrators: one 12 MMSCFD unit, and one 20 MMSCFD unit. Emissions were calculated using the combined gas throughput rates from the two dehydrators as identified by GRI-GLYCalc. It is estimated the flares provide 95% control efficiencies.

NO_X, and CO emissions from the flares (Units 11, 12, 25 & 26) were calculated using TCEQ emission factors. VOC and SO2 emissions were calculated using the AP-42 emissions factor from Table 1.4-2. To allow for variability in the composition of the inlet gas stream, a safety factor was used.

There are no excess SSM emissions associated with operation of the flares. The flares do not require warm-up periods. Equipment is not turned on unless the flares are in operation and the flares are not shut down while equipment is in operation. No maintenance is conducted on the flares while they are in operation.

The VOC emissions are carried forward and not revised.

Equipment Leaks

Equipment leak VOC emissions (valves, connectors, pump and compressor seals, pressure relief valves and open-ended lines) (Unit F1) were calculated using emission factors from Table 2.4 of the 1995 Protocol for Equipment Leak Emission Estimates published by the Environmental Protection Agency (EPA). HAP emissions were estimated from the VOC emissions and gas composition as identified in the extended gas analysis and assuming 8,760 hours per year of operation.

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

The emissions were updated using a recent extended gas analysis.

Malfunctions

Malfunction (Unit M1) emissions were set at 5.0 tons of VOC per year to account for emissions that may occur during upsets and malfunctions (including, but not limited to, unscheduled blowdowns and relief valve release). Based on the gas release rate associated with the annual VOC emission rate, HAP emissions were calculated using the extended gas analysis. Note that these malfunction emissions include the venting of gas only, not combustion emissions.

The VOC emissions are carried forward and not revised. The HAP emissions were updated using a recent extended gas analysis.

Storage Tanks

The following assumptions were made for the storage tank emissions calculations:

- Residual oil #6 was used to estimate emissions from the lubrication oil, used oil and waste water storage tanks. As the vapor pressure of residual oil #6 is less than 0.2 pounds per square inch absolute (psia), the tanks containing lubrication oil, used oil, and waste water (Units T2-T4, T11-T13 & T16-T25) are NSR exempt and Title V insignificant sources. Note that as Units T2 & T16 are waste water tanks, they contain storm/waste water with heavy hydrocarbons that do not evaporate prior to being washed into the tank. These heavy hydrocarbons are assumed to be similar to lubrication oil;

- As the vapor pressure of TEG is less than 0.2 psia, the tanks containing TEG (Units T5, T6, T9, T10, T29-T36 & T41-T-44) are NSR exempt and Title V insignificant sources; and

- The antifeeze is an inhibited ethylene glycol (EG) coolant containing 50 percent EG and 50 percent water. As the vapor pressure of EG is less than 0.2 psia, the tanks containing antifreeze (Units T7 & T49) are NSR exempt and Title V insignificant sources.

VOC emissions from the corrosion inhibitor storage tank (Unit T8) were calculated using TANKS 4.0.9d. Since it was estimated to emit 45.3 pounds per year, it is an NSR exempt and Title V insignificant source. The composition of CGO49 Corrosion Inhibitor was identified from the MSDS.

Emissions from the produced water tanks (Unit T1, T14 & T15) were calculated using emission factors from the Colorado Department of Public Health and Environment (CDPHE) and the Texas Commission on Environmental Quality (TCEQ). Since they are estimated to emit 0.4 tons per year, they are NSR exempt and Title V insignificant sources.

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

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

Engine Exhaust Emissions Calculations

Unit Number: 1-3, 7, 8 & 14-20
Description: Waukesha L7042GL
Type: Four Stroke Lean Burn (Turbocharged)

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

Horsepower Calculations

6,366 ft above MSL	Elevation	
1,478 hp	Nameplate hp	Mfg. data
1,373 hp	NMAQB Site-rated hp	NMAQB Procedure # 02.002-00 (loss of 3% for every 1,000 ft over 4,000 ft)
1,334 hp	Mfg. Site-rated hp	Mfg. product bulletin Power Derate, S8154-6, April 2001 (loss of 2% for every 1,000 ft over 1,500 ft)

Engine Specifications

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

Fuel Consumption

7365 Btu/hp-hr	Brake specific fuel consumption	Mfg. data
10.11 MMBtu/hr	Hourly fuel consumption	Btu/hp-hr x NMAQB site-rated hp / 1,000,000
900 Btu/scf	Field gas heating value	Nominal heat content
11,236 scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760 hr/yr	Annual operating time	Harvest Four Corners, LLC
88,583 MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
98.43 MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000

Steady-State Emission Rates

Pollutants	Emission Factors, g/hp-hr	Uncontrolled Emission Rates, pph	Uncontrolled Emission Rates, tpy	Control Efficiencies, %	Controlled Emission Rates, pph	Controlled Emission Rates, tpy
NOX	1.50	4.54	19.89	0	4.54	19.89
CO	3.00	9.08	39.78	93	6.36E-01	2.78
VOC	1.00	3.03	13.26	65	1.06	4.64

Emission factors taken from Waukesha Bulletin 7005 0102
Uncontrolled Emission Rates (pph) = g/hp-hr x NMAQB Site-rated hp / 453.59 g/lb
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton
Control efficiencies taken from previous application
Controlled Emission Rates (pph) = Uncontrolled Emission Rates (pph) x (1 - (% / 100))
Controlled Emission Rates (tpy) = Uncontrolled Emission Rates (tpy) x (1 - (% / 100))

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates, pph	Uncontrolled Emission Rates, tpy
SO2	5.88E-04	5.95E-03	2.60E-02
PM	9.99E-03	1.01E-01	4.42E-01
PM10	9.99E-03	1.01E-01	4.42E-01
PM2.5	9.99E-03	1.01E-01	4.42E-01

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

Engine Exhaust Emissions Calculations

Unit Number: 1-3, 7, 8 & 14-20
Description: Waukesha L7042GL
Type: Four Stroke Lean Burn (Turbocharged)

Exhaust Parameters

702	°F	Stack exit temperature	Mfg. data
7638	acfm	Stack flowrate	Mfg. data
1.02	ft	Stack exit diameter	Harvest Four Corners, LLC
0.82	ft^2	Stack exit area	3.1416 x ((ft / 2) ^2)
155.53	fps	Stack exit velocity	acfm / ft^2 / 60 sec/min
26.00	ft	Stack height	Harvest Four Corners, LLC

GRI-HAPCalc® 3.0
Engines Report

Facility ID:	**CARRACAS**	**Notes:**
Operation Type:	**COMPRESSOR STATION**	
Facility Name:	**CARRACAS CENTRAL DELIVERY**	
User Name:	**Harvest Four Corner, 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:	1,373	hp
Fuel Type:	FIELD GAS	
Engine Type:	4-Stroke, Lean Burn	
Emission Factor Set:	FIELD > EPA > LITERATURE	
Additional EF Set:	-NONE-	

Calculated Emissions (ton/yr)

Chemical Name	Emissions	Emission Factor	Emission Factor Set
HAPs			
Formaldehyde	2.2293	0.16830000 g/bhp-hr	GRI Literature
Benzene	0.0689	0.00520000 g/bhp-hr	GRI Literature
Toluene	0.0278	0.00210000 g/bhp-hr	GRI Literature
Xylenes(m,p,o)	0.0185	0.00140000 g/bhp-hr	GRI Literature
Total	2.3445		

Turbine Exhaust Emissions Data and Calculations

Unit Number: 4 & 27
Description: Capstone C65 MicroTurbine Generators

Rating

65	kW	Rating	Mfg. data
87	hp	Horsepower (un-derated)	AP-42, Appendix A (1 kW = 1.3407 hp)

Fuel Consumption

0.842	MMBtu/hr	Hourly heat consumption	Mfg. data
1,020	Btu/scf	Field gas heating value	Nominal heat content
825.49	scf/hr	Hourly fuel consumption	MMBtu/hr x (1,000,000 Btu/MMBtu) / Btu/scf
9,662	Btu/hp-hr	Brake specific fuel consumption	MMBtu/hr x (1,000,000 Btu/MMBtu) / hp
8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC
7,376	MMBtu/yr	Annual heat consumption	MMBtu/hr x hr/yr
7.23	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / (1,000,000 scf/MMscf)

Steady-State Emission Rates

Pollutant	Emission Factors, lb/kW-hr	Emission Rates, pph	Emission Rates, tpy
NOX	4.60E-04	2.99E-02	1.31E-01
CO	1.25E-03	8.13E-02	3.56E-01
VOC	1.00E-05	6.50E-04	2.85E-03

NOX, CO & VOC emission factors (lb/kW-hr) taken from previous application
Emission Rates (pph) = lb/kW-hr x Rating (kW)
Emission Rates (tpy) = Emission Rates (pph) x hr/yr / 2,000 lb/ton

Pollutant	AP-42 Emission Factors, lb/MMBtu	Emission Rates, pph	Emission Rates, tpy
SO2	3.40E-03	2.86E-03	1.25E-02
PM	6.60E-03	5.56E-03	2.43E-02
PM10	6.60E-03	5.56E-03	2.43E-02
PM2.5	6.60E-03	5.56E-03	2.43E-02

Emission factors (lb/MMBtu) taken from AP-42, Table 3.1-2a
Particulate factors include both filterable and condensible emissions
Emission Rates (pph) = lb/MMBtu x MMBtu/hr
Emission Rates (tpy) = Emission Rates (pph) x hr/yr / 2,000 lb/ton
Equivalent Emission Factors (g/hp-hr) = Emission Rates (pph) x 453.59 g/lb / NMAQB Site-rated hp

Turbine Exhaust Emissions Data and Calculations

Unit Number: 4 & 27
Description: Capstone C65 MicroTurbine Generators

Exhaust Parameters

1.08	lb/sec	Exhaust mass flow	Capstone C30-C65 prod spec 09-07
3,888	lb/hr	Exhaust mass flow	lb/sec x (3,600 sec/hr)
28.61	lb/lb-mole	Average molecular weight	Engineering estimate
588	°F	Exhaust temperature	Capstone C30-C65 prod spec 09-07
3,964	ft above MSL	Facility elevation	GoogleEarth
12.71	psia	Facility pressure	See Note 1
2,001	acfm	Exhaust flow rate	See Note 2
0.67	ft	Stack exit diameter	Mfg. data
0.35	ft^2	Stack exit area	3.1416 x ((ft / 2) ^2)
94.57	ft/sec	Stack exhaust velocity	acfm / ft^2 / (60 sec/min)
7.5	ft	Stack height	Harvest Four Corners, LLC

Note 1: psia = Standard Pressure (psia) x [([288 - (0.0065 x Facility Elevation (ft) x (0.3048 m/ft))] / 288) ^5.256]
Standard Pressure = 14.7 psia

Note 2: acfm = [lb/hr / lb/lb-mole] x (379 scf/lb-mole) x [Actual Temperature (°R) / Standard Temperature (°R)]
x [Standard Pressure (psia) / Actual Pressure (psia)] / (1 hr/60 min)
Standard Temperature = 520 °R

GRI-HAPCalc® 3.0
Turbine Report

Facility ID:	**CARRACAS**	**Notes:**
Operation Type:	**COMPRESSOR STATION**	
Facility Name:	**CARRACAS CENTRAL DELIVERY**	
User Name:	**Harvest Four Corner, 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".

Turbine Unit

Unit Name: C65

Hours of Operation: 8,760 Yearly

Rate Power: 87 hp

Fuel Type: NATURAL GAS

Emission Factor Set: FIELD > EPA > LITERATURE

Additional EF Set: -NONE-

Calculated Emissions (ton/yr)

Chemical Name	Emissions	Emission Factor	Emission Factor Set
HAPs			
Formaldehyde	0.0142	0.01693680 g/bhp-hr	GRI Field
Acetaldehyde	0.0146	0.01733570 g/bhp-hr	GRI Field
1,3-Butadiene	0.0001	0.00006160 g/bhp-hr	GRI Field
Acrolein	0.0002	0.00026000 g/bhp-hr	GRI Field
Propional	0.0007	0.00086500 g/bhp-hr	GRI Field
Propylene Oxide	0.0001	0.00012480 g/bhp-hr	EPA
n-Nitrosodimethylamine	0.0000	0.00000100 g/bhp-hr	EPA
Benzene	0.0005	0.00053840 g/bhp-hr	GRI Field
Toluene	0.0003	0.00041100 g/bhp-hr	GRI Field
Ethylbenzene	0.0001	0.00010330 g/bhp-hr	EPA
Xylenes(m,p,o)	0.0010	0.00124410 g/bhp-hr	GRI Field
2,2,4-Trimethylpentane	0.0013	0.00160530 g/bhp-hr	GRI Field
n-Hexane	0.0013	0.00150580 g/bhp-hr	GRI Field
Phenol	0.0001	0.00011010 g/bhp-hr	GRI Field
n-Nitrosomorpholine	0.0000	0.00000100 g/bhp-hr	EPA
Naphthalene	0.0000	0.00000760 g/bhp-hr	GRI Field
2-Methylnaphthalene	0.0000	0.00000130 g/bhp-hr	GRI Field
Biphenyl	0.0003	0.00033050 g/bhp-hr	GRI Field
Phenanthrene	0.0000	0.00000050 g/bhp-hr	GRI Field
Chrysene	0.0000	0.00000100 g/bhp-hr	GRI Field
Beryllium	0.0000	0.00000010 g/bhp-hr	GRI Field
Phosphorous	0.0001	0.00006520 g/bhp-hr	GRI Field
Chromium	0.0000	0.00000820 g/bhp-hr	GRI Field
Chromium	0.0000	0.00000560 g/bhp-hr	EPA
Manganese	0.0000	0.00001750 g/bhp-hr	GRI Field
Nickel	0.0000	0.00000610 g/bhp-hr	GRI Field
Cobalt	0.0000	0.00000160 g/bhp-hr	GRI Field

Arsenic	0.0000	0.00000060 g/bhp-hr	GRI Field
Selenium	0.0000	0.00000030 g/bhp-hr	GRI Field
Cadmium	0.0000	0.00000020 g/bhp-hr	GRI Field
Mercury	0.0000	0.00000270 g/bhp-hr	GRI Field
Lead	0.0000	0.00000340 g/bhp-hr	GRI Field
Total	0.0349		

Criteria Pollutants

PM	0.0267	0.03184680 g/bhp-hr	EPA
CO	1.7696	2.10828420 g/bhp-hr	GRI Field
NMHC	0.1627	0.19387800 g/bhp-hr	GRI Field
NMEHC	0.0101	0.01205010 g/bhp-hr	EPA
NOx	1.0510	1.25216290 g/bhp-hr	GRI Field
SO2	0.0009	0.00102720 g/bhp-hr	GRI Field

Other Pollutants

Methane	0.8286	0.98719230 g/bhp-hr	GRI Field
Acetylene	0.0060	0.00716540 g/bhp-hr	GRI Field
Ethylene	0.0117	0.01395450 g/bhp-hr	GRI Field
Ethane	0.1260	0.15008370 g/bhp-hr	GRI Field
Propane	0.0134	0.01600000 g/bhp-hr	GRI Field
Isobutane	0.0040	0.00480000 g/bhp-hr	GRI Field
Butane	0.0044	0.00520000 g/bhp-hr	GRI Field
Trimethylamine	0.0000	0.00000070 g/bhp-hr	EPA
Cyclopentane	0.0014	0.00165110 g/bhp-hr	GRI Field
Butyrald/Isobutyraldehyde	0.0011	0.00134000 g/bhp-hr	GRI Field
n-Pentane	0.0681	0.08115000 g/bhp-hr	GRI Field
Cyclohexane	0.0051	0.00612400 g/bhp-hr	GRI Field
Methylcyclohexane	0.0074	0.00883120 g/bhp-hr	GRI Field
n-Octane	0.0027	0.00318890 g/bhp-hr	GRI Field
1,3,5-Trimethylbenzene	0.0025	0.00300000 g/bhp-hr	GRI Field
n-Nonane	0.0004	0.00053260 g/bhp-hr	GRI Field
CO2	397.3416	473.39811550 g/bhp-hr	EPA
Vanadium	0.0000	0.00000070 g/bhp-hr	GRI Field
Copper	0.0000	0.00002050 g/bhp-hr	GRI Field
Molybdenum	0.0000	0.00002030 g/bhp-hr	GRI Field
Barium	0.0000	0.00002290 g/bhp-hr	GRI Field

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Carracas TEG Dehydrator
File Name: C:\1 - Office\1-Cirrus\1-Projects\1a - Harvest\1 - Permiting\4 - Title V\1 - Carracus\1 - Application\Harvest - Carracas - November 2019 - GRI-GLYCalc Units 5, 6, 22 & 24 (12 MMSCFD).ddf
Date: November 05, 2019

DESCRIPTION:

Description: Units: 5, 6, 22 & 24
Capacity: 12 MMSCFD
Extended gas analysis sampled 9/18/2019

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 89.00 deg. F
Pressure: 380.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	7.3661
Nitrogen	0.0269
Methane	91.4657
Ethane	0.9465
Propane	0.1445
Isobutane	0.0185
n-Butane	0.0179
Isopentane	0.0034
n-Pentane	0.0027
Cyclopentane	0.0002
n-Hexane	0.0010
Cyclohexane	0.0006
Other Hexanes	0.0024
Heptanes	0.0007
Methylcyclohexane	0.0011
2,2,4-Trimethylpentane	0.0001
Benzene	0.0003
Toluene	0.0009
Xylenes	0.0001
C8+ Heavies	0.0005

DRY GAS:

Flow Rate: 12.0 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

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

PUMP:

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

FLASH TANK:

Flash Control: Combustion device
Flash Control Efficiency: 95.00 %
Temperature: 125.0 deg. F
Pressure: 47.0 psig

REGENERATOR OVERHEADS CONTROL DEVICE:

Control Device: Condenser
Temperature: 66.0 deg. F
Pressure: 11.6 psia

Control Device: Combustion Device
Destruction Efficiency: 95.0 %
Excess Oxygen: 5.0 %
Ambient Air Temperature: 66.0 deg. F

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Carracas TEG Dehydrator
File Name: C:\1 - Office\1-Cirrus\1-Projects\1a - Harvest\1 - Permiting\4 - Title V\1 - Carracus\1 - Application\Harvest - Carracas - November 2019 - GRI-GLYCalc Units 5, 6, 22 & 24 (12 MMSCFD).ddf
Date: November 05, 2019

DESCRIPTION:

Description: Units: 5, 6, 22 & 24
Capacity: 12 MMSCFD
Extended gas analysis sampled 9/18/2019

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.0184	0.443	0.0808
Ethane	0.0015	0.036	0.0066
Propane	0.0009	0.022	0.0039
Isobutane	0.0003	0.006	0.0012
n-Butane	0.0004	0.009	0.0017
Isopentane	0.0001	0.003	0.0005
n-Pentane	0.0001	0.003	0.0005
Cyclopentane	0.0001	0.002	0.0003
n-Hexane	0.0001	0.003	0.0005
Cyclohexane	0.0005	0.011	0.0020
Other Hexanes	0.0002	0.005	0.0009
Heptanes	0.0002	0.005	0.0009
Methylcyclohexane	0.0011	0.025	0.0046
2,2,4-Trimethylpentane	<0.0001	<0.001	<0.0001
Benzene	0.0019	0.046	0.0084
Toluene	0.0066	0.157	0.0287
Xylenes	0.0005	0.012	0.0022
C8+ Heavies	<0.0001	0.001	0.0001
Total Emissions	0.0328	0.788	0.1439
Total Hydrocarbon Emissions	0.0328	0.788	0.1439
Total VOC Emissions	0.0129	0.310	0.0565
Total HAP Emissions	0.0091	0.218	0.0399
Total BTEX Emissions	0.0090	0.215	0.0393

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.3691	8.859	1.6167
Ethane	0.0303	0.726	0.1326
Propane	0.0180	0.433	0.0790
Isobutane	0.0055	0.132	0.0240
n-Butane	0.0079	0.191	0.0348
Isopentane	0.0023	0.054	0.0099
n-Pentane	0.0026	0.062	0.0113

Cyclopentane	0.0014	0.034	0.0061
n-Hexane	0.0028	0.068	0.0124
Cyclohexane	0.0119	0.284	0.0519
Other Hexanes	0.0044	0.106	0.0193
Heptanes	0.0067	0.160	0.0292
Methylcyclohexane	0.0344	0.826	0.1507
2,2,4-Trimethylpentane	0.0004	0.009	0.0016
Benzene	0.0580	1.393	0.2542
Toluene	0.3152	7.565	1.3806
Xylenes	0.0732	1.758	0.3208
C8+ Heavies	0.0768	1.843	0.3363
Total Emissions	1.0209	24.501	4.4715
Total Hydrocarbon Emissions	1.0209	24.501	4.4715
Total VOC Emissions	0.6215	14.916	2.7222
Total HAP Emissions	0.4497	10.792	1.9696
Total BTEX Emissions	0.4465	10.716	1.9556

FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	1.4945	35.867	6.5457
Ethane	0.0346	0.830	0.1515
Propane	0.0093	0.223	0.0408
Isobutane	0.0019	0.044	0.0081
n-Butane	0.0020	0.049	0.0089
Isopentane	0.0005	0.012	0.0022
n-Pentane	0.0005	0.011	0.0020
Cyclopentane	0.0001	0.002	0.0003
n-Hexane	0.0003	0.007	0.0012
Cyclohexane	0.0003	0.007	0.0013
Other Hexanes	0.0006	0.014	0.0025
Heptanes	0.0003	0.008	0.0014
Methylcyclohexane	0.0007	0.016	0.0029
2,2,4-Trimethylpentane	<0.0001	0.001	0.0002
Benzene	0.0002	0.005	0.0008
Toluene	0.0007	0.016	0.0029
Xylenes	0.0001	0.001	0.0003
C8+ Heavies	0.0003	0.008	0.0014
Total Emissions	1.5467	37.120	6.7744
Total Hydrocarbon Emissions	1.5467	37.120	6.7744
Total VOC Emissions	0.0176	0.423	0.0772
Total HAP Emissions	0.0012	0.029	0.0054
Total BTEX Emissions	0.0009	0.022	0.0040

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	29.8892	717.340	130.9146
Ethane	0.6919	16.605	3.0304
Propane	0.1861	4.467	0.8153
Isobutane	0.0370	0.889	0.1622
n-Butane	0.0408	0.979	0.1786
Isopentane	0.0102	0.245	0.0446
n-Pentane	0.0092	0.221	0.0403
Cyclopentane	0.0013	0.031	0.0056

n-Hexane	0.0055	0.133	0.0242
Cyclohexane	0.0059	0.141	0.0257
Other Hexanes	0.0115	0.276	0.0503
Heptanes	0.0063	0.150	0.0274
Methylcyclohexane	0.0131	0.315	0.0574
2,2,4-Trimethylpentane	0.0007	0.017	0.0030
Benzene	0.0038	0.092	0.0169
Toluene	0.0132	0.318	0.0580
Xylenes	0.0012	0.029	0.0053
C8+ Heavies	0.0065	0.155	0.0283
Total Emissions	30.9334	742.402	135.4884
Total Hydrocarbon Emissions	30.9334	742.402	135.4884
Total VOC Emissions	0.3524	8.456	1.5433
Total HAP Emissions	0.0245	0.589	0.1074
Total BTEX Emissions	0.0183	0.439	0.0802

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	1.5129	36.310	6.6265
Ethane	0.0361	0.867	0.1581
Propane	0.0102	0.245	0.0447
Isobutane	0.0021	0.051	0.0093
n-Butane	0.0024	0.058	0.0106
Isopentane	0.0006	0.015	0.0027
n-Pentane	0.0006	0.014	0.0026
Cyclopentane	0.0001	0.003	0.0006
n-Hexane	0.0004	0.009	0.0017
Cyclohexane	0.0008	0.018	0.0033
Other Hexanes	0.0008	0.018	0.0034
Heptanes	0.0005	0.013	0.0023
Methylcyclohexane	0.0017	0.041	0.0075
2,2,4-Trimethylpentane	<0.0001	0.001	0.0002
Benzene	0.0021	0.051	0.0093
Toluene	0.0072	0.173	0.0316
Xylenes	0.0006	0.013	0.0024
C8+ Heavies	0.0004	0.008	0.0015
Total Emissions	1.5795	37.908	6.9183
Total Hydrocarbon Emissions	1.5795	37.908	6.9183
Total VOC Emissions	0.0305	0.732	0.1337
Total HAP Emissions	0.0103	0.248	0.0452
Total BTEX Emissions	0.0099	0.237	0.0433

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Methane	132.5313	6.6265	95.00
Ethane	3.1630	0.1581	95.00
Propane	0.8943	0.0447	95.00
Isobutane	0.1862	0.0093	95.01
n-Butane	0.2134	0.0106	95.01
Isopentane	0.0546	0.0027	95.07

n-Pentane	0.0516	0.0026	95.03
Cyclopentane	0.0118	0.0006	95.26
n-Hexane	0.0366	0.0017	95.27
Cyclohexane	0.0776	0.0033	95.74
Other Hexanes	0.0696	0.0034	95.16
Heptanes	0.0566	0.0023	95.94
Methylcyclohexane	0.2081	0.0075	96.41
2,2,4-Trimethylpentane	0.0046	0.0002	95.66
Benzene	0.2711	0.0093	96.58
Toluene	1.4386	0.0316	97.80
Xylenes	0.3261	0.0024	99.26
C8+ Heavies	0.3646	0.0015	99.58
Total Emissions	139.9598	6.9183	95.06
Total Hydrocarbon Emissions	139.9598	6.9183	95.06
Total VOC Emissions	4.2655	0.1337	96.87
Total HAP Emissions	2.0770	0.0452	97.82
Total BTEX Emissions	2.0358	0.0433	97.87

EQUIPMENT REPORTS:

CONDENSER AND COMBUSTION DEVICE

Condenser Outlet Temperature:	66.00 deg. F
Condenser Pressure:	11.60 psia
Condenser Duty:	3.28e-003 MM BTU/hr
Hydrocarbon Recovery:	0.03 bbls/day
Produced Water:	2.96 bbls/day
Ambient Temperature:	66.00 deg. F
Excess Oxygen:	5.00 %
Combustion Efficiency:	95.00 %
Supplemental Fuel Requirement:	3.28e-003 MM BTU/hr

Component	Emitted	Destroyed
Methane	5.00%	95.00%
Ethane	4.99%	95.01%
Propane	4.97%	95.03%
Isobutane	4.94%	95.06%
n-Butane	4.91%	95.09%
Isopentane	4.62%	95.38%
n-Pentane	4.87%	95.13%
Cyclopentane	4.51%	95.49%
n-Hexane	4.20%	95.80%
Cyclohexane	3.90%	96.10%
Other Hexanes	4.41%	95.59%
Heptanes	3.18%	96.82%
Methylcyclohexane	3.06%	96.94%
2,2,4-Trimethylpentane	3.08%	96.92%
Benzene	3.31%	96.69%
Toluene	2.08%	97.92%
Xylenes	0.67%	99.33%
C8+ Heavies	0.04%	99.96%

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:	4.89 lbs. H2O/MMSCF
Temperature:	89.0 deg. F
Pressure:	380.0 psig
Dry Gas Flow Rate:	12.0000 MMSCF/day
Glycol Losses with Dry Gas:	0.0363 lb/hr
Wet Gas Water Content:	Saturated
Calculated Wet Gas Water Content:	91.16 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	4.87 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	5.35%	94.65%
Carbon Dioxide	99.80%	0.20%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.95%	0.05%
Propane	99.90%	0.10%
Isobutane	99.84%	0.16%
n-Butane	99.79%	0.21%
Isopentane	99.76%	0.24%
n-Pentane	99.68%	0.32%
Cyclopentane	98.69%	1.31%
n-Hexane	99.41%	0.59%
Cyclohexane	97.48%	2.52%
Other Hexanes	99.56%	0.44%
Heptanes	98.75%	1.25%
Methylcyclohexane	96.81%	3.19%
2,2,4-Trimethylpentane	99.44%	0.56%
Benzene	80.11%	19.89%
Toluene	70.09%	29.91%
Xylenes	46.94%	53.06%
C8+ Heavies	92.73%	7.27%

FLASH TANK

Flash Control:	Combustion device
Flash Control Efficiency:	95.00 %
Flash Temperature:	125.0 deg. F
Flash Pressure:	47.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.85%	0.15%
Carbon Dioxide	13.13%	86.87%
Nitrogen	1.17%	98.83%
Methane	1.22%	98.78%
Ethane	4.19%	95.81%
Propane	8.84%	91.16%
Isobutane	12.90%	87.10%
n-Butane	16.30%	83.70%
Isopentane	18.47%	81.53%
n-Pentane	22.15%	77.85%

Cyclopentane	52.47%	47.53%
n-Hexane	34.16%	65.84%
Cyclohexane	67.88%	32.12%
Other Hexanes	28.32%	71.68%
Heptanes	51.77%	48.23%
Methylcyclohexane	73.46%	26.54%
2,2,4-Trimethylpentane	35.13%	64.87%
Benzene	94.09%	5.91%
Toluene	96.28%	3.72%
Xylenes	98.58%	1.42%
C8+ Heavies	93.15%	6.85%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	40.63%	59.37%
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	1.70%	98.30%
n-Pentane	1.55%	98.45%
Cyclopentane	0.86%	99.14%
n-Hexane	1.18%	98.82%
Cyclohexane	4.47%	95.53%
Other Hexanes	2.67%	97.33%
Heptanes	0.87%	99.13%
Methylcyclohexane	5.22%	94.78%
2,2,4-Trimethylpentane	3.41%	96.59%
Benzene	5.28%	94.72%
Toluene	8.17%	91.83%
Xylenes	13.06%	86.94%
C8+ Heavies	12.69%	87.31%

STREAM REPORTS:

WET GAS STREAM

Temperature: 89.00 deg. F
Pressure: 394.70 psia
Flow Rate: 5.01e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.92e-001	4.57e+001
Carbon Dioxide	7.35e+000	4.27e+003
Nitrogen	2.68e-002	9.93e+000
Methane	9.13e+001	1.93e+004

Ethane	9.45e-001	3.75e+002
Propane	1.44e-001	8.40e+001
Isobutane	1.85e-002	1.42e+001
n-Butane	1.79e-002	1.37e+001
Isopentane	3.39e-003	3.23e+000
n-Pentane	2.69e-003	2.57e+000
Cyclopentane	2.00e-004	1.85e-001
n-Hexane	9.98e-004	1.14e+000
Cyclohexane	5.99e-004	6.66e-001
Other Hexanes	2.40e-003	2.73e+000
Heptanes	6.99e-004	9.25e-001
Methylcyclohexane	1.10e-003	1.42e+000
2,2,4-Trimethylpentane	9.98e-005	1.51e-001
Benzene	2.99e-004	3.09e-001
Toluene	8.98e-004	1.09e+000
Xylenes	9.98e-005	1.40e-001
C8+ Heavies	4.99e-004	1.12e+000
Total Components	100.00	2.42e+004

DRY GAS STREAM

Temperature: 89.00 deg. F
Pressure: 394.70 psia
Flow Rate: 5.00e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.03e-002	2.45e+000
Carbon Dioxide	7.35e+000	4.26e+003
Nitrogen	2.69e-002	9.93e+000
Methane	9.15e+001	1.93e+004
Ethane	9.46e-001	3.75e+002
Propane	1.44e-001	8.39e+001
Isobutane	1.85e-002	1.42e+001
n-Butane	1.79e-002	1.37e+001
Isopentane	3.39e-003	3.23e+000
n-Pentane	2.69e-003	2.56e+000
Cyclopentane	1.97e-004	1.82e-001
n-Hexane	9.94e-004	1.13e+000
Cyclohexane	5.85e-004	6.49e-001
Other Hexanes	2.39e-003	2.71e+000
Heptanes	6.91e-004	9.13e-001
Methylcyclohexane	1.07e-003	1.38e+000
2,2,4-Trimethylpentane	9.95e-005	1.50e-001
Benzene	2.40e-004	2.47e-001
Toluene	6.31e-004	7.66e-001
Xylenes	4.70e-005	6.57e-002
C8+ Heavies	4.64e-004	1.04e+000
Total Components	100.00	2.41e+004

LEAN GLYCOL STREAM

Temperature: 89.00 deg. F
Flow Rate: 3.50e+000 gpm

Component	Conc.	Loading

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	1.94e+003
Water	1.50e+000	2.96e+001
Carbon Dioxide	4.34e-011	8.55e-010
Nitrogen	6.60e-015	1.30e-013
Methane	4.21e-018	8.30e-017
Ethane	4.38e-009	8.64e-008
Propane	1.72e-010	3.40e-009
Isobutane	3.37e-011	6.65e-010
n-Butane	3.65e-011	7.20e-010
Isopentane	1.99e-006	3.93e-005
n-Pentane	2.07e-006	4.07e-005
Cyclopentane	6.17e-007	1.22e-005
n-Hexane	1.72e-006	3.38e-005
Cyclohexane	2.81e-005	5.54e-004
Other Hexanes	6.14e-006	1.21e-004
Heptanes	2.96e-006	5.82e-005
Methylcyclohexane	9.61e-005	1.89e-003
2,2,4-Trimethylpentane	6.51e-007	1.28e-005
Benzene	1.64e-004	3.23e-003
Toluene	1.42e-003	2.80e-002
Xylenes	5.58e-004	1.10e-002
C8+ Heavies	5.66e-004	1.12e-002
Total Components	100.00	1.97e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 89.00 deg. F
Pressure: 394.70 psia
Flow Rate: 3.69e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.42e+001	1.94e+003
Water	3.54e+000	7.29e+001
Carbon Dioxide	7.13e-001	1.47e+001
Nitrogen	7.56e-004	1.56e-002
Methane	1.47e+000	3.03e+001
Ethane	3.51e-002	7.22e-001
Propane	9.91e-003	2.04e-001
Isobutane	2.06e-003	4.25e-002
n-Butane	2.37e-003	4.87e-002
Isopentane	6.07e-004	1.25e-002
n-Pentane	5.74e-004	1.18e-002
Cyclopentane	1.31e-004	2.70e-003
n-Hexane	4.08e-004	8.40e-003
Cyclohexane	8.87e-004	1.83e-002
Other Hexanes	7.77e-004	1.60e-002
Heptanes	6.30e-004	1.30e-002
Methylcyclohexane	2.40e-003	4.94e-002
2,2,4-Trimethylpentane	5.20e-005	1.07e-003
Benzene	3.16e-003	6.51e-002
Toluene	1.73e-002	3.56e-001
Xylenes	4.15e-003	8.54e-002
C8+ Heavies	4.58e-003	9.44e-002
Total Components	100.00	2.06e+003

FLASH TANK OFF GAS STREAM

Temperature: 125.00 deg. F
Pressure: 61.70 psia
Flow Rate: 8.31e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.72e-001	1.07e-001
Carbon Dioxide	1.32e+001	1.28e+001
Nitrogen	2.51e-002	1.54e-002
Methane	8.51e+001	2.99e+001
Ethane	1.05e+000	6.92e-001
Propane	1.93e-001	1.86e-001
Isobutane	2.91e-002	3.70e-002
n-Butane	3.20e-002	4.08e-002
Isopentane	6.45e-003	1.02e-002
n-Pentane	5.83e-003	9.21e-003
Cyclopentane	8.35e-004	1.28e-003
n-Hexane	2.93e-003	5.53e-003
Cyclohexane	3.19e-003	5.87e-003
Other Hexanes	6.08e-003	1.15e-002
Heptanes	2.85e-003	6.26e-003
Methylcyclohexane	6.10e-003	1.31e-002
2,2,4-Trimethylpentane	2.78e-004	6.95e-004
Benzene	2.25e-003	3.85e-003
Toluene	6.57e-003	1.32e-002
Xylenes	5.21e-004	1.21e-003
C8+ Heavies	1.73e-003	6.46e-003
Total Components	100.00	4.38e+001

FLASH TANK GLYCOL STREAM

Temperature: 125.00 deg. F
Flow Rate: 3.59e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.62e+001	1.94e+003
Water	3.61e+000	7.28e+001
Carbon Dioxide	9.57e-002	1.93e+000
Nitrogen	9.07e-006	1.83e-004
Methane	1.83e-002	3.69e-001
Ethane	1.50e-003	3.03e-002
Propane	8.95e-004	1.80e-002
Isobutane	2.72e-004	5.48e-003
n-Butane	3.94e-004	7.94e-003
Isopentane	1.15e-004	2.31e-003
n-Pentane	1.30e-004	2.62e-003
Cyclopentane	7.02e-005	1.42e-003
n-Hexane	1.42e-004	2.87e-003
Cyclohexane	6.15e-004	1.24e-002
Other Hexanes	2.25e-004	4.54e-003
Heptanes	3.33e-004	6.72e-003
Methylcyclohexane	1.80e-003	3.63e-002
2,2,4-Trimethylpentane	1.87e-005	3.76e-004

Benzene	3.04e-003	6.13e-002
Toluene	1.70e-002	3.43e-001
Xylenes	4.18e-003	8.42e-002
C8+ Heavies	4.36e-003	8.79e-002
Total Components	100.00	2.02e+003

FLASH GAS EMISSIONS

Flow Rate: 2.22e+003 scfh
Control Method: Combustion Device
Control Efficiency: 95.00

Component	Conc. (vol%)	Loading (lb/hr)
Water	6.21e+001	6.56e+001
Carbon Dioxide	3.63e+001	9.36e+001
Nitrogen	9.37e-003	1.54e-002
Methane	1.59e+000	1.49e+000
Ethane	1.96e-002	3.46e-002
Propane	3.60e-003	9.31e-003
Isobutane	5.43e-004	1.85e-003
n-Butane	5.98e-004	2.04e-003
Isopentane	1.20e-004	5.10e-004
n-Pentane	1.09e-004	4.60e-004
Cyclopentane	1.56e-005	6.41e-005
n-Hexane	5.47e-005	2.76e-004
Cyclohexane	5.95e-005	2.94e-004
Other Hexanes	1.14e-004	5.74e-004
Heptanes	5.33e-005	3.13e-004
Methylcyclohexane	1.14e-004	6.56e-004
2,2,4-Trimethylpentane	5.19e-006	3.48e-005
Benzene	4.20e-005	1.92e-004
Toluene	1.23e-004	6.62e-004
Xylenes	9.73e-006	6.05e-005
C8+ Heavies	3.24e-005	3.23e-004
Total Components	100.00	1.61e+002

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 9.38e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.70e+001	4.32e+001
Carbon Dioxide	1.77e+000	1.93e+000
Nitrogen	2.64e-004	1.83e-004
Methane	9.31e-001	3.69e-001
Ethane	4.07e-002	3.03e-002
Propane	1.65e-002	1.80e-002
Isobutane	3.82e-003	5.48e-003
n-Butane	5.52e-003	7.94e-003
Isopentane	1.27e-003	2.27e-003
n-Pentane	1.45e-003	2.58e-003
Cyclopentane	8.09e-004	1.40e-003

n-Hexane	1.33e-003	2.83e-003
Cyclohexane	5.70e-003	1.19e-002
Other Hexanes	2.07e-003	4.41e-003
Heptanes	2.69e-003	6.66e-003
Methylcyclohexane	1.42e-002	3.44e-002
2,2,4-Trimethylpentane	1.29e-004	3.64e-004
Benzene	3.01e-002	5.80e-002
Toluene	1.38e-001	3.15e-001
Xylenes	2.79e-002	7.32e-002
C8+ Heavies	1.82e-002	7.68e-002
Total Components	100.00	4.61e+001

CONDENSER PRODUCED WATER STREAM

Temperature: 66.00 deg. F
Flow Rate: 8.64e-002 gpm

Component	Conc. (wt%)	Loading (lb/hr)	(ppm)
Water	9.99e+001	4.32e+001	998740.
Carbon Dioxide	8.29e-002	3.58e-002	829.
Nitrogen	1.43e-007	6.20e-008	0.
Methane	6.39e-004	2.76e-004	6.
Ethane	7.29e-005	3.15e-005	1.
Propane	2.53e-005	1.09e-005	0.
Isobutane	4.48e-006	1.94e-006	0.
n-Butane	9.17e-006	3.96e-006	0.
Isopentane	1.90e-006	8.23e-007	0.
n-Pentane	2.55e-006	1.10e-006	0.
Cyclopentane	1.10e-005	4.77e-006	0.
n-Hexane	2.27e-006	9.81e-007	0.
Cyclohexane	6.02e-005	2.60e-005	1.
Other Hexanes	2.85e-006	1.23e-006	0.
Heptanes	2.44e-006	1.05e-006	0.
Methylcyclohexane	6.93e-005	3.00e-005	1.
2,2,4-Trimethylpentane	8.19e-008	3.54e-008	0.
Benzene	9.54e-003	4.12e-003	95.
Toluene	2.98e-002	1.29e-002	298.
Xylenes	2.77e-003	1.20e-003	28.
C8+ Heavies	8.72e-008	3.77e-008	0.
Total Components	100.00	4.32e+001	1000000.

CONDENSER RECOVERED OIL STREAM

Temperature: 66.00 deg. F
Flow Rate: 8.14e-004 gpm

Component	Conc. (wt%)	Loading (lb/hr)
Water	3.18e-002	1.10e-004
Carbon Dioxide	2.29e-001	7.92e-004
Nitrogen	1.41e-005	4.88e-008
Methane	1.19e-002	4.12e-005
Ethane	6.72e-003	2.33e-005
Propane	2.70e-002	9.35e-005
Isobutane	1.87e-002	6.48e-005

n-Butane	3.94e-002	1.36e-004
Isopentane	4.94e-002	1.71e-004
n-Pentane	1.97e-002	6.81e-005
Cyclopentane	3.84e-002	1.33e-004
n-Hexane	1.31e-001	4.53e-004
Cyclohexane	7.49e-001	2.59e-003
Other Hexanes	1.51e-001	5.23e-004
Heptanes	7.00e-001	2.42e-003
Methylcyclohexane	3.85e+000	1.33e-002
2,2,4-Trimethylpentane	4.04e-002	1.40e-004
Benzene	4.47e+000	1.55e-002
Toluene	4.95e+001	1.71e-001
Xylenes	1.80e+001	6.22e-002
C8+ Heavies	2.20e+001	7.62e-002
Total Components	100.00	3.46e-001

CONDENSER VENT STREAM

Temperature: 66.00 deg. F
Pressure: 11.60 psia
Flow Rate: 2.74e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.78e+000	3.62e-002
Carbon Dioxide	5.96e+001	1.89e+000
Nitrogen	9.04e-003	1.83e-004
Methane	3.19e+001	3.69e-001
Ethane	1.39e+000	3.02e-002
Propane	5.64e-001	1.79e-002
Isobutane	1.29e-001	5.42e-003
n-Butane	1.86e-001	7.80e-003
Isopentane	4.03e-002	2.10e-003
n-Pentane	4.82e-002	2.51e-003
Cyclopentane	2.50e-002	1.27e-003
n-Hexane	3.83e-002	2.38e-003
Cyclohexane	1.52e-001	9.24e-003
Other Hexanes	6.25e-002	3.89e-003
Heptanes	5.86e-002	4.24e-003
Methylcyclohexane	2.97e-001	2.10e-002
2,2,4-Trimethylpentane	2.72e-003	2.24e-004
Benzene	6.82e-001	3.84e-002
Toluene	1.97e+000	1.31e-001
Xylenes	1.29e-001	9.85e-003
C8+ Heavies	4.58e-003	5.63e-004
Total Components	100.00	2.59e+000

COMBUSTION DEVICE OFF GAS STREAM

Temperature: 1000.00 deg. F
Pressure: 14.70 psia
Flow Rate: 5.15e-001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Methane	8.46e+001	1.84e-002

Ethane	3.70e+000	1.51e-003
Propane	1.50e+000	8.97e-004
Isobutane	3.43e-001	2.71e-004
n-Butane	4.94e-001	3.90e-004
Isopentane	1.07e-001	1.05e-004
n-Pentane	1.28e-001	1.26e-004
Cyclopentane	6.65e-002	6.33e-005
n-Hexane	1.02e-001	1.19e-004
Cyclohexane	4.04e-001	4.62e-004
Other Hexanes	1.66e-001	1.95e-004
Heptanes	1.56e-001	2.12e-004
Methylcyclohexane	7.88e-001	1.05e-003
2,2,4-Trimethylpentane	7.21e-003	1.12e-005
Benzene	1.81e+000	1.92e-003
Toluene	5.24e+000	6.55e-003
Xylenes	3.41e-001	4.92e-004
C8+ Heavies	1.22e-002	2.82e-005
Total Components	100.00	3.28e-002

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Carracas TEG Dehydrator
File Name: C:\1 - Office\1-Cirrus\1-Projects\1a - Harvest\1 - Permiting\4 - Title V\1 - Carracus\1 - Application\Harvest - Carracas - November 2019 - GRI-GLYCalc Units 9, 10, 21 & 23 (20 MMSCFD).ddf
Date: November 05, 2019

DESCRIPTION:

Description: Units: 9, 10, 21 & 23
Capacity: 20 MMSCFD
Extended gas analysis sampled 9/18/2019

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 89.00 deg. F
Pressure: 380.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	7.3661
Nitrogen	0.0269
Methane	91.4657
Ethane	0.9465
Propane	0.1445
Isobutane	0.0185
n-Butane	0.0179
Isopentane	0.0034
n-Pentane	0.0027
Cyclopentane	0.0002
n-Hexane	0.0010
Cyclohexane	0.0006
Other Hexanes	0.0024
Heptanes	0.0007
Methylcyclohexane	0.0011
2,2,4-Trimethylpentane	0.0001
Benzene	0.0003
Toluene	0.0009
Xylenes	0.0001
C8+ Heavies	0.0005

DRY GAS:

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

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 7.5 gpm

PUMP:

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

FLASH TANK:

Flash Control: Combustion device
Flash Control Efficiency: 95.00 %
Temperature: 125.0 deg. F
Pressure: 47.0 psig

REGENERATOR OVERHEADS CONTROL DEVICE:

Control Device: Condenser
Temperature: 66.0 deg. F
Pressure: 11.6 psia

Control Device: Combustion Device
Destruction Efficiency: 95.0 %
Excess Oxygen: 5.0 %
Ambient Air Temperature: 66.0 deg. F

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Carracas TEG Dehydrator
File Name: C:\1 - Office\1-Cirrus\1-Projects\1a - Harvest\1 - Permiting\4 - Title V\1 - Carracus\1 - Application\Harvest - Carracas - November 2019 - GRI-GLYCalc Units 9, 10, 21 & 23 (20 MMSCFD).ddf
Date: November 05, 2019

DESCRIPTION:

Description: Units: 9, 10, 21 & 23
Capacity: 20 MMSCFD
Extended gas analysis sampled 9/18/2019

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.0399	0.959	0.1749
Ethane	0.0033	0.080	0.0145
Propane	0.0019	0.046	0.0085
Isobutane	0.0006	0.014	0.0026
n-Butane	0.0008	0.020	0.0037
Isopentane	0.0002	0.006	0.0010
n-Pentane	0.0003	0.007	0.0012
Cyclopentane	0.0001	0.003	0.0006
n-Hexane	0.0003	0.006	0.0012
Cyclohexane	0.0010	0.025	0.0045
Other Hexanes	0.0004	0.010	0.0019
Heptanes	0.0005	0.011	0.0021
Methylcyclohexane	0.0024	0.057	0.0104
2,2,4-Trimethylpentane	<0.0001	0.001	0.0001
Benzene	0.0041	0.100	0.0182
Toluene	0.0140	0.337	0.0615
Xylenes	0.0010	0.024	0.0044
C8+ Heavies	0.0001	0.002	0.0003
Total Emissions	0.0711	1.708	0.3116
Total Hydrocarbon Emissions	0.0711	1.708	0.3116
Total VOC Emissions	0.0279	0.669	0.1222
Total HAP Emissions	0.0195	0.468	0.0854
Total BTEX Emissions	0.0192	0.461	0.0841

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.7994	19.185	3.5013
Ethane	0.0664	1.595	0.2910
Propane	0.0389	0.933	0.1703
Isobutane	0.0119	0.285	0.0520
n-Butane	0.0172	0.413	0.0753
Isopentane	0.0049	0.118	0.0216
n-Pentane	0.0056	0.135	0.0246

Cyclopentane	0.0031	0.074	0.0135
n-Hexane	0.0062	0.148	0.0271
Cyclohexane	0.0259	0.623	0.1136
Other Hexanes	0.0096	0.231	0.0422
Heptanes	0.0146	0.350	0.0638
Methylcyclohexane	0.0751	1.803	0.3290
2,2,4-Trimethylpentane	0.0008	0.019	0.0035
Benzene	0.1198	2.876	0.5248
Toluene	0.6347	15.232	2.7799
Xylenes	0.1383	3.320	0.6059
C8+ Heavies	0.1655	3.971	0.7247
Total Emissions	2.1380	51.311	9.3643
Total Hydrocarbon Emissions	2.1380	51.311	9.3643
Total VOC Emissions	1.2722	30.532	5.5720
Total HAP Emissions	0.8998	21.596	3.9413
Total BTEX Emissions	0.8928	21.428	3.9107

FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	3.1893	76.543	13.9692
Ethane	0.0740	1.776	0.3241
Propane	0.0199	0.477	0.0871
Isobutane	0.0040	0.095	0.0174
n-Butane	0.0044	0.105	0.0191
Isopentane	0.0011	0.026	0.0048
n-Pentane	0.0010	0.024	0.0043
Cyclopentane	0.0001	0.003	0.0006
n-Hexane	0.0006	0.014	0.0026
Cyclohexane	0.0006	0.015	0.0027
Other Hexanes	0.0012	0.029	0.0054
Heptanes	0.0007	0.016	0.0029
Methylcyclohexane	0.0014	0.033	0.0061
2,2,4-Trimethylpentane	0.0001	0.002	0.0003
Benzene	0.0004	0.009	0.0017
Toluene	0.0013	0.031	0.0057
Xylenes	0.0001	0.003	0.0005
C8+ Heavies	0.0007	0.016	0.0029
Total Emissions	3.3008	79.219	14.4574
Total Hydrocarbon Emissions	3.3008	79.219	14.4574
Total VOC Emissions	0.0375	0.899	0.1641
Total HAP Emissions	0.0025	0.059	0.0108
Total BTEX Emissions	0.0018	0.043	0.0079

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	63.7862	1530.869	279.3836
Ethane	1.4797	35.513	6.4812
Propane	0.3979	9.549	1.7427
Isobutane	0.0792	1.902	0.3470
n-Butane	0.0873	2.094	0.3822
Isopentane	0.0218	0.524	0.0956
n-Pentane	0.0197	0.473	0.0863
Cyclopentane	0.0027	0.066	0.0120

n-Hexane	0.0118	0.284	0.0518
Cyclohexane	0.0124	0.298	0.0544
Other Hexanes	0.0246	0.590	0.1076
Heptanes	0.0133	0.320	0.0584
Methylcyclohexane	0.0276	0.663	0.1211
2,2,4-Trimethylpentane	0.0015	0.036	0.0065
Benzene	0.0078	0.188	0.0343
Toluene	0.0262	0.628	0.1146
Xylenes	0.0022	0.054	0.0098
C8+ Heavies	0.0134	0.321	0.0585
Total Emissions	66.0154	1584.371	289.1476
Total Hydrocarbon Emissions	66.0154	1584.371	289.1476
Total VOC Emissions	0.7495	17.988	3.2829
Total HAP Emissions	0.0495	1.189	0.2170
Total BTEX Emissions	0.0362	0.869	0.1587

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	3.2293	77.502	14.1441
Ethane	0.0773	1.855	0.3386
Propane	0.0218	0.524	0.0956
Isobutane	0.0045	0.109	0.0199
n-Butane	0.0052	0.125	0.0228
Isopentane	0.0013	0.032	0.0058
n-Pentane	0.0013	0.030	0.0055
Cyclopentane	0.0003	0.007	0.0012
n-Hexane	0.0009	0.021	0.0037
Cyclohexane	0.0017	0.040	0.0072
Other Hexanes	0.0017	0.040	0.0073
Heptanes	0.0011	0.027	0.0050
Methylcyclohexane	0.0038	0.090	0.0165
2,2,4-Trimethylpentane	0.0001	0.002	0.0004
Benzene	0.0045	0.109	0.0199
Toluene	0.0154	0.369	0.0673
Xylenes	0.0011	0.027	0.0049
C8+ Heavies	0.0007	0.018	0.0032
Total Emissions	3.3719	80.926	14.7690
Total Hydrocarbon Emissions	3.3719	80.926	14.7690
Total VOC Emissions	0.0654	1.569	0.2863
Total HAP Emissions	0.0220	0.527	0.0962
Total BTEX Emissions	0.0210	0.504	0.0921

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Methane	282.8848	14.1441	95.00
Ethane	6.7722	0.3386	95.00
Propane	1.9130	0.0956	95.00
Isobutane	0.3991	0.0199	95.01
n-Butane	0.4576	0.0228	95.01
Isopentane	0.1172	0.0058	95.06

n-Pentane	0.1109	0.0055	95.03
Cyclopentane	0.0255	0.0012	95.24
n-Hexane	0.0789	0.0037	95.25
Cyclohexane	0.1680	0.0072	95.70
Other Hexanes	0.1499	0.0073	95.16
Heptanes	0.1222	0.0050	95.90
Methylcyclohexane	0.4501	0.0165	96.34
2,2,4-Trimethylpentane	0.0100	0.0004	95.64
Benzene	0.5591	0.0199	96.44
Toluene	2.8945	0.0673	97.68
Xylenes	0.6158	0.0049	99.20
C8+ Heavies	0.7832	0.0032	99.59
Total Emissions	298.5119	14.7690	95.05
Total Hydrocarbon Emissions	298.5119	14.7690	95.05
Total VOC Emissions	8.8549	0.2863	96.77
Total HAP Emissions	4.1583	0.0962	97.69
Total BTEX Emissions	4.0693	0.0921	97.74

EQUIPMENT REPORTS:

CONDENSER AND COMBUSTION DEVICE

Condenser Outlet Temperature:	66.00 deg. F
Condenser Pressure:	11.60 psia
Condenser Duty:	7.10e-003 MM BTU/hr
Hydrocarbon Recovery:	0.06 bbls/day
Produced Water:	4.96 bbls/day
Ambient Temperature:	66.00 deg. F
Excess Oxygen:	5.00 %
Combustion Efficiency:	95.00 %
Supplemental Fuel Requirement:	7.10e-003 MM BTU/hr

Component	Emitted	Destroyed
Methane	5.00%	95.00%
Ethane	4.99%	95.01%
Propane	4.97%	95.03%
Isobutane	4.94%	95.06%
n-Butane	4.92%	95.08%
Isopentane	4.65%	95.35%
n-Pentane	4.88%	95.12%
Cyclopentane	4.55%	95.45%
n-Hexane	4.26%	95.74%
Cyclohexane	3.97%	96.03%
Other Hexanes	4.45%	95.55%
Heptanes	3.28%	96.72%
Methylcyclohexane	3.16%	96.84%
2,2,4-Trimethylpentane	3.18%	96.82%
Benzene	3.46%	96.54%
Toluene	2.21%	97.79%
Xylenes	0.73%	99.27%
C8+ Heavies	0.04%	99.96%

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:	4.37 lbs. H2O/MMSCF
Temperature:	89.0 deg. F
Pressure:	380.0 psig
Dry Gas Flow Rate:	20.0000 MMSCF/day
Glycol Losses with Dry Gas:	0.0605 lb/hr
Wet Gas Water Content:	Saturated
Calculated Wet Gas Water Content:	91.16 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	6.22 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	4.78%	95.22%
Carbon Dioxide	99.74%	0.26%
Nitrogen	99.98%	0.02%
Methane	99.98%	0.02%
Ethane	99.94%	0.06%
Propane	99.87%	0.13%
Isobutane	99.80%	0.20%
n-Butane	99.73%	0.27%
Isopentane	99.69%	0.31%
n-Pentane	99.59%	0.41%
Cyclopentane	98.30%	1.70%
n-Hexane	99.23%	0.77%
Cyclohexane	96.73%	3.27%
Other Hexanes	99.43%	0.57%
Heptanes	98.37%	1.63%
Methylcyclohexane	95.85%	4.15%
2,2,4-Trimethylpentane	99.27%	0.73%
Benzene	75.39%	24.61%
Toluene	63.91%	36.09%
Xylenes	39.91%	60.09%
C8+ Heavies	90.62%	9.38%

FLASH TANK

Flash Control:	Combustion device
Flash Control Efficiency:	95.00 %
Flash Temperature:	125.0 deg. F
Flash Pressure:	47.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.85%	0.15%
Carbon Dioxide	13.25%	86.75%
Nitrogen	1.20%	98.80%
Methane	1.24%	98.76%
Ethane	4.30%	95.70%
Propane	8.90%	91.10%
Isobutane	13.03%	86.97%
n-Butane	16.46%	83.54%
Isopentane	18.69%	81.31%
n-Pentane	22.42%	77.58%

Cyclopentane	53.24%	46.76%
n-Hexane	34.61%	65.39%
Cyclohexane	68.61%	31.39%
Other Hexanes	28.72%	71.28%
Heptanes	52.43%	47.57%
Methylcyclohexane	74.13%	25.87%
2,2,4-Trimethylpentane	35.75%	64.25%
Benzene	94.17%	5.83%
Toluene	96.35%	3.65%
Xylenes	98.61%	1.39%
C8+ Heavies	93.41%	6.59%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	46.65%	53.35%
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	1.69%	98.31%
n-Pentane	1.54%	98.46%
Cyclopentane	0.85%	99.15%
n-Hexane	1.17%	98.83%
Cyclohexane	4.42%	95.58%
Other Hexanes	2.64%	97.36%
Heptanes	0.86%	99.14%
Methylcyclohexane	5.18%	94.82%
2,2,4-Trimethylpentane	3.36%	96.64%
Benzene	5.27%	94.73%
Toluene	8.16%	91.84%
Xylenes	13.05%	86.95%
C8+ Heavies	12.65%	87.35%

STREAM REPORTS:

WET GAS STREAM

Temperature: 89.00 deg. F
Pressure: 394.70 psia
Flow Rate: 8.35e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.92e-001	7.61e+001
Carbon Dioxide	7.35e+000	7.12e+003
Nitrogen	2.68e-002	1.66e+001
Methane	9.13e+001	3.22e+004

Ethane	9.45e-001	6.25e+002
Propane	1.44e-001	1.40e+002
Isobutane	1.85e-002	2.36e+001
n-Butane	1.79e-002	2.29e+001
Isopentane	3.39e-003	5.39e+000
n-Pentane	2.69e-003	4.28e+000
Cyclopentane	2.00e-004	3.08e-001
n-Hexane	9.98e-004	1.89e+000
Cyclohexane	5.99e-004	1.11e+000
Other Hexanes	2.40e-003	4.54e+000
Heptanes	6.99e-004	1.54e+000
Methylcyclohexane	1.10e-003	2.37e+000
2,2,4-Trimethylpentane	9.98e-005	2.51e-001
Benzene	2.99e-004	5.15e-001
Toluene	8.98e-004	1.82e+000
Xylenes	9.98e-005	2.33e-001
C8+ Heavies	4.99e-004	1.87e+000
Total Components	100.00	4.03e+004

DRY GAS STREAM

Temperature: 89.00 deg. F
Pressure: 394.70 psia
Flow Rate: 8.33e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.21e-003	3.64e+000
Carbon Dioxide	7.35e+000	7.10e+003
Nitrogen	2.69e-002	1.66e+001
Methane	9.15e+001	3.22e+004
Ethane	9.46e-001	6.25e+002
Propane	1.44e-001	1.40e+002
Isobutane	1.85e-002	2.36e+001
n-Butane	1.79e-002	2.28e+001
Isopentane	3.39e-003	5.37e+000
n-Pentane	2.69e-003	4.26e+000
Cyclopentane	1.97e-004	3.03e-001
n-Hexane	9.93e-004	1.88e+000
Cyclohexane	5.81e-004	1.07e+000
Other Hexanes	2.39e-003	4.52e+000
Heptanes	6.89e-004	1.52e+000
Methylcyclohexane	1.05e-003	2.27e+000
2,2,4-Trimethylpentane	9.93e-005	2.49e-001
Benzene	2.26e-004	3.88e-001
Toluene	5.75e-004	1.16e+000
Xylenes	3.99e-005	9.31e-002
C8+ Heavies	4.53e-004	1.70e+000
Total Components	100.00	4.02e+004

LEAN GLYCOL STREAM

Temperature: 89.00 deg. F
Flow Rate: 7.50e+000 gpm

Component	Conc.	Loading

	(wt%)	(lb/hr)
TEG	9.85e+001	4.16e+003
Water	1.50e+000	6.33e+001
Carbon Dioxide	4.35e-011	1.84e-009
Nitrogen	6.68e-015	2.82e-013
Methane	4.25e-018	1.79e-016
Ethane	4.44e-009	1.87e-007
Propane	1.73e-010	7.30e-009
Isobutane	3.39e-011	1.43e-009
n-Butane	3.67e-011	1.55e-009
Isopentane	2.00e-006	8.46e-005
n-Pentane	2.08e-006	8.77e-005
Cyclopentane	6.25e-007	2.64e-005
n-Hexane	1.73e-006	7.30e-005
Cyclohexane	2.84e-005	1.20e-003
Other Hexanes	6.19e-006	2.61e-004
Heptanes	2.98e-006	1.26e-004
Methylcyclohexane	9.71e-005	4.10e-003
2,2,4-Trimethylpentane	6.59e-007	2.78e-005
Benzene	1.58e-004	6.67e-003
Toluene	1.34e-003	5.64e-002
Xylenes	4.92e-004	2.08e-002
C8+ Heavies	5.68e-004	2.40e-002
Total Components	100.00	4.22e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 89.00 deg. F
Pressure: 394.70 psia
Flow Rate: 7.86e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.46e+001	4.16e+003
Water	3.09e+000	1.36e+002
Carbon Dioxide	7.16e-001	3.15e+001
Nitrogen	7.57e-004	3.32e-002
Methane	1.47e+000	6.46e+001
Ethane	3.52e-002	1.55e+000
Propane	9.94e-003	4.37e-001
Isobutane	2.07e-003	9.11e-002
n-Butane	2.38e-003	1.04e-001
Isopentane	6.11e-004	2.68e-002
n-Pentane	5.78e-004	2.54e-002
Cyclopentane	1.33e-004	5.84e-003
n-Hexane	4.12e-004	1.81e-002
Cyclohexane	9.00e-004	3.96e-002
Other Hexanes	7.85e-004	3.45e-002
Heptanes	6.38e-004	2.80e-002
Methylcyclohexane	2.43e-003	1.07e-001
2,2,4-Trimethylpentane	5.27e-005	2.31e-003
Benzene	3.06e-003	1.34e-001
Toluene	1.63e-002	7.17e-001
Xylenes	3.67e-003	1.61e-001
C8+ Heavies	4.62e-003	2.03e-001
Total Components	100.00	4.39e+003

FLASH TANK OFF GAS STREAM

Temperature: 125.00 deg. F
Pressure: 61.70 psia
Flow Rate: 1.77e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.37e-001	1.99e-001
Carbon Dioxide	1.33e+001	2.73e+001
Nitrogen	2.51e-002	3.28e-002
Methane	8.51e+001	6.38e+001
Ethane	1.05e+000	1.48e+000
Propane	1.93e-001	3.98e-001
Isobutane	2.92e-002	7.92e-002
n-Butane	3.21e-002	8.73e-002
Isopentane	6.47e-003	2.18e-002
n-Pentane	5.85e-003	1.97e-002
Cyclopentane	8.34e-004	2.73e-003
n-Hexane	2.94e-003	1.18e-002
Cyclohexane	3.16e-003	1.24e-002
Other Hexanes	6.10e-003	2.46e-002
Heptanes	2.85e-003	1.33e-002
Methylcyclohexane	6.03e-003	2.76e-002
2,2,4-Trimethylpentane	2.79e-004	1.49e-003
Benzene	2.14e-003	7.83e-003
Toluene	6.08e-003	2.62e-002
Xylenes	4.53e-004	2.25e-003
C8+ Heavies	1.68e-003	1.34e-002
Total Components	100.00	9.36e+001

FLASH TANK GLYCOL STREAM

Temperature: 125.00 deg. F
Flow Rate: 7.65e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.67e+001	4.16e+003
Water	3.16e+000	1.36e+002
Carbon Dioxide	9.70e-002	4.17e+000
Nitrogen	9.26e-006	3.98e-004
Methane	1.86e-002	7.99e-001
Ethane	1.55e-003	6.64e-002
Propane	9.04e-004	3.89e-002
Isobutane	2.76e-004	1.19e-002
n-Butane	4.00e-004	1.72e-002
Isopentane	1.17e-004	5.02e-003
n-Pentane	1.32e-004	5.70e-003
Cyclopentane	7.24e-005	3.11e-003
n-Hexane	1.46e-004	6.26e-003
Cyclohexane	6.31e-004	2.71e-002
Other Hexanes	2.30e-004	9.90e-003
Heptanes	3.42e-004	1.47e-002
Methylcyclohexane	1.84e-003	7.92e-002
2,2,4-Trimethylpentane	1.92e-005	8.28e-004

Benzene	2.94e-003	1.26e-001
Toluene	1.61e-002	6.91e-001
Xylenes	3.70e-003	1.59e-001
C8+ Heavies	4.41e-003	1.89e-001
Total Components	100.00	4.30e+003

FLASH GAS EMISSIONS

Flow Rate: 4.75e+003 scfh
Control Method: Combustion Device
Control Efficiency: 95.00

Component	Conc. (vol%)	Loading (lb/hr)
Water	6.21e+001	1.40e+002
Carbon Dioxide	3.63e+001	2.00e+002
Nitrogen	9.37e-003	3.28e-002
Methane	1.59e+000	3.19e+000
Ethane	1.97e-002	7.40e-002
Propane	3.61e-003	1.99e-002
Isobutane	5.45e-004	3.96e-003
n-Butane	6.00e-004	4.36e-003
Isopentane	1.21e-004	1.09e-003
n-Pentane	1.09e-004	9.86e-004
Cyclopentane	1.56e-005	1.37e-004
n-Hexane	5.48e-005	5.91e-004
Cyclohexane	5.90e-005	6.21e-004
Other Hexanes	1.14e-004	1.23e-003
Heptanes	5.32e-005	6.67e-004
Methylcyclohexane	1.13e-004	1.38e-003
2,2,4-Trimethylpentane	5.20e-006	7.44e-005
Benzene	4.00e-005	3.91e-004
Toluene	1.13e-004	1.31e-003
Xylenes	8.46e-006	1.12e-004
C8+ Heavies	3.13e-005	6.68e-004
Total Components	100.00	3.43e+002

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 1.59e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.62e+001	7.24e+001
Carbon Dioxide	2.27e+000	4.17e+000
Nitrogen	3.40e-004	3.98e-004
Methane	1.19e+000	7.99e-001
Ethane	5.28e-002	6.64e-002
Propane	2.11e-002	3.89e-002
Isobutane	4.88e-003	1.19e-002
n-Butane	7.07e-003	1.72e-002
Isopentane	1.63e-003	4.93e-003
n-Pentane	1.86e-003	5.61e-003
Cyclopentane	1.05e-003	3.09e-003

n-Hexane	1.72e-003	6.19e-003
Cyclohexane	7.37e-003	2.59e-002
Other Hexanes	2.68e-003	9.64e-003
Heptanes	3.48e-003	1.46e-002
Methylcyclohexane	1.83e-002	7.51e-002
2,2,4-Trimethylpentane	1.67e-004	8.00e-004
Benzene	3.67e-002	1.20e-001
Toluene	1.65e-001	6.35e-001
Xylenes	3.12e-002	1.38e-001
C8+ Heavies	2.32e-002	1.65e-001
Total Components	100.00	7.87e+001

CONDENSER PRODUCED WATER STREAM

Temperature: 66.00 deg. F
Flow Rate: 1.45e-001 gpm

Component	Conc. (wt%)	Loading (lb/hr)	(ppm)
Water	9.99e+001	7.24e+001	998745.
Carbon Dioxide	8.30e-002	6.01e-002	830.
Nitrogen	1.44e-007	1.04e-007	0.
Methane	6.38e-004	4.62e-004	6.
Ethane	7.38e-005	5.34e-005	1.
Propane	2.52e-005	1.82e-005	0.
Isobutane	4.48e-006	3.25e-006	0.
n-Butane	9.17e-006	6.65e-006	0.
Isopentane	1.92e-006	1.39e-006	0.
n-Pentane	2.56e-006	1.85e-006	0.
Cyclopentane	1.13e-005	8.17e-006	0.
n-Hexane	2.32e-006	1.68e-006	0.
Cyclohexane	6.19e-005	4.49e-005	1.
Other Hexanes	2.89e-006	2.10e-006	0.
Heptanes	2.54e-006	1.84e-006	0.
Methylcyclohexane	7.22e-005	5.23e-005	1.
2,2,4-Trimethylpentane	8.58e-008	6.21e-008	0.
Benzene	9.49e-003	6.87e-003	95.
Toluene	2.95e-002	2.13e-002	295.
Xylenes	2.63e-003	1.90e-003	26.
C8+ Heavies	9.61e-008	6.96e-008	0.
Total Components	100.00	7.24e+001	1000000.

CONDENSER RECOVERED OIL STREAM

Temperature: 66.00 deg. F
Flow Rate: 1.61e-003 gpm

Component	Conc. (wt%)	Loading (lb/hr)
Water	3.12e-002	2.14e-004
Carbon Dioxide	2.28e-001	1.56e-003
Nitrogen	1.34e-005	9.22e-008
Methane	1.20e-002	8.22e-005
Ethane	6.88e-003	4.72e-005
Propane	2.70e-002	1.85e-004
Isobutane	1.88e-002	1.29e-004

n-Butane	3.97e-002	2.72e-004
Isopentane	5.00e-002	3.43e-004
n-Pentane	2.01e-002	1.38e-004
Cyclopentane	3.94e-002	2.70e-004
n-Hexane	1.33e-001	9.15e-004
Cyclohexane	7.73e-001	5.30e-003
Other Hexanes	1.55e-001	1.06e-003
Heptanes	7.29e-001	5.00e-003
Methylcyclohexane	4.01e+000	2.75e-002
2,2,4-Trimethylpentane	4.25e-002	2.91e-004
Benzene	4.38e+000	3.00e-002
Toluene	4.84e+001	3.32e-001
Xylenes	1.69e+001	1.16e-001
C8+ Heavies	2.39e+001	1.64e-001
Total Components	100.00	6.86e-001

CONDENSER VENT STREAM

Temperature: 66.00 deg. F
Pressure: 11.60 psia
Flow Rate: 5.94e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.78e+000	7.84e-002
Carbon Dioxide	5.96e+001	4.11e+000
Nitrogen	9.08e-003	3.98e-004
Methane	3.18e+001	7.99e-001
Ethane	1.41e+000	6.63e-002
Propane	5.60e-001	3.87e-002
Isobutane	1.29e-001	1.17e-002
n-Butane	1.86e-001	1.69e-002
Isopentane	4.06e-002	4.59e-003
n-Pentane	4.84e-002	5.47e-003
Cyclopentane	2.56e-002	2.81e-003
n-Hexane	3.91e-002	5.27e-003
Cyclohexane	1.56e-001	2.06e-002
Other Hexanes	6.36e-002	8.58e-003
Heptanes	6.10e-002	9.57e-003
Methylcyclohexane	3.09e-001	4.75e-002
2,2,4-Trimethylpentane	2.84e-003	5.08e-004
Benzene	6.78e-001	8.29e-002
Toluene	1.95e+000	2.81e-001
Xylenes	1.22e-001	2.02e-002
C8+ Heavies	5.05e-003	1.35e-003
Total Components	100.00	5.61e+000

COMBUSTION DEVICE OFF GAS STREAM

Temperature: 1000.00 deg. F
Pressure: 14.70 psia
Flow Rate: 1.12e+000 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Methane	8.46e+001	3.99e-002

Ethane	3.75e+000	3.32e-003
Propane	1.49e+000	1.93e-003
Isobutane	3.43e-001	5.87e-004
n-Butane	4.95e-001	8.46e-004
Isopentane	1.08e-001	2.29e-004
n-Pentane	1.29e-001	2.73e-004
Cyclopentane	6.80e-002	1.40e-004
n-Hexane	1.04e-001	2.63e-004
Cyclohexane	4.16e-001	1.03e-003
Other Hexanes	1.69e-001	4.29e-004
Heptanes	1.62e-001	4.78e-004
Methylcyclohexane	8.22e-001	2.38e-003
2,2,4-Trimethylpentane	7.56e-003	2.54e-005
Benzene	1.80e+000	4.15e-003
Toluene	5.18e+000	1.40e-002
Xylenes	3.24e-001	1.01e-003
C8+ Heavies	1.34e-002	6.74e-005
Total Components	100.00	7.11e-002

Dehydrator Reboiler Exhaust Emissions Calculations

Unit Number: 5b, 6b, 22b & 24b
Description: Dehydrator Reboiler (12 MMSCFD)

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

Fuel Consumption

1,208	scf/hr	Hourly fuel consumption	Mfg. data (Infab)
900	Btu/scf	Field gas heating value	Nominal heat content
1.09	MMBtu/hr	Capacity	scf/hr x Btu/scf / 1,000,000
8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC
9,524	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
10.58	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000

Steady-State Emission Rates

Pollutants	Emission Factors, lb/day	Uncontrolled Emission Rates, pph	tpy
NOX	1.03	4.29E-02	1.88E-01
CO	0.78	3.25E-02	1.42E-01
VOC	0.12	4.79E-03	2.10E-02
SO2	0.02	8.33E-04	3.65E-03

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

Pollutants	Emission Factors, lb/MMscf	Uncontrolled Emission Rates, pph	tpy
PM	7.60	9.18E-03	4.02E-02
PM10	7.60	9.18E-03	4.02E-02
PM2.5	7.60	9.18E-03	4.02E-02
Lead	5.00E-04	6.04E-07	2.65E-06

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

Exhaust Parameters

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

Dehydrator Reboiler Exhaust Emissions Calculations

Unit Number: 9b, 10b, 21b & 23b
Description: Dehydrator Reboiler (20 MMSCFD)

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

Fuel Consumption

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

Steady-State Emission Rates

Pollutants	Emission Factors, lb/day	Uncontrolled Emission Rates, pph	tpy
NOX	1.03	4.29E-02	1.88E-01
CO	1.07	4.46E-02	1.95E-01
VOC	0.16	6.46E-03	2.83E-02
SO2	0.02	8.33E-04	3.65E-03

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

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

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

Exhaust Parameters

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

GRI-HAPCalc® 3.0
External Combustion Devices Report

Facility ID:	**CARRACAS**	**Notes:**
Operation Type:	**COMPRESSOR STATION**	
Facility Name:	**CARRACAS CENTRAL DELIVERY**	
User Name:	**Harvest Four Corner, 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: REBOILER12

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

Calculated Emissions (ton/yr)

Chemical Name	Emissions	Emission Factor	Emission Factor Set
HAPs			
3-Methylchloranthrene	0.0000	0.0000000018 lb/MMBtu	EPA
7,12-Dimethylbenz(a)anthracene	0.0000	0.0000000157 lb/MMBtu	EPA
Formaldehyde	0.0017	0.0003522500 lb/MMBtu	GRI Field
Methanol	0.0021	0.0004333330 lb/MMBtu	GRI Field
Acetaldehyde	0.0014	0.0002909000 lb/MMBtu	GRI Field
1,3-Butadiene	0.0000	0.0000001830 lb/MMBtu	GRI Field
Benzene	0.0000	0.0000062550 lb/MMBtu	GRI Field
Toluene	0.0000	0.0000053870 lb/MMBtu	GRI Field
Ethylbenzene	0.0000	0.0000000720 lb/MMBtu	GRI Field
Xylenes(m,p,o)	0.0000	0.0000010610 lb/MMBtu	GRI Field
2,2,4-Trimethylpentane	0.0002	0.0000323000 lb/MMBtu	GRI Field
n-Hexane	0.0015	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	0.0069			

Criteria Pollutants

VOC	0.0257	0.0053921569	lb/MMBtu	EPA
PM	0.0356	0.0074509804	lb/MMBtu	EPA
PM, Condensible	0.0267	0.0055882353	lb/MMBtu	EPA
PM, Filterable	0.0089	0.0018627451	lb/MMBtu	EPA
CO	0.1467	0.0307275000	lb/MMBtu	GRI Field
NMHC	0.0407	0.0085294118	lb/MMBtu	EPA
NOx	0.4213	0.0882553330	lb/MMBtu	GRI Field
SO2	0.0028	0.0005880000	lb/MMBtu	EPA

Other Pollutants

Dichlorobenzene	0.0000	0.0000011765	lb/MMBtu	EPA
Methane	0.0281	0.0058790650	lb/MMBtu	GRI Field
Acetylene	0.0255	0.0053314000	lb/MMBtu	GRI Field
Ethylene	0.0025	0.0005264000	lb/MMBtu	GRI Field
Ethane	0.0080	0.0016804650	lb/MMBtu	GRI Field
Propylene	0.0045	0.0009333330	lb/MMBtu	GRI Field
Propane	0.0057	0.0012019050	lb/MMBtu	GRI Field
Butane	0.0066	0.0013866350	lb/MMBtu	GRI Field
Cyclopentane	0.0002	0.0000405000	lb/MMBtu	GRI Field
Pentane	0.0099	0.0020656400	lb/MMBtu	GRI Field
n-Pentane	0.0095	0.0020000000	lb/MMBtu	GRI Field
Cyclohexane	0.0002	0.0000451000	lb/MMBtu	GRI Field
Methylcyclohexane	0.0008	0.0001691000	lb/MMBtu	GRI Field
n-Octane	0.0002	0.0000506000	lb/MMBtu	GRI Field
n-Nonane	0.0000	0.0000050000	lb/MMBtu	GRI Field
CO2	561.6706	117.6470588235	lb/MMBtu	EPA

Unit Name: REBOILER20

Hours of Operation: 8,760 Yearly

Heat Input: 1.48 MMBtu/hr

Fuel Type: NATURAL GAS

Device Type: BOILER

Emission Factor Set: FIELD > EPA > LITERATURE

Additional EF Set: -NONE-

Calculated Emissions (ton/yr)

Chemical Name	Emissions	Emission Factor		Emission Factor Set
HAPs				
3-Methylchloranthrene	0.0000	0.0000000018	lb/MMBtu	EPA
7,12-Dimethylbenz(a)anthracene	0.0000	0.0000000157	lb/MMBtu	EPA
Formaldehyde	0.0023	0.0003522500	lb/MMBtu	GRI Field
Methanol	0.0028	0.0004333330	lb/MMBtu	GRI Field

Acetaldehyde	0.0019	0.0002909000	lb/MMBtu	GRI Field
1,3-Butadiene	0.0000	0.0000001830	lb/MMBtu	GRI Field
Benzene	0.0000	0.0000062550	lb/MMBtu	GRI Field
Toluene	0.0000	0.0000053870	lb/MMBtu	GRI Field
Ethylbenzene	0.0000	0.0000000720	lb/MMBtu	GRI Field
Xylenes(m,p,o)	0.0000	0.0000010610	lb/MMBtu	GRI Field
2,2,4-Trimethylpentane	0.0002	0.0000323000	lb/MMBtu	GRI Field
n-Hexane	0.0021	0.0003214790	lb/MMBtu	GRI Field
Phenol	0.0000	0.0000000950	lb/MMBtu	GRI Field
Naphthalene	0.0000	0.0000002950	lb/MMBtu	GRI Field
2-Methylnaphthalene	0.0000	0.0000000700	lb/MMBtu	GRI Field
Acenaphthylene	0.0000	0.0000000550	lb/MMBtu	GRI Field
Biphenyl	0.0000	0.0000011500	lb/MMBtu	GRI Field
Acenaphthene	0.0000	0.0000000800	lb/MMBtu	GRI Field
Fluorene	0.0000	0.0000000700	lb/MMBtu	GRI Field
Anthracene	0.0000	0.0000000750	lb/MMBtu	GRI Field
Phenanthrene	0.0000	0.0000000550	lb/MMBtu	GRI Field
Fluoranthene	0.0000	0.0000000800	lb/MMBtu	GRI Field
Pyrene	0.0000	0.0000000750	lb/MMBtu	GRI Field
Benz(a)anthracene	0.0000	0.0000000750	lb/MMBtu	GRI Field
Chrysene	0.0000	0.0000001000	lb/MMBtu	GRI Field
Benzo(a)pyrene	0.0000	0.0000000600	lb/MMBtu	GRI Field
Benzo(b)fluoranthene	0.0000	0.0000001350	lb/MMBtu	GRI Field
Benzo(k)fluoranthene	0.0000	0.0000004400	lb/MMBtu	GRI Field
Benzo(g,h,i)perylene	0.0000	0.0000001500	lb/MMBtu	GRI Field
Indeno(1,2,3-c,d)pyrene	0.0000	0.0000001000	lb/MMBtu	GRI Field
Dibenz(a,h)anthracene	0.0000	0.0000000950	lb/MMBtu	GRI Field
Lead	0.0000	0.0000004902	lb/MMBtu	EPA
Total	0.0093			

Criteria Pollutants

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

Other Pollutants

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

n-Octane	0.0003	0.0000506000	lb/MMBtu	GRI Field
n-Nonane	0.0000	0.0000050000	lb/MMBtu	GRI Field
CO2	762.6353	117.6470588235	lb/MMBtu	EPA

Dehydrator Flare Emissions Calculations

Unit Number: 11, 12, 25 & 26
Description: Dehydrator Flares

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

Operating Time

8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC

Flash Tank Off Gas Stream

2,601.00	scf/hr	Hourly flowrate	GRI-GLYCalc
886.74	Btu/scf	Calculated heat content	Calculated from GRI-GLYCalc results (see flash tank off gas stream composition table below)
2.31	MMBtu/hr	Hourly heat rate	scf/hr x Btu/scf / 1,000,000
22.78	MMscf/yr	Annual flowrate	scf/hr x hr/yr / 1,000,000
20,204.18	MMBtu/yr	Annual heat rate	MMBtu/hr x hr/yr

Condenser Vent Stream

86.80	scf/hr	Hourly flowrate	GRI-GLYCalc
526.01	Btu/scf	Calculated heat content	Calculated from GRI-GLYCalc results (see condenser vent stream composition table below)
0.05	MMBtu/hr	Hourly heat rate	scf/hr x Btu/scf / 1,000,000
0.76	MMscf/yr	Annual flowrate	scf/hr x hr/yr / 1,000,000
399.96	MMBtu/yr	Annual heat rate	MMBtu/hr x hr/yr

Supplemental Fuel Gas Stream

875.09	Btu/scf	Heat content (B_{dehy})	Hourly flowrate weighted average of flash tank off gas stream and condenser vent stream heat contents
2687.80	scf/hr	Hourly flowrate (Q_{dehy})	Sum of hourly flowrates from flash tank off gas and condenser vent streams
946.02	Btu/scf	Heat content (B_{fuel})	Calculated from GRI-GLYCalc results (see dry gas stream composition table below)
300.00	Btu/scf	Heat content (B_{mix})	Minimum required
0.00	scf/hr	Hourly flowrate (Q_{fuel})	$Q_{fuel} = Q_{dehy} * (B_{mix} - B_{dehy})/(B_{fuel} - B_{mix})$
0.00	MMBtu/hr	Hourly Flowrate	scf/hr x Btu/scf / 1,000,000
0.00	MMscf/yr	Annual Flowrate	scf/hr x hr/yr / 1,000,000
0.00	MMBtu/yr	Annual Flowrate	MMBtu/hr x hr/yr

Note: Supplemental fuel is only required if the heat content of the combined streams from the regenerator still vent, condenser vent and/or flash tank off-gas streams are less than 300 Btu/scf.

Pilot Gas Stream

24.00	scf/hr	Hourly flowrate	Estimated
946.02	Btu/scf	Calculated heat content	Calculated from GRI-GLYCalc results (see gas stream composition table below)
0.02	MMBtu/hr	Hourly heat rate	scf/hr x Btu/scf / 1,000,000
0.21	MMscf/yr	Annual flowrate	scf/hr x hr/yr / 1,000,000
198.89	MMBtu/yr	Annual heat rate	MMBtu/hr x hr/yr

Combined Stream

2711.80	scf/hr	Hourly Flowrate	Sum of four streams above
2.37	MMBtu/hr	Hourly Flowrate	Sum of four streams above
23.76	MMscf/yr	Annual Flowrate	Sum of four streams above
20803.04	MMBtu/yr	Annual Flowrate	Sum of four streams above
875.72	Btu/scf	Heat content	Hourly flowrate weighted average of the heat contents of all four streams above

Dehydrator Flare Emissions Calculations

Unit Number: 11, 12, 25 & 26
Description: Dehydrator Flares

Steady-State Emission Rates

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates, pph	tpy
NOX	0.0641	1.52E-01	6.67E-01
CO	0.5496	1.31	5.72

Emissions are calculated using all the gas streams
Emission factors (lb/MMBtu) from the Texas Commission on Environmental Quality (TCEQ) January 2010 document "Technical Supplement 4: Flares" for unassisted units combusting high-Btu waste streams (>1000 Btu/scf)
Uncontrolled Emission Rates (pph) = lb/MMBtu x MMBtu/hr
Uncontrolled Emission Rates (tpy) = lb/MMBtu x MMBtu/yr / 2,000 lb/ton

Steady-State Emission Rates Continued

Pollutants	Emission Factors, lb/MMscf	Uncontrolled Emission Rates, pph	tpy
VOC	5.5	1.32E-04	5.78E-04
SO2	0.6	1.63E-03	7.13E-03

Emission factors taken from AP-42, Table 1.4-2
Uncontrolled Emission Rates (pph) = lb/MMscf x (scf/hr / 1,000,000)
Uncontrolled Emission Rates (tpy) = lb/MMscf x MMscf/yr / 2,000 lb/ton
VOC emissions are calculated using only the pilot and supplemental fuel gas streams. VOC emissions from the regenerator still vent, condenser vent, and/or flash tank off-gas streams are included with the dehydrator emissions
SO2 emissions are calculated using all the gas streams

PM, PM10 and PM2.5 emissions are assumed to be negligible, as the flare is smokeless

Flare Effective Diameter

20.51 lb/lb-mole	Molecular weight	Hourly flowrate weighted average of the molecular weights of all four streams above
45.20 scfm	Flowrate	scf/hr / 60 min/hr
166,234.30 cal/sec	Gross heat release	scfm x Btu/scf x 252 cal/Btu / 60 sec/min
130,100.45 cal/sec	Effective heat release (q_n)	cal/sec x (1-(0.048 x (MW^0.5)))
0.36 meters	Effective stack diameter	(0.000001 x cal/sec[q_n])^0.5

Exhaust Parameters

1,832 °F	Exhaust temperature	NMAQB
1.18 ft	Effective stack diameter	Calculated per NMAQB guidelines
65.62 fps	Stack velocity	NMAQB
20.00 ft	Stack height	Harvest Four Corners, LLC

Dehydrator Flare Emissions Calculations

Unit Number: 11, 12, 25 & 26
Description: Dehydrator Flares

Gas Stream Compositions

Flash Tank Off Gas Stream Composition					
Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Heat Contents, Btu/scf	Calculated Heat Contents, Btu/scf
Water	2.48E-01	18.02	0.04	0.00	0.00
Carbon dioxide	1.33E+01	44.01	5.84	0.00	0.00
Hydrogen sulfide	0.00E+00	34.07	0.00	637.02	0.00
Nitrogen	2.51E-02	28.01	0.01	0.00	0.00
Methane	8.51E+01	16.04	13.65	1,009.70	859.25
Ethane	1.05E+00	30.07	0.32	1,768.70	18.57
Propane	1.93E-01	44.09	0.09	2,517.20	4.86
IsoButane	2.92E-02	58.12	0.02	3,252.60	0.95
n-Butane	3.21E-02	58.12	0.02	3,262.00	1.05
IsoPentane	6.46E-03	72.15	0.00	3,999.70	0.26
n-Pentane	5.84E-03	72.15	0.00	4,008.70	0.23
Cyclopentane	8.34E-04	70.14	0.00	3,763.70	0.03
n-Hexane	2.94E-03	86.17	0.00	4,756.10	0.14
Cyclohexane	3.17E-03	84.16	0.00	4,481.60	0.14
Other hexanes	6.09E-03	86.18	0.01	4,756.10	0.29
Heptanes	2.85E-03	100.20	0.00	5,502.80	0.16
Methylcyclohexane	6.05E-03	98.19	0.01	5,215.90	0.32
Isooctane	2.79E-04	100.21	0.00	5,500.00	0.02
Benzene	2.18E-03	78.11	0.00	3,741.90	0.08
Toluene	6.24E-03	92.14	0.01	4,474.80	0.28
Ethylbenzene	0.00E+00	106.17	0.00	5,222.10	0.00
Xylenes	4.75E-04	106.17	0.00	5,208.00	0.02
C8+ heavies	1.70E-03	110.00	0.00	5,500.00	0.09
Total	99.9907		20.02		886.74

Gas stream compositions are obtained from GRI-GLYCalc 4.0
Component Weights (lb/lb-mole) = (% / 100) * Molecular Weights (lb/lb-mole)
Calculated Heat Contents (Btu/scf) = (% / 100) * Heat Contents (Btu/scf)

Dehydrator Flare Emissions Calculations

Unit Number: 11, 12, 25 & 26
Description: Dehydrator Flares

Condenser Vent Stream Composition					
Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Heat Contents, Btu/scf	Calculated Heat Contents, Btu/scf
Water	2.78E+00	18.02	0.50	0.00	0.00
Carbon dioxide	5.96E+01	44.01	26.23	0.00	0.00
Hydrogen sulfide	0.00E+00	34.07	0.00	637.02	0.00
Nitrogen	9.07E-03	28.01	0.00	0.00	0.00
Methane	3.18E+01	16.04	5.11	1,009.70	321.40
Ethane	1.40E+00	30.07	0.42	1,768.70	24.83
Propane	5.61E-01	44.09	0.25	2,517.20	14.13
IsoButane	1.29E-01	58.12	0.07	3,252.60	4.20
n-Butane	1.86E-01	58.12	0.11	3,262.00	6.07
IsoPentane	4.05E-02	72.15	0.03	3,999.70	1.62
n-Pentane	4.83E-02	72.15	0.03	4,008.70	1.94
Cyclopentane	2.54E-02	70.14	0.02	3,763.70	0.96
n-Hexane	3.88E-02	86.17	0.03	4,756.10	1.85
Cyclohexane	1.55E-01	84.16	0.13	4,481.60	6.93
Other hexanes	6.33E-02	86.18	0.05	4,756.10	3.01
Heptanes	6.02E-02	100.20	0.06	5,502.80	3.32
Methylcyclohexane	3.05E-01	98.19	0.30	5,215.90	15.92
Isooctane	2.80E-03	100.21	0.00	5,500.00	0.15
Benzene	6.79E-01	78.11	0.53	3,741.90	25.42
Toluene	1.96E+00	92.14	1.80	4,474.80	87.54
Ethylbenzene	0.00E+00	106.17	0.00	5,222.10	0.00
Xylenes	1.24E-01	106.17	0.13	5,208.00	6.47
C8+ heavies	4.90E-03	110.00	0.01	5,500.00	0.27
Total	100.0046		35.83		526.01

Gas stream compositions are obtained from GRI-GLYCalc 4.0
Component Weights (lb/lb-mole) = (% / 100) * Molecular Weights (lb/lb-mole)
Calculated Heat Contents (Btu/scf) = (% / 100) * Heat Contents (Btu/scf)

Dehydrator Flare Emissions Calculations

Unit Number: 11, 12, 25 & 26
Description: Dehydrator Flares

Dry Gas Stream Composition					
Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Heat Contents, Btu/scf	Calculated Heat Contents, Btu/scf
Water	9.76E-03	18.02	0.00	0.00	0.00
Carbon dioxide	7.35E+00	44.01	3.23	0.00	0.00
Hydrogen sulfide	0.00E+00	34.07	0.00	637.02	0.00
Nitrogen	2.69E-02	28.01	0.01	0.00	0.00
Methane	9.15E+01	16.04	14.68	1,009.70	923.88
Ethane	9.46E-01	30.07	0.28	1,768.70	16.73
Propane	1.44E-01	44.09	0.06	2,517.20	3.62
IsoButane	1.85E-02	58.12	0.01	3,252.60	0.60
n-Butane	1.79E-02	58.12	0.01	3,262.00	0.58
IsoPentane	3.39E-03	72.15	0.00	3,999.70	0.14
n-Pentane	2.69E-03	72.15	0.00	4,008.70	0.11
Cyclopentane	1.97E-04	70.14	0.00	3,763.70	0.01
n-Hexane	9.94E-04	86.17	0.00	4,756.10	0.05
Cyclohexane	5.83E-04	84.16	0.00	4,481.60	0.03
Other hexanes	2.39E-03	86.18	0.00	4,756.10	0.11
Heptanes	6.90E-04	100.20	0.00	5,502.80	0.04
Methylcyclohexane	1.06E-03	98.19	0.00	5,215.90	0.06
Isooctane	9.94E-05	100.21	0.00	5,500.00	0.01
Benzene	2.33E-04	78.11	0.00	3,741.90	0.01
Toluene	6.03E-04	92.14	0.00	4,474.80	0.03
Ethylbenzene	0.00E+00	106.17	0.00	5,222.10	0.00
Xylenes	4.35E-05	106.17	0.00	5,208.00	0.00
C8+ heavies	4.59E-04	110.00	0.00	5,500.00	0.03
Total	100.026		18.30		946.02

Gas stream compositions are obtained from GRI-GLYCalc 4.0
Component Weights (lb/lb-mole) = (% / 100) * Molecular Weights (lb/lb-mole)
Calculated Heat Contents (Btu/scf) = (% / 100) * Heat Contents (Btu/scf)

GRI-HAPCalc® 3.0
Flares Report

Facility ID:	**CARRACAS**	**Notes:**
Operation Type:	**COMPRESSOR STATION**	
Facility Name:	**CARRACAS CENTRAL DELIVERY**	
User Name:	**Harvest Four Corner, 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".

Note: The molecular weights of ethane and propane were used to calculate emissions for NMHC and NMEHC, respectively.

Note: The value for total reduced sulfur (TRS) includes sulfur from all sulfur-containing species except SO2.

