January 8, 2021

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 P023-R3-M2
Harvest Four Corners, LLC – La Jara Compressor Station

Dear Ms. Bisbey-Kuehn,

On behalf of Harvest Four Corners, LLC (HFC), Cirrus Consulting, LLC submits the enclosed application to renew and modify the Title V operating permit for the La Jara Compressor Station.

Thank you for your help. If you have questions or need any additional information, please contact Kijun Hong of HFC at (505) 632-4475.

Sincerely,

CIRRUS CONSULTING, LLC

James W. Newby

Enclosures
La Jara Compressor Station Title V Operating Permit Applications

c: Kijun Hong, HFC

Cirrus Consulting, LLC
11139 Crisp Air Drive
Colorado Springs, Colorado 80908

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

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NEW MEXICO 20.2.70 NMAC APPLICATION TO MODIFY PERMIT NUMBER P023-R3-M2

LA JARA COMPRESSOR STATION

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

January 2021

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Introduction

The Harvest Four Corners, LLC (HFC) La Jara Compressor Station currently operates under a construction permit, 339-M9, dated November 16, 2020 and a Title V operating permit, P023-R3-M2, dated September 18, 2020.

The Title V operating permit currently approves operation of the following equipment/emission sources:

- Two Solar Centaur T-4002 natural gas-fired turbines (Units 1 & 2);
- One Solar Centaur T-4702 natural gas-fired turbine (Unit 3);
- One Waukesha F3521G natural gas-fired engine (Unit 4);
- Two Solar Centaur 40-4700S natural gas-fired turbines (Units 6 & 7);
- One 3-phase separator (Unit 18);
- Equipment leak emissions (Unit F1);
- Truck loading emissions (Unit L1);
- Malfunction emissions (Unit M1);
- One pig launcher (Unit P1);
- One pig receiver (Unit P2);
- Startup, shutdown and maintenance (SSM) emissions (Unit SSM); and
- Three 400 barrel (bbl) condensate storage tanks (Units T1-T3)

The station is also permitted for exempt and insignificant equipment/sources: one fuel gas heater, produced water truck loading, and miscellaneous liquid storage tanks. The facility is authorized to operate continuously.

This application is being submitted to renew the Title V operating permit (renewal application is due 12 months prior to January 10, 2022). It includes the following modifications recently made to the construction permit:

- Permit the option to replace Unit 1 with a Solar Centaur T-4702S turbine (Unit 8);
- Permit the option to replace Unit 2 with a Solar Centaur T-4702S turbine (Unit 9);
- Permit the option to add two compressors to the permit (Units C-8 & C-9);
- Increase the fuel sulfur limit for Units 1-4 & 6-9 to 1.35 grains of total sulfur per 100 dry standard cubic feet (gr/100 scf);
- Increase calculated sulfur dioxide (SO_2) emissions from Unit 4.

- Reduce combined volatile organic compounds (VOC) emissions from the 3-phase separator, condensate storage tanks, and condensate truck loading (Units 18, T1, T2, T3 & L1) to a limit of 48.8 tons per year (tpy);

- Increase the combined (Units T1-T3) allowable 12-month rolling total condensate throughput to 6,500 bbl per year;

- Increase the 12-month rolling average 3-phase separator (Unit 18) inlet pressure to 205.0 pounds per square inch absolute (psia); and

- Update fuel flow rates and stack exhaust parameters for the existing turbines at the facility.

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.): **1010**	Updating Permit/NOI #: **P023-R3-M2**
1	Facility Name: **La Jara Compressor Station**	Plant primary SIC Code (4 digits): **1389**	
		Plant NAIC code (6 digits): **213112**	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): **See directions in Section 1-D4**		
2	Plant Operator Company Name: **Harvest Four Corners, LLC**	Phone/Fax: **(505) 632-4600 / (505) 632-4782**	
a	Plant Operator Address: **1755 Arroyo Drive, Bloomfield, New Mexico 87413**		

b	Plant Operator's New Mexico Corporate ID or Tax ID: **76-0451075**	
3	Plant Owner(s) name(s): **Same as #2 above**	Phone/Fax: **Same as #2 above**
a	Plant Owner(s) Mailing Address(s): **Same as #2a above**	
4	Bill To (Company): **Same as #2 above**	Phone/Fax: **Same as #2 above**
a	Mailing Address: **Same as #2a above**	E-mail: **N/A**
5	☐ Preparer: ☑ Consultant: **James Newby, Cirrus Consulting, LLC**	Phone/Fax: **(801) 294-3024**
a	Mailing Address: **11139 Crisp Air Drive, Colorado Springs, CO 80908**	E-mail: **jnewby@cirrusllc.com**
6	Plant Operator Contact: **Kijun Hong**	Phone/Fax: **(505) 632-4475 / (505) 632-4782**
a	Address: **Same as #2a above**	E-mail: **khong@harvestmidstream.com**
7	Air Permit Contact: **Same as #6 above**	Title: **Environmental Specialist**
a	E-mail: **Same as #6a above**	Phone/Fax: **Same as #6 above**
b	Mailing Address: **Same as #2a above**	
c	The designated Air permit Contact will receive all official correspondence (i.e. letters, permits) from the Air Quality Bureau.	