Flare Unit

Unit Name: FLARE

Hours of Operation:	8,760 Yearly	**Efficiency:**	95.00 %
Volume:	2,687.80 scf/hr	**Volume Gas to Pilot:**	24.000 scf/hr
Gas Heat Value:	875.70 Btu/scf (HHV)	**Pilot Gas Sulfur Content:**	0.00 grains/100scf
Flare Design:	OTHER		

User Concentration Inputs

Chemical Name	Mole %
NMHC	1.4900
NMEHC	0.4290
Benzene	0.0238
Toluene	0.0686
Ethylbenzene	0.0000
Xylenes(m,p,o)	0.0044
n-Hexane	0.0041
2,2,4-Trimethylpentane	0.0004
Total Reduced Sulfur	0.0000
Hydrogen Sulfide	0.0000
Carbon Disulfide	0.0000
Carbonyl Sulfide	0.0000

Calculated Emissions (ton/yr)

	Chemical Name	Emissions
HAPs		
	Formaldehyde	0.0029
	Benzene	0.0288
	Toluene	0.0980
	Xylenes(m,p,o)	0.0072
	2,2,4-Trimethylpentane	0.0007
	n-Hexane	0.0055
Total		0.1431

Criteria Pollutants

CO	5.6663
NMHC	0.6950
NMEHC	0.2935
NOx	0.6711

Compressor Blowdown Emissions Calculations

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

Throughput

12	# of units	Number of units	Harvest Four Corners, LLC
389	events/yr/unit	Blowdowns per year per unit	Harvest Four Corners, LLC
8,423	scf/event	Gas loss per blowdown	Harvest Four Corners, LLC
39,318,564	scf/yr	Annual gas loss	# of units x events/yr/unit x scf/event

Emission Rates

Pollutants	Emission Factors, lb/scf	Uncontrolled, Emission Rates, tpy
VOC	2.542E-04	5.00
Benzene	6.176E-07	1.21E-02
Ethylbenzene	0.000E+00	0.00E+00
n-Hexane	2.271E-06	4.47E-02
Isooctane	2.641E-07	5.19E-03
Toluene	2.186E-06	4.30E-02
Xylene	2.798E-07	5.50E-03

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

Gas Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Emission Factors, lb/scf
Carbon dioxide	7.3661	44.01	8.545E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.0269	28.01	1.986E-05
Methane	91.4657	16.04	3.867E-02
Ethane	0.9465	30.07	7.502E-04
Propane	0.1445	44.09	1.679E-04
Isobutane	0.0185	58.12	2.834E-05
n-Butane	0.0179	58.12	2.742E-05
Isopentane	0.0034	72.15	6.466E-06
n-Pentane	0.0027	72.15	5.135E-06
Cyclopentane	0.0002	70.14	3.697E-07
n-Hexane	0.0010	86.17	2.271E-06
Cyclohexane	0.0006	84.16	1.331E-06
Other hexanes	0.0024	86.18	5.452E-06
Heptanes	0.0007	100.20	1.849E-06
Methylcyclohexane	0.0011	98.19	2.847E-06
Isooctane	0.0001	100.21	2.641E-07
Benzene	0.0003	78.11	6.176E-07
Toluene	0.0009	92.14	2.186E-06
Ethylbenzene	0.0000	106.17	0.000E+00
Xylenes	0.0001	106.17	2.798E-07
C8+ Heavies	0.0005	110.00	1.450E-06
Total	100.0001		
Total VOC			2.542E-04

Gas stream composition obtained from Carracas CDP extended gas analysis dated 9/18/2019
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

Equipment Leaks Emissions Calculations

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

Steady-State Emission Rates

Equipment	Number of Components, # of sources	Emission Factors, kg/hr/source	Emission Factors, lb/hr/source	Uncontrolled TOC Emission Rates, pph	tpy
Valves	1089	0.0045	0.0099	10.78	47.22
Connectors	1183	0.0002	0.0004	0.52	2.28
Pump Seals	16	0.0024	0.0053	0.08	0.37
Compressor Seals	72	0.0088	0.0194	1.39	6.11
Pressure Relief Valves	103	0.0088	0.0194	1.99	8.73
Open-Ended Lines	310	0.0020	0.0044	1.36	5.97
Total				**16.14**	**70.68**

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

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight Percent of TOC, %	Uncontrolled Emission Rates, pph	tpy
Carbon dioxide	7.3661	44.010	3.242	17.7107	2.86E+00	1.25E+01
Hydrogen sulfide	0.0000	34.070	0.000	0.0000	0.00E+00	0.00E+00
Nitrogen	0.0269	28.013	0.008	0.0412	6.64E-03	2.91E-02
Methane	91.4657	16.043	14.674	80.1661	1.29E+01	5.67E+01
Ethane	0.9465	30.070	0.285	1.5549	2.51E-01	1.10E+00
Propane	0.1445	44.097	0.064	0.3481	5.62E-02	2.46E-01
Isobutane	0.0185	58.123	0.011	0.0587	9.48E-03	4.15E-02
n-Butane	0.0179	58.123	0.010	0.0568	9.17E-03	4.02E-02
Isopentane	0.0034	72.150	0.002	0.0134	2.16E-03	9.47E-03
n-Pentane	0.0027	72.150	0.002	0.0106	1.72E-03	7.52E-03
Cyclopentane	0.0002	70.134	0.000	0.0008	1.24E-04	5.42E-04
n-Hexane	0.0010	86.177	0.001	0.0047	7.60E-04	3.33E-03
Cyclohexane	0.0006	84.161	0.001	0.0028	4.45E-04	1.95E-03
Other hexanes	0.0024	86.177	0.002	0.0113	1.82E-03	7.99E-03
Heptanes	0.0007	100.204	0.001	0.0038	6.18E-04	2.71E-03
Methylcyclohexane	0.0011	98.188	0.001	0.0059	9.52E-04	4.17E-03
Isooctane	0.0001	114.231	0.000	0.0006	1.01E-04	4.41E-04
Benzene	0.0003	78.114	0.000	0.0013	2.07E-04	9.05E-04
Toluene	0.0009	92.141	0.001	0.0045	7.31E-04	3.20E-03
Ethylbenzene	0.0000	106.167	0.000	0.0000	0.00E+00	0.00E+00
Xylenes	0.0001	106.167	0.000	0.0006	9.36E-05	4.10E-04
C8+ Heavies	0.0005	114.231	0.001	0.0031	5.04E-04	2.21E-03
Total	100.0001		18.304			
Total VOC				0.5271	8.51E-02	3.73E-01

Gas stream composition obtained from Carracas CDP extended gas analysis dated 9/18/2019
Component Weights (lb/lb-mole) = (% / 100) * Molecular Weights (lb/lb-mole)
Weight Percent of TOC (%) = 100 x Component Weights (lb/lb-mole) / Total Component Weight (lb/lb-mole)
Uncontrolled Emission Rates (pph) = Total Uncontrolled TOC Emission Rate (pph) x (% / 100)
Uncontrolled Emission Rates (tpy) = Total Uncontrolled TOC Emission Rate (tpy) x (% / 100)

Equipment Leaks Emissions Calculations

Unit Number: F1
Description: Valves, Connectors, Seals & Lines

Number of Compression Units at the Facility: 12
Number of Dehydrators at the Facility: 8

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	528	708	0	48	72	132	0	48	108
Components from dehydrators	48	80	16	0	24	48	0	24	32
Total	697	861	16	72	103	228	3	82	152
Adjusted Total	1089	1183	16	72	103	310			

The following additions are included in the Adjusted Total:

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

The component count is based on the evaluation of a comparable facility (Sim Mesa Central Delivery Point)

Malfunction Emissions Data and Calculations

Unit Number: M1
Description: Malfunctions

Emission Rates

Pollutants	Weight Percents, %	Uncontrolled Emission Rates, tpy
VOC		5.00
Benzene	2.430E-01	1.21E-02
Ethylbenzene	0.000E+00	0.00E+00
n-Hexane	8.935E-01	4.47E-02
Isooctane	1.039E-01	5.20E-03
Toluene	8.598E-01	4.30E-02
Xylene	1.101E-01	5.50E-03

Weight percents calculated from gas composition (see table below)
Uncontrolled Emission Rates (tpy) = VOC Emission Rate (tpy) x (% / 100)

Gas Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight Percent, %
Carbon dioxide	7.3661	44.01		
Hydrogen sulfide	0.0000	34.07		
Nitrogen	0.0269	28.01		
Methane	91.4657	16.04		
Ethane	0.9465	30.07		
Propane	0.1445	44.09	0.0637	6.606E+01
Isobutane	0.0185	58.12	0.0108	1.115E+01
n-Butane	0.0179	58.12	0.0104	1.079E+01
Isopentane	0.0034	72.15	0.0025	2.544E+00
n-Pentane	0.0027	72.15	0.0019	2.020E+00
Cyclopentane	0.0002	70.14	0.0001	1.455E-01
n-Hexane	0.0010	86.17	0.0009	8.935E-01
Cyclohexane	0.0006	84.16	0.0005	5.236E-01
Other hexanes	0.0024	86.18	0.0021	2.145E+00
Heptanes	0.0007	100.20	0.0007	7.273E-01
Methylcyclohexane	0.0011	98.19	0.0011	1.120E+00
Isooctane	0.0001	100.21	0.0001	1.039E-01
Benzene	0.0003	78.11	0.0002	2.430E-01
Toluene	0.0009	92.14	0.0008	8.598E-01
Ethylbenzene	0.0000	106.17	0.0000	0.000E+00
Xylenes	0.0001	106.17	0.0001	1.101E-01
C8+ Heavies	0.0005	110.00	0.0006	5.703E-01
Total	100.0001			
Total VOC			0.0964	

Gas stream composition obtained from Carracas CDP extended gas analysis dated 9/18/2019
Component Weights (lb/lb-mole) = (% / 100) x Molecular Weights (lb/lb-mole)
Weight Percents (%) = 100 x Component Weights (lb/lb-mole) / Total VOC Weight (lb/lb-mole)

Storage Tank Emissions Calculations

Unit Number: T1
Description: Produced Water Tank

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

Throughput

155	bbl/turnover	Tank capacity	Harvest Four Corners, LLC
4	turnover/yr	Turnovers per year	Harvest Four Corners, LLC
620	bbl/yr	Annual liquid throughput	bbl/turnover x turnover/yr

Emission Rates

Pollutant	Emission Factor, lb/bbl	Uncontrolled, Emission Rate, tpy
VOC	0.262	8.12E-02
Benzene	0.007	2.17E-03
Ethylbenzene	0.0007	2.17E-04
n-Hexane	0.022	6.82E-03
Toluene	0.009	2.79E-03
Xylene	0.006	1.86E-03

VOC, Benzene, and n-Hexane emission factors are taken from the CDPHE PS Memo 09-02 (Oil & Gas Produced Water Tank Batteries - Regulatory Definitions & Permitting Guidance)
Ethylbenzene, toluene, and xylene emissions factors (Non-Texas) are taken from the TCEQ Project 2010-29 (Emission Factor Determination for Produced Water Storage Tanks) report
Uncontrolled Emission Rates (tpy) = lb/bbl x bbl/yr / 2,000 lb/ton

Storage Tank Emissions Calculations

Unit Number: T14 & T15
Description: Produced Water Tank

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

Throughput

300	bbl/turnover	Tank capacity	Harvest Four Corners, LLC
4	turnover/yr	Turnovers per year	Harvest Four Corners, LLC
1,200	bbl/yr	Annual liquid throughput	bbl/turnover x turnover/yr

Emission Rates

Pollutant	Emission Factor, lb/bbl	Uncontrolled, Emission Rate, tpy
VOC	0.262	1.57E-01
Benzene	0.007	4.20E-03
Ethylbenzene	0.0007	4.20E-04
n-Hexane	0.022	1.32E-02
Toluene	0.009	5.40E-03
Xylene	0.006	3.60E-03

VOC, Benzene, and n-Hexane emission factors are taken from the CDPHE PS Memo 09-02 (Oil & Gas Produced Water Tank Batteries - Regulatory Definitions & Permitting Guidance)
Ethylbenzene, toluene, and xylene emissions factors (Non-Texas) are taken from the TCEQ Project 2010-29 (Emission Factor Determination for Produced Water Storage Tanks) report
Uncontrolled Emission Rates (tpy) = lb/bbl x bbl/yr / 2,000 lb/ton

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

Identification

User Identification:	Carracas T8 (Corrosion Inhibitor)
City:	Navajo Dam
State:	New Mexico
Company:	Harvest Four Corners, LLC
Type of Tank:	Vertical Fixed Roof Tank
Description:	800 Gallon Corrosion Inhibitor Storage Tank

Tank Dimensions

Shell Height (ft):	5.00
Diameter (ft):	5.25
Liquid Height (ft) :	4.50
Avg. Liquid Height (ft):	2.25
Volume (gallons):	729.00
Turnovers:	12.00
Net Throughput(gal/yr):	8,748.00
Is Tank Heated (y/n):	N

Paint Characteristics

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

Roof Characteristics

Type:	Dome
Height (ft)	0.00
Radius (ft) (Dome Roof)	5.25

Breather Vent Settings

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

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

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

Carracas T8 (Corrosion Inhibitor) - Vertical Fixed Roof Tank
Navajo Dam, New Mexico

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Corrosion Inhibitor	All	67.36	53.93	80.79	59.23	1.1783	0.7953	1.6922	44.8406			77.18	
1,2,4-Trimethylbenzene						0.0273	0.0160	0.0451	120.1900	0.4500	0.0179	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Jet naphtha (JP-4)						1.5209	1.1180	1.9396	80.0000	0.3000	0.4443	120.00	Option 1: VP60 = 1.3 VP70 = 1.6
Methyl alcohol						1.8115	1.1881	2.6951	32.0400	0.2000	0.5292	32.04	Option 2: A=7.897, B=1474.08, C=229.13
Xylenes (mixed isomers)						0.1165	0.0728	0.1813	106.1700	0.0500	0.0085	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)

Carracas T8 (Corrosion Inhibitor) - Vertical Fixed Roof Tank
Navajo Dam, New Mexico

Annual Emission Calcaulations	
Standing Losses (lb):	34.2555
Vapor Space Volume (cu ft):	67.3260
Vapor Density (lb/cu ft):	0.0093
Vapor Space Expansion Factor:	0.1782
Vented Vapor Saturation Factor:	0.8374
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	67.3260
Tank Diameter (ft):	5.2500
Vapor Space Outage (ft):	3.1101
Tank Shell Height (ft):	5.0000
Average Liquid Height (ft):	2.2500
Roof Outage (ft):	0.3601
Roof Outage (Dome Roof)	
Roof Outage (ft):	0.3601
Dome Radius (ft):	5.2500
Shell Radius (ft):	2.6250
Vapor Density	
Vapor Density (lb/cu ft):	0.0093
Vapor Molecular Weight (lb/lb-mole):	44.8406
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.1783
Daily Avg. Liquid Surface Temp. (deg. R):	527.0322
Daily Average Ambient Temp. (deg. F):	56.1542
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	518.9042
Tank Paint Solar Absorptance (Shell):	0.6800
Tank Paint Solar Absorptance (Roof):	0.6800
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.1782
Daily Vapor Temperature Range (deg. R):	53.7176
Daily Vapor Pressure Range (psia):	0.8969
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.1783
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.7953
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	1.6922
Daily Avg. Liquid Surface Temp. (deg R):	527.0322
Daily Min. Liquid Surface Temp. (deg R):	513.6028
Daily Max. Liquid Surface Temp. (deg R):	540.4617
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.8374
Vapor Pressure at Daily Average Liquid:	
Surface Temperature (psia):	1.1783
Vapor Space Outage (ft):	3.1101
Working Losses (lb):	11.0048
Vapor Molecular Weight (lb/lb-mole):	44.8406
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.1783
Annual Net Throughput (gal/yr.):	8,748.0000
Annual Turnovers:	12.0000
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	729.0000
Maximum Liquid Height (ft):	4.5000
Tank Diameter (ft):	5.2500
Working Loss Product Factor:	1.0000
Total Losses (lb):	45.2602

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

Emissions Report for: Annual

Carracas T8 (Corrosion Inhibitor) - Vertical Fixed Roof Tank
Navajo Dam, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Corrosion Inhibitor	11.00	34.26	45.26
1,2,4-Trimethylbenzene	0.20	0.61	0.81
Jet naphtha (JP-4)	4.89	15.22	20.11
Methyl alcohol	5.82	18.13	23.95
Xylenes (mixed isomers)	0.09	0.29	0.39

Section 6.a

Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMAC)

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

Calculating GHG Emissions:

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

Sources for Calculating GHG Emissions:

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

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

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

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

Greenhouse Gas Emissions

Carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) engine, microturbine, and dehydrator reboiler exhaust emissions were calculated using emission factors from the 40 Code of Federal Regulations (CFR), Part C, Tables C-1 & C-2 and the engine, reboiler, and heater higher heating value design heat rates.

CO_2 & CH_4 emissions from reciprocating compressor venting (blowdown valve leakage, rod packing emissions, and isolation valve leakage) were calculated using emission factors developed by WFC (the three-year rolling average (2012-2014) of all measurements in the Williams Field Services, LLC compressor fleet located at natural gas processing plants). The facility CO_2 and CH_4 contents were taken from an extended gas analysis. Since the combined blowdown valve leakage and rod packing emissions (when the compressors are in operation) were greater than the isolation valve leakage emissions (when the compressors are not in operation), potential emissions were calculated assuming the compressors operate during the entire year.

CO_2 & CH_4 emissions from blowdown of the compressors and associated piping at the station were 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 was determined by HFC engineering. The composition of the gas was determined from the recent extended gas analyses. The number of startups and shutdowns were identified by HFC operations. A safety factor was added.

CO_2 & CH_4 emissions from the dehydrators were calculated using GRI-GLYCalc.

CO_2 & N_2O emissions from the flares were calculated using Subpart W methodologies and the gas compositions identified using GRI-GLYCalc.

CO_2 & CH_4 emissions from equipment leaks and natural gas pneumatic device and pump venting are calculated using the Subpart W methodologies applicable to these source types. The component count is identified by Williams. Emission factors are obtained from Table W-1A of Subpart W (Western U.S. – Gas Service). The facility CO_2 and CH_4 contents are taken from a recent extended gas analysis. Emissions are calculated assuming the equipment operates 8,760 hours per year.

Malfunction (Unit M1) emissions are set at 10.0 tons of VOC per year to account for emissions that may occur during upsets and malfunctions (including, but not limited to, unscheduled blowdowns and relief valve release). Based on the gas release rate associated with the set annual VOC emission rate, GHG emissions are calculated using the extended gas analysis.

Green House Gas Emissions Data and Calculations

Sources	Facility Total Emissions				
	CO2, tpy	CH4, tpy	N2O, tpy	GHG, tpy	CO2e, tpy
Engine & Turbine Exhaust	73,227.54	1.38	1.38E-01	73,229.06	73303.17
SSM Blowdowns	167.98	760.21	--	928.19	19173.20
Reciprocating Compressor Venting	157.45	713.64	--	871.09	17998.50
Dehydrators	5,143.87	83.02	--	5,226.89	7219.25
Reboiler Exhaust	5,840.93	1.10E-01	1.10E-02	5,841.05	5846.97
Dehydrator Flares	4,858.40	--	9.72E-03	4,858.41	4861.29
Equipment Leaks	6.79	30.76	--	37.54	775.68
Natural Gas Pneumatic Device Venting	11.67	52.78	--	64.45	1331.14
Natural Gas Driven Pneumatic Pump Venting	4.98E-01	2.25	--	2.75	56.76
Malfunctions	168.07	760.61	--	928.67	19183.20
Total	89,583.20	2,404.75	1.59E-01	91,988.10	149,749.16

Engine & Turbine Exhaust Emissions

Unit Numbers	Description	Emission Factors			Emission Rates		
		CO2, kg/MMBtu	CH4, kg/MMBtu	N2O, kg/MMBtu	CO2, tpy	CH4, tpy	N2O, tpy
1	Waukesha L7042GL	53.06	1.00E-03	1.00E-04	6,010.45	1.13E-01	1.13E-02
2	Waukesha L7042GL	53.06	1.00E-03	1.00E-04	6,010.45	1.13E-01	1.13E-02
3	Waukesha L7042GL	53.06	1.00E-03	1.00E-04	6,010.45	1.13E-01	1.13E-02
7	Waukesha L7042GL	53.06	1.00E-03	1.00E-04	6,010.45	1.13E-01	1.13E-02
8	Waukesha L7042GL	53.06	1.00E-03	1.00E-04	6,010.45	1.13E-01	1.13E-02
14	Waukesha L7042GL	53.06	1.00E-03	1.00E-04	6,010.45	1.13E-01	1.13E-02
15	Waukesha L7042GL	53.06	1.00E-03	1.00E-04	6,010.45	1.13E-01	1.13E-02
16	Waukesha L7042GL	53.06	1.00E-03	1.00E-04	6,010.45	1.13E-01	1.13E-02
17	Waukesha L7042GL	53.06	1.00E-03	1.00E-04	6,010.45	1.13E-01	1.13E-02
18	Waukesha L7042GL	53.06	1.00E-03	1.00E-04	6,010.45	1.13E-01	1.13E-02
19	Waukesha L7042GL	53.06	1.00E-03	1.00E-04	6,010.45	1.13E-01	1.13E-02
20	Waukesha L7042GL	53.06	1.00E-03	1.00E-04	6,010.45	1.13E-01	1.13E-02
4	Capstone C65 MicroTurbine	53.06	1.00E-03	1.00E-04	551.05	1.04E-02	1.04E-03
27	Capstone C65 MicroTurbine	53.06	1.00E-03	1.00E-04	551.05	1.04E-02	1.04E-03
	Total				73,227.54	1.38	1.38E-01

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

Emission Rates (tpy) = kg/MMBtu x 2.2 lb/kg x MMBtu/yr / 2,000 lb/ton

Green House Gas Emissions Data and Calculations

Unit Numbers	Description	Fuel Types	Operating Times, hr/yr	LHV Design Heat Rates, MMBtu/hr	HHV	
					Design Heat Rates, MMBtu/hr	Fuel Usages, MMBtu/yr
1	Waukesha 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
7	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
8	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
14	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
15	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
16	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
17	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
18	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
19	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
20	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
4	Capstone C65 MicroTurbine	Nat. Gas	8,760	0.97	1.08	9,441
27	Capstone C65 MicroTurbine	Nat. Gas	8,760	0.97	1.08	9,441

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

SSM Blowdown Emissions

Unit Numbers	Description	Total Gas Losses, scf/yr	CO2 Emission Factors, lb/scf	CH4 Emission Factors, lb/scf	Emission Rates	
					CO2, tpy	CH4, tpy
SSM	SSM Blowdowns	39,318,564	0.0085	0.0387	167.98	760.21

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

Reciprocating Compressor Venting Emissions

Unit Numbers	Description	Emission Rates	
		CO2, tpy	CH4, tpy
NA	Blowdown Valve Leakage	15.04	68.17
NA	Rod Packing Emissions	142.41	645.47
NA	Isolation Valve Leakage	0.00E+00	0.00E+00
	Total	157.45	713.64

Operating or standby mode - includes blowdown valve leakage through blowdown vent stack
Operating mode - includes rod packing emissions
Non-operating depressurized mode - includes isolation valve leakage through open blowdown vents (without blind flanges)
Rod packing gas emissions assume 4 cylinders per compressor
A combination of equations W-26 & W-36 (Subpart W) is used to calculate reciprocating compressor emissions
As the NMED requires CO2 & CH4 emissions rather than CO2e emissions, it is not necessary to include the global warming potential from equation W-36
CO2 Emission Rates (tpy) = # x scf/hr x hr/yr x (CO2 Mole Percent (%) / 100) x CO2 Density (kg/scf)
x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne
CH4 Emission Rates (tpy) = # x scf/hr x hr/yr x (CH4 Mole Percent (%) / 100) x CH4 Density (kg/scf)
x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne

Green House Gas Emissions Data and Calculations

Unit Numbers	Description	Number of Compressors #	Gas Emissions, scf/hr	Operating Times, hr/yr	CO2 Mole Percents, %	CH4 Mole Percents, %	CO2 Density, kg/scf	CH4 Density, kg/scf
NA	Blowdown Valve Leakage	12	33.5	8,760	7.37	91.47	0.0526	0.0192
NA	Rod Packing Emissions	12	317.2	8,760	7.37	91.47	0.0526	0.0192
NA	Isolation Valve Leakage	12	10.5	0	7.37	91.47	0.0526	0.0192

The number of compressors is provided by Harvest
Blowdown valve leakage (33.5 scf/hr) and rod packing emissions occur in operating mode
Blowdown valve leakage (10.5 scf/hr) occurs in standby pressurized mode
Emission factors are the three year rolling average (2012-2014) of all measurements in the Williams Field Services, LLC compressor fleet located at natural gas processing plants
The operating times (the average operating times for all station compressors combined) are provided by Harvest
The facility CO2 and CH4 contents are taken from the facility extended gas analysis
The CO2 & CH4 densities (kg/scf) are taken from Subpart W, Paragraph 98.233(v)

Dehydrator Emissions

Unit Numbers	Description	Emission Rates	
		CO2, tpy	CH4, tpy
5a	Dehydrator (12 MMSCFD)	409.97	6.61
6a	Dehydrator (12 MMSCFD)	409.97	6.61
9a	Dehydrator (20 MMSCFD)	876.00	14.15
10a	Dehydrator (20 MMSCFD)	876.00	14.15
21a	Dehydrator (20 MMSCFD)	876.00	14.15
22a	Dehydrator (12 MMSCFD)	409.97	6.61
23a	Dehydrator (20 MMSCFD)	876.00	14.15
24a	Dehydrator (12 MMSCFD)	409.97	6.61
	Total	5,143.87	83.02

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

Reboiler Exhaust Emissions

Unit Numbers	Description	Emission Factors			Emission Rates		
		CO2, kg/MMBtu	CH4, kg/MMBtu	N2O, kg/MMBtu	CO2, tpy	CH4, tpy	N2O, tpy
5b	Reboiler (12 MMSCFD)	53.06	1.00E-03	1.00E-04	617.63	1.16E-02	1.16E-03
6b	Reboiler (12 MMSCFD)	53.06	1.00E-03	1.00E-04	617.63	1.16E-02	1.16E-03
9b	Reboiler (20 MMSCFD)	53.06	1.00E-03	1.00E-04	842.60	1.59E-02	1.59E-03
10b	Reboiler (20 MMSCFD)	53.06	1.00E-03	1.00E-04	842.60	1.59E-02	1.59E-03
21b	Reboiler (20 MMSCFD)	53.06	1.00E-03	1.00E-04	842.60	1.59E-02	1.59E-03
22b	Reboiler (12 MMSCFD)	53.06	1.00E-03	1.00E-04	617.63	1.16E-02	1.16E-03
23b	Reboiler (20 MMSCFD)	53.06	1.00E-03	1.00E-04	842.60	1.59E-02	1.59E-03
24b	Reboiler (12 MMSCFD)	53.06	1.00E-03	1.00E-04	617.63	1.16E-02	1.16E-03
	Total				5,840.93	1.10E-01	1.10E-02

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

Green House Gas Emissions Data and Calculations

Unit Numbers	Description	Fuel Types	Operating Times hr/yr	LHV			HHV	
				Fuel Usages, scf/hr	Fuel Heat Contents, Btu/scf	Fuel Usages, MMBtu/hr	Fuel Usages, MMBtu/hr	Fuel Usages, MMBtu/yr
5b	Reboiler (12 MMSCFD)	Nat. Gas	8,760	1,208	900	1.09	1.21	10,582
6b	Reboiler (12 MMSCFD)	Nat. Gas	8,760	1,208	900	1.09	1.21	10,582
9b	Reboiler (20 MMSCFD)	Nat. Gas	8,760	1,648	900	1.48	1.65	14,436
10b	Reboiler (20 MMSCFD)	Nat. Gas	8,760	1,648	900	1.48	1.65	14,436
21b	Reboiler (20 MMSCFD)	Nat. Gas	8,760	1,648	900	1.48	1.65	14,436
22b	Reboiler (12 MMSCFD)	Nat. Gas	8,760	1,208	900	1.09	1.21	10,582
23b	Reboiler (20 MMSCFD)	Nat. Gas	8,760	1,648	900	1.48	1.65	14,436
24b	Reboiler (12 MMSCFD)	Nat. Gas	8,760	1,208	900	1.09	1.21	10,582

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

Dehydrator Flare Emissions

Unit Numbers	Description	N2O Emission Factors, kg/MMBtu	Emission Rates	
			CO2, tpy	N2O, tpy
11	Dehydrator Flare	1.00E-04	1,214.60	2.43E-03
12	Dehydrator Flare	1.00E-04	1,214.60	2.43E-03
25	Dehydrator Flare	1.00E-04	1,214.60	2.43E-03
26	Dehydrator Flare	1.00E-04	1,214.60	2.43E-03
	Total		4,858.40	9.72E-03

The N2O emission factor is obtained from Subpart W (Paragraph 98.233(z)(2)(vi))
CO2 Emission Rates (tpy) = Combustion CO2 Emissions (MMscf/yr) x 1,000,000 scf/MMscf x 0.0526 kg/cu ft x 2.2 lb/kg / 2,000 lb/ton
N2O Emission Rates (tpy) = kg/MMBtu x 2.2 lb/kg x MMBtu/yr / 2,000 lb/ton
Noncombustion CO2 and CH4 emissions are accounted for in the dehydrator emissions

Unit Numbers	Description	Flare Through-puts, MMscf/yr	HHV Heat Contents, Btu/scf	Flare Through-puts, MMBtu/yr	Control Efficiencies, %	Combustion CO2 Emissions, MMscf/yr
11	Dehydrator Flare	25.28	874.26	22,097	95	20.99
12	Dehydrator Flare	25.28	874.26	22,097	95	20.99
25	Dehydrator Flare	25.28	874.26	22,097	95	20.99
26	Dehydrator Flare	25.28	874.26	22,097	95	20.99

The dehydrator flare throughputs are calculated from the GRI-GLYCalc output file (see criteria pollutant calculations)
The HHV heat contents are obtained from Subpart W (Paragraph 98.233(z)(2)(vi))
Flare Throughputs (MMBtu/yr) = MMscf/yr x 1,000,000 scf/MMscf x Btu/scf / 1,000,000 Btu/MMBtu
The control efficiencies are the default value identified by Subpart W (Paragraph 98.233(n)(4))
Combustion CO2 Emissions (MMscf/yr) = [(Control Efficiencies (%) / 100) x MMscf/yr x (CH4 Contents (mole %) / 100) x 1]
+ [(Control Efficiencies (%) / 100) x MMscf/yr x (Ethane Contents (mole %) / 100) x 2]
+ [(Control Efficiencies (%) / 100) x MMscf/yr x (Propane Contents (mole %) / 100) x 3]
+ [(Control Efficiencies (%) / 100) x MMscf/yr x (Butane Contents (mole %) / 100) x 4]
+ [(Control Efficiencies (%) / 100) x MMscf/yr x (Pentane+ Contents (mole %) / 100) x 5]
The numbers 1-5 in the above equation represent the number of carbon atoms found in methane through pentane, repectively.

Green House Gas Emissions Data and Calculations

Unit Numbers	Description	CH4 Contents, mole %	Ethane Contents, mole %	Propane Contents, mole %	Butane Contents, mole %	Pentane+ Contents, mole %
11	Dehydrator Flare	83.67	1.06	0.20	0.07	0.15
12	Dehydrator Flare	83.67	1.06	0.20	0.07	0.15
25	Dehydrator Flare	83.67	1.06	0.20	0.07	0.15
26	Dehydrator Flare	83.67	1.06	0.20	0.07	0.15

The dehydrator flare mole % (by volume) are calculated from GRI-GLYCalc output files (see table below)

	Flash Tank Off Gas Vent		Condensate Still Vent		Dry Gas		
	12MMSCFD	20 MMSCFD	12MMSCFD	20 MMSCFD	12MMSCFD	20 MMSCFD	Average
	Flow Rate, scf/hr	Flow Rate, scf/hr	Flow Rate, scf/hr	Flow Rate, scf/hr	Flow Rate, scf/hr	Flow Rate, scf/hr	Flow Rate, scf/hr
Gas Throughputs (scf/hr)	831	1770	27.4	59.4	50	50	2788
Components	Mole Percent, %	Mole Percent, %	Mole Percent, %	Mole Percent, %	Mole Percent, %	Mole Percent, %	Mole Percent, %
Water	2.72E-01	2.37E-01	2.78E+00	2.78E+00	1.03E-02	9.21E-03	3.18E-01
Carbon dioxide	1.32E+01	1.33E+01	5.96E+01	5.96E+01	7.35E+00	7.35E+00	1.45E+01
Hydrogen sulfide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nitrogen	2.51E-02	2.51E-02	9.04E-03	9.08E-03	2.69E-02	2.69E-02	2.47E-02
Methane	8.51E+01	8.51E+01	3.19E+01	3.18E+01	9.15E+01	9.15E+01	8.37E+01
Ethane	1.05E+00	1.05E+00	1.39E+00	1.41E+00	9.46E-01	9.46E-01	1.06E+00
Propane	1.93E-01	1.93E-01	5.64E-01	5.60E-01	1.44E-01	1.44E-01	2.03E-01
IsoButane	2.91E-02	2.92E-02	1.29E-01	1.29E-01	1.85E-02	1.85E-02	3.19E-02
n-Butane	3.20E-02	3.21E-02	1.86E-01	1.86E-01	1.79E-02	1.79E-02	3.64E-02
IsoPentane	6.45E-03	6.47E-03	4.03E-02	4.06E-02	3.39E-03	3.39E-03	7.41E-03
n-Pentane	5.83E-03	5.85E-03	4.82E-02	4.84E-02	2.69E-03	2.69E-03	7.05E-03
Cyclopentane	8.35E-04	8.34E-04	2.50E-02	2.56E-02	1.97E-04	1.97E-04	1.58E-03
n-Hexane	2.93E-03	2.94E-03	3.83E-02	3.91E-02	9.94E-04	9.93E-04	3.99E-03
Cyclohexane	3.19E-03	3.16E-03	1.52E-01	1.56E-01	5.85E-04	5.81E-04	7.80E-03
Other hexanes	6.08E-03	6.10E-03	6.25E-02	6.36E-02	2.39E-03	2.39E-03	7.74E-03
Heptanes	2.85E-03	2.85E-03	5.86E-02	6.10E-02	6.91E-04	6.89E-04	4.56E-03
Methylcyclohexane	6.10E-03	6.03E-03	2.97E-01	3.09E-01	1.07E-03	1.05E-03	1.52E-02
2,2,4-Trimethylpentane	2.78E-04	2.79E-04	2.72E-03	2.84E-03	9.95E-05	9.93E-05	3.51E-04
Benzene	2.25E-03	2.14E-03	6.82E-01	6.78E-01	2.40E-04	2.26E-04	2.32E-02
Toluene	6.57E-03	6.08E-03	1.97E+00	1.95E+00	6.31E-04	5.75E-04	6.68E-02
Ethylbenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xylenes	5.21E-04	4.53E-04	1.29E-01	1.22E-01	4.70E-05	3.99E-05	4.31E-03
C8+ heavies	1.73E-03	1.68E-03	4.58E-03	5.05E-03	4.64E-04	4.53E-04	1.75E-03
Total	99.9468	100.0113	100.0682	99.9753	100.0271	100.0259	99.9924

The dehydrator flare gas throughputs and component mole % (volume %) are taken from the GRI-GLYCalc output file

Equipment Leaks Emissions

Unit Numbers	Description	Emission Rates	
		CO2, tpy	CH4, tpy
NA	Valves	4.93	22.34
NA	Connectors	7.52E-01	3.41
NA	Open-Ended Lines	3.60E-01	1.63
NA	Pressure Relief Valves	7.44E-01	3.37
	Total	6.79	30.76

A combination of equations W-31 & W-36 (Subpart W) is used to calculate uncombusted CO2 & CH4 emissions

As the NMED requires CO2 & CH4 emissions rather than CO2e emissions, it is not necessary to include the global warming potential from equation W-36

CO2 Emission Rate (tpy) = # x scf/hr/component x (CO2 Content (mole %) / 100) x hr/yr x CO2 Density (kg/scf) x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne

CH4 Emission Rate (tpy) = # x scf/hr/component x (CH4 Content (mole %) / 100) x hr/yr x CH4 Density (kg/scf) x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne

Green House Gas Emissions Data and Calculations

Unit Numbers	Description	Number of Components, #	Emission Factors, scf/hr /component	CO2 Contents, mole %	CH4 Contents, mole %	Operating Times, hr/yr	CO2 Density, kg/scf	CH4 Density, kg/scf
NA	Valves	1089	0.121	7.37	91.47	8,760	0.0526	0.0192
NA	Connectors	1183	0.017	7.37	91.47	8,760	0.0526	0.0192
NA	Open-Ended Lines	310	0.031	7.37	91.47	8,760	0.0526	0.0192
NA	Pressure Relief Valves	103	0.193	7.37	91.47	8,760	0.0526	0.0192

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

Natural Gas Pneumatic Device Venting Emissions

Unit Numbers	Description	Number of Devices, #	Emission Factors, scf/hr/device	Operating Times, hr/yr	Emission Rates	
					CO2, tpy	CH4, tpy
NA	Continuous High Bleed Pneumatic Devices	0	37.3	8,760	0.00E+00	0.00E+00
NA	Intermittent Bleed Pneumatic Devices	23	13.5	8,760	11.62	52.54
NA	Continuous Low Bleed Pneumatic Devices	1	1.39	8,760	5.20E-02	2.35E-01
	Total				11.67	52.78

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

Unit Numbers	Description	CO2 Contents, mole %	CH4 Contents, mole %	CO2 Conversion Factors, tonne CO2e /scf	CH4 Conversion Factors, tonne CO2e /scf	CO2 Global Warming Potentials, tonne CO2e /tonne CO2	CH4 Global Warming Potentials, tonne CO2e /tonne CH4
NA	Continuous High Bleed Pneumatic Devices	7.37	91.47	5.262E-05	4.790E-04	1	25
NA	Continuous Low Bleed Pneumatic Devices	7.37	91.47	5.262E-05	4.790E-04	1	25
NA	Intermittent Bleed Pneumatic Devices	7.37	91.47	5.262E-05	4.790E-04	1	25

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

Green House Gas Emissions Data and Calculations

Natural Gas Driven Pneumatic Pump Venting Emissions

Emission Rates

Unit Number	Description	Number of Pumps, #	Emission Factor, scf/hr/pump	Operating Time, hr/yr	Emission Rates	
					CO2, tpy	CH4, tpy
NA	Pneumatic Pump Venting	1	13.3	8,760	4.98E-01	2.25

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

Unit Number	Description	CO2 Content, mole %	CH4 Content, mole %	CO2 Conversion Factor, tonne CO2e /scf	CH4 Conversion Factor, tonne CO2e /scf	CO2 Global Warming Potential, tonne CO2e /tonne CO2	CH4 Global Warming Potential, tonne CO2e /tonne CH4
NA	Pneumatic Pump Venting	7.37	91.47	5.262E-05	4.790E-04	1	25

The facility CO2 and CH4 contents are taken from the facility extended gas analysis
The conversion factors are taken from Subpart W, Paragraph 98.233(a)
The operating time is provided by Harvest (the default is the entire year)
The global warming potentials are taken from 40 CFR Part 98, Table A-1

Malfunction Emissions

Unit Number	Description	Total Component Weight, lb/lb-mole	VOC Component Weight, lb/lb-mole	CO2 Weight % of Total, %	CH4 Weight % of Total, %	Emission Rates		
						VOC, tpy	CO2, tpy	CH4, tpy
M1	Malfunctions	18.302	0.096	17.713	80.163	5.00	168.07	760.61

The total & VOC component weights and CO2 & CH4 weight % of totals are calculated from the facility extended gas analysis
The VOC emission rate is estimated (see calculations workbook)
CO2 Emission Rate (tpy) = VOC Emission Rate (tpy) x (Total Component Weight (lb/lb-mole) / VOC Component Weight (lb-lb-mole))
x (CO2 Weight % of Total (%) / 100)
CH4 Emission Rate (tpy) = VOC Emission Rate (tpy) x (Total Component Weight (lb/lb-mole) / VOC Component Weight (lb-lb-mole))
x (CH4 Weight % of Total (%) / 100)

Green House Gas Emissions Data and Calculations

Gas Stream Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight Percent of Total, %	Emission Factors, lb/scf
Carbon Dioxide	7.3661	44.01	3.242	17.713	8.545E-03
Hydrogen Sulfide	0.0000	34.07	0.000	0.000	0.000E+00
Nitrogen	0.0269	28.01	0.008	0.041	1.986E-05
Methane	91.4657	16.04	14.671	80.163	3.867E-02
Ethane	0.9465	30.07	0.285	1.555	7.502E-04
Propane	0.1445	44.09	0.064	0.348	1.679E-04
IsoButane	0.0185	58.12	0.011	0.059	2.834E-05
Normal Butane	0.0179	58.12	0.010	0.057	2.742E-05
IsoPentane	0.0034	72.15	0.002	0.013	6.466E-06
Normal Pentane	0.0027	72.15	0.002	0.011	5.135E-06
Cyclopentane	0.0002	70.14	0.000	0.001	3.697E-07
n-Hexane	0.0010	86.17	0.001	0.005	2.271E-06
Cyclohexane	0.0006	84.16	0.001	0.003	1.331E-06
Other Hexanes	0.0024	86.18	0.002	0.011	5.452E-06
Heptanes	0.0007	100.20	0.001	0.004	1.849E-06
Methylcyclohexane	0.0011	98.19	0.001	0.006	2.847E-06
2,2,4-Trimethylpentane	0.0001	100.21	0.000	0.001	2.641E-07
Benzene	0.0003	78.11	0.000	0.001	6.176E-07
Toluene	0.0009	92.14	0.001	0.005	2.186E-06
Ethylbenzene	0.0000	106.17	0.000	0.000	0.000E+00
Xylenes	0.0001	106.17	0.000	0.001	2.798E-07
C8+ heavies	0.0005	110.00	0.001	0.003	1.450E-06
Total	100.0001		18.302	100.000	4.824E-02
VOC			0.096	--	2.542E-04

Gas stream composition obtained from Carracas CDP extended gas analysis dated 9/18/2019

Component Weights (lb/lb-mole) = [Mole Percents (%) / 100] x Molecular Weights (lb/lb-mole)

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

Emission Factors (lb/scf) = [Mole Percents (%) / 100] x Molecular Weights (lb/lb-mole) / 379.4 scf/lb-mole

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Section 7

Information Used To Determine Emissions

Information Used to Determine Emissions shall include the following:

- ☑ 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.

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 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.

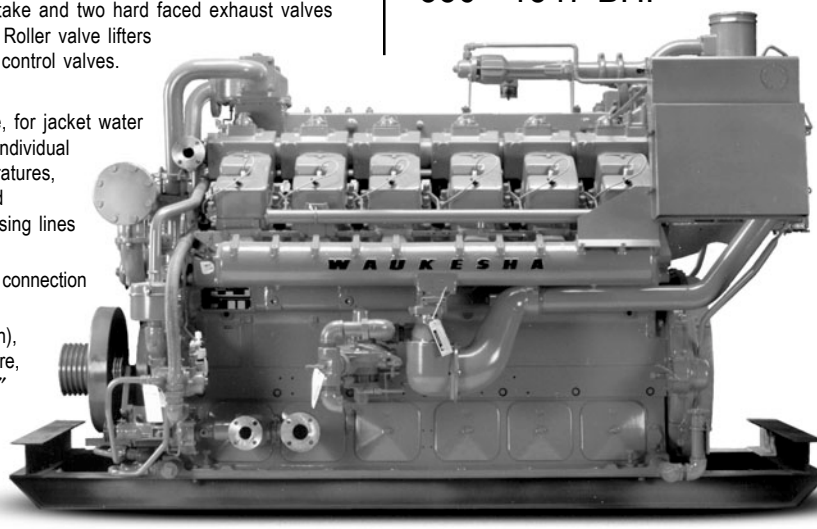
Engine Jacket – Belt driven water circulating pump, cluster type thermostatic temperature regulating valve, full flow bypass type. Flange connections and mating flanges for (2) 4″ (102 mm) inlets and (1) 5″ (127 mm) outlet.

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

Model	I.C. Water Inlet Temp. °F (°C) (Tcra)	C.R.	Brake Horsepower (kWb Output) 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)	— —	— —

[1]High speed turbocharger match – 1001-1200 rpm

[2]Low speed turbocharger match – 700-1000 rpm

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

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

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

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

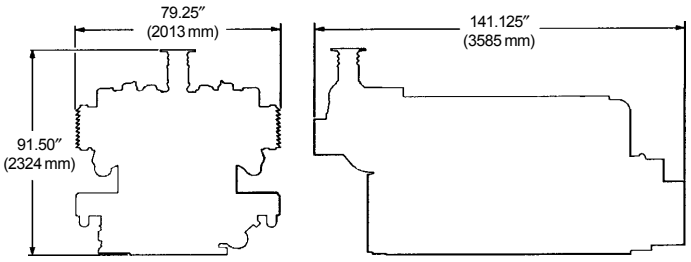
PERFORMANCE: L7042GL VHP SERIES GAS ENGINES

	English	130° F ICW		85° F ICW	
	RPM	1200	1000	1200	1000
Low NO_x Settings	Power (Bhp)	1478	1232	1547	1289
	BSFC (Btu/bhp-hr)	7155	6815	7180	6840
	NOx (grams/bhp-hr)	0.90	0.90	0.70	0.70
	CO (grams/bhp-hr)	2.75	2.65	2.65	2.55
	NMHC (grams/bhp--hr)	1.00	1.00	1.10	1.10
Low Fuel Consumption Settings	BSFC (Btu/bhp-hr)	6910	6615	6935	6640
	NOx (grams/bhp-hr)	1.50	1.60	1.30	1.40
	CO (grams/bhp-hr)	3.00	2.75	2.90	2.65
	NMHC (grams/bhp--hr)	0.70	1.00	0.80	1.10

	Metric	54° C ICW		29° C ICW	
	RPM	1200	1000	1200	1000
Low NO_x Settings	Power (kWb)	1103	919	1154	962
	BSFC (kJ/kW-hr)	10124	9643	10160	9679
	NOx (g/nm^3)	0.37	0.37	0.29	0.29
	CO (g/nm^3)	1.14	1.10	1.10	1.05
	NMHC (g/nm^3)	0.41	0.41	0.45	0.45
Low Fuel Consumption Settings	BSFC (kJ/kW-hr)	9778	9360	9813	9396
	NOx (g/nm^3)	0.62	0.66	0.54	0.58
	CO (g/nm^3)	1.24	1.14	1.20	1.10
	NMHC (g/nm^3)	0.29	0.41	0.33	0.45

NOTES:

1) Performance ratings are based on ISO 3046/1-1995 with mechanical efficiency of 90% and Tcra limited to ± 10° F.
2) Fuel consumptions based on ISO 3046/1-1995 with a +5% tolerance for commercial quality natural gas having a 900 Btu/ft^3 saturated low heat value.
3) 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).
4) Data will vary due to variations in site conditions. For conditions and/or fuels other than standard, consult the Waukesha Engine Sales Engineering Department.



DRESSER
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

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.

Bulletin 7005 0102

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10497 Town Country Way, Ste. 940
Houston, TX 77024
Office: 713.465.3727 | Direct 307.675.5078
bwaggener@emittechnologies.com

Prepared For:
Mr. Steve Jackson
WILLIAMS PIPELINE

INFORMATION PROVIDED BY WAUKESHA

Engine:	L7042GL
Horsepower:	1480
RPM:	1200
Compression Ratio:	10.5:1
Exhaust Flow Rate:	8166 ft³/min
Exhaust Temperature:	709 ˚F
Reference:	6124-57
Fuel:	Natural Gas
Annual Operating Hours:	8760

Uncontrolled Emissions Data

NO_x:	1.50	g/bhp-hr
CO:	2.65	g/bhp-hr
THC:	5.50	g/bhp-hr
NMHC:	1.00	g/bhp-hr
NMNEHC:	0.25	g/bhp-hr
HCHO:	0.29	g/bhp-hr
Oxygen:	9.80	%

POST CATALYST EMISSIONS 1 ELEMENT

NO_x:	Unaffected by Oxidation Catalyst	
CO:	>93%	reduction
VOC:	>50%	reduction
HCHO:	>76%	reduction

REPLACEMENT CATALYST ELEMENT

Model:	**RE-3350-Z**
Catalyst Type:	Oxidation, Precious group metals
Element Qty:	2
Substrate Type:	BRAZED
Manufacturer:	EMIT Technologies, Inc.
Element Size:	Round, 33.5" x 3.5"

POST CATALYST EMISSIONS 2 ELEMENTS

NO_x:	Unaffected by Oxidation Catalyst	
CO:	>93%	reduction
VOC:	>65%	reduction
HCHO	>80%	reduction

10497 Town Country Way, Ste. 940
Houston, TX 77024
Office: 713.465.3727 | Direct 307.675.5078
bwaggener@emittechnologies.com

WARRANTY

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

Catalyst performance will be guaranteed for a period of 1 year from installation, or 8760 operating hours, whichever comes first. The performance guarantee shall not cover the effects of excessive ash masking due to operation at low load, improper engine maintenance, or inappropriate lubrication oil. The performance guarantee shall not cover the effects of continuous engine misfires (cylinder or ignition) exposing the catalyst to excessive exothermic reaction temperatures.

The exhaust temperature operating range at the converter inlet is 600℉ minimum for oxidation catalyst and 750 ^{o}F for NSCR catalyst and 1250℉ maximum.

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

The VOC conversion efficiency will be guaranteed for exhaust compostion in which the mole percentage of propane does not exceed 50% of the total NMNEHC (non-methane non-ethane hydrocarbons). The VOC conversion efficiency will be guaranteed for exhaust temperatures no lower than 800℉.

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

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

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

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

Capstone Turbine Corporation • 21211 Nordhoff Street • Chatsworth • CA 91311 • USA
Phone: (818) 734-5300 • Fax: (818) 734-5320 • Web: www.microturbine.com

Technical Reference

Capstone MicroTurbine™ Systems Emissions

Summary

Capstone MicroTurbine™ systems are inherently clean and can meet some of the strictest emissions standards in the world. This technical reference is to provide customers with information that may be requested by local air permitting organizations or to compare air quality impacts of different technologies for a specific project. The preferred units of measure are "output based"; meaning that the quantity of a particular exhaust emission is reported relative to the useable output of the microturbine – typically in pounds per megawatt hour for electrical generating equipment. This technical reference also provides volumetric measurements in parts per million and milligrams per normal cubic meter. A conversion between several common units is also provided.

Maximum Exhaust Emissions at ISO Conditions

Table 1 below summarizes the exhaust emissions at full power and ISO conditions for different Capstone microturbine models. Note that the fuel can have a significant impact on certain emissions. For example landfill and digester gas can be made up of a wide variety of fuel elements and impurities, and typically contains some percentage of carbon dioxide (CO_2). This CO_2 dilutes the fuel, makes complete combustion more difficult, and results in higher carbon monoxide emissions (CO) than for pipeline-quality natural gas.

Table 1. Emission for Different Capstone Microturbine Models in [lb/MWhe]

Model	Fuel	NOx	CO	VOC [5]
C30 NG	Natural Gas [1]	0.64	1.8	0.23
CR30 MBTU	Landfill Gas [2]	0.64	22.0	1.00
CR30 MBTU	Digester Gas [3]	0.64	11.0	1.00
C30 Liquid	Diesel #2 [4]	2.60	0.41	0.23
C65 NG Standard	Natural Gas [1]	0.46	1.25	0.10
C65 NG Low NOx	Natural Gas [1]	0.17	1.30	0.10
C65 NG CARB	Natural Gas [1]	0.17	0.24	0.05
CR65 Landfill	Landfill Gas [2]	0.46	4.0	0.10
CR65 Digester	Digester Gas [3]	0.46	4.0	0.10
C200 NG	Natural Gas [1]	0.40	1.10	0.10
C200 NG CARB	Natural Gas [1]	0.14	0.20	0.04
CR200 Digester	Digester Gas [3]	0.40	3.6	0.10

Notes:

(1) Emissions for standard natural gas at 1,000 BTU/scf (HHV) or 39.4 MJ/m3 (HHV)
(2) Emissions for surrogate gas containing 42% natural gas, 39% CO2, and 19% Nitrogen
(3) Emissions for surrogate gas containing 63% natural gas and 37% CO2
(4) Emissions for Diesel #2 according to ASTM D975-07b
(5) Expressed as Methane

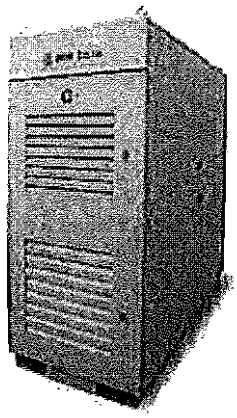
Capstone reserves the right to change or modify, without notice, the design, specifications, and/or contents of this document without incurring any obligation either with respect to equipment previously sold or in the process of construction.