Section 1-B: Current Facility Status

1.a	Has this facility already been constructed? ☑ Yes ☐ No	1.b If yes to question 1.a, is it currently operating in New Mexico? ☑ Yes ☐ No
2	If yes to question 1.a, was the existing facility subject to a Notice of Intent (NOI) (20.2.73 NMAC) before submittal of this application? ☐ Yes ☑ No	If yes to question 1.a, was the existing facility subject to a construction permit (20.2.72 NMAC) before submittal of this application? ☑ Yes ☐ No
3	Is the facility currently shut down? ☐ Yes ☑ No	If yes, give month and year of shut down (MM/YY): **N/A**
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? ☑ Yes ☐ No	
5	If Yes to question 3, has this facility been modified (see 20.2.72.7.P NMAC) or the capacity increased since 8/31/1972? ☑ Yes ☐ No ☐ N/A **It is assumed this question refers to question 4 rather than question 3.**	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☑ Yes ☐ No	If yes, the permit No. is: **P023-R3-M2**
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: **0339-M9**
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: **20.8 MMCF[(a)]**	Daily: **500 MMCF[(a)]**	Annually: **182,500 MMCF[(a)]**
b	Proposed	Hourly: **20.8 MMCF[(a)]**	Daily: **500 MMCF[(a)]**	Annually: **182,500 MMCF[(a)]**
2	What is the facility's maximum production rate, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: **20.8 MMCF[(a)]**	Daily: **500 MMCF[(a)]**	Annually: **182,500 MMCF[(a)]**
b	Proposed	Hourly: **20.8 MMCF[(a)]**	Daily: **500 MMCF[(a)]**	Annually: **182,500 MMCF[(a)]**

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

Section 1-D: Facility Location Information

1	Section: **17**	Range: **06W**	Township: **30N**	County: **Rio Arriba**	Elevation (ft): **6,325**
2	UTM Zone: ☐ 12 or ☑ 13			Datum: ☐ NAD 27 ☐ NAD 83 ☑ WGS 84	
a	UTM E (in meters, to nearest 10 meters): **277,710**			UTM N (in meters, to nearest 10 meters): **4,077,505**	
b	**AND** Latitude (deg., min., sec.): **36° 49' 02"**			Longitude (deg., min., sec.): **-107° 29' 32"**	
3	Name and zip code of nearest New Mexico town: **Navajo Dam, New Mexico 87419**				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): **From Bloomfield, drive east on Hwy 64 for 37 miles, turn left on Hwy 527 and drive 7.8 miles, turn right on Rosa Road and drive 3.3 miles, turn left and drive 1.3 miles to the station.**				
5	The facility is **approximately 12** miles **east** of **Navajo Dam, New Mexico**.				
6	Status of land at facility (check one): ☐ Private ☐ Indian/Pueblo ☑ Federal BLM ☐ Federal Forest Service ☐ Other (specify)				
7	List all municipalities, Indian tribes, and counties within a ten (10) mile radius (20.2.72.203.B.2 NMAC) of the property on which the facility is proposed to be constructed or operated: **No municipalities, no indian tribes, Rio Arriba County New Mexico, San Juan County New Mexico**				
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 Area**				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): **67.08 km**				
11	Distance (meters) from the perimeter of the Area of Operations (AO is defined as the plant site inclusive of all disturbed lands, including mining overburden removal areas) to nearest residence, school or occupied structure: **≈3,700 m**				
12	Method(s) used to delineate the Restricted Area: **Fence** "**Restricted Area**" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area.				
13	Does the owner/operator intend to operate this source as a portable stationary source as defined in 20.2.72.7.X NMAC? ☐ Yes ☑ No A portable stationary source is not a mobile source, such as an automobile, but a source that can be installed permanently at one location or that can be re-installed at various locations, such as a hot mix asphalt plant that is moved to different job sites.				
14	Will this facility operate in conjunction with other air regulated parties on the same property? ☑ No ☐ Yes If yes, what is the name and permit number (if known) of the other facility? **N/A**				