C65 & C65-ICHP MicroTurbine Natural Gas

Capstone

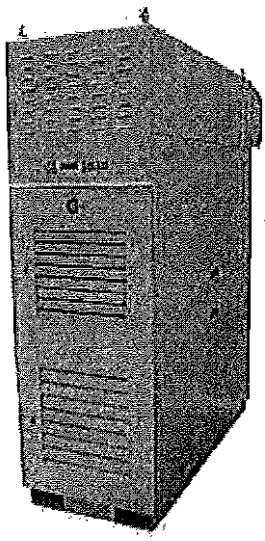
Achieve ultra-low emissions and reliable electrical/thermal generation from natural gas.

- Ultra-low emissions
- One moving part: Minimal maintenance and downtime
- Patented air bearing: No lubricating oil or coolant
- 5 and 9 year Factory Protection Plans available
- Remote monitoring and diagnostic capabilities
- Integrated utility synchronization and protection[1]
- Small, modular design allows for easy, low-cost installation
- Reliable: Tens of millions of run hours and counting



C65 MicroTurbine

Electrical Performance[2]	
Electrical Power Output	65kW
Voltage	400–480 VAC
Electrical Service	3-Phase, 4 wire
Frequency	50/60 Hz, grid connect operation
	10–60 Hz, stand alone operation
Maximum Output Current	100A, grid connect operation
	127A, stand alone operation[3]
Electrical Efficiency LHV	29%



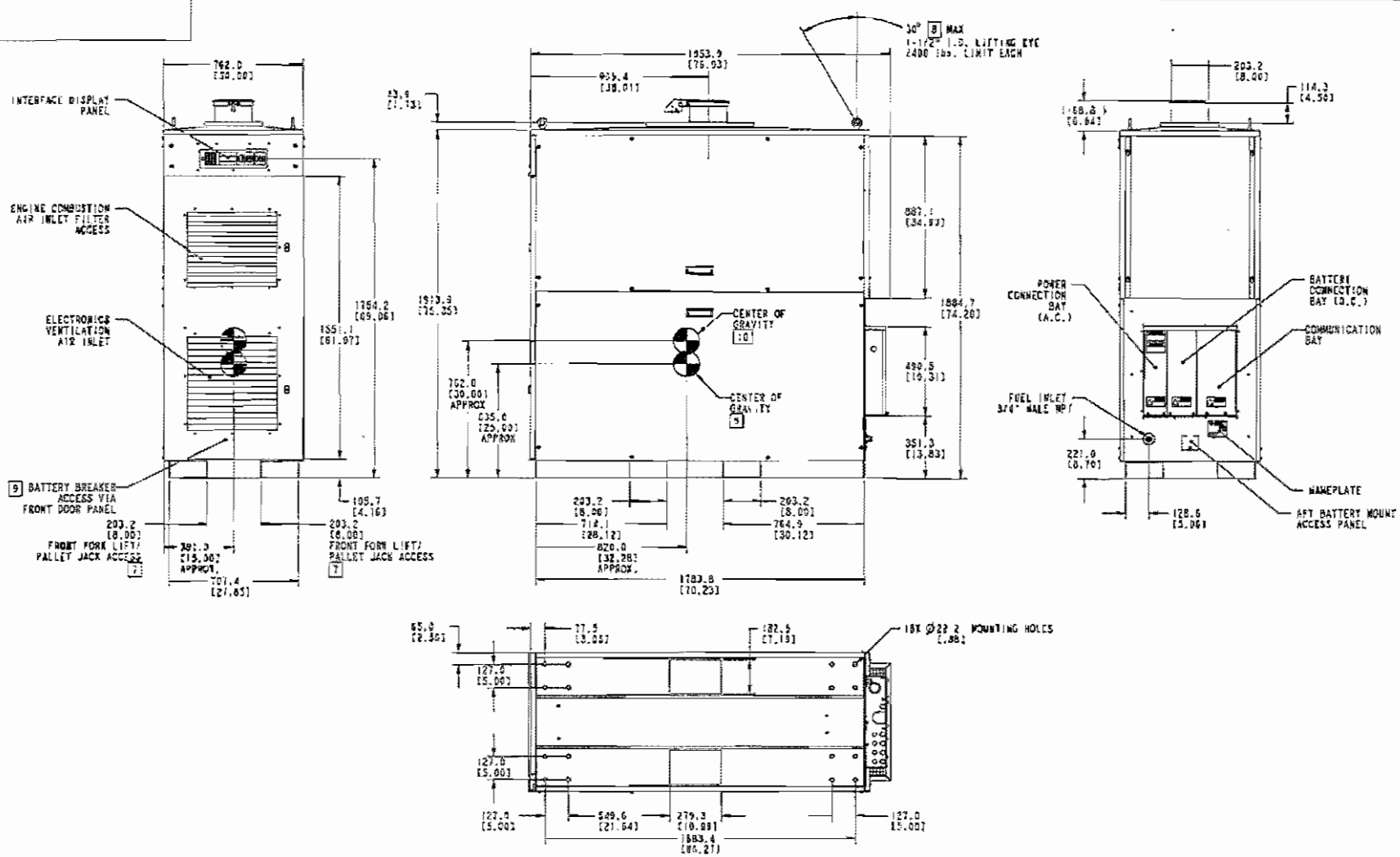
C65-ICHP MicroTurbine

Fuel/Engine Characteristics[2]	
Natural Gas HHV	30.7–47.5 MJ/m³ (825–1,275 BTU/scf)
Inlet Pressure[4]	517–552 kPa gauge (75–80 psig)
Fuel Flow HHV	888 MJ/hr (842,000 BTU/hr)
Net Heat Rate LHV	12.4 MJ/kWh (11,800 BTU/kWh)

Exhaust Characteristics[2]	C65
NOx Emissions at 15% O_2[5]	< 9 ppmvd (18 mg/m³)
NOx / Electrical Output[5]	0.16 g/bhp-hr (0.46 lb/MWhe)
Exhaust Gas Flow	0.49 kg/s (1.08 lbm/s)
Exhaust Gas Temperature	309°C (588°F)

Reliable power when and where you need it. Clean and simple.

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
	SEE SHEET 1		



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PART NO.	5139	17	REV.
	SHEET	2 OF 3	

Table 3.1-2a. EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM STATIONARY GAS TURBINES

Emission Factors[a] - Uncontrolled				
Pollutant	Natural Gas-Fired Turbines[b]		Distillate Oil-Fired Turbines[d]	
	(lb/MMBtu)[c] (Fuel Input)	Emission Factor Rating	(lb/MMBtu)[e] (Fuel Input)	Emission Factor Rating
CO_2[f]	110	A	157	A
N_2O	0.003[g]	E	ND	NA
Lead	ND	NA	1.4 E-05	C
SO_2	0.94S[h]	B	1.01S[h]	B
Methane	8.6 E-03	C	ND	NA
VOC	2.1 E-03	D	4.1 E-04[j]	E
TOC[k]	1.1 E-02	B	4.0 E-03[l]	C
PM (condensible)	4.7 E-03[l]	C	7.2 E-03[l]	C
PM (filterable)	1.9 E-03[l]	C	4.3 E-03[l]	C
PM (total)	6.6 E-03[l]	C	1.2 E-02[l]	C

[a] Factors are derived from units operating at high loads (≥ 80 percent load) only. For information on units operating at other loads, consult the background report for this chapter (Reference 16), available at "www.epa.gov/ttn/chief". ND = No Data, NA = Not Applicable.

[b] SCCs for natural gas-fired turbines include 2-01-002-01, 2-02-002-01 & 03, and 2-03-002-02 & 03.

[c] Emission factors based on an average natural gas heating value (HHV) of 1020 Btu/scf at 60°F. To convert from (lb/MMBtu) to ($lb/10^6$ scf), multiply by 1020. Similarly, these emission factors can be converted to other natural gas heating values.

[d] SCCs for distillate oil-fired turbines are 2-01-001-01, 2-02-001-01, 2-02-001-03, and 2-03-001-02.

[e] Emission factors based on an average distillate oil heating value of 139 $MMBtu/10^3$ gallons. To convert from (lb/MMBtu) to ($lb/10^3$ gallons), multiply by 139.

[f] Based on 99.5% conversion of fuel carbon to CO_2 for natural gas and 99% conversion of fuel carbon to CO_2 for distillate oil. CO_2 (Natural Gas) [lb/MMBtu] = (0.0036 scf/Btu)(%CON)(C)(D), where %CON = weight percent conversion of fuel carbon to CO_2, C = carbon content of fuel by weight, and D = density of fuel. For natural gas, C is assumed at 75%, and D is assumed at 4.1 E+04 $lb/10^6$scf. For distillate oil, CO_2 (Distillate Oil) [lb/MMBtu] = (26.4 gal/MMBtu) (%CON)(C)(D), where C is assumed at 87%, and the D is assumed at 6.9 lb/gallon.

[g] Emission factor is carried over from the previous revision to AP-42 (Supplement B, October 1996) and is based on limited source tests on a single turbine with water-steam injection (Reference 5).

[h] All sulfur in the fuel is assumed to be converted to SO_2. S = percent sulfur in fuel. Example, if sulfur content in the fuel is 3.4 percent, then S = 3.4. If S is not available, use 3.4 E-03 lb/MMBtu for natural gas turbines, and 3.3 E-02 lb/MMBtu for distillate oil turbines (the equations are more accurate).

[j] VOC emissions are assumed equal to the sum of organic emissions.

[k] Pollutant referenced as THC in the gathered emission tests. It is assumed as TOC, because it is based on EPA Test Method 25A.

[l] Emission factors are based on combustion turbines using water-steam injection.

Description:	Carracas CDP		Company:	HARVEST MIDSTREAM
Field:			WorkOrder:	
Meter Number:			GPA Method:	GPA 2286
Analysis Date/Time:	9/23/2019	3:27:21	Sampled By:	Jason Cassady
Date Sampled:	9/18/2019		Analyst Initials:	PK
Sample Temperature:	100		Instrument:	SRI 8610
Sample Pressure:	407			

GRI GlyCalc Information

Component	Mol%	Normalized Weight %
Carbon Dioxide	7.3661	17.7103
Hydrogen Sulfide	N/R	0.0000
Nitrogen	0.0269	0.0412
Methane	91.4657	80.1644
Ethane	0.9465	1.5549
Propane	0.1445	0.3481
Iso-Butane	0.0185	0.0587
n-Butane	0.0179	0.0568
Iso-Pentane	0.0034	0.0134
n-Pentane	0.0027	0.0106
Cyclopentane	0.0002	0.0008
n-Hexane	0.0010	0.0049
Cyclohexane	0.0006	0.0028
Other Hexanes	0.0024	0.0131
Heptanes	0.0007	0.0038
Methylcyclohexane	0.0011	0.0059
2 2 4 Trimethylpentane	0.0001	0.0006
Benzene	0.0003	0.0013
Toluene	0.0009	0.0045
Ethylbenzene	0.0000	0.0000
Xylenes	0.0001	0.0006
C8+ Heavies	0.0005	0.0031
Subtotal	100.0001	
Oxygen	N/R	
Subtotal	100.0001	100.0000

Calculated Molecular Weight	18.3047

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

Analysis No: HM190062
Cust No: 33700-10335

Well/Lease Information

Customer Name:	HARVEST MIDSTREAM	Source:	Pre Dehy
Well Name:	Carracas CDP	Well Flowing:	Y
County/State:	Rio Arriba NM	Pressure:	410 PSIG
Location:		Flow Temp:	100 DEG. F
Lease/PA/CA:		Ambient Temp:	80 DEG. F
Formation:		Flow Rate:	11.2 MCF/D
Cust. Stn. No.:		Sample Method:	Purge & Fill
		Sample Date:	09/18/2019
		Sample Time:	3.15 PM
		Sampled By:	Jason Cassady
Heat Trace:	N	Sampled by (CO):	Harvest
Remarks:	Calculated Molecular Weight = 18.3047		

Analysis

Component:	Mole%:	Unormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.0269	0.0267	0.0030	0.00	0.0003
CO2	7.3661	7.3033	1.2600	0.00	0.1119
Methane	91.4657	90.6864	15.5380	923.80	0.5066
Ethane	0.9465	0.9384	0.2540	16.75	0.0098
Propane	0.1445	0.1433	0.0400	3.64	0.0022
Iso-Butane	0.0185	0.0183	0.0060	0.60	0.0004
N-Butane	0.0179	0.0177	0.0060	0.58	0.0004
Neopentane 2,2 dmc3	0.0000	0.0000	0.0000	0.00	0.0000
I-Pentane	0.0034	0.0034	0.0010	0.14	0.0001
N-Pentane	0.0027	0.0027	0.0010	0.11	0.0001
Neohexane	0.0001	N/R	0.0000	0.00	0.0000
2-3-Dimethylbutane	0.0002	N/R	0.0000	0.01	0.0000
Cyclopentane	0.0002	N/R	0.0000	0.01	0.0000
2-Methylpentane	0.0010	N/R	0.0000	0.05	0.0000
3-Methylpentane	0.0003	N/R	0.0000	0.01	0.0000
C6	0.0010	0.0078	0.0000	0.05	0.0000
Methylcyclopentane	0.0008	N/R	0.0000	0.04	0.0000
Benzene	0.0003	N/R	0.0000	0.01	0.0000
Cyclohexane	0.0006	N/R	0.0000	0.03	0.0000
2-Methylhexane	0.0002	N/R	0.0000	0.01	0.0000
3-Methylhexane	0.0000	N/R	0.0000	0.00	0.0000
2-2-4-Trimethylpentane	0.0001	N/R	0.0000	0.01	0.0000
i-heptanes	0.0001	N/R	0.0000	0.01	0.0000
Heptane	0.0004	N/R	0.0000	0.02	0.0000

Methylcyclohexane	0.0011	N/R	0.0000	0.06	0.0000
Toluene	0.0009	N/R	0.0000	0.04	0.0000
2-Methylheptane	0.0002	N/R	0.0000	0.01	0.0000
4-Methylheptane	0.0001	N/R	0.0000	0.01	0.0000
i-Octanes	0.0000	N/R	0.0000	0.00	0.0000
Octane	0.0002	N/R	0.0000	0.01	0.0000
Ethylbenzene	0.0000	N/R	0.0000	0.00	0.0000
m, p Xylene	0.0001	N/R	0.0000	0.01	0.0000
o Xylene (& 2,2,4 tmc7)	0.0000	N/R	0.0000	0.00	0.0000
i-C9	0.0000	N/R	0.0000	0.00	0.0000
C9	0.0000	N/R	0.0000	0.00	0.0000
i-C10	0.0000	N/R	0.0000	0.00	0.0000
C10	0.0000	N/R	0.0000	0.00	0.0000
i-C11	0.0000	N/R	0.0000	0.00	0.0000
C11	0.0000	N/R	0.0000	0.00	0.0000
C12P	0.0000	N/R	0.0000	0.00	0.0000
Total	100.00	99.148	17.109	946.00	0.6320

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

COMPRESSIBLITY FACTOR (1/Z):	1.0023	CYLINDER #:	1
BTU/CU.FT IDEAL:	948.2	CYLINDER PRESSURE:	407 PSIG
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	950.3	ANALYSIS DATE:	09/23/2019
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	933.8	ANALYIS TIME:	03:27:21 AM
DRY BTU @ 15.025:	969.3	ANALYSIS RUN BY:	PATRICIA KING
REAL SPECIFIC GRAVITY:	0.6331		

GPM, BTU, and SPG calculations as shown above are based on current GPA constants.
GPA Standard: GPA 2286-14
GC: SRI Instruments 8610 **Last Cal/Verify: 10/01/2019**
GC Method: C12+BTEX Gas

HARVEST MIDSTREAM

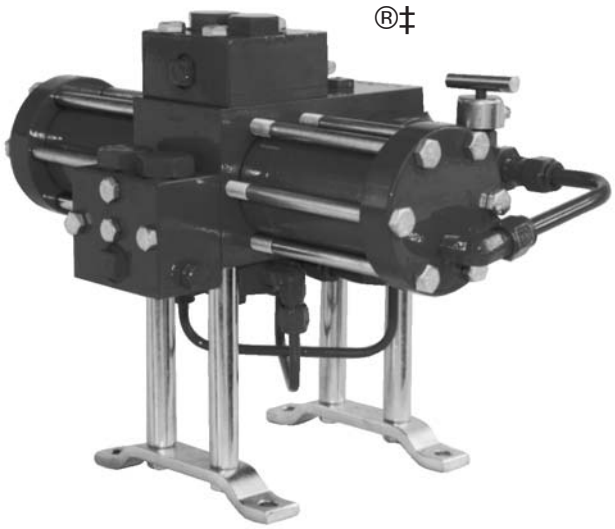
WELL ANALYSIS COMPARISON

Lease: Carracas CDP | Pre Dehy | 10/01/2019

Stn. No.: | | 33700-10335

Mtr. No.:

Smpl Date:	09/18/2019
Test Date:	09/23/2019
Run No:	HM190062
Nitrogen:	0.0269
CO2:	7.3661
Methane:	91.4657
Ethane:	0.9465
Propane:	0.1445
I-Butane:	0.0185
N-Butane:	0.0179
2,2 dmc3:	0.0000
I-Pentane:	0.0034
N-Pentane:	0.0027
Neohexane:	0.0001
2-3-Cyclopentane:	0.0002
2-Methylpentane:	0.0002
3-Methylpentane:	0.0010
C6:	0.0003
Methylcyclopentane:	0.0010
Benzene:	0.0008
Cyclohexane:	0.0003
2-Methylhexane:	0.0006
3-Methylhexane:	0.0002
2-2-4-i-heptanes:	0.0000
Heptane:	0.0001
Methylcyclohexane:	0.0001
Toluene:	0.0004
2-Methylheptane:	0.0011
4-Methylheptane:	0.0009
i-Octanes:	0.0002
Octane:	0.0001
Ethylbenzene:	0.0000
m, p Xylene:	0.0002
o Xylene (& 2,2,4	0.0000
i-C9:	0.0001
C9:	0.0000
i-C10:	0.0000
C10:	0.0000
i-C11:	0.0000
C11:	0.0000
C12P:	0.0000
BTU:	950.3
GPM:	17.1130
SPG:	0.6331



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

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

"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

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.

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

ENERTEK

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

August 19, 1994

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

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

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

Please call me if you need additional information.

Sincerely,

Frosty Heath

FH/nb

5928 U.S. Highway 64
Farmington, NM 87401

InFab
INDUSTRIAL FABRICATION

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

July 22, 1998

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

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

Unit Description	SO lb/day	NO_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 1.4-2. EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM NATURAL GAS COMBUSTION[a]

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

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

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

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

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

For flares subject to Chapter 115, Subchapter H, relating to highly reactive volatile organic compounds, flow rate and composition data required by 30 TAC 115.725–26 should be used to determine emissions for any portions of 2009 that HRVOC monitors were installed and operational.

In the absence of monitoring data, selection of the most accurate method may sometimes require exercising scientific judgment. For example, when using the results of a one-time performance test, the test conditions should be compared to the flare's actual operating conditions during the inventory year to determine whether the test accurately represents the flare's performance. If test conditions do not accurately model flare operation, then engineering determinations based on detailed process evaluation may provide the best data.

NO_x and CO Emissions

To calculate NO_x and CO emissions, the net heating value of the flared gas must be known. Using the actual short-term flared gas composition and flow rate data for the inventory year, calculate the net heating value of the flared gas and the total heat release for each short time period. Use these total heat release data, in conjunction with the appropriate emission factors from TCEQ Air Permits guidance, to determine NO_x and CO emissions for each time segment. Since the calculated net heating value of the gas and the assist gas type will determine the appropriate emission factors, carefully select the correct factors for each flare from Table A-6.

Calculate emissions using the most accurate data for the gas flow rate and composition available. (See "Flared Gas Flow Rate and Composition" earlier in this supplement for more information on preferred data.)

Table A-6. TCEQ Air Permits Flare Emission Factors

Contaminant	Assist Type	Waste Gas Stream Net Heating Value[a,b]	Emission Factor
NO_x	Steam	High Btu	0.0485 lb/MMBtu
		Low Btu	0.068 lb/MMBtu
	Air or Unassisted	High Btu	0.138 lb/MMBtu
		Low Btu	0.0641 lb/MMBtu
CO	Steam	High Btu	0.3503 lb/MMBtu
		Low Btu	0.3465 lb/MMBtu
	Air or Unassisted	High Btu	0.2755 lb/MMBtu
		Low Btu	0.5496 lb/MMBtu

[a] High Btu: > 1000 Btu/scf

[b] Low Btu: 192–1000 Btu/scf

Regardless of the data's source, the determination methodology for NO_x and CO emissions should be reported as "A" for 'TCEQ-approved factor.'

For flares subject to the HRVOC regulations in Chapter 115, Subchapter H, use the net heating value data required by 30 TAC 115.725 and 115.726 to determine NO_x and CO emissions for any portions of 2009 during which HRVOC monitors were installed and operational.

Uncombusted Flared Gas Emissions

Uncombusted flared gas emissions usually include VOCs, H_2S, or both. Emissions calculations for these contaminants are based on the flared gas flow rate and composition, and the appropriate destruction efficiency, which depends upon the actual flare operation.

Destruction Efficiencies

Flare destruction efficiency varies with flame stability, operating conditions, flare tip size and design, the specific compounds being combusted, and gas composition. The EPA has determined operating limits (see 40 CFR 60.18), that result in stable operation of flare flames. Therefore, emission determinations may vary depending on whether the criteria of 40 CFR 60.18 are satisfied. Chapter 115 HRVOC regulations address flare operational requirements in regard to 40 CFR 60.18. For flares subject to HRVOC regulations, use the appropriate destruction efficiencies specified in 30 TAC 115.725.

Otherwise, if the flare's operation is consistent with 40 CFR 60.18, then use the appropriate destruction efficiencies from TCEQ Air Permits guidance shown in Table A-7.

Table A-7. TCEQ Air Permits Flare Destruction or Removal Efficiencies for 40 CFR 60.18–Compliant Flares

Waste Stream Composition	Destruction or Removal Efficiency
VOC, C_1–C_3[a]	99%
VOC, > C_3	98%
H_2S	98%

[a] 99% reduction should only be applied for compounds containing no more than three carbons that contain no elements other than carbon and hydrogen in addition to the following compounds: methanol, ethanol, propanol, ethylene oxide, and propylene oxide.

Note that, for flare operation to be considered consistent with 40 CFR 60.18, it must:

- meet the flared gas heating value and flare exit tip velocity limitations;
- be equipped with proper liquid knockout and ignition systems; and
- operate smokelessly.

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

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

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

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

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

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

GLOBAL WARMING POTENTIALS

[100-Year Time Horizon]

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

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

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

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

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

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

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

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

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

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

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

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

[78 FR 71950, Nov. 29, 2013]

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

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

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

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

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

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

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

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

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

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

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

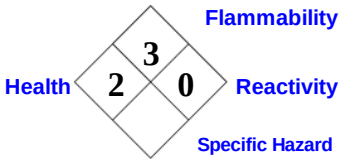
[6]Hydrocarbon liquids less than 20°API are considered "heavy crude."

Material Safety Data Sheet

Section 1. Chemical Product and Company Identification

Product Name	**CGO49 CORROSION INHIBITOR**	**Code**	CGO49
Supplier	Baker Petrolite A Baker Hughes Company 12645 W. Airport Blvd. (77478) P.O. Box 5050 Sugar Land, TX 77487-5050 For Product Information/MSDSs Call: 800-231-3606 (8:00 a.m. - 5:00 p.m. cst, Monday - Friday) 281-276-5400	**Version**	4.0
Material Uses	Corrosion Inhibitor	**Effective Date**	**6/10/2004**
24 Hour Emergency Numbers	CHEMTREC 800-424-9300 (U.S. 24 hour) Baker Petrolite 800-231-3606 (001)281-276-5400 CANUTEC 613-996-6666 (Canada 24 hours) CHEMTREC Int'l 01-703-527-3887 (International 24 hour)	**Print Date**	6/10/2004

National Fire Protection Association (U.S.A.)



Section 2. Composition and Information on Ingredients

Name	CAS #	% by Weight	Exposure Limits
1-Dodecanethiol	112-55-0	0.1-1	**ACGIH TLV (United States, 2004). Sensitizer skin** TWA: 0.1 ppm 8 hour(s).
Light aromatic naphtha	64742-95-6	10-30	Not available.
1,2,4-Trimethylbenzene	95-63-6	10-30	Not available.
1,2,3-Trimethylbenzene	526-73-8	1-5	Not available.
1,3,5-Trimethylbenzene	108-67-8	5-10	Not available.
Xylene	1330-20-7	1-5	**ACGIH (United States).** TWA: 434 mg/m^3 STEL: 651 mg/m^3 TWA: 100 ppm STEL: 150 ppm **OSHA (United States).** TWA: 100 ppm STEL: 150 ppm TWA: 435 mg/m^3 STEL: 655 mg/m^3
Methanol	67-56-1	10-30	**ACGIH (United States). Skin** TWA: 262 mg/m^3 8 hour(s). STEL: 328 mg/m^3 15 minute(s). TWA: 200 ppm 8 hour(s). STEL: 250 ppm 15 minute(s).

Continued on Next Page

			OSHA (United States). Skin TWA: 200 ppm 8 hour(s). STEL: 250 ppm 15 minute(s). TWA: 260 mg/m^3 8 hour(s). STEL: 325 mg/m^3 15 minute(s).

While 1,2,4-trimethylbenzene does not have exposure limits, trimethylbenzene (mixed isomers)(CAS No. 25551-13-7) has TWA value of 25 ppm for both ACGIH and OSHA (revoked limit).

Section 3. Hazards Identification

Physical State and Appearance
State: Liquid., Color: Light Amber., Odor: Mercaptan.

CERCLA Reportable Quantity
Xylene 1007 gal.
Methanol 2586 gal.

Hazard Summary
WARNING. May cause chronic effects. Flammable liquid. Vapors can form an ignitable or explosive mixture with air. Can form explosive mixtures at temperatures at or above the flash point. Vapors can flow along surfaces to a distant ignition source and flash back. Static discharges can cause ignition or explosion when container is not bonded. May be irritating to eyes, skin and respiratory tract. May be toxic by skin absorption. May cause central nervous system (CNS) effects if inhaled.

Routes of Exposure
Skin (Permeator), Skin (Contact), Eyes, Inhalation.

Potential Acute Health Effects

Eyes May be severely irritating to the eyes.

Skin May be severely irritating to the skin. May cause burns on prolonged contact. May be toxic if absorbed through the skin.

Inhalation May cause central nervous system (CNS) effects if inhaled. May be severely irritating to the lungs.

Ingestion Not considered a likely route of exposure, however, may be toxic if swallowed.

Medical Conditions aggravated by Exposure
Exposure to this product may aggravate medical conditions involving the following: blood system, kidneys, nervous system, liver, gastrointestinal tract, respiratory tract, skin/epithelium, eyes.

See Toxicological Information (section 11)

Additional Hazard Identification Remarks
May be harmful if ingested. This product may be aspirated into the lungs during swallowing or vomiting of swallowed material. Aspiration into the lungs may produce chemical pneumonitis, pulmonary edema, and hemorrhaging. Repeated or prolonged contact may cause dermatitis (inflammation) and defatting of the skin (dryness). Draize Test Eye (Rabbit): Moderate Irritant. Draize Test Skin (Rabbit): Extreme Irritant.

Section 4. First Aid Measures

Eye Contact
Flush eyes with plenty of water for 15 minutes, occasionally lifting upper and lower eyelids. Get medical attention immediately.

Skin Contact
Remove contaminated clothing and shoes immediately. Wash affected area with soap and mild detergent and large amounts of lukewarm, gently flowing water until no evidence of chemical remains (for at least 20-60 minutes). Get medical attention if irritation occurs.

Inhalation
Remove to fresh air. Oxygen may be administered if breathing is difficult. If not breathing, administer artificial respiration and seek medical attention. Get medical attention if symptoms appear.

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Ingestion	Get medical attention immediately. If swallowed, do not induce vomiting unless directed to do so by medical personnel. Wash out mouth with water if person is conscious. Never induce vomiting or give anything by mouth to a victim who is unconscious or having convulsions.
Notes to Physician	Not available.
Additional First Aid Remarks	Not available.

Section 5. Fire Fighting Measures

Flammability of the Product	Flammable liquid. Vapors can form an ignitable or explosive mixture with air. Can form explosive mixtures at temperatures at or above the flash point. Vapors can flow along surfaces to a distant ignition source and flash back. Static discharges can cause ignition or explosion when container is not bonded.
OSHA Flammability Class	IB
Autoignition temperature	Not available.
Flash Points	Closed cup: 11°C (51.8°F). (SFCC)
Flammable Limits	L.E.L. Not available. U.E.L. Not available.
Products of Combustion	These products are carbon oxides (CO, CO2) nitrogen oxides (NO, NO2...) Sulfur oxides (SO2, SO3...).
Fire Hazards in Presence of Various Substances	Open Flames/Sparks/Static. Heat.
Fire Fighting Media and Instructions	In case of fire, use foam, dry chemicals, or CO2 fire extinguishers. Evacuate area and fight fire from a safe distance. Water spray may be used to keep fire-exposed containers cool. Keep water run off out of sewers and public waterways. Note that flammable vapors may form an ignitable mixture with air. Vapors may travel considerable distances and flash back if ignited.
Protective Clothing (Fire)	Do not enter fire area without proper personal protective equipment, including NIOSH approved self-contained breathing apparatus.
Special Remarks on Fire Hazards	Not available.

Section 6. Accidental Release Measures

Spill	Put on appropriate personal protective equipment. Keep personnel removed and upwind of spill. Shut off all ignition sources; no flares, smoking, or flames in hazard area. Approach release from upwind. Shut off leak if it can be done safely. Contain spilled material. Keep out of waterways. Dike large spills and use a non-sparking or explosion-proof means to transfer material to an appropriate container for disposal. For small spills add absorbent (soil may be used in the absence of other suitable materials) scoop up material and place in a sealed, liquid-proof container. Note that flammable vapors may form an ignitable mixture with air. Vapors may travel considerable distances from spill and flash back, if ignited. Waste must be disposed of in accordance with federal, state and local environmental control regulations.
Other Statements	If RQ (Reportable Quantity) is exceeded, report to National Spill Response Office at 1-800-424-8802.
Additional Accidental Release Measures Remarks	Not available.

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Section 7. Handling and Storage

Handling and Storage	Put on appropriate personal protective equipment. Avoid contact with eyes, skin, and clothing. Avoid breathing vapors or spray mists. Use only with adequate ventilation. Store in a dry, cool and well ventilated area. Keep away from heat, sparks and flame. Keep away from incompatibles. Keep container tightly closed and dry. To avoid fire or explosion, ground container equipment and personnel before handling product.
Additional Handling and Storage Remarks	Not available.

Section 8. Exposure Controls/Personal Protection

Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors or particles below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection

Personal Protective Equipment recommendations are based on anticipated known manufacturing and use conditions. These conditions are expected to result in only incidental exposure. A thorough review of the job tasks and conditions by a safety professional is recommended to determine the level of personal protective equipment appropriate for these job tasks and conditions.

Eyes	Chemical safety goggles.
Body	Wear long sleeves to prevent repeated or prolonged skin contact.
Respiratory	Respirator use is not expected to be necessary under normal conditions of use. In poorly ventilated areas, emergency situations or if exposure levels are exceeded, use NIOSH approved full face respirator.
Hands	Chemical resistant gloves.
Feet	Chemical resistant boots or overshoes.
Other information	Nitrile or neoprene gloves.

Additional Exposure Control Remarks	Not available.

Section 9. Typical Physical and Chemical Properties

Physical State and Appearance	Liquid.	**Odor**	Mercaptan.
pH	Not available.	**Color**	Light Amber.
Specific gravity	0.854 - 0.866 @ 16°C (60°F)		
Density	7.11 - 7.21 lbs/gal @ 16°C (60°F)		
Vapor Density	>1 (Air = 1)		
Vapor Pressure	142.2 - mmHg @ 22°C (72°F)		
Evaporation Rate	Not Available or Not Applicable for Solids.		
VOC	Not available.		
Viscosity	7 - 8 cps @ 16°C (61°F)		
Pour Point	-40ºC (-40ºF)		
Solubility (Water)	Dispersible		
Boiling Point	Not available.		
Physical Chemical Comments	Not available.		

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Section 10. Stability and Reactivity

Stability and Reactivity	The product is stable.
Conditions of Instability	Not available.
Incompatibility with Various Substances	Oxidizing material.
Hazardous Decomposition Products	Not applicable.
Hazardous Polymerization	Hazardous polymerization is not expected to occur.
Special Stability & Reactivity Remarks	Not available.

Section 11. Toxicological Information

Component Toxicological Information

Acute Animal Toxicity

1-Dodecanethiol	Not available.
Light aromatic naphtha	ORAL (LD50): Acute: 2900 mg/kg [Rat]. 8400 mg/kg [Rat].
1,2,4-Trimethylbenzene	ORAL (LD50): Acute: 5000 mg/kg [Rat]. VAPOR (LC50): Acute: 18000 mg/m^3 4 hour(s) [Rat].
1,2,3-Trimethylbenzene	Not available.
1,3,5-Trimethylbenzene	VAPOR (LC50): Acute: 24000 mg/m^3 4 hour(s) [Rat].
Xylene	ORAL (LD50): Acute: 4300 mg/kg [Rat]. 3523 mg/kg [Male rat]. DERMAL (LD50): Acute: >1700 mg/kg [Rabbit]. VAPOR (LC50): Acute: 5000 ppm 4 hour(s) [Rat].
Methanol	ORAL (LD50): Acute: 5628 mg/kg [Rat]. 7300 mg/kg [Mouse]. DERMAL (LD50): Acute: 15800 mg/kg [Rabbit]. VAPOR (LC50): Acute: 64000 ppm 4 hour(s) [Rat].

Chronic Toxicity Data

1) 1-Dodecanethiol

1-Dodecanetriol is a component of this product. Workers exposed to a mixture of 1-dodecanethiol with polychloroprene latexes have shown a significant increase in frequency of chromosomal aberrations in the peripheral blood. [HSDB]

2) Light aromatic naphtha

Solvent naphtha (petroleum), light aromatic is a component of this product. Solvent naphtha (petroleum), light aromatic may cause damage to the peripheral nerves, resulting in numbness or tingling of the extremities with chronic (long term) exposure to high concentrations. (Micromedex) Rats exposed for 4 months to 1700 ppm of a solvent similar to this product showed evidence of mild damage to the liver, lungs and kidneys. These effects were not seen in rats exposed for one year to 350 ppm of another similar solvent. Rats exposed to vapors of a similar solvent during pregnancy showed embryo/fetotoxicity at concentrations producing maternal toxicity.

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In response to a TSCA test rule, several studies of a solvent similar to this product were completed. Mutagenicity studies and a rat inhalation neurotoxicity study were negative. In a mouse developmental effects study, reduced fetal body weight was seen but no teratogenicity. A rat reproductive effects study demonstrated toxicity but little effect on reproductive parameters. (Vendor MSDS)

3) 1,2,4-Trimethylbenzene

Not available.

4) 1,2,3-Trimethylbenzene

Not available.

5) 1,3,5-Trimethylbenzene

1,3,5-Trimethylbenzene (Mysitylene) is a component of this product. Chronic asthmatic-like bronchitis may be a delayed chronic hazard (EPA, 1985; Laham, 1987; HSDB, 1997). Nervousness, tension, and anxiety have been noted in chronically exposed workers with exposure to a mixture of solvents including mesitylene (HSDB, 1997). Elevated alkaline phosphates and SGOT(liver enzymes) levels have been noted in chronic animal inhalation studies (Clayton & Clayton, 1994). These effects have not been reported in exposed humans. (Reprotext)

Thrombocytopenia (a lack of platelets in the blood) with bleeding from the gums and nose and mild anemia may occur with chronic exposure to mesitylene as a component of the commercial solvent mixture, "Fleet-X-DV-99" (Plunkett, 1976; Finkel, 1983; HSDB, 1997). Coagulation (clotting of the blood) times were delayed by about 40% in a group of workers chronically exposed to a mixture of solvents containing about 30% mesitylene (Laham, 1987). These hematological disorders may have been due to a contaminant, such as benzene (Hathaway et al, 1996). Thrombocytosis (an increase of platelets in the blood) and thrombocytopenia have been noted in rabbits (Clayton & Clayton, 1994). (Reprotext)

1,3,5-Trimethylbenzene has been positive in a mutagenicity assay (Lewis, 1992). (Reprotext)

6) Xylene

Xylene (mixed isomers) is a component of this product. Effects of chronic exposure to xylene are similar to those of acute exposure, but may be more severe. Chronic inhalation reportedly was associated with headache, tremors, apprehension, memory loss, weakness, dizziness, loss of appetite, nausea, ringing in the ears, irritability, thirst, anemia, mucosal bleeding, enlarged liver, and hyperplasia, but not destruction of the bone marrow (Clayton & Clayton, 1994; ILO, 1983). Some earlier reports of effects of chronic exposure to xylene have been questioned, as exposures were not limited to xylene alone.

Effects on the blood have been reported from chronic exposure to as little as 50 mg/m3 (Pap & Varga, 1987). Repeated exposure can damage bone marrow, causing low blood cell count and can damage the liver and kidneys (NJ Department of Health, Hazardous Substance Fact Sheet). Chronic xylene exposure (usually mixed with other solvents) has produced irreversible damage to the CNS (ILO, 1983). CNS effects may be exacerbated by ethanol abuse (Savolainen, 1980). Xylene may damage hearing or enhance sensitivity to noise in chronic occupational exposures (Morata et al, 1994), probably from neurotoxic mechanism. Tolerance to xylene can occur over the work week and disappear over the weekend. (ACGIH, 1992).

Inhalation exposure has produced fetotoxicity and postnatal developmental toxicity in laboratory animals. (API, 1978, Kensington, MD, EPA/OTS Document No. 878210350 and Hass, U., et al, 1995, Neurotoxicology and Teratology 17: 341-349 and 1997, Neurotoxicology 18: 547-552)

7) Methanol

Methanol is a component of this product. Because methanol is eliminated from the body more slowly than ethanol, it can have cumulative toxicity with repeated exposures (ACGIH, 1992).

Acute dermal, oral, and inhalation exposure to methanol can cause optic nerve effects, diminished vision, and brain effects (necrosis and hemorrhaging). (Bennett, I.L. et al, 1953)

Continued on Next Page

Ingestion of methanol can cause Central Nervous System depression, blurred vision and blindness, and gastrointestinal effects. (Clayton, G.D. and Clayton, F.E., 1982, Patty's Industrial Hygiene and Toxicology, Vol2C) Dermal exposure to methanol can cause Central Nervous System depression, blurred vision, and gastrointestinal effects. (Downie, A et al, 1992, Occupational Medicine, 42, pp 47-9) Chronic inhalation of methanol can cause Central Nervous System depression, blurred vision, and gastrointestinal effects. (Frederick, L.J. et al, 1984, AIHA Journal, 45, pp 51-5)

Methanol has produced in vivo mutagenicity in animal studies. (Pereira, M.A. et al, 1982) and (Ward, J. B. et al, 1983)

Methanol was mutagenic in yeast (RTECS). Methanol has caused chromosome aberrations in yeast (RTECS) and grasshoppers (Saha & Khudabaksh, 1974).

Methanol has caused birth defects in rats exposed by the oral (Infurna et al, 1981) and inhalation (Nelson et al, 1984; Nelson et al, 1985) routes. Exencephaly (a defect in the skull bone structure that leaves the brain exposed) and cleft palate (a fissure or unformed bone structure in the roof of the mouth (palate), lip, or facial area, occurring during the embryonic stage of development) were increased in fetal mice exposed to methanol at an airborne concentration of 5,000 ppm or higher for 7 hours/day on days 6 to 15 of gestation.

Embryotoxicity and fetotoxicity were seen with maternal exposure to airborne concentrations of 7,500 ppm and above, and reduced fetal weights with concentrations of 10,000 ppm or greater. The NOAEL was 1,000 ppm. Effects similar to those seen in the 10,000 ppm dosage group were also seen in offspring of mice given a dose of 4 g/kg orally (Rogers et al, 1993).

Product Toxicological Information	
Acute Animal Toxicity	ORAL (LD50): Acute: 10600 mg/kg [Rat]. DERMAL (LD50): Acute: >2000 mg/kg [Rabbit].
Target Organs	blood system, kidneys, nervous system, liver, gastrointestinal tract, respiratory tract, skin/epithelium, eyes.
Other Adverse Effects	Not available.

Section 12. Ecological Information

Ecotoxicity	Not available.
BOD5 and COD	Not available.
Biodegradable/OECD	Not available.
Toxicity of the Products of Biodegradation	Not available.
Special Remarks	Not available.

Section 13. Disposal Considerations

Responsibility for proper waste disposal rests with the generator of the waste. Dispose of any waste material in accordance with all applicable federal, state and local regulations. Note that these regulations may also apply to empty containers, liners and rinsate. Processing, use, dilution or contamination of this product may cause its physical and chemical properties to change.

Additional Waste Remarks	Not available.

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Section 14. Transport Information

DOT Classification	FLAMMABLE LIQUID, N.O.S. (Contains: Methanol, Light aromatic naphtha), 3, UN1993, II	
DOT Reportable Quantity	Xylene 1007 gal. Methanol 2586 gal.	
Marine Pollutant	Not applicable.	
Additional DOT information	Not available.	
Emergency Response Guide Page Number	128	

Section 15. Regulatory Information

HCS Classification	Target organ effects. Flammable liquid. Irritant.
U.S. Federal Regulations	
Environmental Regulations	Extremely Hazardous Substances: Not applicable to any components in this product. SARA 313 Toxic Chemical Notification and Release Reporting: 1,2,4-Trimethylbenzene; Xylene; Methanol; SARA 302/304 Emergency Planning and Notification substances: Not applicable to any components in this product. Hazardous Substances (CERCLA 302): Xylene 1007 gal.; Methanol 2586 gal.; SARA 311/312 MSDS distribution - chemical inventory - hazard identification: fire; immediate health hazard; delayed health hazard; Clean Water Act (CWA) 307 Priority Pollutants: Not applicable to any components in this product. Clean Water Act (CWA) 311 Hazardous Substances: Xylene; Clean Air Act (CAA) 112(r) Accidental Release Prevention Substances: Not applicable to any components in this product.
Threshold Planning Quantity (TPQ)	Not applicable.
TSCA Inventory Status	All components are included or are exempted from listing on the US Toxic Substances Control Act Inventory. This product contains the following components that are subject to the reporting requirements of TSCA Section 12(b) if exported from the United States: Xylene; Naphthalene.
State Regulations	State specific information is available upon request from Baker Petrolite.
International Regulations	
Canada	Not all components are included on the Canadian Domestic Substances List.
WHMIS (Canada)	B-2, D-1B, D-2A, D-2B
European Union	Not all components are included on the European Inventory of Existing Commercial Chemical Substances or the European List of Notified Chemical Substances.

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	International inventory status information is available upon request from Baker Petrolite for the following countries: Australia, China, Korea (TCCL), Philippines (RA6969), or Japan.
Harmonized Tariff Code	Not available.
Other Regulatory Information	No further regulatory information is available.

Section 16. Other Information

Other Special Considerations	123 10/10/02 - Changes to Sections 2 and 9. 04/28/04 - Changes to Sections 2 and 15. 06/10/04 - Changes to Sections 8 and 15.

Baker Petrolite Disclaimer

NOTE: The information on this MSDS is based on data which is considered to be accurate. Baker Petrolite, however, makes no guarantees or warranty, either expressed or implied of the accuracy or completeness of this information.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of this product.

This MSDS was prepared and is to be used for this product. If the product is used as a component in another product, this MSDS information may not be applicable.

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Section 8

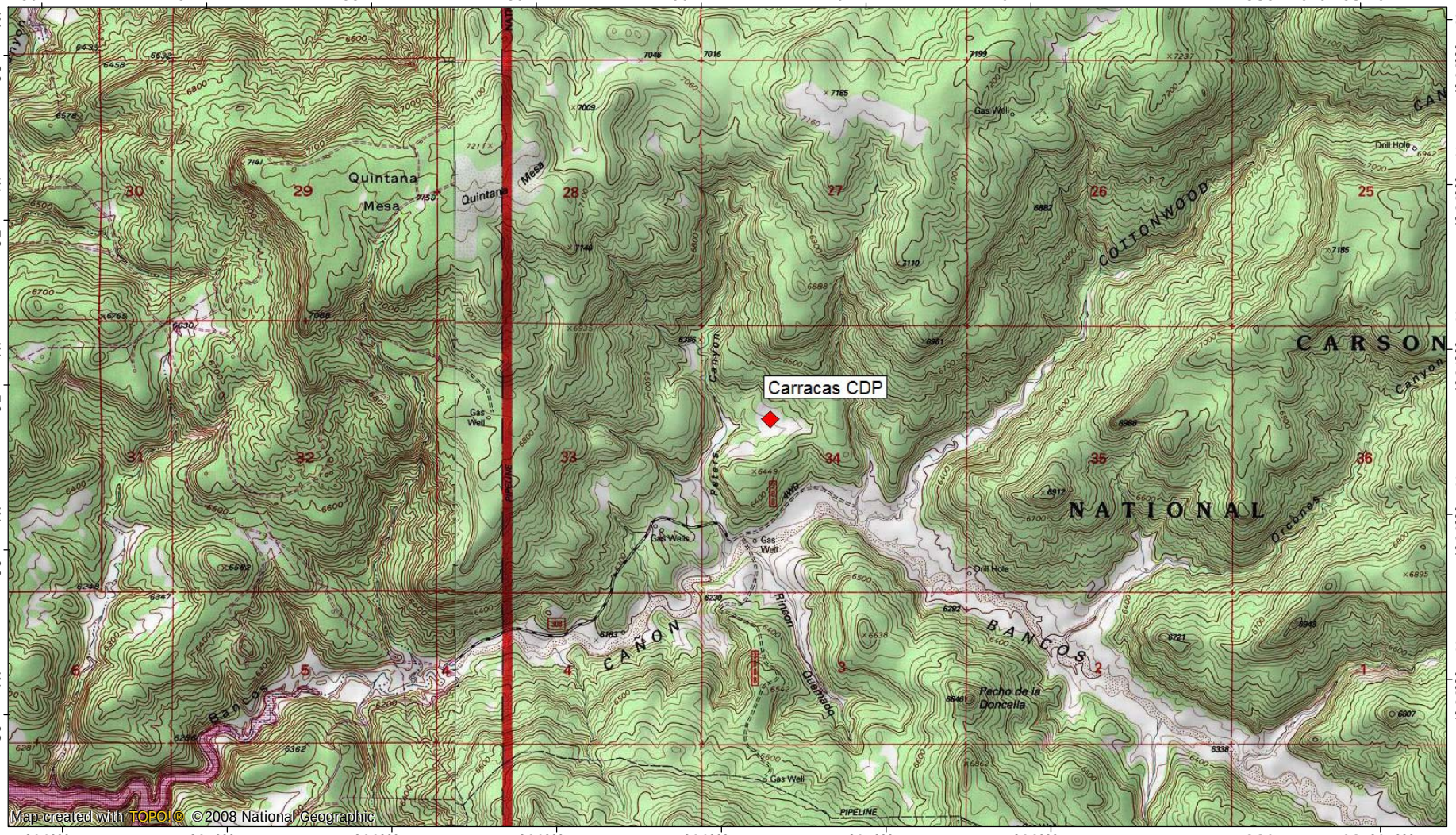
Map(s)

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

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

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

HARVEST FOUR CORNERS, LLC - CARRACAS CENTRAL DELIVERY POINT (CDP) - Rio Arriba County, NM T 32 N, R 05 W, Section 34



0.0 0.5 1.0 miles
0.0 0.5 1.0 1.5 km

TN MN
8½°
10/31/19

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, as this is a Title V application.

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Section 10

Written Description of the Routine Operations of the Facility

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

The Carracas CDP compresses and dehydrates pipeline quality natural gas. The facility operates continuously, 24-hours a day, 365 days per year.

The natural gas is received from independent producers. It is metered as it enters the facility and an inlet separator removes water from the stream. This produced water is stored in above ground tanks until it is transported off-site by truck.

The natural gas is compressed for pipeline transmission using up to twelve compressors driven by the Waukesha L7042GL natural gas-fired reciprocating internal combustion engines. Operation of the compressor engines is determined by market and pipeline conditions.

Next, the stream is further dehydrated using up to eight triethylene glycol (TEG) dehydrators. Emissions from the dehydrator still vents and flash tanks are controlled by up to four flares.

Two natural gas microturbine generators are used to provide auxiliary power for the facility.

The facility is also equipped with exempt/insignificant storage tanks and other process equipment.

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Section 11

Source Determination

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

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

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

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

Carracas CDP – natural gas compressor station

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

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

☑ **Yes** ☐ **No**

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

☑ **Yes** ☐ **No**

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

☑ **Yes** ☐ **No**

C. Make a determination:

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

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

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Section 12.A

PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

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

A. This facility is:

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

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

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

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

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

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

Not applicable, as this is an application to renew the Title V permit. No modifications are being requested.

Section 12.B

Special Requirements for a PSD Application

(Submitting under 20.2.74 NMAC)

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

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

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

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

Not applicable, as this is an application to renew the Title V permit. No modifications are being requested.

Section 13

Determination of State & Federal Air Quality Regulations

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

Required Information for Specific Equipment:

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

Required Information for Regulations that Apply to the Entire Facility:

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

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

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

Regulatory Citations for Emission Standards:

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

Federally Enforceable Conditions:

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

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

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

State Regulations

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

STATE REGULATIONS APPLICABILITY CHECKLIST

STATE REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
20.2.1 NMAC	General Provisions	Yes	Facility	This regulation is applicable because it establishes procedures for protecting confidential information, procedures for seeking a variance, NMAQB's authority to require sampling equipment, severability, and the effective date for conformance with the NMACs, and prohibits the violation of other requirements in attempting to comply with the NMACs.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	Facility	This is a State Implementation Plan (SIP) approved regulation that limits the maximum allowable concentrations of Total Suspended Particulates, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide.
20.2.7 NMAC	Excess Emissions	Yes	Facility	This regulation is applicable because it prohibits excess emissions unless proper notification procedures are followed.
20.2.8 NMAC	Emissions Leaving New Mexico	Yes	Facility	This regulation is applicable because it establishes prohibitions on the release of pollutants that cross New Mexico State boundaries.
20.2.14 NMAC	Particulate Emissions from Coal Burning Equipment	No		This regulation is not applicable because the facility does not burn coal.
20.2.18 NMAC	Oil Burning Equipment - Particulate Matter	No		This regulation is not applicable because the facility does not burn oil.
20.2.31 NMAC	Coal Burning Equipment – Sulfur Dioxide	No		This regulation is not applicable because the facility does not burn coal.
20.2.32 NMAC	Coal Burning Equipment – Nitrogen Dioxide,	No		This regulation is not applicable because the facility does not burn coal.
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No		This regulation is not applicable because the facility is not equipped with external gas burning equipment which have heat input rates exceeding the trigger level (one million MMBtu/year) established by the regulation.
20.2.34 NMAC	Oil Burning Equipment: NO_2	No		This regulation is not applicable because the facility does not burn oil.
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	No		This regulation is not applicable because the facility is not a natural gas processing plant.
20.2.38 NMAC	Hydrocarbon Storage Facility	No		This regulation is not applicable because the facility will not be equipped with a tank battery storing hydrocarbon liquids (condensate) that will have a capacity greater than or equal to 65,000 gallons.
20.2.39 NMAC	Sulfur Recovery Plant - Sulfur	No		This regulation is not applicable because the facility is not equipped with a sulfur recovery plant.
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	1, 2, 5a, 6a, 7, 8, 9a, 10a, 11, 12, 14 & 15	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). Units 3, 16-20, 21a-24a, 25 & 26 are not yet installed. The opacity limit will apply to each if and when they are installed.
20.2.70 NMAC	Operating Permits	Yes	Facility	This regulation is applicable because the facility is a major source of NO_2 emissions.
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	This regulation is applicable because the facility has potential emission rates (PER) greater than 10 pph or 25 tpy for pollutants subject to a state or federal ambient air quality standards (does not include VOCs or HAPs).

STATE REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	The Notice of Intent portion of this regulation does not apply because the facility is subject to 20.2.72 NMAC. The emissions inventory portion of this regulation is applicable since the facility is a Title V major source (see 20.2.73.300.B(1) & (2)).
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No		This regulation is not applicable because the facility is not currently a PSD major source and the emissions increase associated with this modification is not significant.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	This regulation is applicable because the plant is subject to 20.2.72 NMAC and it establishes the fee schedule associated with the filing of construction permits.
20.2.77 NMAC	New Source Performance	No		This regulation is not applicable because it adopts by reference the federal NSPS codified in 40 CFR 60. The facility is not subject to 40 CFR 60.
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	1, 2, 5a, 6a, 7, 8, 9a, 10a, 11, 12, 14 & 15	This regulation is applicable because it establishes guidelines for the selection of an appropriate stack height for the purposes of atmospheric dispersion modeling. Units 3, 16-20, 21a-24a, 25 & 26 are not yet installed. The stack height guidelines will apply to each if and when they are installed.
20.2.82 NMAC	MACT Standards for Source Categories of HAPS	Yes	1, 2, 5a, 6a, 7, 8, 9a, 10a, 14 & 15	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. Units 3, 16-20 & 21a-24a are not yet installed. If and when the units are installed at the facility, MACT applicability will be evaluated.

Federal Regulations

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

FEDERAL REGULATIONS APPLICABILITY CHECKLIST

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 50	NAAQS	Yes	Facility	This regulation is applicable because the facility is subject to 20.2.70, 20.2.72 and 20.2.74 NMAC.
40 CFR 52	Approval and Promulgation of Implementation Plans	No		40 CFR 52.21 *Prevention of Significant Deterioration of Air Quality* is not applicable because the station is not currently a major Prevention of Significant Deterioration source and the emissions increase associated with this modification is not significant. The remainder of 40 CFR 52 is not applicable because it addresses approval and promulgation of implementation plans.
NSPS 40 CFR 60, Subpart A	General Provisions	Potentially Subject		This regulation is not applicable because 40 CFR 60 does not apply. Units 3 & 16-20 are not installed. If and when they are installed, the applicability of Subpart A will be evaluated at that time.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
NSPS 40 CFR 60, Subpart K	Standards of Performance for Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978	No		This regulation is not applicable because the petroleum liquids storage tanks at the facility have capacities less than the minimum applicability threshold capacity of 40,000 gallons (see §60.110(a)).
NSPS 40 CFR 60, Subpart Ka	Standards of Performance for Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984	No		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		This regulation is not applicable because all storage tanks at the facility have capacities less than the minimum applicability threshold capacity of 75 cubic meters (19,812 gallons), and/or were installed prior to the applicability date, and/or contain condensate prior to custody transfer (40 CFR 60.110b(a) & 60.110b(d)(4)).
NSPS 40 CFR 60 Subpart GG	Standards of Performance for Stationary Gas Turbines	No		This regulation is not applicable because the facility is not equipped with turbines constructed after the applicability date of October 3, 1977 and having heat inputs at peak load greater than 10.15 MMBtu/hr.
NSPS 40 CFR 60, Subpart KKK	Standards of Performance for Equipment 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 60, Subpart LLL	Standards of Performance for Onshore Natural Gas Processing: SO_2 Emissions	No		This regulation is not applicable because the facility is not a natural gas processing plant as defined by the subpart.
NSPS 40 CFR 60, Subpart IIII	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	No		This regulation is not applicable because the facility is not equipped with compression ignition engines.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
NSPS 40 CFR 60, Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	Potentially Subject		This regulation is not applicable because the facility is not equipped with spark ignition engines constructed, modified or reconstructed after June 12, 2006. The existing engines (Units 1, 2, 7, 8, 14, and 15) were constructed prior to June 13, 2006. The engines have not undergone "modifications" or "reconstructions." Units 3 & 16-20 are not installed. If and when they are installed, the applicability of Subpart JJJJ will be evaluated at that time.
NSPS 40 CFR 60, Subpart KKKK	Standards of Performance for Stationary Combustion Turbines	No		This regulation is not applicable because the facility is not equipped with stationary combustion turbines with a heat input at peak load equal to or greater than 10.7 gigajoules (10 MMBtu) per hour, based on the higher heating value of the fuel, and which commenced construction, modification, or reconstruction February 18, 2005.
NSPS 40 CFR 60, Subpart OOOO	Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution for which Construction, Modification or Reconstruction Commenced After August 23, 2011 and On or Before September 18, 2015	Potentially Subject		This regulation is not applicable because the facility will not be 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). Units 3 & 16-20 are not installed. If and when they are installed, the applicability of Subpart OOOO will be evaluated at that time.
NSPS 40 CFR 60, Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015	Potentially Subject		This regulation is not applicable because the facility will not be 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 §60.5430a). Units 3 & 16-20 are not installed. If and when they are installed, the applicability of Subpart OOOOa will be evaluated at that time.
NESHAP 40 CFR 61, Subpart A	General Provisions	No		This regulation is not applicable because none of the other 40 CFR Part 61 subparts apply (see §61.1(c)).
MACT 40 CFR 61, Subpart M	National Emission Standard for Asbestos	No		The subpart includes standards for minimizing asbestos emissions from several operations, including demolition and renovation activities. This regulation is not applicable because there are no existing or planned activities at this facility that trigger applicability.
NESHAP 40 CFR 61, Subpart V	National Emission Standards for Equipment Leaks (Fugitive Emission Sources)	No		The provisions of this subpart apply to each of the following sources that are intended to operate in volatile hazardous air pollutant (VHAP) service: pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, and control devices or systems required by this subpart (see §61.240(a)). VHAP service means a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 10 percent by weight of VHAP. VHAP means a substance regulated under this subpart for which a standard for equipment leaks of the substance has been promulgated (see §61.241). This regulation is not applicable because none of the above listed equipment at the facility is in VHAP service.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
MACT 40 CFR 63, Subpart A	General Provisions	Yes	1, 2, 5a, 6a, 7, 8, 9a, 10a, 14 & 15	This regulation is applicable because 40 CFR 63, Subparts HH & ZZZZ apply (see §63.1(b)). Units 3, 16-20 & 21a-24a are not yet installed. If and when the units are installed at the facility, the applicability of Subpart A to these units will be evaluated at that time. The units will comply with the applicable portions of the subpart.
MACT 40 CFR 63, Subpart HH	National Emission Standards for Hazardous Air Pollutants For Oil and Natural Gas Production Facilities	Yes	5a, 6a, 9a & 10a	This regulation is applicable because the facility is equipped with dehydrators. The station is an area HAP source and the dehydrators will have to comply with the area source requirements of the subpart. It is currently anticipated the dehydrators will continue to qualify for the benzene exemption under §63.764(e)(1)(ii). 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. Units 21a-24a are not yet installed. If and when the units are installed at the facility, the applicability of Subpart HH to these units will be evaluated at that time. The dehydrators will comply with the applicable portions of the subpart.
MACT 40 CFR 63, Subpart HHH	National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities	No		This regulation is not applicable because the facility is not a natural gas transmission and storage facility. As defined in the subpart, "facility" includes a natural gas compressor station that *receives* natural gas via pipeline, *from* an underground natural gas storage operation, or *from* a natural gas processing plant. (*Emphasis added.*) The facility receives natural gas *prior* to the point of custody transfer (i.e., upstream of a natural gas processing facility).
MACT 40 CFR 63, Subpart YYYY	National Emission Standards for Hazardous Air Pollutants From Stationary Combustion Turbines	No		This regulation is not applicable because the facility is not a major HAP source.
MACT 40 CFR 63, Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT)	Yes	1, 2, 7, 8, 14 & 15	This regulation is applicable because the facility is equipped with a stationary RICE. The station is an area HAP source as defined by the subpart. In accordance with the provisions of §63.6603(a), Units 1, 2, 7, 8, 14 and 15 are non-emergency, non-black start, 4-stroke, lean burn (4SLB) engines, site-rated > 500 bhp, and located at a remote facility. They must comply with the maintenance and operating standards in Table 2d, row #8, including oil and filter changes and inspections of spark plugs, hoses and belts every 2,160 hours of operating time or annually, whichever comes first. Engine startup and idle times must be minimized in accordance with the regulation. Units 3 & 16-20 are not yet installed. If and when the units are installed at the facility, the applicability of Subpart ZZZZ to these units will be evaluated at that time. The engines will comply with the applicable portions of the subpart.
MACT 40 CFR 63, Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	No		This regulation is not applicable because the facility is not a major HAP source as defined by the Subpart and is not equipped with boilers and process heaters.

FEDERAL REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
MACT 40 CFR 63, Subpart JJJJJJ	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources	No		This regulation does not apply because the facility is not equipped with boilers as defined by the subpart. Under §63.11195(e), the subpart does not apply to gas-fired units.
40 CFR 64	Compliance Assurance Monitoring	No		This regulation is not applicable because the facility does not use control devices 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.
40 CFR 70	State Operating Permit Programs	No		This regulation is not applicable, as the requirements associated with Title V are delegated to the State of New Mexico and implemented under 20 NMAC 2.70.
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.

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Section 14

Operational Plan to Mitigate Emissions

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

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

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

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Section 15

Alternative Operating Scenarios

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

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

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

Not applicable, as there are no alternative operating scenarios associated with the station.

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Section 16

Air Dispersion Modeling

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

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

Air dispersion modeling was last conducted in June of 2011 in order to obtain construction permit number 0968-M4.

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Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

Compliance Test History Table

Unit No.	Test Description	Test Date
1	Portable analyzer testing of NOX and CO	08/29/2019
2	Portable analyzer testing of NOX and CO	08/07/2019
3	Not installed	Not installed
7	Portable analyzer testing of NOX and CO	08/07/2019
8	Portable analyzer testing of NOX and CO	08/13/2013
14	Portable analyzer testing of NOX and CO	08/08/2019
15	Portable analyzer testing of NOX and CO	80/08/2019
16	Not installed	Not installed
17	Not installed	Not installed
18	Not installed	Not installed
19	Not installed	Not installed
20	Not installed	Not installed

Unit 8 has been off contract since 5/1/2013.

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Section 18

Addendum for Streamline Applications

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

Not applicable, as this is not a streamline permit application.

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Section 19

Requirements for Title V Program

Who Must Use this Attachment:

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

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

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

The Carracas 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 Carracas CDP is in compliance with all applicable requirements affecting the facility. A copy of Part 1 (Permit Requirements Certification Table) of the most recent annual compliance certification is provided in Section 20, Other Relevant Information. It identifies all the requirements of the current Title V operating permit and the methods and data used to determine compliance. It is assumed that compliance with the Title V operating permit ensures compliance with the construction permit and New Mexico regulations.

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

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

The Carracas 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). None

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

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

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

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

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

The Carracas CDP Compressor Station is located within 80 km (50 miles) of the following states, local pollution control programs, Indian tribes and pueblos:

Colorado (~ 6.7 km)
Southern Ute Tribe (~ 6.7 km)
Jicarilla Apache Tribe (~ 14.0 km)
Navajo Tribe (~ 48.3 km)
Ute Mountain Tribe (~ 79.7 km)

19.9 - Responsible Official

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

The responsible official for the Carracas CDP is Travis Jones.

Section 20

Other Relevant Information

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

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

This section includes Part 1 (Permit Requirements Certification Table) of the most recent annual compliance certification.

Title V Annual Compliance Certification
for Permits P168-R3 & P168-R3M1

Title (TV) Permit Administration Amendment

On **December 19, 2018** NMED AQB issued an Administrative Amendment to Operating Permit **P168-R3**.

The Administrative Amendment **P168-R3M1** corrected the following:

1. **The Department clarifies the information on page 1 of the permit as follows:**

   a. **Permittee is changed to** **Harvest Four Corners LLC**
   1755 Arroyo Dr
   Bloomfield, NM 87413

   b. **Facility Owner is** **Harvest Four Corners LLC**
   1755 Arroyo Dr
   Bloomfield, NM 87413

For this Administrative Amendment **(P168-R3M1)**, the facility can use one Annual Compliance Certification (ACC) Form which will cover both TV Permits.

Although the facility is only required to submit one ACC Form, the facility shall submit **two (2)** separate TV Report Certification Forms. Each form shall list the corresponding TV Permit number, TV Permit Issue Date and Reporting Period.

Please note that this is a one-time authorization. Submittal forms for future Administrative Revisions will be evaluated on a case by case basis.

This form can also be used for future submittals that cover only the **P168-R3M1** permit.

Part 1 - Permit Requirements Certification Table

Annual Compliance Certification Data for Title V Permits No. P168-R3 & P168-R3M1				
1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
FACILITY SPECIFIC REQUIREMENTS **A101 Permit Duration (expiration)** A. The term of this permit is five (5) years. It will expire five years from the date of issuance. Application for renewal of this permit is due twelve (12) months prior to the date of expiration. (20.2.70.300.B.2 and 302.B NMAC)	Permit P168-R3 was issued January 5, 2016. As such, a renewal application is due January 5, 2020, at least 12 months prior to the permit's January 5, 2021 expiration date.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A101 Permit Duration (expiration) B. If a timely and complete application for a permit renewal is submitted, consistent with 20.2.70.300 NMAC, but the Department has failed to issue or disapprove the renewal permit before the end of the term of the previous permit, then the permit shall not expire and all the terms and conditions of the permit shall remain in effect until the renewal permit has been issued or disapproved. (20.2.70.400.D NMAC)	Permit P168-R3 was issued January 5, 2016. As such, a renewal application is due January 5, 2020, at least 12 months prior to the permit's January 5, 2021 expiration date.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A102 Facility: Description B. This facility is located approximately 21 miles northeast of Blanco, New Mexico in Rio Arriba County. (20.2.70.302.A(7) NMAC)	The facility did not relocate during the applicable period.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A103 Facility: Applicable Regulations A. The permittee shall comply with all applicable sections of the requirements listed in Table 103.A	Semi-annual reports and this ACC are used to determine that the source continues to comply with applicable requirements.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?

Table 103.A: Applicable Requirements

Applicable Requirements	Federally Enforceable	Unit No.
NSR Permit No: 0968-M5R6 (Per 20.2.72 NMAC)	X	Entire Facility
20.2.1 NMAC General Provisions	X	Entire Facility
20.2.7 NMAC Excess Emissions	X	Entire Facility
20.2.61 NMAC Smoke and Visible Emissions	X	Units 1-3, 7, 8, & 14-20; Units 5b, 6b, 9b, 10b, & 21b – 24b; Units 11, 12, 25, &26; Units 4 & 27
20.2.70 NMAC Operating Permits	X	Entire Facility
20.2.71 NMAC Operating Permit Emission Fees	X	Entire Facility
20.2.72 NMAC Construction Permit	X	Entire Facility
20.2.73 NMAC Notice of Intent and Emissions Inventory Requirements	X	Entire Facility
20.2.77 NMAC New Source Performance	X	Units subject to 40 CFR 60
20.2.82 NMAC MACT Standards for Source Categories of HAPS	X	Units subject to 40 CFR 63
40 CFR 50 National Ambient Air Quality Standards	X	Entire Facility
40 CFR 60, Subpart A, General Provisions	X	Potentially TBD Units 3 & 16 – 20
40 CFR 60, Subpart JJJJ	X	Potentially TBD Units 3 & 16 – 20
40 CFR 60, Subpart OOOO	X	Potentially TBD Units 3 & 16 – 20
40 CFR 63, Subpart A, General Provisions	X	Units 5a, 6a, 9a, 10a, 1-2, 7, 8, & 14-15; Potentially TBD Units 21a – 24a, 3 & 16 - 20
40 CFR 63, Subpart HH	X	Units 5a, 6a, 9a, and 10a; Potentially TBD Units 21a – 24a
40 CFR 63, Subpart ZZZZ	X	Units 1-2, 7, 8, & 14-15; Potentially TBD Units 3 & 16 - 20

A103 Facility: Applicable Regulations C. Compliance with the terms and conditions of this permit regarding source emissions and operation demonstrate compliance with national ambient air quality standards specified at 40 CFR 50, which	Semi-annual reports and the annual emissions inventory are used to demonstrate compliance with the terms and conditiosn of this permit.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
were applicable at the time air dispersion modeling was performed for the facility's NSR Permit 968-M4.				
A104 Facility: Regulated Sources A. Table 104.A lists the emission units authorized for this facility. Emission units identified as insignificant or trivial activities (as defined in 20.2.70.7 NMAC) and/or equipment not regulated pursuant to the Act are not included.	Semi-annual reports and the annual emissions inventory, along with the Management of Change Request (MOCR) procedures, are used to determine that no unauthorized equipment has been added or operated during the applicable period.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

Table 104.A: Regulated Sources List

Unit No.	Source Description	Make Model	Serial No./Skid Package	Maximum Capacity/ Permitted Capacity	Manufacture Date
1	RICE 4SLB	Waukesha L7042GL	C-10887/3 (pkg. 76789)	1478 hp / 1373 hp	30-JUN-92
2	RICE 4SLB	Waukesha L7042GL	C-10985/9 (pkg. 76788)	1478 hp / 1373 hp	10/30/1993
3	RICE 4SLB	Waukesha L7042GL	TBD	1478 hp / 1373 hp	TBD
7	RICE 4SLB	Waukesha L7042GL	C-12588/7 (pkg. 804373)	1478 hp / 1373 hp	8/31/1998
8	RICE 4SLB	Waukesha L7042GL	C-10466/3 (pkg. 804500)	1478 hp / 1373 hp	2/21/1992
14	RICE 4SLB	Waukesha L7042GL	C-12703/1 (pkg. 804503)	1478 hp / 1373 hp	11/19/1998
15	RICE 4SLB	Waukesha L7042GL	316572 (pkg. 804504)	1478 hp / 1373 hp	1/10/1978
16	RICE 4SLB	Waukesha L7042GL	TBD	1478 hp / 1373 hp	TBD
17	RICE 4SLB	Waukesha L7042GL	TBD	1478 hp / 1373 hp	TBD

1. Permit Condition # and Permit Condition:			2. Method(s) or other information or other facts used to determine the compliance status:			3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
	18	RICE 4SLB	Waukesha L7042GL	TBD	1478 hp / 1373 hp		TBD	
	19	RICE 4SLB	Waukesha L7042GL	TBD	1478 hp / 1373 hp		TBD	
	20	RICE 4SLB	Waukesha L7042GL	TBD	1478 hp / 1373 hp		TBD	
	5a	Glycol Dehy Still Vent/Flash Tank	Enertek J2P12M749	41779	Inlet Capacity: 12 MMscfd Lean Glycol Recirc Pump Capacity: 3.5 gal/min		10/1/1995	
	5b	Glycol Dehy Reboiler Burner	Enertek J2P12M749	41779	Heater Capacity: 1.09 MMBtu/hr		10/1/1995	
	6a	Glycol Dehy Still Vent/Flash Tank	Enertek J2P12M749	41716	Inlet Capacity: 12 MMscfd Lean Glycol Recirc Pump Capacity: 3.5 gal/min		6/1/1992	
	6b	Glycol Dehy Reboiler Burner	Enertek J2P12M749	41716	Heater Capacity: 1.09 MMBtu/hr		6/1/1992	
	9a	Glycol Dehy Still Vent/Flash Tank	Moneyhun	39045	Inlet Capacity: 20 MMscfd Lean Glycol Recirc Pump Capacity: 7.5 gal/min		10/29/2009	
	9b	Glycol Dehy Reboiler Burner	Moneyhun	39045	Heater Capacity: 1.48 MMBtu/hr		10/29/2009	
	10a	Glycol Dehy Still Vent/Flash Tank	Moneyhun	3868	Inlet Capacity: 20 MMscfd Lean Glycol Recirc Pump Capacity: 7.5 gal/min		10/29/2009	
	10b	Glycol Dehy Reboiler Burner	Moneyhun	3868	Heater Capacity: 1.48 MMBtu/hr		10/29/2009	
	21a	Glycol Dehy Still Vent/Flash Tank	Enertek or equivalent	TBD	Inlet Capacity: 20 MMscfd Lean Glycol Recirc Pump Capacity: 7.5 gal/min		TBD	
	21b	Glycol Dehy Reboiler Burner	Enertek or equivalent	TBD	Heater Capacity: 1.48 MMBtu/hr		TBD	

1. Permit Condition # and Permit Condition:		2. Method(s) or other information or other facts used to determine the compliance status:			3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
22a	Glycol Dehy Still Vent/Flash Tank	Enertek or equivalent	TBD	Inlet Capacity: 12 MMscfd Lean Glycol Recirc Pump Capacity: 3.5 gal/min		TBD	
22b	Glycol Dehy Reboiler Burner	Enertek or equivalent	TBD	Heater Capacity: 1.09 MMBtu/hr		TBD	
23a	Glycol Dehy Still Vent/Flash Tank	Enertek or equivalent	TBD	Inlet Capacity: 20 MMscfd Lean Glycol Recirc Pump Capacity: 7.5 gal/min		TBD	
23b	Glycol Dehy Reboiler Burner	Enertek or equivalent	TBD	Heater Capacity: 1.48 MMBtu/hr		TBD	
24a	Glycol Dehy Still Vent/Flash Tank	Enertek or equivalent	TBD	Inlet Capacity: 12 MMscfd Lean Glycol Recirc Pump Capacity: 3.5 gal/min		TBD	
24b	Glycol Dehy Reboiler Burner	Enertek or equivalent	TBD	Heater Capacity: 1.09 MMBtu/hr		TBD	
11	Process Flare	Moneyhun	36001	Combined Stream 2523 scf/hr/ 22.10 MMscf/yr		10/29/09	
12	Process Flare	Moneyhun	36002	Combined Stream 2523 scf/hr/ 22.10 MMscf/yr		10/29/09	
25	Process Flare	Moneyhun	TBD	Combined Stream 2523 scf/hr/ 22.10 MMscf/yr		TBD	
26	Process Flare	Moneyhun	TBD	Combined Stream 2523 scf/hr/ 22.10 MMscf/yr		TBD	
4	Turbine Generator	Capstone C65	0005891	65 kW		11/27/2001	
27	Turbine Generator	Capstone C65	0005892	65 kW		11/27/2001	
SSM	Startup, Shutdown, & Maintenance	N/A	N/A	N/A		N/A	
M1	Malfunctions	N/A	N/A	N/A		N/A	

1. All TBD (to be determined) units and like-kind engine replacements must be evaluated for applicability to NSPS and NESHAP requirements.

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
A105 Facility: Control Equipment A. Table 105.A lists all the pollution control equipment required for this facility. Each emission point is identified by the same number that was assigned to it in the permit application.	Semi-annual reports and the annual emissions inventory, along with the Management of Change Request (MOCR) procedures, are used to determine that affected equipment operated with pollution control equipment during the applicable period.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

Table 105.A: Control Equipment List:

Control Equipment Unit No.	Control Description	Pollutant being controlled	Control for Unit Number(s)[1]
1	EMIT Technologies RE-3530-Z Catalytic Convertor or Equivalent	CO, VOCs, & HAPs	1
2	EMIT Technologies RE-3530-Z Catalytic Convertor or Equivalent	CO, VOCs, & HAPs	2
3	EMIT Technologies RE-3530-Z Catalytic Convertor or Equivalent	CO, VOCs, & HAPs	3
7	EMIT Technologies RE-3530-Z Catalytic Convertor or Equivalent	CO, VOCs, & HAPs	7
8	EMIT Technologies RE-3530-Z Catalytic Convertor or Equivalent	CO, VOCs, & HAPs	8
14	EMIT Technologies RE-3530-Z Catalytic Convertor or Equivalent	CO, VOCs, & HAPs	14
15	EMIT Technologies RE-3530-Z Catalytic Convertor or Equivalent	CO, VOCs, & HAPs	15
16	EMIT Technologies RE-3530-Z Catalytic Convertor or Equivalent	CO, VOCs, & HAPs	16
17	EMIT Technologies RE-3530-Z Catalytic Convertor or Equivalent	CO, VOCs, & HAPs	17
18	EMIT Technologies RE-3530-Z Catalytic Convertor or Equivalent	CO, VOCs, & HAPs	18
19	EMIT Technologies RE-3530-Z Catalytic Convertor or Equivalent	CO, VOCs, & HAPs	19
20	EMIT Technologies RE-3530-Z Catalytic Convertor or Equivalent	CO, VOCs, & HAPs	20
11	Dehydrator Still Vent Flare	VOCs & HAPs	6a & 9a
12	Dehydrator Still Vent Flare	VOCs & HAPs	5a & 10a

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
25 Dehydrator Still Vent Flare — VOCs & HAPs		21a & 22a		
26 Dehydrator Still Vent Flare — VOCs & HAPs		23a & 24a		

1 Control for unit number refers to a unit number from the Regulated Equipment List

A106 Facility: Allowable Emissions A. The following Section lists the emission units, and their allowable emission limits. (40 CFR 50; 40 CFR 63, Subparts A, HH, and ZZZZ; Paragraphs 1, 7, and 8 of 20.2.70.302.A NMAC; and NSR Permit 0968-M5, R1 – R5).	Semi-annual reports and the annual emissions inventory are used to demonstrate compliance with the identified allowable emissions.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

Table 106.A: Allowable Emissions

Unit No.	NO_x[1] pph	NO_x[1] tpy	CO pph	CO tpy	VOC pph	VOC tpy
1[2]	4.5	19.9	0.6	2.8	1.1	4.6
2[2]	4.5	19.9	0.6	2.8	1.1	4.6
3[2]	4.5	19.9	0.6	2.8	1.1	4.6
7[2]	4.5	19.9	0.6	2.8	1.1	4.6
8[2]	4.5	19.9	0.6	2.8	1.1	4.6
14[2]	4.5	19.9	0.6	2.8	1.1	4.6
15[2]	4.5	19.9	0.6	2.8	1.1	4.6
16[2]	4.5	19.9	0.6	2.8	1.1	4.6
17[2]	4.5	19.9	0.6	2.8	1.1	4.6
18[2]	4.5	19.9	0.6	2.8	1.1	4.6
19[2]	4.5	19.9	0.6	2.8	1.1	4.6

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?

20[2]	4.5	19.9	0.6	2.8	1.1	4.6
11[3]	0.2	0.7	1.4	6.1	0.6	2.4
12[3]	0.2	0.7	1.4	6.1	0.6	2.4
25[3]	0.2	0.7	1.4	6.1	0.6	2.4
26[3]	0.2	0.7	1.4	6.1	0.6	2.4
4	<[4]	<	<	<	<	<
27						

[1] Nitrogen dioxide emissions include all oxides of nitrogen expressed as NO_2.

[2] Units 1-3, 7- 8, and 14 – 20 have associated compressors (Units 1a-3a, 7a, 8a, and 14a-20a) with separate SSM emission limits.

[3] Flare allowable emissions incorporate pilot, supplemental fuel, and controlled flash tank and condenser vent emissions from Glycol Dehydrator Units 5a, 6a, 9a, 10a, and 21a - 24a.

[4] "<" indicates the application represented uncontrolled emissions are less than 1.0 pph or 1.0 tpy for this pollutant. Allowable limits are not imposed on this level of emissions, except for flares and pollutants with controls.

Note: Title V annual fee assessments are based on the sum of allowable tons per year emission limits in Sections A106 and A107.

A107 Facility: Allowable Startup, Shutdown, & Maintenance (SSM) and Malfunction Emissions A. The maximum allowable SSM and Malfunction emissions limits for this facility are listed in Table 107.A and were relied upon by the Department to determine compliance with applicable regulations.	Semi-annual reports, SSM and malfunction tracking, and the annual emissions inventory are used to demonstrate compliance with the identified allowable emissions.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

Table 107.A: Allowable SSM and Malfunction Units, Activities, and Emission Limits

Unit No.	Description	VOC (tpy)	H_2S (pph)	H_2S (tpy)

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
SSM from Units 1a-3a, 7a, 8a, and 14a-20a	[1]Compressor & Associated Piping Blowdowns during Routine and Predictable Startup, Shutdown, and/or Maintenance (SSM)	5.0	<	<
M1	[1]Venting of Gas Due to Malfunction	5.0	<	<

1. This authorization does not include VOC combustion emissions.
"<" indicates the application represented that uncontrolled venting, blowdown, or pigging emissions of H2S are less than 0.1 pph or 0.44 tpy. Allowable limits, monitoring, and recordkeeping are not required on this level of H2S venting, blowdown, or pigging emissions.

A107 Facility: Allowable Startup, Shutdown, & Maintenance (SSM) and Malfunction Emissions B. The authorization of emission limits for startup, shutdown, maintenance, and malfunction does not supersede the requirements to minimize emissions according to Conditions B101.C and B107.A.	The facility operates in accordance with its SSM Plan in order to minimize emissions accordingly.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A107 Facility: Allowable Startup, Shutdown, & Maintenance (SSM) and Malfunction Emissions C. SSM VOC Emissions **Requirement**: The permittee shall perform a facility inlet gas analysis once every year and complete the following recordkeeping to demonstrate compliance with routine and predictable startup, shutdown, and maintenance (SSM) emission limits in Table 107.A. (NSR 0968-M5R6 Condition A107.C)	Semi-annual reports including gas analysis, SSM tracking, and the annual emissions inventory are used to demonstrate compliance with the identified allowable emissions.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Monitoring: The permittee shall monitor the permitted routine and predictable startups and shutdowns and scheduled maintenance events.	Semi-annual reports, SSM tracking, and the annual emissions inventory are used to demonstrate compliance with the identified allowable emissions.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
Recordkeeping: To demonstrate compliance, each month records shall be kept of the cumulative total of VOC emissions due to SSM events during the first 12 months due to SSM events and, thereafter of the monthly rolling 12 month total of VOC emissions due to SSM events. Records shall also be kept of the inlet gas analysis, the percent VOC of the gas based on the most recent gas analysis, and of the volume of total gas vented in MMscf used to calculate the VOC emissions. The permittee shall record the calculated emissions and parameters used in calculations in accordance with Condition B109, except the requirement in B109.E to record the start and end times of SSM events shall not apply to the venting of known quantities of VOC.	Semi-annual records including gas analysis, SSM tracking, and the annual emissions inventory are maintained as required.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall report in accordance with Section B110.	Semi-annual reports including gas analysis, SSM tracking, and the annual emissions inventory are used to demonstrate compliance with the identified allowable emissions.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A107 Facility: Allowable Startup, Shutdown, & Maintenance (SSM) and Malfunction Emissions D. Malfunction Emissions **Requirement:** The permittee shall perform a facility inlet gas analysis once every year and complete the following recordkeeping to demonstrate compliance with malfunction (M1) emission limits in Table 107.A. (NSR 0968-M5R6 Condition A107.D)	Semi-annual reports including gas analysis, malfunction tracking, and the annual emissions inventory are used to demonstrate compliance with the identified allowable emissions.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
Monitoring: The permittee shall monitor all malfunction events that result in VOC emissions including identification of the equipment or activity that is the source of emissions.	Semi-annual reports, malfunction tracking, and the annual emissions inventory are used to demonstrate compliance with the identified allowable emissions.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Recordkeeping: To demonstrate compliance, each month records shall be kept of the cumulative total of VOC emissions due to malfunction events during the first 12 months and, thereafter of the monthly rolling 12 month total of VOC emissions due to malfunction events. Records shall also be kept of the inlet gas analysis, the percent VOC of the gas based on the most recent gas analysis, of the volume of total gas vented in MMscf used to calculate the VOC emissions, a description of the event, and whether the emissions resulting from the event will be used toward the permitted malfunction emission limit or whether the event is reported under 20.2.7 NMAC. The permittee shall record the calculated emissions and parameters used in calculations in accordance with Condition B109, except the requirement in B109.E to record the start and end times of malfunction events shall not apply to the venting of known quantities of VOC.	Semi-annual reports including gas analysis, malfunction tracking, and the annual emissions inventory are maintained as required.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall report in accordance with Section B110.	Semi-annual reports including gas analysis, malfunction tracking, and the annual emissions inventory are used to demonstrate compliance with the identified allowable emissions.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
A108 Facility: Hours of Operation A. This facility is authorized for continuous operation. Monitoring, recordkeeping, and reporting are not required to demonstrate compliance with continuous hours of operation.				
A109 Facility: Reporting Schedules (20.2.70.302.E NMAC) A. A Semi-Annual Report of monitoring activities is due within 45 days following the end of every 6-month reporting period. The six month reporting periods start on August 1st and February 1st of each year.	The first semi-annual report of this compliance period for permit P168-R3 was submitted February 28, 2019. The second semi-annual report will be submitted by Sep. 14.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A109 Facility: Reporting Schedules (20.2.70.302.E NMAC) B. The Annual Compliance Certification Report is due within 30 days of the end of every 12-month reporting period. The 12-month reporting period starts on August 1st of each year.	This annual compliance certification is being submitted within 30 days of the July 31.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A110 Facility: Fuel and Fuel Sulfur Requirements A. Fuel and Fuel Sulfur Requirements (Units 1-3, 7, 8, & 14-20; Units 5b, 6b, 9b, 10b, & 21b – 24b; Units 4 & 27) **Requirement:** All combustion emission units shall combust only natural gas containing no more than 0.2 grains of total sulfur per 100 dry standard cubic feet. (NSR 0968-M5R6 Condition A110.A)	Natural gas is used for fuel in the turbines.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Monitoring: None	Results of the fuel sulfur content monitoring are maintained as required and included in the	☐ **Continuous**	☒ **Yes**	☐ **Yes**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
Recordkeeping: The permittee shall demonstrate compliance with the natural gas limit on total sulfur content by maintaining records of a current, valid purchase contract, tariff sheet or transportation contract for the gaseous or liquid fuel, or fuel gas analysis, specifying the allowable limit or less. If fuel gas analysis is used, the analysis shall not be older than one year.	applicable semi-annual reports.	☒ **Intermittent**	☐ **No**	☒ **No**
Reporting: The permittee shall report in accordance with Section B110.	Results of the fuel sulfur content monitoring are included in the applicable semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A111 Facility: 20.2.61 NMAC Opacity A. 20.2.61 NMAC Opacity Limit (Units 1-3, 7, 8, & 14-20; Units 5b, 6b, 9b, 10b, & 21b – 24b; Units 4 & 27) **Requirement:** Visible emissions from all stationary combustion emission stacks shall not equal or exceed an opacity of 20 percent in accordance with the requirements at 20.2.61.109 NMAC.	Natural gas is used for fuel in the turbines.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Monitoring: Use of natural gas fuel constitutes compliance with 20.2.61 NMAC unless opacity equals or exceeds 20% averaged over a 10-minute period. When any visible emissions are observed during operation other than during startup mode, opacity shall be measured over a 10-minute period, in accordance with the procedures at 40 CFR 60, Appendix A, Reference Method 9 (EPA Method 9) as required by 20.2.61.114 NMAC, or the operator will be allowed to shut down the equipment to	Natural gas is used for fuel in the combustion units. Opacity, if it occurs, is monitored in accordance with the requirements of this condition, and if necessary, reported in accordance with 20.2.7 NMAC.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
perform maintenance/repair to eliminate the visible emissions. Following completion of equipment maintenance/repair, the operator shall conduct visible emission observations following startup in accordance with the following procedures: • Visible emissions observations shall be conducted over a 10-minute period during operation after completion of startup mode in accordance with the procedures at 40 CFR 60, Appendix A, Reference Method 22 (EPA Method 22). If no visible emissions are observed, no further action is required. • If any visible emissions are observed during completion of the EPA Method 22 observation, subsequent opacity observations shall be conducted over a 10-minute period, in accordance with the procedures at EPA Method 9 as required by 20.2.61.114 NMAC. For the purposes of this condition, *Startup mode* is defined as the startup period that is described in the facility's startup plan.				
Recordkeeping: If no visible emissions were observed, none. If any visible emissions observations were conducted, the permittee shall keep records in accordance with the requirements of Section B109 and as follows: • For any visible emissions observations conducted in accordance with EPA Method 22, record the information on the form referenced in EPA Method 22, Section 11.2.	Natural gas is used for fuel in the combustion units. Opacity, if it occurs, is monitored in accordance with the requirements of this condition, and if necessary, reported in accordance with 20.2.7 NMAC.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
• For any opacity observations conducted in accordance with the requirements of EPA Method 9, record the information on the form referenced in EPA Method 9, Sections 2.2 and 2.4.				
Reporting: The permittee shall report in accordance with Section B110.	Natural gas is used for fuel in the combustion units. Opacity, if it occurs, is monitored in accordance with the requirements of this condition, and if necessary, reported in accordance with 20.2.7 NMAC.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
EQUIPMENT SPECIFIC REQUIREMENTS **A201 Engines** A. Initial Compliance Test (TBD Units 3 & 16 - 20) **Requirement**: Compliance with the allowable emission limits in Table 106.A shall be demonstrated by performing an initial compliance test. (NSR 0968-M5R6 Condition A201.A)	Units 3 and 16-20 are not currently installed, and therefore have not undergone an initial compliance test.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Monitoring: The permittee shall perform an initial compliance test in accordance with the General Testing Requirements of Section B111. Emission testing is required for NOx and CO. Test results that demonstrate compliance with the CO emission limits shall also be considered to demonstrate compliance with the VOC emission limits. The monitoring exemptions of Section B108 do not apply to this requirement. Compliance tests shall be conducted within sixty (60) days after the unit(s) achieve the	Units 3 and 16-20 are not currently installed, and therefore have not undergone an initial compliance test.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
maximum normal production rate. If the maximum normal production rate does not occur within one hundred twenty (120) days of source startup, then the tests must be conducted no later than one hundred eighty (180) days after initial startup of the source. For units with g/hp-hr emission limits, the engine load shall be calculated by using the following equation: Load (Hp) = Fuel consumption (scfh) x Measured fuel LHV (LHV btu/scf) ——————————— Mfg's rated BSFC(btu/bhp-hr) at 100% load or best efficiency				
Recordkeeping: The permittee shall maintain records in accordance with the applicable Sections in B109, B110, and B111.	Units 3 and 16-20 are not currently installed, and therefore have not undergone an initial compliance test.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall report in accordance with the applicable Sections in B109, B110, and B111.	Units 3 and 16-20 are not currently installed, and therefore have not undergone an initial compliance test.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A201 Engines B. Periodic Emissions Testing (Units 1-2, 7, 8, and 14-15; TBD Units 3 and 16 – 20, after installation) **Requirement:** Compliance with the allowable emission limits in Table 106.A shall be demonstrated by completing the following periodic emission tests. (NSR	Periodic emissions test results are included in the applicable semi-annual reports.Periodic emissions tests were completed as required and results are included in the applicable semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
0968-M5R6 Condition A201.B)				
Monitoring: The permittee shall test using a portable analyzer or EPA Reference Methods subject to the requirements and limitations of Section B108, General Monitoring Requirements. For periodic testing of NOx and CO, emissions tests shall be carried out as described below. Test results that demonstrate compliance with the CO emission limits shall also be considered to demonstrate compliance with the VOC emission limits. For units with g/hp-hr emission limits, in addition to the requirements stated in Section B108, the engine load shall be calculated by using the following equation: Load (Hp) = Fuel consumption (scfh) x Measured fuel LHV (LHV btu/scf) ——————————— Mfg's rated BSFC(btu/bhp-hr) at 100% load or best efficiency (1) The monitoring period shall be quarterly based on the reporting period stated in A109.B. The quarterly monitoring period shall be defined as: January 1st to March 31st; April 1st to June 30th; July 1st to September 30th; and October 1st to December 31st. (2) The tests shall continue based on the existing testing schedule. (3) All subsequent monitoring shall occur in	Periodic emissions test results are included in the applicable semi-annual reports.Periodic emissions tests were completed as required and results are included in the applicable semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
each succeeding monitoring period. No two monitoring events shall occur closer together in time than 25% of a monitoring period. (4) The permittee shall follow the General Testing Procedures of Section B111. (5) Performance testing required by 40 CFR 60, Subpart JJJJ or IIII or 40 CFR 63, Subpart ZZZZ may be used to satisfy these periodic testing requirements if they meet the requirements of this condition and are completed during the specified monitoring period.				
Recordkeeping: The permittee shall maintain records in accordance with Section B109, B110, and B111.	Periodic emissions test results are maintained as required and included in the applicable semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall report in accordance with Section B109, B110, and B111.	Periodic emissions test results are included in the applicable semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A201 Engines C. Catalytic Converter Operation (Units 1-2, 7, 8, and 14-15; TBD Units 3 and 16 - 20) **Requirement**: The units shall be equipped and operated with an oxidation catalytic converter to control CO, VOC, and HAP emissions. Engines equipped with oxidation catalysts are not required to operate with an AFR. The permittee shall maintain the units according to manufacturer's or supplier's recommended maintenance, including replacement of oxygen sensor as necessary	Semi-annual reports, maintenance monitoring and the Management of Change Request (MOCR) procedures, are used to determine that affected units operate with applicable control equipment.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
for oxygen-based controllers. (NSR 0968-M5R6 Condition A201.C)				
Monitoring: The units shall be operated with the catalytic converter, which includes catalyst maintenance periods. During periods of catalyst maintenance, the permittee shall either (1) shut down the engine(s); or (2) replace the catalyst with a functionally equivalent spare to allow the engine to remain in operation.	Semi-annual reports, maintenance monitoring and the Management of Change Request (MOCR) procedures, are used to determine that affected units operate with applicable control equipment.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Recordkeeping: The permittee shall maintain records in accordance with Section B109.	Semi-annual reports, maintenance monitoring and the Management of Change Request (MOCR) procedures, are used to determine that affected units operate with applicable control equipment.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall report in accordance with Section B110.	Semi-annual reports, maintenance monitoring and the Management of Change Request (MOCR) procedures, are used to determine that affected units operate with applicable control equipment.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A201 Engines D. 40 CFR 60, Subpart JJJJ (Units 3 and 16 - 20) **Requirement:** The units will be subject to 40 CFR 60, Subparts A and JJJJ if the unit is constructed (ordered) and manufactured after the applicability dates in 40 CFR 60.4230 and the permittee shall comply with the notification requirements in Subpart A and the specific requirements of Subpart JJJJ.	Unit maintenance and repair monitoring, including recordkeeping of engine overhauls, demonstrate applicability of NSPS JJJJ to affected units.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Monitoring: The permittee shall comply with all applicable monitoring requirements in 40 CFR 60, Subpart A and Subpart JJJJ,	Units 3 and 16-20 are not currently installed. Applicability will be determined upon installation.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
including but not limited to 60.4243.				
Recordkeeping: The permittee shall comply with all applicable recordkeeping requirements in 40 CFR 60, Subpart A and Subpart JJJJ, including but not limited to 60.4245.	Units 3 and 16-20 are not currently installed. Applicability will be determined upon installation.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall comply with all applicable reporting requirements in 40 CFR 60, Subpart A and Subpart JJJJ, including but not limited to 60.4245.	Units 3 and 16-20 are not currently installed. Applicability will be determined upon installation.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A201 Engines E. 40 CFR 63, Subpart ZZZZ (Units 1-2, 7, 8, and 14-15) **Requirement:** The units are subject to 40 CFR 63, Subpart ZZZZ and the permittee shall comply with all applicable requirements of Subpart A and Subpart ZZZZ.	Unit maintenance and repair monitoring, including recordkeeping of engine overhauls, demonstrate applicability of NESHAP ZZZZ to affected units.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Monitoring: The permittee shall comply with all applicable monitoring requirements of 40 CFR 63, Subpart A and Subpart ZZZZ.	Records are maintained to demonstrate NESHAP ZZZZ applicability for existing 4SLB RICE >500 hp located at a remote area HAP source.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Recordkeeping: The permittee shall comply with all applicable recordkeeping requirements of 40 CFR 63, Subpart A and Subpart ZZZZ, including but not limited to 63.6655 and 63.10.	Records are maintained to demonstrate NESHAP ZZZZ applicability for existing 4SLB RICE >500 hp located at a remote area HAP source.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall comply with all applicable reporting requirements of 40 CFR 63, Subpart A and ZZZZ, including but not limited to 63.6645, 63.6650, 63.9, and 63.10.	Records are maintained to demonstrate NESHAP ZZZZ applicability for existing 4SLB RICE >500 hp located at a remote area HAP source.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A201 Engines F. 40 CFR 63, Subpart ZZZZ (Units 3 and 16 - 20)	Units 3 and 16-20 are not currently installed. Applicability will be determined upon installation.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
Requirement: The units will be subject to 40 CFR 63, Subparts A and ZZZZ if they meet the applicability criteria in 40 CFR 63.6590. The permittee shall comply with any applicable notification requirements in Subpart A and any specific requirements of Subpart ZZZZ.				
Monitoring: The permittee shall comply with all applicable monitoring requirements of 40 CFR 63, Subpart A and Subpart ZZZZ.	Units 3 and 16-20 are not currently installed. Applicability will be determined upon installation.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Recordkeeping: The permittee shall comply with all applicable recordkeeping requirements of 40 CFR 63, Subpart A and Subpart ZZZZ, including but not limited to 63.6655 and 63.10.	Units 3 and 16-20 are not currently installed. Applicability will be determined upon installation.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall comply with all applicable reporting requirements of 40 CFR 63, Subpart A and ZZZZ, including but not limited to 63.6645, 63.6650, 63.9, and 63.10.	Units 3 and 16-20 are not currently installed. Applicability will be determined upon installation.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A201 Engines G. Maintenance and Repair Monitoring (Units 1-2, 7, 8, and 14-15; TBD Units 3 and 16 - 20) **Requirement**: Compliance with the allowable emission limits in Table 106.A shall be demonstrated by properly maintaining and repairing the units. (NSR 0968-M5R6 Condition A201.G)	Records of engine maintenance and repair are included in the applicable semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Monitoring: Maintenance and repair shall meet the minimum manufacturer's or permittee's recommended maintenance schedule. Activities that involve	Records of engine maintenance and repair are included in the applicable semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
maintenance, adjustment, replacement, or repair of functional components with the potential to affect the operation of an emission unit shall be documented as they occur for the following events: (1) Routine maintenance that takes a unit out of service for more than two hours during any twenty-four hour period. (2) Unscheduled repairs that require a unit to be taken out of service for more than two hours in any twenty-four hour period.				
Recordkeeping: The permittee shall maintain records in accordance with Section B109, including records of maintenance and repairs activities and a copy of the manufacturer's or permittee's recommended maintenance schedule.	Records of engine maintenance and repair are maintained as requried and included in the applicable semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall report in accordance with Section B110.	Records of engine maintenance and repair are included in the applicable semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A202 Glycol Dehydrators A. Extended Gas Analysis and GRI-GLYCalc Calculation (Units 5, 6, 9, and 10; TBD 21 – 24) **Requirement:** Compliance with the allowable flare emission limits in Table 106.A (Units 11, 12, 25, and 26) shall be demonstrated by conducting an annual extended gas analysis on the dehydrator inlet gas and by calculating emissions using GRI-	Dehydrator annual GLYCalc analysis records are included with the applicable semi-annual monitoring reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
GLYCalc. (NSR 0968-M5R6 Condition A202.A)				
Monitoring: The permittee shall conduct an annual GRI-GLYCalc analysis using the most recent extended gas analysis, and verify the input data. The permittee may use a method of calculating dehydrator emissions other than the most current version of GRI-GLYCalc if approved by the Department. Changes in the calculated emissions due solely to a change in the calculation methodology shall not be deemed an exceedance of an emission limit.	Dehydrator annual GLYCalc analysis records are included with the applicable semi-annual monitoring reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Recordkeeping: The permittee shall identify in a summary table all parameters that were used as inputs in the GRI-GLYCalc model. The permittee shall keep a record of the results, noting the VOC and HAP emission rates for the dehydrator obtained from estimates using GRI-GLYCalc.	Dehydrator annual GLYCalc analysis records, including gas analysis, are maintained as required and included with the applicable semi-annual monitoring reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall report in accordance with Section B110.	Dehydrator annual GLYCalc analysis records, including gas analysis, are included with the applicable semi-annual monitoring reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A202 Glycol Dehydrators B. Glycol pump circulation rate (Units 5, 6, 9, and 10; TBD 21 – 24) **Requirement**: Compliance with the allowable flare emission limits in Table 106.A (Units 11, 12, 25, and 26) shall be demonstrated by monitoring the glycol pump circulation rate for each unit. The glycol pump circulation rate for Units 5, 6, 22, and	Dehydrator glycol recircuation rate records are included with the applicable semi-annual monitoring reports	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
24 shall not exceed 3.5 gallons per minute each and the glycol pump circulation rate shall not exceed 7.5 gallons per minute each for units 9, 10, 21, and 23. (NSR 0968-M5R6 Condition A202.B)				
Monitoring: The permittee shall monitor the circulation rate quarterly, based on a calendar quarter (January 1st through March 31st, April 1st through June 30th, July 1st through September 30th, and October 1st through December 31st). Monitoring shall include a calibration or visual inspection of pump rate setting for each pump.	Dehydrator glycol recircuation rate records are included with the applicable semi-annual monitoring reports	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Recordkeeping: The permittee shall maintain records by pump that include a description of the monitoring and are in accordance with Section B109.	Dehydrator glycol recircuation rate records are mainted as required and included with the applicable semi-annual monitoring reports	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall report in accordance with Section B110.	Dehydrator glycol recircuation rate records are included with the applicable semi-annual monitoring reports	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A202 Glycol Dehydrators C. Control Device Inspection (Units 5, 6, 9, and 10; TBD 21 – 24) **Requirement**: To demonstrate compliance with the allowable VOC emission limits in Table 106.A, (NSR 0968-M5R6 Condition A202.C): (1) Each dehydrator still vent shall be routed to a condenser; (2) Each flash tank shall be routed either to the reboiler fuel line or to the flare; (3) Condenser outlet gas streams shall be at all times routed to a flare as listed: • Dehydrator Units 6a and 9a shall be	Records of dehydrator and control device inspections are included in the applicabile semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
routed directly to flare Unit 11 • Dehydrator Units 5a and 10a shall be routed directly to flare Unit 12 • Dehydrator Units 21a and 22a shall be routed directly to flare Unit 25 • Dehydrator Units 23a and 24a shall be routed directly to flare Unit 26 (4) Each dehydrator flash tank and the line routing the still vent to condenser to the associated flare shall not vent to the atmosphere. Events that cause pressure relief valve (PRV) releases of line emissions to the atmosphere that do not meet malfunction emission limits are not authorized by this permit, and shall be reported in accordance with 20.2.7 NMAC;				
Monitoring: The permittee shall inspect the glycol dehydrator and the control equipment semi-annually to ensure it is operating as initially designed. The permittee shall also inspect that the reboiler is operating as initially designed.	Records of dehydrator and control device inspections are included in the applicabile semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Recordkeeping: The permittee shall record the name of the person conducting the inspection and the results of all equipment and control device inspections chronologically, noting any maintenance or repairs needed to bring the dehydrator into compliance.	Records of dehydrator and control device inspections are maintained as required and included in the applicabile semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall report in accordance with Section B110.	Records of dehydrator and control device inspections are included in the applicabile semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A202 Glycol Dehydrators D. 40 CFR 63, Subpart HH (Units 5, 6, 9, and 10; TBD 21 – 24)	Dehydrator annual GLYCalc analysis records, including gas analysis, demonstrating dehydrator exemption status are included with the applicable semi-annual monitoring reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
Requirement: The units are subject to 40 CFR 63, Subpart HH and the permittee shall comply with all applicable requirements.				
Monitoring: The permittee shall monitor as required by 40 CFR 63.772(b)(2) to demonstrate facility is exempt from general standards.	Dehydrator annual GLYCalc analysis records, including gas analysis, demonstrating dehydrator exemption status are included with the applicable semi-annual monitoring reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Recordkeeping: The permittee shall generate and maintain the records required by 40 CFR 63.774(d)(1)(ii) to demonstrate compliance with the general standard exemptions found in 40 CFR 63.764(e).	Dehydrator annual GLYCalc analysis records, including gas analysis, demonstrating dehydrator exemption status are maintained as required.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall meet all applicable reporting in 40 CFR 63, Subparts A and HH and in Section B110.	Dehydrator annual GLYCalc analysis records, including gas analysis, demonstrating dehydrator exemption status are included with the applicable semi-annual monitoring reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A206 Flares A. Flare Flame & Visible Emissions (20.2.61 NMAC) (Units 11 and 12; TBD Units 25 and 26) **Requirement**: Compliance with the allowable flare emission limits in Table 106.A shall be demonstrated by installing a system to ensure that they are operated with a flame present at all times and operated with no visible emissions. The flares are subject to the 20% opacity standards in 20.2.61 NMAC and meeting the no visible emissions requirements demonstrates compliance with 20.2.61 NMAC opacity limit. Each flare shall be configured with a flare pilot sensor that causes shutdown of the dehydrator lean glycol recirculation pumps in absence of a flare pilot. (NSR 0968-M5R6 Condition	Flare alarm activation and visible emission records are included with the applicable semi-annual monitoring reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
A206.A)				
Monitoring: **Flare Pilot Flame:** The permittee shall continuously monitor the presence of a flare pilot flame using a thermocouple equipped with a continuous recorder and alarm or equivalent, to detect the presence of a flame or any equivalent device approved by the Department. **Lean Glycol Recirculation Pump Shutdown:** Immediate shutdown of the lean glycol recirculation pumps in the absence of a flare pilot shall be verified by inspection. **Visible Emissions:** Annually, the permittee shall perform an EPA Reference Method 22 test per 40 CFR 60, Subpart A to certify compliance with the no visible emission requirement on the process flare. The Method 22 test shall occur for at least 2 consecutive hours where visible emissions are not to exceed a total of 5 minutes during any 2 consecutive hours.	Flare alarm activation records, including glycol pump status, and visible emission records are included with the applicable semi-annual monitoring reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Recordkeeping: **Flare Pilot Flame:** The permittee shall record all instances of alarm activation, including the date, time, and cause of alarm activation, actions taken to bring the flare into normal operating conditions, and maintenance activities. **Lean Glycol Recirculation Pump Shutdown:** Inspection of the lean glycol recirculation pump shutdown shall also be recorded. Documentation shall including the name of the person who verified shutdown and the date and time of the inspection. If the affected dehydrators' lean glycol	Flare alarm activation records, including glycol pump status, and visible emission records are maintained as required and are included with the applicable semi-annual monitoring reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
recirculation pumps do not achieve immediate shutdown, excess emissions resulting from process gas flow to the flares without combustion shall be reported under Condition A107.C Malfunction Emissions and/or under 20.2.7 NMAC. **Visible Emissions:** For EPA Method 22 tests, the permittee shall record the date and duration of each EPA Method 22 test and the results of the test.				
Reporting: The permittee shall report in accordance with Section B110.	Flare alarm activation records, including glycol pump status, and visible emission records are included with the applicable semi-annual monitoring reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A206 Flares B. Flare Emissions (Units 11 and 12; TBD Units 25 and 26) **Requirement**: Compliance with the allowable emission limits in Table 106.A shall be demonstrated by calculating and summarizing emission rates as required in recordkeeping. Only facility dehydrator condenser gas outlet streams, flash tank, and flash tank relief valves shall be routed to the flares as described in Glycol Dehydrator Condition A202.C. (NSR 0968-M5R6 Condition A206.B)	Records of dehydrator gas streams routed to the flares, and the associated emissions from the flares, are included with the applicable semi-annual monitoring reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Monitoring: A gas flowmeter and flow totalizer, equipped with a chart recorder or data logger (electronic storage), shall be installed at the inlet to each glycol dehydrator to measure and record the total standard cubic feet (scf) of gas entering the	Records of dehydrator inlet gas streams are included with the applicable semi-annual monitoring reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
system per day (MMscf/day). The maximum flow rate into each of the following dehydrators shall be: 1) 12 MMscf/day for Units 5a, 6a, 22a, and 24a 2) 20 MMscf/day for Units 9a, 10a, 21a, and 23a The flow meter, totalizer, and if used, the inline monitor shall be operated, calibrated, and maintained as specified by the manufacturer or equivalent and as necessary to ensure correct and accurate readings.				
Recordkeeping: The following records shall be kept: • Annual facility inlet extended gas analysis (Condition A202.A) • GRI-GLYCalc output (Condition A202.A) • Flowmeter and flow totalizer measurements of gas entering the dehydrator in units of MMSCF/day • Maximum daily gas throughput and the monthly rolling 12-month total using daily gas throughput in MMSCF/day Annually, the permittee shall record and	Records of the dehydrator inlet gas analysis and GLYCalc are maintained in accordance with Condition A202.A. Records of dehydrator inlet gas streams are maintained as required and are included with the applicable semi-annual monitoring reports. Annual records of gas flow to the flare and subsequent emissions are maintained as required and are included in the applicable semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
summarize in a table format the following: • percent VOC content for the combined gas stream to the flare • gas heating value (Btu/scf) for the combined gas stream to the flare • the maximum hourly gas flow rate (scf/hr) calculated from the maximum recorded daily volume of gas for the record year for each flare • the monthly rolling 12-month total of gas sent to each flare (scf/yr) (1) Records of flowmeter, totalizer, and inline monitor certifications, calibrations, breakdowns, reasons for the breakdown, and corrective actions taken shall be maintained. Annually, to demonstrate compliance with emission limits, the permittee shall calculate and summarize the maximum pph emission rate, any pph emission rate exceeding the permitted limits, and the ton per year emission rates of NOx, CO, and VOC using the following information: • VOC content and the gas heating value (MMBtu/scf) from the most recent extended gas analyses and GRI-GLYCalc output, adjusted to be representative of the combined gas stream to each flare (pilot,				

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
assist, flash tank, condenser vent, and regenerator) • the emission factors used to calculate NOx and CO • the maximum hourly gas flow rate (scf/hr) to each flare calculated with GRI-GLYCalc under Condition A202.A, adjusted to be representative of the combined gas stream to the flare (pilot, assist, flash tank, condenser vent, and regenerator) • the annual total of gas sent to each flare				
Reporting: The permittee shall report according to Condition B110.	Records of dehydrator gas streams routed to the flares, and the associated emissions from the flares, are included with the applicable semi-annual monitoring reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A209 Fugitives A. 40 CFR 60, Subpart OOOO (Compressors for TBD Units 3 and 16 – 20) **Requirement**: The units will be subject to 40 CFR 60, Subparts A and OOOO if the source is constructed, modified, or reconstructed after the applicability date in 40 CFR 60.5365 and the permittee shall comply with the notification requirements in Subpart A and the specific requirements of Subpart OOOO, including standards in 60.5385.	Units 3 and 16-20 are not currently installed. Applicability will be determined upon installation.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Monitoring: The permittee shall comply with all applicable monitoring requirements in 40 CFR 60, Subpart A and Subpart	Units 3 and 16-20 are not currently installed. Applicability will be determined upon installation.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
OOOO, including but not limited to 60.5410 and 60.5415.				
Recordkeeping: The permittee shall comply with all applicable recordkeeping requirements in 40 CFR 60, Subpart A and Subpart OOOO, including but not limited to 60.5420.	Units 3 and 16-20 are not currently installed. Applicability will be determined upon installation.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall comply with all applicable reporting requirements in 40 CFR 60, Subpart A and Subpart OOOO, including but not limited to 60.5420, and in Section B110.	Units 3 and 16-20 are not currently installed. Applicability will be determined upon installation.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

PART 1 B General Conditions

1. Have these General Conditions been met during this reporting period? ***If the section Heading is marked as N/A no remarks are required.*** ***Check only one box per subject heading.*** ***Explain answers in remarks row under subject heading.***	2. Was this facility in compliance with this requirement during the reporting period?		3. Does not apply
B100 Introduction A. N/A	☐ **Yes** Explain Below	☐ **No** Explain Below	☒ **N/A** Explain Below
REMARKS:			
B101 Legal A. Permit Terms and Conditions (20.2.70 sections 7, 201.B, 300, 301.B, 302, 405 NMAC) (1) The permittee shall abide by all terms and conditions of this permit, except as allowed under Section 502(b)(10) of the Federal Act, and 20.2.70.302.H.1 NMAC. Any permit noncompliance is grounds for enforcement action, and significant or repetitious noncompliance may result in termination of this permit. Additionally, noncompliance with federally enforceable conditions of this permit constitutes a violation of the Federal Act. (20.2.70.302.A.2.a NMAC) (2) Emissions trading within a facility (20.2.70.302.H.2 NMAC) (a) The Department shall, if an applicant requests it, issue permits that contain terms and conditions allowing for the trading of emissions increases and decreases in the permitted facility solely for the purpose of complying with a federally enforceable emissions cap that is established in the permit in addition to any applicable requirements. Such terms and conditions shall include all terms and conditions required under 20.2.70.302 NMAC to determine compliance. If applicable requirements apply to the requested emissions trading, permit conditions shall be issued only to the extent that the applicable requirements provide for trading such increases and decreases without a case-by-case approval. (b) The applicant shall include in the application proposed replicable procedures and permit terms that ensure the emissions trades are quantifiable and enforceable. The Department shall not include in the emissions trading provisions any emissions units for which emissions are not quantifiable or for which there are no replicable procedures to enforce the emissions trades. The permit shall require compliance with all applicable requirements. (3) It shall not be a defense for the permittee in an enforcement action to claim that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (20.2.70.302.A.2.b NMAC)	☒ **Yes** Explain Below	☐ **No** Explain Below	☐ **N/A** Explain Below

(4) If the Department determines that cause exists to modify, reopen and revise, revoke and reissue, or terminate this permit, this shall be done in accordance with 20.2.70.405 NMAC. (20.2.70.302.A.2.c NMAC)

(5) The permittee shall furnish any information the Department requests in writing to determine if cause exists for reopening and revising, revoking and reissuing, or terminating the permit, or to determine compliance with the permit. This information shall be furnished within the time period specified by the Department. Additionally, the permittee shall furnish, upon request by the Department, copies of records required by the permit to be maintained by the permittee. (20.2.70.302.A.2.f NMAC)

(6) A request by the permittee that this permit be modified, revoked and reissued, or terminated, or a notification by the permittee of planned changes or anticipated noncompliance, shall not stay any conditions of this permit. (20.2.70.302.A.2.d NMAC)

(7) This permit does not convey property rights of any sort, or any exclusive privilege. (20.2.70.302.A.2.e NMAC)

(8) In the case where an applicant or permittee has submitted information to the Department under a claim of confidentiality, the Department may also require the applicant or permittee to submit a copy of such information directly to the Administrator of the EPA. (20.2.70.301.B NMAC)

(9) The issuance of this permit, or the filing or approval of a compliance plan, does not relieve the permittee from civil or criminal liability for failure to comply with the state or Federal Acts, or any applicable state or federal regulation or law. (20.2.70.302.A.6 NMAC and the New Mexico Air Quality Control Act NMSA 1978, Chapter 74, Article 2)

(10) If any part of this permit is challenged or held invalid, the remainder of the permit terms and conditions are not affected and the permittee shall continue to abide by them. (20.2.70.302.A.1.d NMAC)

(11) A responsible official (as defined in 20.2.70.7.AE NMAC) shall certify the accuracy, truth and completeness of every report and compliance certification submitted to the Department as required by this permit. These certifications shall be part of each document. (20.2.70.300.E NMAC)

(12) Revocation or termination of this permit by the Department terminates the permittee's right to operate this facility. (20.2.70.201.B NMAC)

(13) The permittee shall continue to comply with all applicable requirements. For applicable requirements that will become effective during the term of the permit, the permittee shall meet such requirements on a timely basis. (Sections 300.D.10.c and 302.G.3 of 20.2.70 NMAC)

B. Permit Shield (20.2.70.302.J NMAC)

(1) Compliance with the conditions of this permit shall be deemed to be compliance with any applicable

requirements existing as of the date of permit issuance and identified in Table 103.A. The requirements in Table 103.A are applicable to this facility with specific requirements identified for individual emission units.

(2) The Department has determined that the requirements in Table 103.B as identified in the permit application are not applicable to this source, or they do not impose any conditions in this permit.

(3) This permit shield does not extend to administrative amendments (Subsection A of 20.2.70.404 NMAC), to minor permit modifications (Subsection B of 20.2.70.404 NMAC), to changes made under Section 502(b)(10), changes under Paragraph 1 of subsection H of 20.2.70.302 of the Federal Act, or to permit terms for which notice has been given to reopen or revoke all or part under 20.2.70.405 and 20.2.70.302J(6).

(4) This permit shall, for purposes of the permit shield, identify any requirement specifically identified in the permit application or significant permit modification that the department has determined is not applicable to the source, and state the basis for any such determination. (20.2.70.302.A.1.f NMAC)

C. The owner or operator of a source having an excess emission shall, to the extent practicable, operate the source, including associated air pollution control equipment, in a manner consistent with good air pollutant control practices for minimizing emissions. (20.2.7.109 NMAC). The establishment of allowable malfunction emission limits does not supersede this requirement.

REMARKS:
Facility was in compliance with applicable requirements during the applicable period.

B102 Authority

☒ **Yes** Explain Below	☐ **No** Explain Below	☐ **N/A** Explain Below

A. This permit is issued pursuant to the federal Clean Air Act ("Federal Act"), the New Mexico Air Quality Control Act ("State Act") and regulations adopted pursuant to the State and Federal Acts, including Title 20, New Mexico Administrative Code, Chapter 2, Part 70 (20.2.70 NMAC) - Operating Permits.

B. This permit authorizes the operation of this facility. This permit is valid only for the named permittee, owner, and operator. A permit modification is required to change any of those entities.

C. The Department specifies with this permit, terms and conditions upon the operation of this facility to assure compliance with all applicable requirements, as defined in 20.2.70 NMAC at the time this permit is issued. (20.2.70.302.A.1 NMAC)

D. Pursuant to the New Mexico Air Quality Control Act NMSA 1978, Chapter 74, Article 2, all terms and conditions in this permit, including any provisions designed to limit this facility's potential to emit, are enforceable by the Department. All terms and conditions are enforceable by the Administrator of the United States Environmental Protection Agency ("EPA") and citizens under the Federal Act, unless the term or condition is specifically designated in this permit as not being enforceable under the Federal Act. (20.2.70.302.A.5 NMAC) E. The Department is the Administrator for 40 CFR Parts 60, 61, and 63 pursuant to the Modification and Exceptions of Section 10 of 20.2.77 NMAC (NSPS), 20.2.78 NMAC (NESHAP), and 20.2.82 NMAC (MACT).			
REMARKS: Only the permitted owner operated the facility during the applicable period.			
B103 Annual Fee The permittee shall pay Title V fees to the Department consistent with the fee schedule in 20.2.71 NMAC - Operating Permit Emission Fees. The fees will be assessed and invoiced separately from this permit. (20.2.70.302.A.1.e NMAC)	☒ **Yes** Explain Below	☐ **No** Explain Below	☐ **N/A** Explain Below
REMARKS: 2018 operating permit emission fees were paid on May 30, 2019.			
B104 Appeal Procedures (20.2.70.403.A NMAC) A. Any person who participated in a permitting action before the Department and who is adversely affected by such permitting action, may file a petition for a hearing before the Environmental Improvement Board ("board"). The petition shall be made in writing to the board within thirty (30) days from the date notice is given of the Department's action and shall specify the portions of the permitting action to which the petitioner objects, certify that a copy of the petition has been mailed or hand-delivered, and attach a copy of the permitting action for which review is sought. Unless a timely request for a hearing is made, the decision of the Department shall be final. The petition shall be copied simultaneously to the Department upon receipt of the appeal notice. If the petitioner is not the applicant or permittee, the petitioner shall mail or hand-deliver a copy of the petition to the applicant or permittee. The Department shall certify the administrative record to the board. Petitions for a hearing shall be sent to:	☐ **Yes** Explain Below	☐ **No** Explain Below	☒ **N/A** Explain Below

Secretary, New Mexico Environmental Improvement Board 1190 St. Francis Drive, Runnels Bldg. Rm N2153 Santa Fe, New Mexico 87502			
REMARKS: Department action.			
B105 Submittal of Reports and Certifications A. Stack Test Protocols and Stack Test Reports shall be submitted electronically to Stacktest.AQB@state.nm.us or as directed by the Department. B. Excess Emission Reports shall be submitted as directed by the Department. (20.2.7.110 NMAC) C. Compliance Certification Reports, Semi-Annual monitoring reports, compliance schedule progress reports, and any other compliance status information required by this permit shall be certified by the responsible official and submitted to the mailing address below, or as directed by the Department: Manager, Compliance and Enforcement Section New Mexico Environment Department Air Quality Bureau 525 Camino de los Marquez, Suite 1 Santa Fe, NM 87505-1816 D. Compliance Certification Reports shall also be submitted to the Administrator at the address below (20.2.70.302.E.3 NMAC): Chief, Air Enforcement Section US EPA Region-6, 6EN-A 1445 Ross Avenue, Suite 1200 Dallas, TX 75202-2733	☒ **Yes** Explain Below	☐ **No** Explain Below	☐ **N/A** Explain Below
REMARKS:			

PART 1 B General Conditions

Stack test reports, semi-annual reports and ACCs are submitted to the appropriate regulatory personnel.

PART 1 B General Conditions

B106 NSPS and/or MACT Startup, Shutdown, and Malfunction Operations A. If a facility is subject to a NSPS standard in 40 CFR 60, each owner or operator that installs and operates a continuous monitoring device required by a NSPS regulation shall comply with the excess emissions reporting requirements in accordance with 40 CFR 60.7(c). B. If a facility is subject to a NSPS standard in 40 CFR 60, then in accordance with 40 CFR 60.8(c), operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard. C. If a facility is subject to a MACT standard in 40 CFR 63, then the facility is subject to the requirement for a Startup, Shutdown and Malfunction Plan (SSM) under 40 CFR 63.6(e)(3), unless specifically exempted in the applicable subpart. (20.2.70.302.A.1 and A.4 NMAC)	☒ **Yes** Explain Below	☐ **No** Explain Below	☐ **N/A** Explain Below
REMARKS: Although NSPS and NESHAP standards may apply to this facility, no units currently operating are subject to their requirements of an SSM plan.			
B107 Startup, Shutdown, and Maintenance Operations A. The establishment of permitted startup, shutdown, and maintenance (SSM) emission limits does not supersede the requirements of 20.2.7.14.A NMAC. Except for operations or equipment subject to Condition B106, the permittee shall establish and implement a plan to minimize emissions during routine or predictable start up, shut down, and scheduled maintenance (SSM work practice plan) and shall operate in accordance with the procedures set forth in the plan. (20.2.7.14.A NMAC)	☒ **Yes** Explain Below	☐ **No** Explain Below	☐ **N/A** Explain Below
REMARKS: The facility is operated in accordance with the SSM work practice plan, and SSM records included in the applicable semi-annual reports.			

PART 1 B General Conditions

B108 General Monitoring Requirements (20.2.70. 302.A and C NMAC)	☒ Yes Explain Below	☐ No Explain Below	☐ N/A Explain Below

A. These requirements do not supersede or relax requirements of federal regulations.

B. The following monitoring and/or testing requirements shall be used to determine compliance with applicable requirements and emission limits. Any sampling, whether by portable analyzer or EPA reference method, that measures an emission rate over the applicable averaging period greater than an emission limit in this permit constitutes noncompliance with this permit. The Department may require, at its discretion, additional tests pursuant to EPA Reference Methods at any time, including when sampling by portable analyzer measures an emission rate greater than an emission limit in this permit; but such requirement shall not be construed as a determination that the sampling by portable analyzer does not establish noncompliance with this permit and shall not stay enforcement of such noncompliance based on the sampling by portable analyzer.

C. If the emission unit is shutdown at the time when periodic monitoring is due to be accomplished, the permittee is not required to restart the unit for the sole purpose of performing the monitoring. Using electronic or written mail, the permittee shall notify the Department's Enforcement Section of a delay in emission tests prior to the deadline for accomplishing the tests. Upon recommencing operation, the permittee shall submit any pertinent pre-test notification requirements set forth in the current version of the Department's Standard Operating Procedures For Use Of Portable Analyzers in Performance Test, and shall accomplish the monitoring.

D. The requirement for monitoring during any monitoring period is based on the percentage of time that the unit has operated. However, to invoke monitoring period exemptions at B108.D(2), hours of operation shall be monitored and recorded.

(1) If the emission unit has operated for more than 25% of a monitoring period, then the permittee shall conduct monitoring during that period.

(2) If the emission unit has operated for 25% or less of a monitoring period then the monitoring is not required. After two successive periods without monitoring, the permittee shall conduct monitoring during the next period regardless of the time operated during that period, except that for any monitoring period in which a unit has operated for less than 10% of the monitoring period, the period will not be considered as one of the two successive periods.

(3) If invoking the monitoring period exemption in B108.D(2), the actual operating time of a unit shall not exceed the monitoring period required by this permit before the required monitoring is performed. For example, if the monitoring period is annual, the operating hours of the unit shall not exceed 8760 hours before monitoring is conducted. Regardless of the time that a unit actually operates, a minimum of one of each type of monitoring activity shall be conducted during the five year term of this permit.

E. The permittee is not required to report a deviation for any monitoring or testing in a Specific Condition if the deviation was authorized in this General Condition B108.

F. For all periodic monitoring events, except when a federal or state regulation is more stringent, three test runs shall be conducted at 90% or greater of the unit's capacity as stated in this permit, or in the permit application if not in the permit, and at additional loads when requested by the Department. If the 90% capacity cannot be achieved, the monitoring will be conducted at the maximum achievable load under prevailing operating conditions except when a federal or state regulation requires more restrictive test conditions. The load and the parameters used to calculate it shall be recorded to document operating conditions and shall be included with the monitoring report.

G. When requested by the Department, the permittee shall provide schedules of testing and monitoring activities. Compliance tests from previous NSR and Title V permits may be re-imposed if it is deemed necessary by the Department to determine whether the source is in compliance with applicable regulations or permit conditions.

H. If monitoring is new or is in addition to monitoring imposed by an existing applicable requirement, it shall become effective 120 days after the date of permit issuance. For emission units that have not commenced operation, the associated new or additional monitoring shall not apply until 120 days after the units commence operation. All pre-existing monitoring requirements incorporated in this permit shall continue to apply from the date of permit issuance. All monitoring periods, unless stated otherwise in the specific permit condition or federal requirement, shall commence at the beginning of the 12 month reporting period as defined at condition A109.B.

REMARKS:
Periodic test reports are included in the applicable semi-annual reports.

PART 1 B General Conditions

B109 General Recordkeeping Requirements (20.2.70.302.D.1 NMAC)	☒ Yes Explain Below	☐ No Explain Below	☐ N/A Explain Below

A. The permittee shall maintain records to assure and verify compliance with the terms and conditions of this permit and any applicable requirements that become effective during the term of this permit. The minimum information to be included in these records is (20.2.70.302.D.1 NMAC):

(1) Records required for testing and sampling:

(a) equipment identification (include make, model and serial number for all tested equipment and emission controls);

(b) date(s) and time(s) of sampling or measurements;

(c) date(s) analyses were performed;

(d) the company or entity that performed the analyses;

(e) analytical or test methods used;

(f) results of analyses or tests; and

(g) operating conditions existing at the time of sampling or measurement.

(2) Records required for equipment inspections and/or maintenance required by this permit:

(a) equipment identification number (including make, model and serial number)

(b) date(s) and time(s) of inspection, maintenance, and/or repair

(c) date(s) any subsequent analyses were performed (if applicable)

(d) name of the person or qualified entity conducting the inspection, maintenance, and/or repair

(e) copy of the equipment manufacturer's or the owner or operator's maintenance or repair recommendations (if required to demonstrate compliance with a permit condition)

(f) description of maintenance or repair activities conducted

(g) all results of any required parameter readings

(h) a description of the physical condition of the equipment as found during any required inspection

(i) results of required equipment inspections including a description of any condition which required adjustment to bring the equipment back into compliance and a description of the required adjustments

B. The permittee shall keep records of all monitoring data, equipment calibration, maintenance, and inspections, Data Acquisition and Handling System (DAHS) if used, reports, and other supporting information required by this permit for at least five (5) years from the time the data was gathered or the reports written. Each record shall clearly identify the emissions unit and/or monitoring equipment, and the date the data was gathered. (20.2.70.302.D.2 NMAC)

C. If the permittee has applied and received approval for an alternative operating scenario, then the permittee shall maintain a log at the facility, which documents, contemporaneously with any change from one operating scenario to another, the scenario under which the facility is operating. (20.2.70.302.A.3 NMAC)

D. The permittee shall keep a record describing off permit changes made at this source that result in emissions of a regulated air pollutant subject to an applicable requirement, but not otherwise regulated under this permit, and the emissions resulting from those changes. (20.2.70.302.I.2 NMAC)

E. Unless otherwise indicated by Specific Conditions, the permittee shall keep the following records for malfunction emissions and routine and predictable emissions during startup, shutdown, and scheduled maintenance (SSM):

(1) The owner or operator of a source subject to a permit, shall establish and implement a plan to minimize emissions during routine or predictable startup, shutdown, and scheduled maintenance through work practice standards and good air pollution control practices. This requirement shall not apply to any affected facility defined in and subject to an emissions standard and an equivalent plan under 40 CFR Part 60 (NSPS), 40 CFR Part 63 (MACT), or an equivalent plan under 20.2.72 NMAC - Construction Permits, 20.2.70 NMAC - Operating Permits, 20.2.74 NMAC - Permits - Prevention of Significant Deterioration (PSD), or 20.2.79 NMAC - Permits - Nonattainment Areas. (20.2.7.14.A NMAC) The permittee shall keep records of all sources subject to the plan to minimize emissions during routine or predictable SSM and shall record if the source is subject to an alternative plan and therefore, not subject to the plan requirements under 20.2.7.14.A NMAC.

(2) If the facility has allowable SSM emission limits in this permit, the permittee shall record all SSM events, including the date, the start time, the end time, a description of the event, and a description of the cause of the event. This record also shall include a copy of the manufacturer's, or equivalent, documentation showing that any maintenance qualified as scheduled. Scheduled maintenance is an activity that occurs at an established frequency pursuant to a written protocol published by the manufacturer or other reliable source. The authorization of allowable SSM emissions does not supersede any applicable federal or state standard. The most stringent requirement applies.

(3) If the facility has allowable malfunction emission limits in this permit, the permittee shall record all malfunction events to be applied against these limits. The permittee shall also include the date, the start time, the end time, and a description of the event. **Malfunction means** any sudden and unavoidable failure of air pollution control equipment or process equipment beyond the control of the owner or operator, including malfunction during startup or shutdown. A failure that is caused entirely or in part by poor maintenance, careless operation, or any other preventable equipment breakdown shall not be considered a malfunction. (20.2.7.7.E NMAC) The authorization of allowable malfunction emissions does not supersede any applicable federal or state standard. The most stringent requirement applies. This authorization only allows the permittee to avoid submitting reports under 20.2.7 NMAC for total annual emissions that are below the authorized malfunction emission limit.

(4) The owner or operator of a source shall meet the operational plan defining the measures to be taken to mitigate source emissions during malfunction, startup or shutdown. (20.2.72.203.A(5) NMAC)

REMARKS:
Records are maintained in accordance with recordkeeping requirements.

B110 General Reporting Requirements
(20.2.70.302.E NMAC)

☒ **Yes** Explain Below | ☐ **No** Explain Below | ☐ **N/A** Explain Below

A. Reports of required monitoring activities for this facility shall be submitted to the Department on the schedule in section A109. Monitoring and recordkeeping requirements that are not required by a NSPS or MACT shall be maintained on-site or (for unmanned sites) at the nearest company office, and summarized in the semi-annual reports, unless alternative reporting requirements are specified in the equipment specific requirements section of this permit.

B. Reports shall clearly identify the subject equipment showing the emission unit ID number according to this operating permit. In addition, all instances of deviations from permit requirements, including those that occur during emergencies, shall be clearly identified in the reports required by section A109. (20.2.70.302.E.1 NMAC)

C. The permittee shall submit reports of all deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. These reports shall be submitted as follows:

(1) Deviations resulting in excess emissions as defined in 20.2.7.7 NMAC (including those classified as

emergencies as defined in section B114.A) shall be reported in accordance with the timelines specified by 20.2.7.110 NMAC and in the semi-annual reports required in section A109. (20.2.70.302.E.2 NMAC)

(2) All other deviations shall be reported in the semi-annual reports required in section A109. (20.2.70.302.E.2 NMAC).

D. The permittee shall submit reports of excess emissions in accordance with 20.2.7.110.A NMAC.

E. Results of emission tests and monitoring for each pollutant (except opacity) shall be reported in pounds per hour (unless otherwise specified) and tons per year. Opacity shall be reported in percent. The number of significant figures corresponding to the full accuracy inherent in the testing instrument or Method test used to obtain the data shall be used to calculate and report test results in accordance with 20.2.1.116.B and C NMAC. Upon request by the Department, CEMS and other tabular data shall be submitted in editable, MS Excel format.

F. At such time as new units are installed as authorized by the applicable NSR Permit, the permittee shall fulfill the notification requirements in the NSR permit.

G. Periodic Emissions Test Reporting: The permittee shall report semi-annually a summary of the test results.

H. The permittee shall submit an emissions inventory for this facility annually. The emissions inventory shall be submitted by the later of April 1 or within 90 days after the Department makes such request. (20.2.73 NMAC and 20.2.70.302.A.1 NMAC)

(1) The facility emits, or has the potential to emit, 5 tons per year or more of lead or lead compounds, or 100 tons per year or more of PM10, PM2.5, sulfur oxides, nitrogen oxides, carbon monoxide, or volatile organic compounds.

(2) The facility is defined as a major source of hazardous air pollutants under 20.2.70 NMAC (Operating Permits).

(3) The facility is located in an ozone nonattainment area and which emits, or has the potential to emit, 25 tons per year or more of nitrogen oxides or volatile organic compounds.

(4) Upon request by the department.

(5) The permittee shall submit the emissions inventory report by April 1 of each year, unless a different deadline is specified by the current operating permit.

I. Emissions trading within a facility (20.2.70.302.H.2 NMAC)

(1) For each such change, the permittee shall provide written notification to the department and the administrator at least seven (7) days in advance of the proposed changes. Such notification shall state when

the change will occur and shall describe the changes in emissions that will result and how these increases and decreases in emissions will comply with the terms and conditions of the permit. (2) The permittee and department shall attach each such notice to their copy of the relevant permit.			

PART 1 B General Conditions

REMARKS:
Reports are submitted in accordance with reporting requirements.

B111 General Testing Requirements	☒ **Yes** Explain Below	☐ **No** Explain Below	☐ **N/A** Explain Below
A. Compliance Tests			
(1) Compliance test requirements from previous permits (if any) are still in effect, unless the tests have been satisfactorily completed. Compliance tests may be re-imposed if it is deemed necessary by the Department to determine whether the source is in compliance with applicable regulations or permit conditions. (20.2.72 NMAC Sections 210.C and 213)			
(2) Compliance tests shall be conducted within sixty (60) days after the unit(s) achieve the maximum normal production rate. If the maximum normal production rate does not occur within one hundred twenty (120) days of source startup, then the tests must be conducted no later than one hundred eighty (180) days after initial startup of the source.			
(3) Unless otherwise indicated by Specific Conditions or regulatory requirements, the default time period for each test run shall be **at least** 60 minutes and each performance test shall consist of three separate runs using the applicable test method. For the purpose of determining compliance with an applicable emission limit, the arithmetic mean of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances, beyond the owner or operator's control, compliance may, upon the Department approval, be determined using the arithmetic mean of the results of the two other runs.			
(4) Testing of emissions shall be conducted with the emissions unit operating at 90 to 100 percent of the maximum operating rate allowed by the permit. If it is not possible to test at that rate, the source may test at a lower operating rate, subject to the approval of the Department.			
(5) Testing performed at less than 90 percent of permitted capacity will limit emission unit operation to 110 percent of the tested capacity until a new test is conducted.			
(6) If conditions change such that unit operation above 110 percent of tested capacity is possible, the source must submit a protocol to the Department within 30 days of such change to conduct a new emissions test.			
B. EPA Reference Method Tests			
(1) All compliance tests required by this permit, unless otherwise specified by Specific Conditions of this			

permit, shall be conducted in accordance with the requirements of 40 CFR 60, Subpart A, General Provisions, and the following EPA Reference Methods as specified by 40 CFR 60, Appendix A:

(a) Methods 1 through 4 for stack gas flowrate

(b) Method 5 for TSP

(c) Method 6C and 19 for SO_2

(d) Method 7E for NO_X (test results shall be expressed as nitrogen dioxide (NO_2) using a molecular weight of 46 lb/lb-mol in all calculations (each ppm of NO/NO_2 is equivalent to 1.194 x 10-7 lb/SCF)

(e) Method 9 for opacity

(f) Method 10 for CO

(g) Method 19 may be used in lieu of Methods 1-4 for stack gas flowrate upon approval of the Department. A justification for this proposal must be provided along with a contemporaneous fuel gas analysis (preferably on the day of the test) and a recent fuel flow meter calibration certificate (within the most recent quarter).

(h) Method 7E or 20 for Turbines per 60.335 or 60.4400

(i) Method 29 for Metals

(j) Method 201A for filterable PM_{10} and $PM_{2.5}$

(k) Method 202 for condensable PM

(l) Method 320 for organic Hazardous Air Pollutants (HAPs)

(m) Method 25A for VOC reduction efficiency

(n) Method 30B for Mercury

(2) Alternative test method(s) may be used if the Department approves the change.

C. Periodic Monitoring and Portable Analyzer Requirements

(1) Periodic emissions tests (periodic monitoring) may be conducted in accordance with EPA Reference Methods or by utilizing a portable analyzer. Periodic monitoring utilizing a portable analyzer shall be conducted in accordance with the requirements of the current version of ASTM D 6522. However, if a facility has met a previously approved Department criterion for portable analyzers, the analyzer may be operated in accordance with that criterion until it is replaced.

(2) Unless otherwise indicated by Specific Conditions or regulatory requirements, the default time period for

each test run shall be **at least** 20 minutes.

Each performance test shall consist of three separate runs. The arithmetic mean of results of the three runs shall be used to determine compliance with the applicable emission limit.

(3) Testing of emissions shall be conducted in accordance with the requirements at Section B108.F.

(4) During emissions tests, pollutant and diluent concentration shall be monitored and recorded. Fuel flow rate shall be monitored and recorded if stack gas flow rate is determined utilizing Method 19. This information shall be included with the test report furnished to the Department.

(5) Stack gas flow rate shall be calculated in accordance with 40 CFR 60, Appendix A, Method 19 utilizing fuel flow rate (scf) determined by a dedicated fuel flow meter and fuel heating value (Btu/scf) determined from a fuel sample obtained preferably during the day of the test, but no earlier than three months prior to the test date. Alternatively, stack gas flow rate may be determined by using EPA Methods 1-4.

D. Test Procedures:

(1) The permittee shall notify the Department's Program Manager, Compliance and Enforcement Section at least thirty (30) days before the test to afford a representative of the Department an opportunity to be present at the test. (40CFR 60.8(d))

(2) Equipment shall be tested in the "as found" condition. Equipment may not be adjusted or tuned prior to any test for the purpose of lowering emissions, and then returned to previous settings or operating conditions after the test is complete.

(3) Contents of test notifications, protocols and test reports shall conform to the format specified by the Department's Universal Test Notification, Protocol and Report Form and Instructions. Current forms and instructions are posted to NMED's Air Quality web site under Compliance and Enforcement Testing.

(4) The permittee shall provide (a) sampling ports adequate for the test methods applicable to the facility, (b) safe sampling platforms, (c) safe access to sampling platforms and (d) utilities for sampling and testing equipment.

(5) The stack shall be of sufficient height and diameter and the sample ports shall be located so that a representative test of the emissions can be performed in accordance with the requirements of EPA Method 1 or ASTM D 6522-00 as applicable.

(6) Where necessary to prevent cyclonic flow in the stack, flow straighteners shall be installed

(7) Unless otherwise indicated by Specific Conditions or regulatory requirements, test reports shall be submitted to the Department no later than 30 days after completion of the test.

REMARKS:

Testing that occurred during the applicable period was completed in accordance with the appropriate procedures.

B112 Compliance	☒ **Yes** Explain Below	☐ **No** Explain Below	☐ **N/A** Explain Below
A. The Department shall be given the right to enter the facility at all reasonable times to verify the terms and conditions of this permit. Required records shall be organized by date and subject matter and shall at all times be readily available for inspection. The permittee, upon verbal or written request from an authorized representative of the Department who appears at the facility, shall immediately produce for inspection or copying any records required to be maintained at the facility. Upon written request at other times, the permittee shall deliver to the Department paper or electronic copies of any and all required records maintained on site or at an off-site location. Requested records shall be copied and delivered at the permittee's expense within three business days from receipt of request unless the Department allows additional time. Required records may include records required by permit and other information necessary to demonstrate compliance with terms and conditions of this permit. (NMSA 1978, Section 74-2-13) B. A copy of the most recent permit(s) issued by the Department shall be kept at the permitted facility or (for unmanned sites) at the nearest company office and shall be made available to Department personnel for inspection upon request. (20.2.70.302.G.3 NMAC) C. Emissions limits associated with the energy input of a Unit, i.e. lb/MMBtu, shall apply at all times unless stated otherwise in a Specific Condition of this permit. The averaging time for each emissions limit, including those based on energy input of a Unit (i.e. lb/MMBtu) is one (1) hour unless stated otherwise in a Specific Condition of this permit or in the applicable requirement that establishes the limit. (20.2.70.302.A.1 and G.3 NMAC) D. The permittee shall submit compliance certification reports certifying the compliance status of this facility with respect to all permit terms and conditions, including applicable requirements. These reports shall be made on the pre-populated Compliance Certification Report Form that is provided to the permittee by the Department, and shall be submitted to the Department and to EPA at least every 12 months. For the most current form, please contact the Compliance Reports Group at submittals.aqb@state.nm.us. For additional reporting guidance see https://www.env.nm.gov/air-quality/compliance-submittal-forms/. (20.2.70.302.E.3 NMAC) E. The permittee shall allow representatives of the Department, upon presentation of credentials and other documents as may be required by law, to do the following (20.2.70.302.G.1 NMAC):			

(1) enter the permittee's premises where a source or emission unit is located, or where records that are required by this permit to be maintained are kept; (2) have access to and copy, at reasonable times, any records that are required by this permit to be maintained; (3) inspect any facilities, equipment (including monitoring and air pollution control equipment), work practices or operations regulated or required under this permit; and (4) sample or monitor any substances or parameters for the purpose of assuring compliance with this permit or applicable requirements or as otherwise authorized by the Federal Act.			

REMARKS:
Records and permits are maintained as required. Representatives have not been denied access to the facility and applicable files during the applicable period.

B113 Permit Reopening and Revocation	☒ **Yes** Explain Below	☐ **No** Explain Below	☐ **N/A** Explain Below
A. This permit will be reopened and revised when any one of the following conditions occurs, and may be revoked and reissued when A(3) or A(4) occurs. (20.2.70.405.A.1 NMAC) (1) Additional applicable requirements under the Federal Act become applicable to a major source three (3) or more years before the expiration date of this permit. If the effective date of the requirement is later than the expiration date of this permit, then the permit is not required to be reopened unless the original permit or any of its terms and conditions has been extended due to the Department's failure to take timely action on a request by the permittee to renew this permit. (2) Additional requirements, including excess emissions requirements, become applicable to this source under Title IV of the Federal Act (the acid rain program). Upon approval by the Administrator, excess emissions offset plans will be incorporated into this permit. (3) The Department or the Administrator determines that the permit contains a material mistake or that inaccurate statements were made in establishing the terms and conditions of the permit. (4) The Department or the Administrator determines that the permit must be revised or revoked and reissued to assure compliance with an applicable requirement. B. Proceedings to reopen or revoke this permit shall affect only those parts of this permit for which cause to reopen or revoke exists. Emissions units for which permit conditions have been revoked shall not be operated until new permit conditions have been issued for them. (20.2.70.405.A.2 NMAC)			

PART 1 B General Conditions

REMARKS:
No communication has been received from the regulating agency to indicate that the permit has been reopened, revoked or revised.

B114 Emergencies (20.2.70.304 NMAC)	☒ **Yes** Explain Below	☐ **No** Explain Below	☐ **N/A** Explain Below

A. An "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the permittee, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventive maintenance, or careless or improper operation.

B. An emergency constitutes an affirmative defense to an action brought for noncompliance with technology-based emission limitations contained in this permit if the permittee has demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An emergency occurred and that the permittee can identify the cause(s) of the emergency;

(2) This facility was at the time being properly operated;

(3) During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit; and

(4) The permittee submitted notice of the emergency to the Department within 2 working days of the time when emission limitations were exceeded due to the emergency. This notice fulfills the requirement of 20.2.70.302.E.2 NMAC. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

C. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.

D. This provision is in addition to any emergency or upset provision contained in any applicable requirement.

REMARKS:

PART 1 B General Conditions

No emergencies occurred during this period.

B115 Stratospheric Ozone (20.2.70.302.A.1 NMAC) A. If this facility is subject to 40 CFR 82, Subpart F, the permittee shall comply with the following standards for recycling and emissions reductions: (1) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices, except for motor vehicle air conditioners (MVAC) and MVAC-like appliances. (40 CFR 82.156) (2) Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment. (40 CFR 82.158) (3) Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program. (40 CFR 82.161)	☐ **Yes** Explain Below	☐ **No** Explain Below	☒ **N/A** Explain Below

REMARKS:
The facililty is not subject to 40CFR 82 subpart F.

B116 Acid Rain Sources (20.2.70.302.A.9 NMAC) A. If this facility is subject to the federal acid rain program under 40 CFR 72, this section applies. B. Where an applicable requirement of the Federal Act is more stringent than an applicable requirement of regulations promulgated under Title IV of the Federal Act, both provisions are incorporated into this permit and are federally enforceable. C. Emissions exceeding any allowances held by the permittee under Title IV of the Federal Act or the regulations promulgated thereunder are prohibited. D. No modification of this permit is required for increases in emissions that are authorized by allowances acquired pursuant to the acid rain program, provided that such increases do not require a permit modification under any other applicable requirement. E. The permittee may not use allowances as a defense to noncompliance with any other applicable requirement.	☐ **Yes** Explain Below	☐ **No** Explain Below	☒ **N/A** Explain Below

F. No limit is placed on the number of allowances held by the acid rain source. Any such allowance shall be accounted for according to the procedures established in regulations promulgated under Title IV of the Federal Act. G. The acid rain permit is an enclosure of this operating permit.			
REMARKS: The facililty is not subject to 40CFR 72.			
B117 Risk Management Plan (20.2.70.302.A.1 NMAC) A. If this facility is subject to the federal risk management program under 40 CFR 68, this section applies. B. The owner or operator shall certify annually that they have developed and implemented a RMP and are in compliance with 40 CFR 68. C. If the owner or operator of the facility has not developed and submitted a risk management plan according to 40 CFR 68.150, the owner or operator shall provide a compliance schedule for the development and implementation of the plan. The plan shall describe, in detail, procedures for assessing the accidental release hazard, preventing accidental releases, and developing an emergency response plan to an accidental release. The plan shall be submitted in a method and format to a central point as specified by EPA prior to the date specified in 40 CFR 68.150.b.	☐ **Yes** Explain Below	☐ **No** Explain Below	☒ **N/A** Explain Below
REMARKS: The facililty is not subject to 40CFR 68.			

Part 2

ACC Deviation Summary Report for Permits P168-R3 & P168-R3M1

1. Are there any deviations identified in Part 1, Column 5. If NO, no further information is required on Part 2 of this form. If YES, answer question 2 below.	☐ Yes ☒ No
2. Have all deviations identified in Part 1, Column 5 been reported to the NMED as required by 20.2.7 NMAC or in a Semi-Annual Monitoring Report (20.2.70.302.E.1 NMAC)? If Yes, no further information is required on Part 2 of this form. If No, answer question 3 below and enter the required information in the Deviation Summary Table for each deviation not yet reported to the NMED.	☐ Yes ☐ No
3. Did any of the deviations result in excess emissions? For excess emissions deviations that have not previously been reported per requirements of 20.2.7 NMAC, a completed Excess Emission Form for each deviation must be attached to this report.	☐ Yes ☐ No

Deviation Summary Table for deviations not yet reported.

No.	Applicable Requirement (Include Rule Citation)	Emission Unit ID(s)	Cause of Deviation	Corrective Action Taken
1				
2				
3				
4				
5				

Deviation Summary Table (cont.)

	Deviation Started		Deviation Ended					Did you attach an excess emission form?
No.	Date	Time	Date	Time	Pollutant	Monitoring Method	Amount of Emissions	
1								☐ **Yes** ☐ **No**
2								☐ **Yes** ☐ **No**
3								☐ **Yes** ☐ **No**
4								☐ **Yes** ☐ **No**
5								☐ **Yes** ☐ **No**

Section 21

Addendum for Landfill Applications

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

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

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

Not applicable, as the station is not a landfill.

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Section 22

Certification

Company Name: Harvest Four Corners, LLC

I, TRAVIS JONES, hereby certify that the information and data submitted in this application are true and as accurate as possible, to the best of my knowledge and professional expertise and experience. Signed this 21 day of NOVEMBER, 2019, upon my oath or affirmation, before a notary of the State of New Mexico.

*Signature

11/21/2019
Date

TRAVIS JONES
Printed Name

EHS MANAGER
Title

Scribed and sworn before me on this 21st day of November, 2019.

My authorization as a notary of the State of New Mexico expires on the 31st day of August, 2021.

Jodi L. Bohannon
Notary's Signature

11/21/2019
Date

Jodi L. Bohannon
Notary's Printed Name

Official Seal
JODI L BOHANNON
Notary Public
State of New Mexico
My Comm. Expires 8/31/21

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

Revisions Start Here

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Introduction

The Harvest Four Corners, LLC (HFC) Carracas Central Delivery Point (CDP) currently operates under a construction permit, 968-M5-R7, dated October 12, 2017 and a Title V operating permit, P168-R3, dated January 5, 2016.

This application is being submitted to renew the Title V operating permit.

The facility is currently approved by the Title V permit to operate the following equipment/sources:

- Twelve Waukesha L7042GL natural gas-fired reciprocating engines (Units 1-3, 7, 8 & 14-20), equipped with catalytic convertors to control carbon monoxide (CO), volatile organic compounds (VOC) and hazardous air pollutants (HAP) emissions;
- Two Capstone C65 natural gas-fired microturbine generators (Units 4 & 27);
- Four Enertek (or equivalent) glycol dehydrators with capacities of 12 million standard cubic feet per day (MMSCFD)(Units 5a, 6a, 22a & 24a);
- Four Enertek (or equivalent) dehydrator reboilers rated at 1.09 million British thermal units per hour (MMBtu/hr)(Units 5b, 6b, 22b & 24b);
- Four Enertek (or equivalent) glycol dehydrators with capacities of 20 MMSCFD (Units 9a, 10a, 21a & 23a);
- Four Enertek (or equivalent) dehydrator reboilers rated at 1.48 MMBtu/hr (Units 9b, 10b, 21b & 23b);
- Four Moneyhun process flares (Units 11, 12, 25 & 26), used to control dehydrator VOC and HAP emissions;
- Startup, shutdown and maintenance (SSM) emissions from the compressors and piping associated with the station (Unit SSM); and
- Malfunction emissions (Unit M1).

The station is also equipped with miscellaneous exempt/insignificant liquid storage tanks and gas transmission equipment.

The revision to this application is being made to incorporate administrative revisions to the NSR permit that were overlooked in the original Title V application.

On December 4, 2018, HFC submitted an administrative revision to remove four engines and four dehydrators from the permit. As a result, the following changes are being incorporated into this application:

- Remove four Waukesha 7042GL engines (Units 17-20) from the permit;
- Remove two 20 MMSCFD dehydrators (Units 21 & 23) from the permit;
- Remove two 12 MMSCFD dehydrators (Units 22 & 24) from the permit;

- Remove two process flares (Units 25 & 26) from the permit. These units were permitted to control Units 21-24. With removal of the four dehydrators, the flares are no longer required. An administrative revision to remove the two flares from the NSR application is being submitted to the New Mexico Air Quality Bureau (NMAQB) along with these change pages.

Table 2-A: Regulated Emission Sources

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

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
1	Reciprocating Engine	Waukesha	L7042GL	C-10887/3 (pkg. 76789)	1,478 hp	1,373 hp	06/30/92 06/30/92	NA 1	2E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
2	Reciprocating Engine	Waukesha	L7042GL	C-10985/9 (pkg. 76788)	1,478 hp	1,373 hp	10/30/93 10/30/93	NA 2	2E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
3	Reciprocating Engine	Waukesha	L7042GL	TBD	1,478 hp	1,373 hp	TBD TBD	NA 3	2E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
7	Reciprocating Engine	Waukesha	L7042GL	C-12588/7 (pkg. 804373)	1,478 hp	1,373 hp	08/31/98 08/31/98	NA 7	2E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
8	Reciprocating Engine	Waukesha	L7042GL	C-11661/4 (pkg. X00428)	1,478 hp	1,373 hp	02/21/92 02/21/92	NA 8	2E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
14	Reciprocating Engine	Waukesha	L7042GL	C-12703/1 (pkg. 804503)	1,478 hp	1,373 hp	11/19/98 12/15/98	NA 14	2E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
15	Reciprocating Engine	Waukesha	L7042GL	388068 (pkg. 804504)	1,478 hp	1,373 hp	02/27/85 02/27/85	NA 15	2E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
16	Reciprocating Engine	Waukesha	L7042GL	TBD	1,478 hp	1,373 hp	TBD TBD	NA 16	2E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
17	Reciprocating Engine	Waukesha	L7042GL	TBD	1,478 hp	1,373 hp	TBD TBD	NA 17	2E+07	☐ Existing (unchanged) ☑ **To be Removed** ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
18	Reciprocating Engine	Waukesha	L7042GL	TBD	1,478 hp	1,373 hp	TBD TBD	NA 15	2E+07	☐ Existing (unchanged) ☑ **To be Removed** ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
19	Reciprocating Engine	Waukesha	L7042GL	TBD	1,478 hp	1,373 hp	TBD TBD	NA 15	2E+07	☐ Existing (unchanged) ☑ **To be Removed** ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
20	Reciprocating Engine	Waukesha	L7042GL	TBD	1,478 hp	1,373 hp	TBD TBD	NA 15	2E+07	☐ Existing (unchanged) ☑ **To be Removed** ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
4	Turbine Generator	Capstone	C65	0005891	65 kW	65 kW	11/27/01 11/27/01	NA 4	2E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
27	Turbine Generator	Capstone	C65	0005892	65 kW	65 kW	11/27/01 11/27/01	NA 27	2E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
5a	Dehydrator	Enertek	J2P12M749	41779	12 mmscfd	12 mmscfd	10/01/95 10/01/95	11 11	3.1E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	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 #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
6a	Dehydrator	Enertek (or equivalent)	J2P12M749	41716	12 mmscfd	12 mmscfd	06/01/92 06/01/92	12 12	3.1E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
9a	Dehydrator	Moneyhun	N/A	39045	20 mmscfd	20 mmscfd	10/29/09 10/29/09	12 12	3.1E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
10a	Dehydrator	Moneyhun	N/A	3868	20 mmscfd	20 mmscfd	10/29/09 10/29/09	11 11	3.1E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
21a	Dehydrator	Enertek (or equivalent)	TBD	TBD	20 mmscfd	20 mmscfd	TBD TBD	TBD 25	3.1E+07	☐ Existing (unchanged) ☑ **To be Removed** ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
22a	Dehydrator	Enertek (or equivalent)	TBD	TBD	12 mmscfd	12 mmscfd	TBD TBD	TBD 25	3.1E+07	☐ Existing (unchanged) ☑ **To be Removed** ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
23a	Dehydrator	Enertek (or equivalent)	TBD	TBD	20 mmscfd	20 mmscfd	TBD TBD	TBD 26	3.1E+07	☐ Existing (unchanged) ☑ **To be Removed** ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
24a	Dehydrator	Enertek (or equivalent)	TBD	TBD	12 mmscfd	12 mmscfd	TBD TBD	TBD 26	3.1E+07	☐ Existing (unchanged) ☑ **To be Removed** ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
5b	Dehydrator Reboiler	Enertek	J2P12M749	41779	12 mmscfd	12 mmscfd	10/01/95 10/01/95	N/A 5b	3.1E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
6b	Dehydrator Reboiler	Enertek (or equivalent)	J2P12M749	41716	12 mmscfd	12 mmscfd	06/01/92 06/01/92	N/A 6b	3.1E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
9b	Dehydrator Reboiler	Moneyhun	N/A	39045	20 mmscfd	20 mmscfd	10/29/09 10/29/09	N/A 9b	3.1E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
10b	Dehydrator Reboiler	Moneyhun	N/A	3868	20 mmscfd	20 mmscfd	10/29/09 10/29/09	N/A 10b	3.1E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
21b	Dehydrator Reboiler	Enertek (or equivalent)	TBD	TBD	20 mmscfd	20 mmscfd	TBD TBD	NA 21b	3.1E+07	☐ Existing (unchanged) ☑ **To be Removed** ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
22b	Dehydrator Reboiler	Enertek (or equivalent)	TBD	TBD	12 mmscfd	12 mmscfd	TBD TBD	NA 22b	3.1E+07	☐ Existing (unchanged) ☑ **To be Removed** ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
23b	Dehydrator Reboiler	Enertek (or equivalent)	TBD	TBD	20 mmscfd	20 mmscfd	TBD TBD	NA 23b	3.1E+07	☐ Existing (unchanged) ☑ **To be Removed** ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
24b	Dehydrator Reboiler	Enertek (or equivalent)	TBD	TBD	12 mmscfd	12 mmscfd	TBD TBD	NA 24b	3.1E+07	☐ Existing (unchanged) ☑ **To be Removed** ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	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 #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
11	Process Flare	Moneyhun		36001			10/29/09 10/29/09	NA 11	3.1E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
12	Process Flare	Moneyhun		36002			10/29/09 10/29/09	NA 12	3.1E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
25	Process Flare	Moneyhun	TBD	TBD			TBD TBD	NA 25	3.1E+07	☐ Existing (unchanged) ☑ **To be Removed** ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
26	Process Flare	Moneyhun	TBD	TBD			TBD TBD	NA 26	3.1E+07	☐ Existing (unchanged) ☑ **To be Removed** ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
SSM	Startups, Shutdowns & Malfunctions (Compressors & Associated Piping)	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	3.1E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
M1	Malfunction Emissions	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	3.1E+07	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

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

[2] Specify dates required to determine regulatory applicability.

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

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

Table 2-C: Emissions Control Equipment

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

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
1	EMIT Technologies RE-3350-Z Catalytic Convertor or Equivalent	Unknown	CO, VOC, & HAPs	1	CO 93%, CH2O 80%, VOC & other HAP	Mfg data
2	EMIT Technologies RE-3350-Z Catalytic Convertor or Equivalent	Unknown	CO, VOC, & HAPs	2	CO 93%, CH2O 80%, VOC & other HAP	Mfg data
3	EMIT Technologies RE-3350-Z Catalytic Convertor or Equivalent	Unknown	CO, VOC, & HAPs	3	CO 93%, CH2O 80%, VOC & other HAP	Mfg data
7	EMIT Technologies RE-3350-Z Catalytic Convertor or Equivalent	Unknown	CO, VOC, & HAPs	7	CO 93%, CH2O 80%, VOC & other HAP	Mfg data
8	EMIT Technologies RE-3350-Z Catalytic Convertor or Equivalent	Unknown	CO, VOC, & HAPs	8	CO 93%, CH2O 80%, VOC & other HAP	Mfg data
14	EMIT Technologies RE-3350-Z Catalytic Convertor or Equivalent	TBD	CO, VOC, & HAPs	14	CO 93%, CH2O 80%, VOC & other HAP	Mfg data
15	EMIT Technologies RE-3350-Z Catalytic Convertor or Equivalent	TBD	CO, VOC, & HAPs	15	CO 93%, CH2O 80%, VOC & other HAP	Mfg data
16	EMIT Technologies RE-3350-Z Catalytic Convertor or Equivalent	TBD	CO, VOC, & HAPs	16	CO 93%, CH2O 80%, VOC & other HAP	Mfg data
11	Dehydrator Still Vent Flare	Unknown	VOC & HAPs	5a & 10a	95%	TCEQ factors
12	Dehydrator Still Vent Flare	Unknown	VOC & HAPs	6a & 9a	95%	TCEQ factors

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

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	4.54	19.89	9.08	39.78	3.03	13.26	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
2	4.54	19.89	9.08	39.78	3.03	13.26	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
3	4.54	19.89	9.08	39.78	3.03	13.26	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
7	4.54	19.89	9.08	39.78	3.03	13.26	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
8	4.54	19.89	9.08	39.78	3.03	13.26	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
14	4.54	19.89	9.08	39.78	3.03	13.26	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
15	4.54	19.89	9.08	39.78	3.03	13.26	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
16	4.54	19.89	9.08	39.78	3.03	13.26	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
4	2.99E-02	1.31E-01	8.13E-02	3.56E-01	6.50E-04	2.85E-03	2.86E-03	1.25E-02	5.56E-03	2.43E-02	5.56E-03	2.43E-02	5.56E-03	2.43E-02	-	-	-	-
27	2.99E-02	1.31E-01	8.13E-02	3.56E-01	6.50E-04	2.85E-03	2.86E-03	1.25E-02	5.56E-03	2.43E-02	5.56E-03	2.43E-02	5.56E-03	2.43E-02	-	-	-	-
5a	-	-	-	-	9.74E-01	4.27	-	-	-	-	-	-	-	-	-	-	-	-
6a	-	-	-	-	9.74E-01	4.27	-	-	-	-	-	-	-	-	-	-	-	-
9a	-	-	-	-	2.02	8.85	-	-	-	-	-	-	-	-	-	-	-	-
10a	-	-	-	-	2.02	8.85	-	-	-	-	-	-	-	-	-	-	-	-
5b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	9.18E-03	4.02E-02	9.18E-03	4.02E-02	9.18E-03	4.02E-02	-	-	6.04E-07	2.65E-06
6b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	9.18E-03	4.02E-02	9.18E-03	4.02E-02	9.18E-03	4.02E-02	-	-	6.04E-07	2.65E-06
9b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	1.25E-02	5.49E-02	1.25E-02	5.49E-02	1.25E-02	5.49E-02	-	-	8.24E-07	3.61E-06
10b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	1.25E-02	5.49E-02	1.25E-02	5.49E-02	1.25E-02	5.49E-02	-	-	8.24E-07	3.61E-06
11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SSM	-	-	-	-	unspecified	5.00	-	-	-	-	-	-	-	-	-	-	-	-
M1	-	-	-	-	unspecified	5.00	-	-	-	-	-	-	-	-	-	-	-	-
Totals	36.56	160.12	72.97	319.60	30.23	142.42	5.66E-02	2.48E-01	8.62E-01	3.78	8.62E-01	3.78	8.62E-01	3.78	-	-	2.86E-06	1.25E-05

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

Table 2-E: Requested Allowable Emissions

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	4.54	19.89	6.36E-01	2.78	1.06	4.64	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
2	4.54	19.89	6.36E-01	2.78	1.06	4.64	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
3	4.54	19.89	6.36E-01	2.78	1.06	4.64	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
7	4.54	19.89	6.36E-01	2.78	1.06	4.64	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
8	4.54	19.89	6.36E-01	2.78	1.06	4.64	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
14	4.54	19.89	6.36E-01	2.78	1.06	4.64	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
15	4.54	19.89	6.36E-01	2.78	1.06	4.64	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
16	4.54	19.89	6.36E-01	2.78	1.06	4.64	5.95E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
4	2.99E-02	1.31E-01	8.13E-02	3.56E-01	6.50E-04	2.85E-03	2.86E-03	1.25E-02	5.56E-03	2.43E-02	5.56E-03	2.43E-02	5.56E-03	2.43E-02	-	-	-	-
27	2.99E-02	1.31E-01	8.13E-02	3.56E-01	6.50E-04	2.85E-03	2.86E-03	1.25E-02	5.56E-03	2.43E-02	5.56E-03	2.43E-02	5.56E-03	2.43E-02	-	-	-	-
5a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	9.18E-03	4.02E-02	9.18E-03	4.02E-02	9.18E-03	4.02E-02	-	-	6.04E-07	2.65E-06
6b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	9.18E-03	4.02E-02	9.18E-03	4.02E-02	9.18E-03	4.02E-02	-	-	6.04E-07	2.65E-06
9b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	1.25E-02	5.49E-02	1.25E-02	5.49E-02	1.25E-02	5.49E-02	-	-	8.24E-07	3.61E-06
10b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	1.25E-02	5.49E-02	1.25E-02	5.49E-02	1.25E-02	5.49E-02	-	-	8.24E-07	3.61E-06
11	2.00E-01	7.00E-01	1.40	6.10	6.00E-01	2.40	1.63E-03	7.13E-03	-	-	-	-	-	-	-	-	-	-
12	2.00E-01	7.00E-01	1.40	6.10	6.00E-01	2.40	1.63E-03	7.13E-03	-	-	-	-	-	-	-	-	-	-
SSM	-	-	-	-	unspecified	5.00	-	-	-	-	-	-	-	-	-	-	-	-
M1	-	-	-	-	unspecified	5.00	-	-	-	-	-	-	-	-	-	-	-	-
Totals	36.96	161.52	8.20	35.86	9.70	52.03	5.99E-02	2.62E-01	8.62E-01	3.78	8.62E-01	3.78	8.62E-01	3.78	-	-	2.86E-06	1.25E-05

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

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[2]		PM10[2]		PM2.5[2]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10b	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SSM	-	-	-	-	unspecified	5.00	-	-	-	-	-	-	-	-	-	-	-	-
M1	-	-	-	-	unspecified	5.00	-	-	-	-	-	-	-	-	-	-	-	-
Totals	-	-	-	-	unspecified	10.00	-	-	-	-	-	-	-	-	-	-	-	-

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

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

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

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

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

Stack No.	Serving Unit Number(s) from Table 2-A	NOx		CO		VOC		SOx		PM		PM10		PM2.5		☐ H_2S or ☐ Lead	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
5a	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6a	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9a	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10a	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	6a, 9a & 11	2.00E-01	7.00E-01	1.40	6.10	6.00E-01	2.40	1.63E-03	7.13E-03	-	-	-	-	-	-	-	-
12	5a, 10a & 12	2.00E-01	7.00E-01	1.40	6.10	6.00E-01	2.40	1.63E-03	7.13E-03	-	-	-	-	-	-	-	-
Totals:		4.00E-01	1.40	2.80	12.20	1.20	4.80	3.25E-03	1.43E-02	-	-	-	-	-	-	-	-

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	26	702	127			156	1.02
2	2	V	No	26	702	127			156	1.02
3	3	V	No	26	702	127			156	1.02
7	7	V	No	26	702	127			156	1.02
8	8	V	No	26	702	127			156	1.02
14	14	V	No	26	702	127			156	1.02
15	15	V	No	26	702	127			156	1.02
16	16	V	No	26	702	127			156	1.02
4	4	V	No	7.5	588	33			95	0.67
27	27	V	No	7.5	588	33			95	0.67
5b	5b	V	No	18	600	3			6	0.83
6b	6b	V	No	18	600	3			6	0.83
9b	9b	V	No	18	600	5			6	0.83
10b	10b	V	No	18	600	5			6	0.83
11	5a, 10a & 11	V	No	20	1832				66	1.22
12	6a, 9a, & 12	V	No	20	1832				66	1.22

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

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

Stack No.	Unit No.(s)	Total HAPs		Formaldehyde ☑ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	1	0.1	0.5	0.1	0.4														
2	2	0.1	0.5	0.1	0.4														
3	3	0.1	0.5	0.1	0.4														
7	7	0.1	0.5	0.1	0.4														
8	8	0.1	0.5	0.1	0.4														
14	14	0.1	0.5	0.1	0.4														
15	15	0.1	0.5	0.1	0.4														
16	16	0.1	0.5	0.1	0.4														
4	4																		
27	27																		
5a	5a																		
6a	6a																		
9a	9a																		
10a	10a																		
5b	5b																		
6b	6b																		
9b	9b																		
10b	10b																		
11	11		0.2																
12	12		0.2																
SSM	SSM		0.1																
M1	M1		0.1																
Totals:		1.0	4.5	0.8	3.6														

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	Pipeline Quality Natural Gas	900 Btu/scf	11.24 Mscf	98.43 MMscf	Negligible	Negligible
2	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	11.24 Mscf	98.43 MMscf	Negligible	Negligible
3	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	11.24 Mscf	98.43 MMscf	Negligible	Negligible
7	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	11.24 Mscf	98.43 MMscf	Negligible	Negligible
8	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	11.24 Mscf	98.43 MMscf	Negligible	Negligible
14	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	11.24 Mscf	98.43 MMscf	Negligible	Negligible
15	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	11.24 Mscf	98.43 MMscf	Negligible	Negligible
16	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	11.24 Mscf	98.43 MMscf	Negligible	Negligible
4	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	825.49 scf	7.23 MMscf	Negligible	Negligible
27	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	825.49 scf	7.23 MMscf	Negligible	Negligible
5b	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	1.21 Mscf	10.58 MMscf	Negligible	Negligible
6b	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	1.21 Mscf	10.58 MMscf	Negligible	Negligible
9b	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	1.65 Mscf	14.44 MMscf	Negligible	Negligible
10b	Natural Gas	Pipeline Quality Natural Gas	900 Btu/scf	1.65 Mscf	14.44 MMscf	Negligible	Negligible
11	Natural Gas	Pipeline & Raw/Field Natural Gas	876 Btu/scf	2.71 Mscf	23.76 MMscf	Negligible	Negligible
12	Natural Gas	Pipeline & Raw/Field Natural Gas	876 Btu/scf	2.71 Mscf	23.76 MMscf	Negligible	Negligible

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_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]									**Total GHG** Mass Basis ton/yr[4]	**Total CO_2e** ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**22,800**	**footnote 3**										
1	**mass GHG**	6010.45	1.13E-02	1.13E-01	-	-									6010.58	-
	CO_2e	6010.45	3.38	2.83	-	-									-	6016.66
2	**mass GHG**	6010.45	1.13E-02	1.13E-01	-	-									6010.58	-
	CO_2e	6010.45	3.38	2.83	-	-									-	6016.66
3	**mass GHG**	6010.45	1.13E-02	1.13E-01	-	-									6010.58	-
	CO_2e	6010.45	3.38	2.83	-	-									-	6016.66
7	**mass GHG**	6010.45	1.13E-02	1.13E-01	-	-									6010.58	-
	CO_2e	6010.45	3.38	2.83	-	-									-	6016.66
8	**mass GHG**	6010.45	1.13E-02	1.13E-01	-	-									6010.58	-
	CO_2e	6010.45	3.38	2.83	-	-									-	6016.66
14	**mass GHG**	6010.45	1.13E-02	1.13E-01	-	-									6010.58	-
	CO_2e	6010.45	3.38	2.83	-	-									-	6016.66
15	**mass GHG**	6010.45	1.13E-02	1.13E-01	-	-									6010.58	-
	CO_2e	6010.45	3.38	2.83	-	-									-	6016.66
16	**mass GHG**	6010.45	1.13E-02	1.13E-01	-	-									6010.58	-
	CO_2e	6010.45	3.38	2.83	-	-									-	6016.66
4	**mass GHG**	551.05	1.04E-03	1.04E-02	-	-									551.06	-
	CO_2e	551.05	3.09E-01	2.60E-01	-	-									-	551.62
27	**mass GHG**	551.05	1.04E-03	1.04E-02	-	-									551.06	-
	CO_2e	551.05	3.09E-01	2.60E-01	-	-									-	551.62
5a	**mass GHG**	409.97	-	6.61	-	-									416.57	-
	CO_2e	409.97	-	165.17	-	-									-	575.14
6a	**mass GHG**	409.97	-	6.61	-	-									416.57	-
	CO_2e	409.97	-	165.17	-	-									-	575.14
9a	**mass GHG**	876.00	-	14.15	-	-									890.15	-
	CO_2e	876.00	-	353.67	-	-									-	1229.67
10a	**mass GHG**	876.00	-	14.15	-	-									890.15	-
	CO_2e	876.00	-	353.67	-	-									-	1229.67

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_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]									Total GHG Mass Basis ton/yr[4]	Total CO_2e ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**22,800**	**footnote 3**										
5b	**mass GHG**	617.63	1.16E-03	1.16E-02	-	-									617.65	-
	CO_2e	617.63	3.47E-01	2.91E-01	-	-									-	618.27
6b	**mass GHG**	617.63	1.16E-03	1.16E-02	-	-									617.65	-
	CO_2e	617.63	3.47E-01	2.91E-01	-	-									-	618.27
9b	**mass GHG**	842.60	1.59E-03	1.59E-02	-	-									842.62	-
	CO_2e	842.60	4.73E-01	3.97E-01	-	-									-	843.47
10b	**mass GHG**	842.60	1.59E-03	1.59E-02	-	-									842.62	-
	CO_2e	842.60	4.73E-01	3.97E-01	-	-									-	843.47
11	**mass GHG**	1214.60	2.43E-03	-	-	-									1214.60	-
	CO_2e	1214.60	7.24E-01	-	-	-									-	1215.32
12	**mass GHG**	1214.60	2.43E-03	-	-	-									1214.60	-
	CO_2e	1214.60	7.24E-01	-	-	-									-	1215.32
SSM	**mass GHG**	168.12	-	760.86	-	-									928.98	-
	CO_2e	168.12	-	19021.51	-	-									-	19189.63
M1	**mass GHG**	168.07	-	760.61	-	-									928.67	-
	CO_2e	168.07	-	19015.13	-	-									-	19183.20
F1	**mass GHG**	121.84	-	552.11	-	-	Includes reciprocating compressor venting, equipment leaks,								673.95	-
	CO_2e	121.84	-	13802.72	-	-	and pneumatic device and pump venting								-	13924.56
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
Totals	**mass GHG**	57565.36	1.03E-01	2116.06	-	-									59681.53	
	CO_2e	57565.36	30.71	52901.59	-	-										110497.66

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

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

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

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

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

The revision to this application is being made to incorporate administrative revisions to the NSR permit that were overlooked in the original Title V application.

On December 4, 2018, HFC submitted an administrative revision to remove four engines and four dehydrators from the permit. As a result, the following changes are being incorporated into this application:

- Remove four Waukesha 7042GL engines (Units 17-20) from the permit;
- Remove two 20 MMSCFD dehydrators (Units 21 & 23) from the permit;
- Remove two 12 MMSCFD dehydrators (Units 22 & 24) from the permit;
- Remove two process flares (Units 25 & 26) from the permit. These units were permitted to control Units 21-24. With removal of the four dehydrators, the flares are no longer required. An administrative revision to remove the two flares from the NSR application is being submitted to the NMAQB along with these change pages.

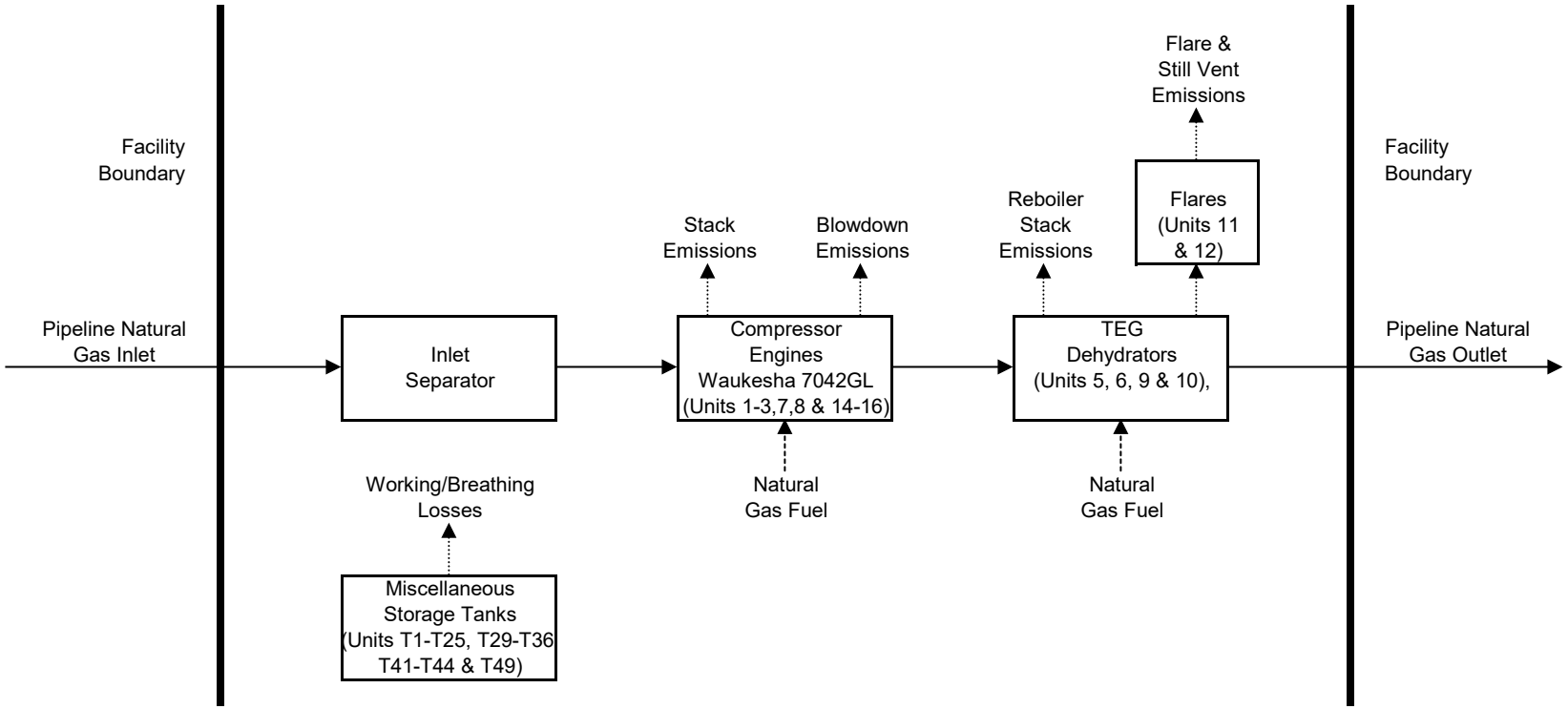
There are no modifications to de-bottleneck impacts or change the facility's major/minor status (both prevention of significant deterioration [PSD] & Title V).

Startup, Shutdown and Maintenance Emissions

For the engines, microturbines, dehydrators, flares, equipment leaks (valves, connectors, seals, etc.), malfunctions, and storage tanks, it is concluded 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.

Blowdown SSM emissions from the compressors and piping associated with the station are calculated from the quantity of gas vented during each event, the composition of the gas, and the number of events.

Flow Diagram



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.

Reciprocating Engines

The nitrogen oxides (NO_X), CO and VOC emissions from the reciprocating engines (Units 1-3, 7, 8 & 14-16) were calculated using manufacturer's data. The sulfur dioxide (SO_2) and particulate emissions were calculated using AP-42 emission factors from Table 3.2-2. HAP emissions were calculated using GRI-HAPCalc 3.0. Emissions were calculated assuming the engines all operate at full site capacity for 8,760 hours per year.

The engines start up with no load and a rich fuel mixture. As a result, emissions are minimized. Because the engines take only minutes to reach operating temperature, emissions during startup are not expected to exceed the steady-state allowable emission rate limits. Also, there are no Environmental Protection Agency (EPA) approved test methods available to measure emissions during startup. Similarly, emissions during shut down 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.

Criteria pollutant and HAP emission rates from all the units are carried forward and not revised.

Turbine Generators

The NO_X, CO and VOC emissions from the microturbine generators (Units 4 & 27) were calculated using manufacturer's data identified in previous applications. The SO_2 and particulate emissions were calculated using AP-42 emission factors from Table 3.1-2a. HAP emissions were calculated using GRI-HAPCalc 3.0. Emissions were calculated assuming the microturbines all operate at full site capacity for 8,760 hours per year.

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

Criteria pollutant and HAP emission rates from all the units are carried forward and not revised.

SSM Emissions

VOC and HAP emissions from blowdowns of the compressors and piping associated with the station (Unit SSM) occur during startups and shutdowns. SSM emissions occur when high pressure gas is used to purge air from the compressors and associated piping prior to startups. This gas is vented to atmosphere. SSM emissions from the compressors also occur after shutdowns when high pressure gas in the compressors and associated piping is released to atmosphere as a safety precaution.

SSM emissions from blowdowns of the compressors and piping associated with the station were calculated from the quantity of gas vented during each event, the composition of the gas, and the number of events. The quantity of gas vented during each event was determined by HFC engineering. The composition of the gas was determined from an extended gas analysis. The annual number of blowdown events was estimated based on historical operations. A safety factor was added because VOC and HAP emissions from each blowdown event are dependent on the composition of the gas in the pipeline and because the number of blowdowns in a year may vary. Experience indicates the composition of the gas is likely to vary. The use of the safety factor was also designed to ensure an adequate emissions limit, which includes emissions from other miscellaneous startup, shutdown and maintenance activities.

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

The VOC emissions are carried forward and not revised. The HAP emissions were updated using a recent extended gas analysis.

Dehydrator Still Vents and Flash Tanks

The VOC and HAP emissions from the dehydrator still vents (Units 5a, 6a, 9a & 10a) were calculated using GRI-GLYCalc 4.0 and a recent extended gas analysis. Emissions were calculated assuming the dehydrators all operate at full capacity for 8,760 hours per year. To allow for variability in the composition of the inlet gas stream, a safety factor was added to the VOC emissions identified in Table 2-E.

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.

IMPORTANT NOTE: To control emissions, the dehydrator still vent and flash tank emissions are routed to a process flare (via a closed vent system). Consequently, the dehydrator still vent and flash tank emissions are included with the flare emissions in Table 2-E.

Dehydrator Reboilers

The NO_X and CO emission factors for the reboilers (Units 5b, 6b, 9b & 10b) were identified from an Enertek letter dated August 19, 1994. The VOC and SO_2 emission factors were identified from an InFab letter dated July 22, 1998. The particulate emissions were calculated using AP-42 emission factors from Table 1.4-2. HAP emissions were calculated using GRI-HAPCalc 3.0. Emissions were calculated assuming the reboilers all operate 8,760 hours per year.

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

The criteria pollutant and HAP emission rates are carried forward and not revised.

Flares

Each flare is permitted to control two dehydrators: one 12 MMSCFD unit, and one 20 MMSCFD unit. Emissions were calculated using the combined gas throughput rates from the two dehydrators as identified by GRI-GLYCalc. It is estimated the flares provide 95% control efficiencies.

NO_X, and CO emissions from the flares (Units 11 & 12) were calculated using TCEQ emission factors. VOC and SO2 emissions were calculated using the AP-42 emissions factor from Table 1.4-2. To allow for variability in the composition of the inlet gas stream, a safety factor was used.

There are no excess SSM emissions associated with operation of the flares. The flares do not require warm-up periods. Equipment is not turned on unless the flares are in operation and the flares are not shut down while equipment is in operation. No maintenance is conducted on the flares while they are in operation.

The VOC emissions are carried forward and not revised.

Engine Exhaust Emissions Calculations

Unit Number: 1-3, 7, 8 & 14-16
Description: Waukesha L7042GL
Type: Four Stroke Lean Burn (Turbocharged)

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

Horsepower Calculations

6,366	ft above MSL	Elevation	
1,478	hp	Nameplate hp	Mfg. data
1,373	hp	NMAQB Site-rated hp	NMAQB Procedure # 02.002-00 (loss of 3% for every 1,000 ft over 4,000 ft)
1,334	hp	Mfg. Site-rated hp	Mfg. product bulletin Power Derate, S8154-6, April 2001 (loss of 2% for every 1,000 ft over 1,500 ft)

Engine Specifications

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

Fuel Consumption

7365	Btu/hp-hr	Brake specific fuel consumption	Mfg. data
10.11	MMBtu/hr	Hourly fuel consumption	Btu/hp-hr x NMAQB site-rated hp / 1,000,000
900	Btu/scf	Field gas heating value	Nominal heat content
11,236	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC
88,583	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
98.43	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000

Steady-State Emission Rates

Pollutants	Emission Factors, g/hp-hr	Uncontrolled Emission Rates, pph	Uncontrolled Emission Rates, tpy	Control Efficiencies, %	Controlled Emission Rates, pph	Controlled Emission Rates, tpy
NOX	1.50	4.54	19.89	0	4.54	19.89
CO	3.00	9.08	39.78	93	6.36E-01	2.78
VOC	1.00	3.03	13.26	65	1.06	4.64

Emission factors taken from Waukesha Bulletin 7005 0102
Uncontrolled Emission Rates (pph) = g/hp-hr x NMAQB Site-rated hp / 453.59 g/lb
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton
Control efficiencies taken from previous application
Controlled Emission Rates (pph) = Uncontrolled Emission Rates (pph) x (1 - (% / 100))
Controlled Emission Rates (tpy) = Uncontrolled Emission Rates (tpy) x (1 - (% / 100))

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates, pph	Uncontrolled Emission Rates, tpy
SO2	5.88E-04	5.95E-03	2.60E-02
PM	9.99E-03	1.01E-01	4.42E-01
PM10	9.99E-03	1.01E-01	4.42E-01
PM2.5	9.99E-03	1.01E-01	4.42E-01

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

Exhaust Parameters

702	°F	Stack exit temperature	Mfg. data
7638	acfm	Stack flowrate	Mfg. data
1.02	ft	Stack exit diameter	Harvest Four Corners, LLC
0.82	ft^2	Stack exit area	3.1416 x ((ft / 2) ^2)
155.53	fps	Stack exit velocity	acfm / ft^2 / 60 sec/min
26.00	ft	Stack height	Harvest Four Corners, LLC

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Carracas TEG Dehydrator
File Name: C:\1 - Office\1 - Cirrus\3-Complete\2 - Cirrus (2001-2020)\2019\1 - Harvest\Carracas\Update\Harvest - Carracas - March 2021 - GRI-GLYCalc Units 5 & 6 (12 MMSCFD).ddf
Date: March 12, 2021

DESCRIPTION:

Description: Units: 5 & 6
Capacity: 12 MMSCFD
Extended gas analysis sampled 9/18/2019

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 89.00 deg. F
Pressure: 380.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	7.3661
Nitrogen	0.0269
Methane	91.4657
Ethane	0.9465
Propane	0.1445
Isobutane	0.0185
n-Butane	0.0179
Isopentane	0.0034
n-Pentane	0.0027
Cyclopentane	0.0002
n-Hexane	0.0010
Cyclohexane	0.0006
Other Hexanes	0.0024
Heptanes	0.0007
Methylcyclohexane	0.0011
2,2,4-Trimethylpentane	0.0001
Benzene	0.0003
Toluene	0.0009
Xylenes	0.0001
C8+ Heavies	0.0005

DRY GAS:

Flow Rate: 12.0 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

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

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Carracas TEG Dehydrator
File Name: C:\1 - Office\1 - Cirrus\3-Complete\2 - Cirrus (2001-2020)\2019\1 - Harvest\Carracas\Update\Harvest - Carracas - March 2021 - GRI-GLYCalc Units 5 & 6 (12 MMSCFD).ddf
Date: March 12, 2021

DESCRIPTION:

Description: Units: 5 & 6
Capacity: 12 MMSCFD
Extended gas analysis sampled 9/18/2019

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.0184	0.443	0.0808
Ethane	0.0015	0.036	0.0066
Propane	0.0009	0.022	0.0039
Isobutane	0.0003	0.006	0.0012
n-Butane	0.0004	0.009	0.0017
Isopentane	0.0001	0.003	0.0005
n-Pentane	0.0001	0.003	0.0005
Cyclopentane	0.0001	0.002	0.0003
n-Hexane	0.0001	0.003	0.0005
Cyclohexane	0.0005	0.011	0.0020
Other Hexanes	0.0002	0.005	0.0009
Heptanes	0.0002	0.005	0.0009
Methylcyclohexane	0.0011	0.025	0.0046
2,2,4-Trimethylpentane	<0.0001	<0.001	<0.0001
Benzene	0.0019	0.046	0.0084
Toluene	0.0066	0.157	0.0287
Xylenes	0.0005	0.012	0.0022
C8+ Heavies	<0.0001	0.001	0.0001
Total Emissions	0.0328	0.788	0.1439
Total Hydrocarbon Emissions	0.0328	0.788	0.1439
Total VOC Emissions	0.0129	0.310	0.0565
Total HAP Emissions	0.0091	0.218	0.0399
Total BTEX Emissions	0.0090	0.215	0.0393

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.3691	8.859	1.6167
Ethane	0.0303	0.726	0.1326
Propane	0.0180	0.433	0.0790
Isobutane	0.0055	0.132	0.0240
n-Butane	0.0079	0.191	0.0348
Isopentane	0.0023	0.054	0.0099
n-Pentane	0.0026	0.062	0.0113

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Carracas TEG Dehydrator
File Name: C:\1 - Office\1 - Cirrus\3-Complete\2 - Cirrus (2001-2020)\2019\1 - Harvest\Carracas\Update\Harvest - Carracas - March 2021 - GRI-GLYCalc Units 9 & 10 (20 MMSCFD).ddf
Date: March 12, 2021

DESCRIPTION:

Description: Units: 9 & 10
Capacity: 20 MMSCFD
Extended gas analysis sampled 9/18/2019

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 89.00 deg. F
Pressure: 380.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	7.3661
Nitrogen	0.0269
Methane	91.4657
Ethane	0.9465
Propane	0.1445
Isobutane	0.0185
n-Butane	0.0179
Isopentane	0.0034
n-Pentane	0.0027
Cyclopentane	0.0002
n-Hexane	0.0010
Cyclohexane	0.0006
Other Hexanes	0.0024
Heptanes	0.0007
Methylcyclohexane	0.0011
2,2,4-Trimethylpentane	0.0001
Benzene	0.0003
Toluene	0.0009
Xylenes	0.0001
C8+ Heavies	0.0005

DRY GAS:

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

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 7.5 gpm

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Carracas TEG Dehydrator
File Name: C:\1 - Office\1 - Cirrus\3-Complete\2 - Cirrus (2001-2020)\2019\1 - Harvest\Carracas\Update\Harvest - Carracas - March 2021 - GRI-GLYCalc Units 9 & 10 (20 MMSCFD).ddf
Date: March 12, 2021

DESCRIPTION:

Description: Units: 9 & 10
Capacity: 20 MMSCFD
Extended gas analysis sampled 9/18/2019

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.0399	0.959	0.1749
Ethane	0.0033	0.080	0.0145
Propane	0.0019	0.046	0.0085
Isobutane	0.0006	0.014	0.0026
n-Butane	0.0008	0.020	0.0037
Isopentane	0.0002	0.006	0.0010
n-Pentane	0.0003	0.007	0.0012
Cyclopentane	0.0001	0.003	0.0006
n-Hexane	0.0003	0.006	0.0012
Cyclohexane	0.0010	0.025	0.0045
Other Hexanes	0.0004	0.010	0.0019
Heptanes	0.0005	0.011	0.0021
Methylcyclohexane	0.0024	0.057	0.0104
2,2,4-Trimethylpentane	<0.0001	0.001	0.0001
Benzene	0.0041	0.100	0.0182
Toluene	0.0140	0.337	0.0615
Xylenes	0.0010	0.024	0.0044
C8+ Heavies	0.0001	0.002	0.0003
Total Emissions	0.0711	1.708	0.3116
Total Hydrocarbon Emissions	0.0711	1.708	0.3116
Total VOC Emissions	0.0279	0.669	0.1222
Total HAP Emissions	0.0195	0.468	0.0854
Total BTEX Emissions	0.0192	0.461	0.0841

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.7994	19.185	3.5013
Ethane	0.0664	1.595	0.2910
Propane	0.0389	0.933	0.1703
Isobutane	0.0119	0.285	0.0520
n-Butane	0.0172	0.413	0.0753
Isopentane	0.0049	0.118	0.0216
n-Pentane	0.0056	0.135	0.0246

Dehydrator Reboiler Exhaust Emissions Calculations

Unit Number: 5b & 6b
Description: Dehydrator Reboiler (12 MMSCFD)

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

Fuel Consumption

1,208	scf/hr	Hourly fuel consumption	Mfg. data (Infab)
900	Btu/scf	Field gas heating value	Nominal heat content
1.09	MMBtu/hr	Capacity	scf/hr x Btu/scf / 1,000,000
8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC
9,524	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
10.58	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000

Steady-State Emission Rates

Pollutants	Emission Factors, lb/day	Uncontrolled Emission Rates, pph	tpy
NOX	1.03	4.29E-02	1.88E-01
CO	0.78	3.25E-02	1.42E-01
VOC	0.12	4.79E-03	2.10E-02
SO2	0.02	8.33E-04	3.65E-03

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

Pollutants	Emission Factors, lb/MMscf	Uncontrolled Emission Rates, pph	tpy
PM	7.60	9.18E-03	4.02E-02
PM10	7.60	9.18E-03	4.02E-02
PM2.5	7.60	9.18E-03	4.02E-02
Lead	5.00E-04	6.04E-07	2.65E-06

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

Exhaust Parameters

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

Dehydrator Reboiler Exhaust Emissions Calculations

Unit Number: 9b & 10b
Description: Dehydrator Reboiler (20 MMSCFD)

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

Fuel Consumption

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

Steady-State Emission Rates

Pollutants	Emission Factors, lb/day	Uncontrolled Emission Rates, pph	tpy
NOX	1.03	4.29E-02	1.88E-01
CO	1.07	4.46E-02	1.95E-01
VOC	0.16	6.46E-03	2.83E-02
SO2	0.02	8.33E-04	3.65E-03

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

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

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

Exhaust Parameters

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

Dehydrator Flare Emissions Calculations

Unit Number: 11 & 12
Description: Dehydrator Flares

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

Operating Time			
8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC
Flash Tank Off Gas Stream			
2,601.00	scf/hr	Hourly flowrate	GRI-GLYCalc
886.74	Btu/scf	Calculated heat content	Calculated from GRI-GLYCalc results (see flash tank off gas stream composition table below)
2.31	MMBtu/hr	Hourly heat rate	scf/hr x Btu/scf / 1,000,000
22.78	MMscf/yr	Annual flowrate	scf/hr x hr/yr / 1,000,000
20,204.18	MMBtu/yr	Annual heat rate	MMBtu/hr x hr/yr
Condenser Vent Stream			
86.80	scf/hr	Hourly flowrate	GRI-GLYCalc
526.01	Btu/scf	Calculated heat content	Calculated from GRI-GLYCalc results (see condenser vent stream composition table below)
0.05	MMBtu/hr	Hourly heat rate	scf/hr x Btu/scf / 1,000,000
0.76	MMscf/yr	Annual flowrate	scf/hr x hr/yr / 1,000,000
399.96	MMBtu/yr	Annual heat rate	MMBtu/hr x hr/yr
Supplemental Fuel Gas Stream			
875.09	Btu/scf	Heat content (B_{dehy})	Hourly flowrate weighted average of flash tank off gas stream and condenser vent stream heat contents
2687.80	scf/hr	Hourly flowrate (Q_{dehy})	Sum of hourly flowrates from flash tank off gas and condenser vent streams
946.02	Btu/scf	Heat content (B_{fuel})	Calculated from GRI-GLYCalc results (see dry gas stream composition table below)
300.00	Btu/scf	Heat content (B_{mix})	Minimum required
0.00	scf/hr	Hourly flowrate (Q_{fuel})	$Q_{fuel} = Q_{dehy} * (B_{mix} - B_{dehy})/(B_{fuel} - B_{mix})$
0.00	MMBtu/hr	Hourly Flowrate	scf/hr x Btu/scf / 1,000,000
0.00	MMscf/yr	Annual Flowrate	scf/hr x hr/yr / 1,000,000
0.00	MMBtu/yr	Annual Flowrate	MMBtu/hr x hr/yr

Note: Supplemental fuel is only required if the heat content of the combined streams from the regenerator still vent, condenser vent and/or flash tank off-gas streams are less than 300 Btu/scf.

Pilot Gas Stream			
24.00	scf/hr	Hourly flowrate	Estimated
946.02	Btu/scf	Calculated heat content	Calculated from GRI-GLYCalc results (see gas stream composition table below)
0.02	MMBtu/hr	Hourly heat rate	scf/hr x Btu/scf / 1,000,000
0.21	MMscf/yr	Annual flowrate	scf/hr x hr/yr / 1,000,000
198.89	MMBtu/yr	Annual heat rate	MMBtu/hr x hr/yr
Combined Stream			
2711.80	scf/hr	Hourly Flowrate	Sum of four streams above
2.37	MMBtu/hr	Hourly Flowrate	Sum of four streams above
23.76	MMscf/yr	Annual Flowrate	Sum of four streams above
20803.04	MMBtu/yr	Annual Flowrate	Sum of four streams above
875.72	Btu/scf	Heat content	Hourly flowrate weighted average of the heat contents of all four streams above

Dehydrator Flare Emissions Calculations

Unit Number: 11 & 12
Description: Dehydrator Flares

Steady-State Emission Rates

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates, pph	tpy
NOX	0.0641	1.52E-01	6.67E-01
CO	0.5496	1.31	5.72

Emissions are calculated using all the gas streams
Emission factors (lb/MMBtu) from the Texas Commission on Environmental Quality (TCEQ) January 2010 document "Technical Supplement 4: Flares" for unassisted units combusting high-Btu waste streams (>1000 Btu/scf)
Uncontrolled Emission Rates (pph) = lb/MMBtu x MMBtu/hr
Uncontrolled Emission Rates (tpy) = lb/MMBtu x MMBtu/yr / 2,000 lb/ton

Steady-State Emission Rates Continued

Pollutants	Emission Factors, lb/MMscf	Uncontrolled Emission Rates, pph	tpy
VOC	5.5	1.32E-04	5.78E-04
SO2	0.6	1.63E-03	7.13E-03

Emission factors taken from AP-42, Table 1.4-2
Uncontrolled Emission Rates (pph) = lb/MMscf x (scf/hr / 1,000,000)
Uncontrolled Emission Rates (tpy) = lb/MMscf x MMscf/yr / 2,000 lb/ton
VOC emissions are calculated using only the pilot and supplemental fuel gas streams. VOC emissions from the regenerator still vent, condenser vent, and/or flash tank off-gas streams are included with the dehydrator emissions
SO2 emissions are calculated using all the gas streams

PM, PM10 and PM2.5 emissions are assumed to be negligible, as the flare is smokeless

Flare Effective Diameter

20.51	lb/lb-mole	Molecular weight	Hourly flowrate weighted average of the molecular weights of all four streams above
45.20	scfm	Flowrate	scf/hr / 60 min/hr
166,234.30	cal/sec	Gross heat release	scfm x Btu/scf x 252 cal/Btu / 60 sec/min
130,100.45	cal/sec	Effective heat release (q_n)	cal/sec x (1-(0.048 x (MW^0.5)))
0.36	meters	Effective stack diameter	(0.000001 x cal/sec[q_n])^0.5

Exhaust Parameters

1,832	°F	Exhaust temperature	NMAQB
1.18	ft	Effective stack diameter	Calculated per NMAQB guidelines
65.62	fps	Stack velocity	NMAQB
20.00	ft	Stack height	Harvest Four Corners, LLC

Dehydrator Flare Emissions Calculations

Unit Number: 11 & 12
Description: Dehydrator Flares

Gas Stream Compositions

Flash Tank Off Gas Stream Composition					
Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Heat Contents, Btu/scf	Calculated Heat Contents, Btu/scf
Water	2.48E-01	18.02	0.04	0.00	0.00
Carbon dioxide	1.33E+01	44.01	5.84	0.00	0.00
Hydrogen sulfide	0.00E+00	34.07	0.00	637.02	0.00
Nitrogen	2.51E-02	28.01	0.01	0.00	0.00
Methane	8.51E+01	16.04	13.65	1,009.70	859.25
Ethane	1.05E+00	30.07	0.32	1,768.70	18.57
Propane	1.93E-01	44.09	0.09	2,517.20	4.86
IsoButane	2.92E-02	58.12	0.02	3,252.60	0.95
n-Butane	3.21E-02	58.12	0.02	3,262.00	1.05
IsoPentane	6.46E-03	72.15	0.00	3,999.70	0.26
n-Pentane	5.84E-03	72.15	0.00	4,008.70	0.23
Cyclopentane	8.34E-04	70.14	0.00	3,763.70	0.03
n-Hexane	2.94E-03	86.17	0.00	4,756.10	0.14
Cyclohexane	3.17E-03	84.16	0.00	4,481.60	0.14
Other hexanes	6.09E-03	86.18	0.01	4,756.10	0.29
Heptanes	2.85E-03	100.20	0.00	5,502.80	0.16
Methylcyclohexane	6.05E-03	98.19	0.01	5,215.90	0.32
Isooctane	2.79E-04	100.21	0.00	5,500.00	0.02
Benzene	2.18E-03	78.11	0.00	3,741.90	0.08
Toluene	6.24E-03	92.14	0.01	4,474.80	0.28
Ethylbenzene	0.00E+00	106.17	0.00	5,222.10	0.00
Xylenes	4.75E-04	106.17	0.00	5,208.00	0.02
C8+ heavies	1.70E-03	110.00	0.00	5,500.00	0.09
Total	99.9907		20.02		886.74

Gas stream compositions are obtained from GRI-GLYCalc 4.0
Component Weights (lb/lb-mole) = (% / 100) * Molecular Weights (lb/lb-mole)
Calculated Heat Contents (Btu/scf) = (% / 100) * Heat Contents (Btu/scf)

Dehydrator Flare Emissions Calculations

Unit Number: 11 & 12
Description: Dehydrator Flares

Condenser Vent Stream Composition					
Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Heat Contents, Btu/scf	Calculated Heat Contents, Btu/scf
Water	2.78E+00	18.02	0.50	0.00	0.00
Carbon dioxide	5.96E+01	44.01	26.23	0.00	0.00
Hydrogen sulfide	0.00E+00	34.07	0.00	637.02	0.00
Nitrogen	9.07E-03	28.01	0.00	0.00	0.00
Methane	3.18E+01	16.04	5.11	1,009.70	321.40
Ethane	1.40E+00	30.07	0.42	1,768.70	24.83
Propane	5.61E-01	44.09	0.25	2,517.20	14.13
IsoButane	1.29E-01	58.12	0.07	3,252.60	4.20
n-Butane	1.86E-01	58.12	0.11	3,262.00	6.07
IsoPentane	4.05E-02	72.15	0.03	3,999.70	1.62
n-Pentane	4.83E-02	72.15	0.03	4,008.70	1.94
Cyclopentane	2.54E-02	70.14	0.02	3,763.70	0.96
n-Hexane	3.88E-02	86.17	0.03	4,756.10	1.85
Cyclohexane	1.55E-01	84.16	0.13	4,481.60	6.93
Other hexanes	6.33E-02	86.18	0.05	4,756.10	3.01
Heptanes	6.02E-02	100.20	0.06	5,502.80	3.32
Methylcyclohexane	3.05E-01	98.19	0.30	5,215.90	15.92
Isooctane	2.80E-03	100.21	0.00	5,500.00	0.15
Benzene	6.79E-01	78.11	0.53	3,741.90	25.42
Toluene	1.96E+00	92.14	1.80	4,474.80	87.54
Ethylbenzene	0.00E+00	106.17	0.00	5,222.10	0.00
Xylenes	1.24E-01	106.17	0.13	5,208.00	6.47
C8+ heavies	4.90E-03	110.00	0.01	5,500.00	0.27
Total	100.0046		35.83		526.01

Gas stream compositions are obtained from GRI-GLYCalc 4.0
Component Weights (lb/lb-mole) = (% / 100) * Molecular Weights (lb/lb-mole)
Calculated Heat Contents (Btu/scf) = (% / 100) * Heat Contents (Btu/scf)

Dehydrator Flare Emissions Calculations

Unit Number: 11 & 12
Description: Dehydrator Flares

Dry Gas Stream Composition					
Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Heat Contents, Btu/scf	Calculated Heat Contents, Btu/scf
Water	9.76E-03	18.02	0.00	0.00	0.00
Carbon dioxide	7.35E+00	44.01	3.23	0.00	0.00
Hydrogen sulfide	0.00E+00	34.07	0.00	637.02	0.00
Nitrogen	2.69E-02	28.01	0.01	0.00	0.00
Methane	9.15E+01	16.04	14.68	1,009.70	923.88
Ethane	9.46E-01	30.07	0.28	1,768.70	16.73
Propane	1.44E-01	44.09	0.06	2,517.20	3.62
IsoButane	1.85E-02	58.12	0.01	3,252.60	0.60
n-Butane	1.79E-02	58.12	0.01	3,262.00	0.58
IsoPentane	3.39E-03	72.15	0.00	3,999.70	0.14
n-Pentane	2.69E-03	72.15	0.00	4,008.70	0.11
Cyclopentane	1.97E-04	70.14	0.00	3,763.70	0.01
n-Hexane	9.94E-04	86.17	0.00	4,756.10	0.05
Cyclohexane	5.83E-04	84.16	0.00	4,481.60	0.03
Other hexanes	2.39E-03	86.18	0.00	4,756.10	0.11
Heptanes	6.90E-04	100.20	0.00	5,502.80	0.04
Methylcyclohexane	1.06E-03	98.19	0.00	5,215.90	0.06
Isooctane	9.94E-05	100.21	0.00	5,500.00	0.01
Benzene	2.33E-04	78.11	0.00	3,741.90	0.01
Toluene	6.03E-04	92.14	0.00	4,474.80	0.03
Ethylbenzene	0.00E+00	106.17	0.00	5,222.10	0.00
Xylenes	4.35E-05	106.17	0.00	5,208.00	0.00
C8+ heavies	4.59E-04	110.00	0.00	5,500.00	0.03
Total	100.026		18.30		946.02

Gas stream compositions are obtained from GRI-GLYCalc 4.0
Component Weights (lb/lb-mole) = (% / 100) * Molecular Weights (lb/lb-mole)
Calculated Heat Contents (Btu/scf) = (% / 100) * Heat Contents (Btu/scf)

Compressor Blowdown Emissions Calculations

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

Throughput

8	# of units	Number of units	Harvest Four Corners, LLC
584	events/yr/unit	Blowdowns per year per unit	Harvest Four Corners, LLC
8,423	scf/event	Gas loss per blowdown	Harvest Four Corners, LLC
39,352,256	scf/yr	Annual gas loss	# of units x events/yr/unit x scf/event

Emission Rates

Pollutants	Emission Factors, lb/scf	Uncontrolled, Emission Rates, tpy
VOC	2.542E-04	5.00
Benzene	6.176E-07	1.22E-02
Ethylbenzene	0.000E+00	0.00E+00
n-Hexane	2.271E-06	4.47E-02
Isooctane	2.641E-07	5.20E-03
Toluene	2.186E-06	4.30E-02
Xylene	2.798E-07	5.51E-03

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

Gas Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Emission Factors, lb/scf
Carbon dioxide	7.3661	44.01	8.545E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.0269	28.01	1.986E-05
Methane	91.4657	16.04	3.867E-02
Ethane	0.9465	30.07	7.502E-04
Propane	0.1445	44.09	1.679E-04
Isobutane	0.0185	58.12	2.834E-05
n-Butane	0.0179	58.12	2.742E-05
Isopentane	0.0034	72.15	6.466E-06
n-Pentane	0.0027	72.15	5.135E-06
Cyclopentane	0.0002	70.14	3.697E-07
n-Hexane	0.0010	86.17	2.271E-06
Cyclohexane	0.0006	84.16	1.331E-06
Other hexanes	0.0024	86.18	5.452E-06
Heptanes	0.0007	100.20	1.849E-06
Methylcyclohexane	0.0011	98.19	2.847E-06
Isooctane	0.0001	100.21	2.641E-07
Benzene	0.0003	78.11	6.176E-07
Toluene	0.0009	92.14	2.186E-06
Ethylbenzene	0.0000	106.17	0.000E+00
Xylenes	0.0001	106.17	2.798E-07
C8+ Heavies	0.0005	110.00	1.450E-06
Total	100.0001		
Total VOC			2.542E-04

Gas stream composition obtained from Carracas CDP extended gas analysis dated 9/18/2019
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

Equipment Leaks Emissions Calculations

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

Steady-State Emission Rates

Equipment	Number of Components, # of sources	Emission Factors, kg/hr/source	Emission Factors, lb/hr/source	Uncontrolled TOC Emission Rates, pph	tpy
Valves	765	0.0045	0.0099	7.57	33.17
Connectors	799	0.0002	0.0004	0.35	1.54
Pump Seals	8	0.0024	0.0053	0.04	0.19
Compressor Seals	56	0.0088	0.0194	1.08	4.75
Pressure Relief Valves	67	0.0088	0.0194	1.30	5.68
Open-Ended Lines	214	0.0020	0.0044	0.94	4.12
Total				**11.29**	**49.45**

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

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight Percent of TOC, %	Uncontrolled Emission Rates, pph	tpy
Carbon dioxide	7.3661	44.010	3.242	17.7107	2.00E+00	8.76E+00
Hydrogen sulfide	0.0000	34.070	0.000	0.0000	0.00E+00	0.00E+00
Nitrogen	0.0269	28.013	0.008	0.0412	4.65E-03	2.04E-02
Methane	91.4657	16.043	14.674	80.1661	9.05E+00	3.96E+01
Ethane	0.9465	30.070	0.285	1.5549	1.76E-01	7.69E-01
Propane	0.1445	44.097	0.064	0.3481	3.93E-02	1.72E-01
Isobutane	0.0185	58.123	0.011	0.0587	6.63E-03	2.90E-02
n-Butane	0.0179	58.123	0.010	0.0568	6.42E-03	2.81E-02
Isopentane	0.0034	72.150	0.002	0.0134	1.51E-03	6.63E-03
n-Pentane	0.0027	72.150	0.002	0.0106	1.20E-03	5.26E-03
Cyclopentane	0.0002	70.134	0.000	0.0008	8.65E-05	3.79E-04
n-Hexane	0.0010	86.177	0.001	0.0047	5.32E-04	2.33E-03
Cyclohexane	0.0006	84.161	0.001	0.0028	3.11E-04	1.36E-03
Other hexanes	0.0024	86.177	0.002	0.0113	1.28E-03	5.59E-03
Heptanes	0.0007	100.204	0.001	0.0038	4.33E-04	1.89E-03
Methylcyclohexane	0.0011	98.188	0.001	0.0059	6.66E-04	2.92E-03
Isooctane	0.0001	114.231	0.000	0.0006	7.05E-05	3.09E-04
Benzene	0.0003	78.114	0.000	0.0013	1.45E-04	6.33E-04
Toluene	0.0009	92.141	0.001	0.0045	5.11E-04	2.24E-03
Ethylbenzene	0.0000	106.167	0.000	0.0000	0.00E+00	0.00E+00
Xylenes	0.0001	106.167	0.000	0.0006	6.55E-05	2.87E-04
C8+ Heavies	0.0005	114.231	0.001	0.0031	3.52E-04	1.54E-03
Total	100.0001		18.304			
Total VOC				0.5271	5.95E-02	2.61E-01

Gas stream composition obtained from Carracas CDP extended gas analysis dated 9/18/2019
Component Weights (lb/lb-mole) = (% / 100) * Molecular Weights (lb/lb-mole)
Weight Percent of TOC (%) = 100 x Component Weights (lb/lb-mole) / Total Component Weight (lb/lb-mole)
Uncontrolled Emission Rates (pph) = Total Uncontrolled TOC Emission Rate (pph) x (% / 100)
Uncontrolled Emission Rates (tpy) = Total Uncontrolled TOC Emission Rate (tpy) x (% / 100)

Equipment Leaks Emissions Calculations

Unit Number: F1
Description: Valves, Connectors, Seals & Lines

Number of Compression Units at the Facility: 8
Number of Dehydrators at the Facility: 4

Process Equipment Description	Equipment Count						Instrument Count		
	Valves	Connectors	Pump Seals	Compressor Seals	Pressure Relief Valves	Open-end	Flow	Level	Pressure
Station inlet, meter run to pulsation dampener	17	14	0	0	1	13	3	0	3
Pulsation dampener	12	8	0	0	0	2	0	4	1
Compressor suction header	7	4	0	0	0	3	0	0	1
Suction header feed to instrument gas header	3	1	0	0	0	1	0	0	0
Compressor discharge header and bypass to station discharge	6	5	0	0	0	3	0	1	1
Compressor discharge header and suction header bypass lines	4	2	0	0	0	2	0	0	1
Fuel gas header	2	2	0	0	1	2	0	0	1
Instrument gas header	2	2	0	0	1	2	0	0	0
Station discharge header	9	5	0	0	1	6	0	0	2
Fuel gas recovery header	2	2	0	0	1	2	0	0	0
Fuel gas feed and filter loop	15	9	0	0	0	1	0	4	1
Instrument gas feed and filter loop	9	11	0	0	0	3	0	0	0
Produced water storage tank	1	0	0	0	0	1	0	1	0
ESD panel	12	0	0	0	0	0	0	0	0
Starting gas header	6	2	0	0	1	3	0	0	0
Hot gas header	2	2	0	0	0	2	0	0	0
Volume bottle lop	12	4	0	24	1	2	0	0	1
Components from Compressors	352	472	0	32	48	88	0	32	72
Components from dehydrators	24	40	8	0	12	24	0	12	16
Total	497	585	8	56	67	160	3	54	100
Adjusted Total	765	799	8	56	67	214			

The following additions are included in the Adjusted Total:

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

The component count is based on the evaluation of a comparable facility (Sim Mesa Central Delivery Point)

Green House Gas Emissions Data and Calculations

Sources	Facility Total Emissions				
	CO2, tpy	CH4, tpy	N2O, tpy	GHG, tpy	CO2e, tpy
Engine & Turbine Exhaust	49,185.73	0.93	9.27E-02	49,186.75	49236.53
SSM Blowdowns	168.12	760.86	--	928.98	19189.63
Reciprocating Compressor Venting	104.97	475.76	--	580.73	11999.00
Dehydrators	2,571.94	41.51	--	2,613.44	3609.62
Reboiler Exhaust	2,920.47	5.50E-02	5.50E-03	2,920.53	2923.48
Dehydrator Flares	2,429.20	--	4.86E-03	2,429.20	2430.65
Equipment Leaks	4.70	21.32	--	26.02	537.65
Natural Gas Pneumatic Device Venting	11.67	52.78	--	64.45	1331.14
Natural Gas Driven Pneumatic Pump Venting	4.98E-01	2.25	--	2.75	56.76
Malfunctions	168.07	760.61	--	928.67	19183.20
Total	57,565.36	2,116.06	1.03E-01	59,681.53	110,497.66

Engine & Turbine Exhaust Emissions

Unit Numbers	Description	Emission Factors			Emission Rates		
		CO2, kg/MMBtu	CH4, kg/MMBtu	N2O, kg/MMBtu	CO2, tpy	CH4, tpy	N2O, tpy
1	Waukesha L7042GL	53.06	1.00E-03	1.00E-04	6,010.45	1.13E-01	1.13E-02
2	Waukesha L7042GL	53.06	1.00E-03	1.00E-04	6,010.45	1.13E-01	1.13E-02
3	Waukesha L7042GL	53.06	1.00E-03	1.00E-04	6,010.45	1.13E-01	1.13E-02
7	Waukesha L7042GL	53.06	1.00E-03	1.00E-04	6,010.45	1.13E-01	1.13E-02
8	Waukesha L7042GL	53.06	1.00E-03	1.00E-04	6,010.45	1.13E-01	1.13E-02
14	Waukesha L7042GL	53.06	1.00E-03	1.00E-04	6,010.45	1.13E-01	1.13E-02
15	Waukesha L7042GL	53.06	1.00E-03	1.00E-04	6,010.45	1.13E-01	1.13E-02
16	Waukesha L7042GL	53.06	1.00E-03	1.00E-04	6,010.45	1.13E-01	1.13E-02
4	Capstone C65 MicroTurbine	53.06	1.00E-03	1.00E-04	551.05	1.04E-02	1.04E-03
27	Capstone C65 MicroTurbine	53.06	1.00E-03	1.00E-04	551.05	1.04E-02	1.04E-03
	Total				49,185.73	0.93	9.27E-02

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

Unit Numbers	Description	Fuel Types	Operating Times, hr/yr	LHV Design Heat Rates, MMBtu/hr	HHV	
					Design Heat Rates, MMBtu/hr	Fuel Usages, 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
7	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
8	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
14	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
15	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
16	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
4	Capstone C65 MicroTurbine	Nat. Gas	8,760	0.97	1.08	9,441
27	Capstone C65 MicroTurbine	Nat. Gas	8,760	0.97	1.08	9,441

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

SSM Blowdown Emissions

Unit Numbers	Description	Total Gas Losses, scf/yr	CO2 Emission Factors, lb/scf	CH4 Emission Factors, lb/scf	Emission Rates	
					CO2, tpy	CH4, tpy
SSM	SSM Blowdowns	39,352,256	0.0085	0.0387	168.12	760.86

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

Green House Gas Emissions Data and Calculations

Reciprocating Compressor Venting Emissions

Unit Numbers	Description	Emission Rates	
		CO2, tpy	CH4, tpy
NA	Blowdown Valve Leakage	10.03	45.45
NA	Rod Packing Emissions	94.94	430.32
NA	Isolation Valve Leakage	0.00E+00	0.00E+00
	Total	104.97	475.76

Operating or standby mode - includes blowdown valve leakage through blowdown vent stack
Operating mode - includes rod packing emissions
Non-operating depressurized mode - includes isolation valve leakage through open blowdown vents (without blind flanges)
Rod packing gas emissions assume 4 cylinders per compressor
A combination of equations W-26 & W-36 (Subpart W) is used to calculate reciprocating compressor emissions
As the NMED requires CO2 & CH4 emissions rather than CO2e emissions, it is not necessary to include the global warming potential from equation W-36
CO2 Emission Rates (tpy) = # x scf/hr x hr/yr x (CO2 Mole Percent (%) / 100) x CO2 Density (kg/scf)
x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne
CH4 Emission Rates (tpy) = # x scf/hr x hr/yr x (CH4 Mole Percent (%) / 100) x CH4 Density (kg/scf)
x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne

Unit Numbers	Description	Number of Compressors #	Gas Emissions, scf/hr	Operating Times, hr/yr	CO2 Mole Percents, %	CH4 Mole Percents, %	CO2 Density, kg/scf	CH4 Density, kg/scf
NA	Blowdown Valve Leakage	8	33.5	8,760	7.37	91.47	0.0526	0.0192
NA	Rod Packing Emissions	8	317.2	8,760	7.37	91.47	0.0526	0.0192
NA	Isolation Valve Leakage	8	10.5	0	7.37	91.47	0.0526	0.0192

The number of compressors is provided by Harvest
Blowdown valve leakage (33.5 scf/hr) and rod packing emissions occur in operating mode
Blowdown valve leakage (10.5 scf/hr) occurs in standby pressurized mode
Emission factors are the three year rolling average (2012-2014) of all measurements in the Williams Field Services, LLC compressor fleet located at natural gas processing plants
The operating times (the average operating times for all station compressors combined) are provided by Harvest
The facility CO2 and CH4 contents are taken from the facility extended gas analysis
The CO2 & CH4 densities (kg/scf) are taken from Subpart W, Paragraph 98.233(v)

Dehydrator Emissions

Unit Numbers	Description	Emission Rates	
		CO2, tpy	CH4, tpy
5a	Dehydrator (12 MMSCFD)	409.97	6.61
6a	Dehydrator (12 MMSCFD)	409.97	6.61
9a	Dehydrator (20 MMSCFD)	876.00	14.15
10a	Dehydrator (20 MMSCFD)	876.00	14.15
	Total	2,571.94	41.51

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

Green House Gas Emissions Data and Calculations

Reboiler Exhaust Emissions

Unit Numbers	Description	Emission Factors			Emission Rates		
		CO2, kg/MMBtu	CH4, kg/MMBtu	N2O, kg/MMBtu	CO2, tpy	CH4, tpy	N2O, tpy
5b	Reboiler (12 MMSCFD)	53.06	1.00E-03	1.00E-04	617.63	1.16E-02	1.16E-03
6b	Reboiler (12 MMSCFD)	53.06	1.00E-03	1.00E-04	617.63	1.16E-02	1.16E-03
9b	Reboiler (20 MMSCFD)	53.06	1.00E-03	1.00E-04	842.60	1.59E-02	1.59E-03
10b	Reboiler (20 MMSCFD)	53.06	1.00E-03	1.00E-04	842.60	1.59E-02	1.59E-03
	Total				2,920.47	5.50E-02	5.50E-03

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

Unit Numbers	Description	Fuel Types	Operating Times hr/yr	LHV			HHV	
				Fuel Usages, scf/hr	Fuel Heat Contents, Btu/scf	Fuel Usages, MMBtu/hr	Fuel Usages, MMBtu/hr	Fuel Usages, MMBtu/yr
5b	Reboiler (12 MMSCFD)	Nat. Gas	8,760	1,208	900	1.09	1.21	10,582
6b	Reboiler (12 MMSCFD)	Nat. Gas	8,760	1,208	900	1.09	1.21	10,582
9b	Reboiler (20 MMSCFD)	Nat. Gas	8,760	1,648	900	1.48	1.65	14,436
10b	Reboiler (20 MMSCFD)	Nat. Gas	8,760	1,648	900	1.48	1.65	14,436

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

Dehydrator Flare Emissions

Unit Numbers	Description	N2O Emission Factors, kg/MMBtu	Emission Rates	
			CO2, tpy	N2O, tpy
11	Dehydrator Flare	1.00E-04	1,214.60	2.43E-03
12	Dehydrator Flare	1.00E-04	1,214.60	2.43E-03
	Total		2,429.20	4.86E-03

The N2O emission factor is obtained from Subpart W (Paragraph 98.233(z)(2)(vi))
CO2 Emission Rates (tpy) = Combustion CO2 Emissions (MMscf/yr) x 1,000,000 scf/MMscf x 0.0526 kg/cu ft x 2.2 lb/kg / 2,000 lb/ton
N2O Emission Rates (tpy) = kg/MMBtu x 2.2 lb/kg x MMBtu/yr / 2,000 lb/ton
Noncombustion CO2 and CH4 emissions are accounted for in the dehydrator emissions

Unit Numbers	Description	Flare Through-puts, MMscf/yr	HHV Heat Contents, Btu/scf	Flare Through-puts, MMBtu/yr	Control Efficiencies, %	Combustion CO2 Emissions, MMscf/yr
11	Dehydrator Flare	25.28	874.26	22,097	95	20.99
12	Dehydrator Flare	25.28	874.26	22,097	95	20.99

The dehydrator flare throughputs are calculated from the GRI-GLYCalc output file (see criteria pollutant calculations)
The HHV heat contents are obtained from Subpart W (Paragraph 98.233(z)(2)(vi))
Flare Throughputs (MMBtu/yr) = MMscf/yr x 1,000,000 scf/MMscf x Btu/scf / 1,000,000 Btu/MMBtu
The control efficiencies are the default value identified by Subpart W (Paragraph 98.233(n)(4))
Combustion CO2 Emissions (MMscf/yr) = [(Control Efficiencies (%) / 100) x MMscf/yr x (CH4 Contents (mole %) / 100) x 1]
+ [(Control Efficiencies (%) / 100) x MMscf/yr x (Ethane Contents (mole %) / 100) x 2]
+ [(Control Efficiencies (%) / 100) x MMscf/yr x (Propane Contents (mole %) / 100) x 3]
+ [(Control Efficiencies (%) / 100) x MMscf/yr x (Butane Contents (mole %) / 100) x 4]
+ [(Control Efficiencies (%) / 100) x MMscf/yr x (Pentane+ Contents (mole %) / 100) x 5]
The numbers 1-5 in the above equation represent the number of carbon atoms found in methane through pentane, repectively.

Unit Numbers	Description	CH4 Contents, mole %	Ethane Contents, mole %	Propane Contents, mole %	Butane Contents, mole %	Pentane+ Contents, mole %
11	Dehydrator Flare	83.67	1.06	0.20	0.07	0.15
12	Dehydrator Flare	83.67	1.06	0.20	0.07	0.15

The dehydrator flare mole % (by volume) are calculated from GRI-GLYCalc output files (see table below)

Green House Gas Emissions Data and Calculations

	Flash Tank Off Gas Vent		Condensate Still Vent		Dry Gas		
	12MMSCFD	20 MMSCFD	12MMSCFD	20 MMSCFD	12MMSCFD	20 MMSCFD	Average
	Flow Rate, scf/hr	Flow Rate, scf/hr	Flow Rate, scf/hr	Flow Rate, scf/hr	Flow Rate, scf/hr	Flow Rate, scf/hr	Flow Rate, scf/hr
Gas Throughputs (scf/hr)	831	1770	27.4	59.4	50	50	2788
Components	Mole Percent, %	Mole Percent, %	Mole Percent, %	Mole Percent, %	Mole Percent, %	Mole Percent, %	Mole Percent, %
Water	2.72E-01	2.37E-01	2.78E+00	2.78E+00	1.03E-02	9.21E-03	3.18E-01
Carbon dioxide	1.32E+01	1.33E+01	5.96E+01	5.96E+01	7.35E+00	7.35E+00	1.45E+01
Hydrogen sulfide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nitrogen	2.51E-02	2.51E-02	9.04E-03	9.08E-03	2.69E-02	2.69E-02	2.47E-02
Methane	8.51E+01	8.51E+01	3.19E+01	3.18E+01	9.15E+01	9.15E+01	8.37E+01
Ethane	1.05E+00	1.05E+00	1.39E+00	1.41E+00	9.46E-01	9.46E-01	1.06E+00
Propane	1.93E-01	1.93E-01	5.64E-01	5.60E-01	1.44E-01	1.44E-01	2.03E-01
IsoButane	2.91E-02	2.92E-02	1.29E-01	1.29E-01	1.85E-02	1.85E-02	3.19E-02
n-Butane	3.20E-02	3.21E-02	1.86E-01	1.86E-01	1.79E-02	1.79E-02	3.64E-02
IsoPentane	6.45E-03	6.47E-03	4.03E-02	4.06E-02	3.39E-03	3.39E-03	7.41E-03
n-Pentane	5.83E-03	5.85E-03	4.82E-02	4.84E-02	2.69E-03	2.69E-03	7.05E-03
Cyclopentane	8.35E-04	8.34E-04	2.50E-02	2.56E-02	1.97E-04	1.97E-04	1.58E-03
n-Hexane	2.93E-03	2.94E-03	3.83E-02	3.91E-02	9.94E-04	9.93E-04	3.99E-03
Cyclohexane	3.19E-03	3.16E-03	1.52E-01	1.56E-01	5.85E-04	5.81E-04	7.80E-03
Other hexanes	6.08E-03	6.10E-03	6.25E-02	6.36E-02	2.39E-03	2.39E-03	7.74E-03
Heptanes	2.85E-03	2.85E-03	5.86E-02	6.10E-02	6.91E-04	6.89E-04	4.56E-03
Methylcyclohexane	6.10E-03	6.03E-03	2.97E-01	3.09E-01	1.07E-03	1.05E-03	1.52E-02
2,2,4-Trimethylpentane	2.78E-04	2.79E-04	2.72E-03	2.84E-03	9.95E-05	9.93E-05	3.51E-04
Benzene	2.25E-03	2.14E-03	6.82E-01	6.78E-01	2.40E-04	2.26E-04	2.32E-02
Toluene	6.57E-03	6.08E-03	1.97E+00	1.95E+00	6.31E-04	5.75E-04	6.68E-02
Ethylbenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xylenes	5.21E-04	4.53E-04	1.29E-01	1.22E-01	4.70E-05	3.99E-05	4.31E-03
C8+ heavies	1.73E-03	1.68E-03	4.58E-03	5.05E-03	4.64E-04	4.53E-04	1.75E-03
Total	99.9468	100.0113	100.0682	99.9753	100.0271	100.0259	99.9924

The dehydrator flare gas throughputs and component mole % (volume %) are taken from the GRI-GLYCalc output file

Equipment Leaks Emissions

Unit Numbers	Description	Emission Rates	
		CO2, tpy	CH4, tpy
NA	Valves	3.46	15.70
NA	Connectors	5.08E-01	2.30
NA	Open-Ended Lines	2.48E-01	1.12
NA	Pressure Relief Valves	4.84E-01	2.19
	Total	4.70	21.32

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

Unit Numbers	Description	Number of Components, #	Emission Factors, scf/hr /component	CO2 Contents, mole %	CH4 Contents, mole %	Operating Times, hr/yr	CO2 Density, kg/scf	CH4 Density, kg/scf
NA	Valves	765	0.121	7.37	91.47	8,760	0.0526	0.0192
NA	Connectors	799	0.017	7.37	91.47	8,760	0.0526	0.0192
NA	Open-Ended Lines	214	0.031	7.37	91.47	8,760	0.0526	0.0192
NA	Pressure Relief Valves	67	0.193	7.37	91.47	8,760	0.0526	0.0192

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

Green House Gas Emissions Data and Calculations

Natural Gas Pneumatic Device Venting Emissions

Unit Numbers	Description	Number of Devices, #	Emission Factors, scf/hr/device	Operating Times, hr/yr	Emission Rates	
					CO2, tpy	CH4, tpy
NA	Continuous High Bleed Pneumatic Devices	0	37.3	8,760	0.00E+00	0.00E+00
NA	Intermittent Bleed Pneumatic Devices	23	13.5	8,760	11.62	52.54
NA	Continuous Low Bleed Pneumatic Devices	1	1.39	8,760	5.20E-02	2.35E-01
	Total				11.67	52.78

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

Unit Numbers	Description	CO2 Contents, mole %	CH4 Contents, mole %	CO2 Conversion Factors, tonne CO2e /scf	CH4 Conversion Factors, tonne CO2e /scf	CO2 Global Warming Potentials, tonne CO2e /tonne CO2	CH4 Global Warming Potentials, tonne CO2e /tonne CH4
NA	Continuous High Bleed Pneumatic Devices	7.37	91.47	5.262E-05	4.790E-04	1	25
NA	Continuous Low Bleed Pneumatic Devices	7.37	91.47	5.262E-05	4.790E-04	1	25
NA	Intermittent Bleed Pneumatic Devices	7.37	91.47	5.262E-05	4.790E-04	1	25

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

Natural Gas Driven Pneumatic Pump Venting Emissions

Emission Rates

Unit Number	Description	Number of Pumps, #	Emission Factor, scf/hr/pump	Operating Time, hr/yr	Emission Rates	
					CO2, tpy	CH4, tpy
NA	Pneumatic Pump Venting	1	13.3	8,760	4.98E-01	2.25

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

Unit Number	Description	CO2 Content, mole %	CH4 Content, mole %	CO2 Conversion Factor, tonne CO2e /scf	CH4 Conversion Factor, tonne CO2e /scf	CO2 Global Warming Potential, tonne CO2e /tonne CO2	CH4 Global Warming Potential, tonne CO2e /tonne CH4
NA	Pneumatic Pump Venting	7.37	91.47	5.262E-05	4.790E-04	1	25

The facility CO2 and CH4 contents are taken from the facility extended gas analysis
The conversion factors are taken from Subpart W, Paragraph 98.233(a)
The operating time is provided by Harvest (the default is the entire year)
The global warming potentials are taken from 40 CFR Part 98, Table A-1

Green House Gas Emissions Data and Calculations

Malfunction Emissions

Unit Number	Description	Total Component Weight, lb/lb-mole	VOC Component Weight, lb/lb-mole	CO2 Weight % of Total, %	CH4 Weight % of Total, %	Emission Rates		
						VOC, tpy	CO2, tpy	CH4, tpy
M1	Malfunctions	18.302	0.096	17.713	80.163	5.00	168.07	760.61

The total & VOC component weights and CO2 & CH4 weight % of totals are calculated from the facility extended gas analysis
The VOC emission rate is estimated (see calculations workbook)
CO2 Emission Rate (tpy) = VOC Emission Rate (tpy) x (Total Component Weight (lb/lb-mole) / VOC Component Weight (lb-lb-mole))
x (CO2 Weight % of Total (%) / 100)
CH4 Emission Rate (tpy) = VOC Emission Rate (tpy) x (Total Component Weight (lb/lb-mole) / VOC Component Weight (lb-lb-mole))
x (CH4 Weight % of Total (%) / 100)

Gas Stream Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight Percent of Total, %	Emission Factors, lb/scf
Carbon Dioxide	7.3661	44.01	3.242	17.713	8.545E-03
Hydrogen Sulfide	0.0000	34.07	0.000	0.000	0.000E+00
Nitrogen	0.0269	28.01	0.008	0.041	1.986E-05
Methane	91.4657	16.04	14.671	80.163	3.867E-02
Ethane	0.9465	30.07	0.285	1.555	7.502E-04
Propane	0.1445	44.09	0.064	0.348	1.679E-04
IsoButane	0.0185	58.12	0.011	0.059	2.834E-05
Normal Butane	0.0179	58.12	0.010	0.057	2.742E-05
IsoPentane	0.0034	72.15	0.002	0.013	6.466E-06
Normal Pentane	0.0027	72.15	0.002	0.011	5.135E-06
Cyclopentane	0.0002	70.14	0.000	0.001	3.697E-07
n-Hexane	0.0010	86.17	0.001	0.005	2.271E-06
Cyclohexane	0.0006	84.16	0.001	0.003	1.331E-06
Other Hexanes	0.0024	86.18	0.002	0.011	5.452E-06
Heptanes	0.0007	100.20	0.001	0.004	1.849E-06
Methylcyclohexane	0.0011	98.19	0.001	0.006	2.847E-06
2,2,4-Trimethylpentane	0.0001	100.21	0.000	0.001	2.641E-07
Benzene	0.0003	78.11	0.000	0.001	6.176E-07
Toluene	0.0009	92.14	0.001	0.005	2.186E-06
Ethylbenzene	0.0000	106.17	0.000	0.000	0.000E+00
Xylenes	0.0001	106.17	0.000	0.001	2.798E-07
C8+ heavies	0.0005	110.00	0.001	0.003	1.450E-06
Total	100.0001		18.302	100.000	4.824E-02
VOC			0.096	--	2.542E-04

Gas stream composition obtained from Carracas CDP extended gas analysis dated 9/18/2019
Component Weights (lb/lb-mole) = [Mole Percents (%) / 100] x Molecular Weights (lb/lb-mole)
Weight Percent of Total (%) = 100 x Component Weights (lb/lb-mole) / Total Component Weight (lb/lb-mole)
Emission Factors (lb/scf) = [Mole Percents (%) / 100] x Molecular Weights (lb/lb-mole) / 379.4 scf/lb-mole

Section 10

Written Description of the Routine Operations of the Facility

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

The Carracas CDP compresses and dehydrates pipeline quality natural gas. The facility operates continuously, 24-hours a day, 365 days per year.

The natural gas is received from independent producers. It is metered as it enters the facility and an inlet separator removes water from the stream. This produced water is stored in above ground tanks until it is transported off-site by truck.

The natural gas is compressed for pipeline transmission using up to eight compressors driven by the Waukesha L7042GL natural gas-fired reciprocating internal combustion engines. Operation of the compressor engines is determined by market and pipeline conditions.

Next, the stream is further dehydrated using up to four triethylene glycol (TEG) dehydrators. Emissions from the dehydrator still vents and flash tanks are controlled by up to two flares.

Two natural gas microturbine generators are used to provide auxiliary power for the facility.

The facility is also equipped with exempt/insignificant storage tanks and other process equipment.

State Regulations

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

STATE REGULATIONS APPLICABILITY CHECKLIST

STATE REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
20.2.1 NMAC	General Provisions	Yes	Facility	This regulation is applicable because it establishes procedures for protecting confidential information, procedures for seeking a variance, NMAQB's authority to require sampling equipment, severability, and the effective date for conformance with the NMACs, and prohibits the violation of other requirements in attempting to comply with the NMACs.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	Facility	This is a State Implementation Plan (SIP) approved regulation that limits the maximum allowable concentrations of Total Suspended Particulates, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide.
20.2.7 NMAC	Excess Emissions	Yes	Facility	This regulation is applicable because it prohibits excess emissions unless proper notification procedures are followed.
20.2.8 NMAC	Emissions Leaving New Mexico	Yes	Facility	This regulation is applicable because it establishes prohibitions on the release of pollutants that cross New Mexico State boundaries.
20.2.14 NMAC	Particulate Emissions from Coal Burning Equipment	No		This regulation is not applicable because the facility does not burn coal.
20.2.18 NMAC	Oil Burning Equipment - Particulate Matter	No		This regulation is not applicable because the facility does not burn oil.
20.2.31 NMAC	Coal Burning Equipment – Sulfur Dioxide	No		This regulation is not applicable because the facility does not burn coal.
20.2.32 NMAC	Coal Burning Equipment – Nitrogen Dioxide,	No		This regulation is not applicable because the facility does not burn coal.
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No		This regulation is not applicable because the facility is not equipped with external gas burning equipment which have heat input rates exceeding the trigger level (one million MMBtu/year) established by the regulation.
20.2.34 NMAC	Oil Burning Equipment: NO_2	No		This regulation is not applicable because the facility does not burn oil.
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	No		This regulation is not applicable because the facility is not a natural gas processing plant.
20.2.38 NMAC	Hydrocarbon Storage Facility	No		This regulation is not applicable because the facility will not be equipped with a tank battery storing hydrocarbon liquids (condensate) that will have a capacity greater than or equal to 65,000 gallons.
20.2.39 NMAC	Sulfur Recovery Plant - Sulfur	No		This regulation is not applicable because the facility is not equipped with a sulfur recovery plant.
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	1, 2, 5a, 6a, 7, 8, 9a, 10a, 11, 12, 14 & 15	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). Units 3 & 16 are not yet installed. The opacity limit will apply to each if and when they are installed.
20.2.70 NMAC	Operating Permits	Yes	Facility	This regulation is applicable because the facility is a major source of NO_2 emissions.
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	This regulation is applicable because the facility has potential emission rates (PER) greater than 10 pph or 25 tpy for pollutants subject to a state or federal ambient air quality standards (does not include VOCs or HAPs).

STATE REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	The Notice of Intent portion of this regulation does not apply because the facility is subject to 20.2.72 NMAC. The emissions inventory portion of this regulation is applicable since the facility is a Title V major source (see 20.2.73.300.B(1) & (2)).
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No		This regulation is not applicable because the facility is not currently a PSD major source and the emissions increase associated with this modification is not significant.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	This regulation is applicable because the plant is subject to 20.2.72 NMAC and it establishes the fee schedule associated with the filing of construction permits.
20.2.77 NMAC	New Source Performance	No		This regulation is not applicable because it adopts by reference the federal NSPS codified in 40 CFR 60. The facility is not subject to 40 CFR 60.
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	1, 2, 5a, 6a, 7, 8, 9a, 10a, 11, 12, 14 & 15	This regulation is applicable because it establishes guidelines for the selection of an appropriate stack height for the purposes of atmospheric dispersion modeling. Units 3 & 16 are not yet installed. The stack height guidelines will apply to each if and when they are installed.
20.2.82 NMAC	MACT Standards for Source Categories of HAPS	Yes	1, 2, 5a, 6a, 7, 8, 9a, 10a, 14 & 15	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. Units 3 & 16 are not yet installed. If and when the units are installed at the facility, MACT applicability will be evaluated.

Federal Regulations

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

FEDERAL REGULATIONS APPLICABILITY CHECKLIST

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 50	NAAQS	Yes	Facility	This regulation is applicable because the facility is subject to 20.2.70, 20.2.72 and 20.2.74 NMAC.
40 CFR 52	Approval and Promulgation of Implementation Plans	No		40 CFR 52.21 *Prevention of Significant Deterioration of Air Quality* is not applicable because the station is not currently a major Prevention of Significant Deterioration source and the emissions increase associated with this modification is not significant. The remainder of 40 CFR 52 is not applicable because it addresses approval and promulgation of implementation plans.
NSPS 40 CFR 60, Subpart A	General Provisions	Potentially Subject		This regulation is not applicable because 40 CFR 60 does not apply. Units 3 & 16 are not installed. If and when they are installed, the applicability of Subpart A will be evaluated at that time.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
NSPS 40 CFR 60, Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	Potentially Subject		This regulation is not applicable because the facility is not equipped with spark ignition engines constructed, modified or reconstructed after June 12, 2006. The existing engines (Units 1, 2, 7, 8, 14, and 15) were constructed prior to June 13, 2006. The engines have not undergone "modifications" or "reconstructions." Units 3 & 16 are not installed. If and when they are installed, the applicability of Subpart JJJJ will be evaluated at that time.
NSPS 40 CFR 60, Subpart KKKK	Standards of Performance for Stationary Combustion Turbines	No		This regulation is not applicable because the facility is not equipped with stationary combustion turbines with a heat input at peak load equal to or greater than 10.7 gigajoules (10 MMBtu) per hour, based on the higher heating value of the fuel, and which commenced construction, modification, or reconstruction February 18, 2005.
NSPS 40 CFR 60, Subpart OOOO	Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution for which Construction, Modification or Reconstruction Commenced After August 23, 2011 and On or Before September 18, 2015	Potentially Subject		This regulation is not applicable because the facility will not be 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). Units 3 & 16 are not installed. If and when they are installed, the applicability of Subpart OOOO will be evaluated at that time.
NSPS 40 CFR 60, Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015	Potentially Subject		This regulation is not applicable because the facility will not be 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 §60.5430a). Units 3 & 16 are not installed. If and when they are installed, the applicability of Subpart OOOOa will be evaluated at that time.
NESHAP 40 CFR 61, Subpart A	General Provisions	No		This regulation is not applicable because none of the other 40 CFR Part 61 subparts apply (see §61.1(c)).
MACT 40 CFR 61, Subpart M	National Emission Standard for Asbestos	No		The subpart includes standards for minimizing asbestos emissions from several operations, including demolition and renovation activities. This regulation is not applicable because there are no existing or planned activities at this facility that trigger applicability.
NESHAP 40 CFR 61, Subpart V	National Emission Standards for Equipment Leaks (Fugitive Emission Sources)	No		The provisions of this subpart apply to each of the following sources that are intended to operate in volatile hazardous air pollutant (VHAP) service: pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, and control devices or systems required by this subpart (see §61.240(a)). VHAP service means a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 10 percent by weight of VHAP. VHAP means a substance regulated under this subpart for which a standard for equipment leaks of the substance has been promulgated (see §61.241). This regulation is not applicable because none of the above listed equipment at the facility is in VHAP service.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
MACT 40 CFR 63, Subpart A	General Provisions	Yes	1, 2, 5a, 6a, 7, 8, 9a, 10a, 14 & 15	This regulation is applicable because 40 CFR 63, Subparts HH & ZZZZ apply (see §63.1(b)). Units 3 & 16 are not yet installed. If and when the units are installed at the facility, the applicability of Subpart A to these units will be evaluated at that time. The units will comply with the applicable portions of the subpart.
MACT 40 CFR 63, Subpart HH	National Emission Standards for Hazardous Air Pollutants For Oil and Natural Gas Production Facilities	Yes	5a, 6a, 9a & 10a	This regulation is applicable because the facility is equipped with dehydrators. The station is an area HAP source and the dehydrators will have to comply with the area source requirements of the subpart. It is currently anticipated the dehydrators will continue to qualify for the benzene exemption under §63.764(e)(1)(ii). 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 is not applicable because the facility is not a natural gas transmission and storage facility. As defined in the subpart, "facility" includes a natural gas compressor station that *receives* natural gas via pipeline, *from* an underground natural gas storage operation, or *from* a natural gas processing plant. (*Emphasis added.*) The facility receives natural gas *prior* to the point of custody transfer (i.e., upstream of a natural gas processing facility).
MACT 40 CFR 63, Subpart YYYY	National Emission Standards for Hazardous Air Pollutants From Stationary Combustion Turbines	No		This regulation is not applicable because the facility is not a major HAP source.
MACT 40 CFR 63, Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT)	Yes	1, 2, 7, 8, 14 & 15	This regulation is applicable because the facility is equipped with a stationary RICE. The station is an area HAP source as defined by the subpart. In accordance with the provisions of §63.6603(a), Units 1, 2, 7, 8, 14 and 15 are non-emergency, non-black start, 4-stroke, lean burn (4SLB) engines, site-rated > 500 bhp, and located at a remote facility. They must comply with the maintenance and operating standards in Table 2d, row #8, including oil and filter changes and inspections of spark plugs, hoses and belts every 2,160 hours of operating time or annually, whichever comes first. Engine startup and idle times must be minimized in accordance with the regulation. Units 3 & 16 are not yet installed. If and when the units are installed at the facility, the applicability of Subpart ZZZZ to these units will be evaluated at that time. The engines will comply with the applicable portions of the subpart.
MACT 40 CFR 63, Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	No		This regulation is not applicable because the facility is not a major HAP source as defined by the Subpart and is not equipped with boilers and process heaters.

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.

Compliance Test History Table

Unit No.	Test Description	Test Date
1	Portable analyzer testing of NOX and CO	08/29/2019
2	Portable analyzer testing of NOX and CO	08/07/2019
3	Not installed	Not installed
7	Portable analyzer testing of NOX and CO	08/07/2019
8	Portable analyzer testing of NOX and CO	08/13/2013
14	Portable analyzer testing of NOX and CO	08/08/2019
15	Portable analyzer testing of NOX and CO	80/08/2019
16	Not installed	Not installed

Unit 8 has been off contract since 5/1/2013.