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

1	Facility **maximum** operating ($\frac{\text{hours}}{\text{day}}$): **24**	($\frac{\text{days}}{\text{week}}$): **7**	($\frac{\text{weeks}}{\text{year}}$): **52**	($\frac{\text{hours}}{\text{year}}$): **8,760**		
2	Facility's maximum daily operating schedule (if less than 24 $\frac{\text{hours}}{\text{day}}$)? Start: **N/A**	☐AM ☐PM	End: **N/A**	☐AM ☐PM		
3	Month and year of anticipated start of construction: **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: **Jemez Electric Coop** 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: **Same as #1b above**		
5	Names of Subsidiary Companies ("Subsidiary Companies" means organizations, branches, divisions or subsidiaries, which are owned, wholly or in part, by the company to be permitted.): **N/A**		
6	Telephone numbers & names of the owners' agents and site contacts familiar with plant operations: **N/A**		
7	Affected Programs to include Other States, local air pollution control programs (i.e. Bernalillo) and Indian tribes: Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B)? If yes, state which ones and provide the distances in kilometers: **Yes, Colorado (≈20 km), Jicarilla Apache Tribe (≈26 km), Navajo Tribe (≈52 km), Navajo checkerboard lands (29 km), Ute Mountain Tribe (≈68 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 Field Unit 3	Natural Gas Fired Turbine	Solar	T-4002	OHB16-C1819 (Pkg # 3020005)	3961 hp	3123 hp	1/1/1972 1/1/1972	N/A 1	20200201	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☑ **To be Replaced**	N/A	N/A
2 Field Unit 4	Natural Gas Fired Turbine	Solar	T-4002	OHB16-C2641 (Pkg # 3020004)	3961 hp	3123 hp	1/1/1972 1/1/1972	N/A 2	20200201	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☑ **To be Replaced**	N/A	N/A
3 Field Unit 2	Natural Gas Fired Turbine	Solar	T-4702	OHG17-C5915 (Pkg # CC81338)	4680 hp	3779 hp	8/1/1981 8/1/1981	N/A 3	20200201	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	N/A	N/A
4	Emergency RICE Generator	Dresser Waukesha	F3521G	RU18456 (Pkg # 361832)	515 hp	440 hp	3/13/1981 3/13/1981	N/A 4	20100202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	4SRB	N/A
6 Field Unit 1	Natural Gas Fired Turbine	Solar	T-4702S	OHB20-C0547 (Pkg # DCC0164)	4680 hp	3934 hp	1/1/1999 1/1/1999	N/A 6	20200201	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	N/A	N/A
7 Field Unit 1A	Natural Gas Fired Turbine	Solar	T-4702S	OHC20-C4653 (Pkg # DCC0165)	4680 hp	3934 hp	1/1/1999 1/1/1999	N/A 7	20200201	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	N/A	N/A
8 Field Unit 3	Natural Gas Fired Turbine	Solar	T-4702S	TBD	4680 hp	3795 hp	TBD TBD	N/A 8	20200201	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☑ **Replacement Unit** ☐ To Be Modified ☐ To be Replaced	N/A	1
9 Field Unit 4	Natural Gas Fired Turbine	Solar	T-4702S	TBD	4680 hp	3795 hp	TBD TBD	N/A 9	20200201	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☑ **Replacement Unit** ☐ To Be Modified ☐ To be Replaced	N/A	2
C-8	Compressor	Solar	TBD	TBD	TBD	TBD	TBD TBD	N/A C-8	31000203	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☑ **Replacement Unit** ☐ To Be Modified ☐ To be Replaced	N/A	N/A
C-9	Compressor	Solar	TBD	TBD	TBD	TBD	TBD TBD	N/A C-9	31000203	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☑ **Replacement Unit** ☐ To Be Modified ☐ To be Replaced	N/A	N/A
18	3-Phase Separator	Peerless	14-248	U-197	N/A	N/A	N/A N/A	N/A N/A	31000129	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	N/A	N/A
F1	Equipment Leaks	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	31088811	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
L1	Truck Loading (Condensate)	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	Malfunctions	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
P1	Trunk S Loop Pig Launcher	TDW	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

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.
P2	Trunk S Loop Pig Receiver	TDW	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
SSM	Startup, Shutdown & Maintenance	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
T1	Condensate Storage Tank	Pesco	N/A	T-1987	400 bbl	400 bbl	1/1/1997 / 1/1/1997	N/A / N/A	40400311	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	N/A	N/A
T2	Condensate Storage Tank	Pesco	N/A	T-1986	400 bbl	400 bbl	1/1/1997 / 1/1/1997	N/A / N/A	40400311	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	N/A	N/A
T3	Condensate Storage Tank	Pesco	N/A	T-1985	400 bbl	400 bbl	1/1/1997 / 1/1/1997	N/A / N/A	40400311	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	N/A	N/A

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

[2] Specify dates required to determine regulatory applicability.

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

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

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

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

Unit Number	Source Description	Manufacturer	Model No. / Serial No.	Max Capacity / Capacity Units	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5) / Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Manufacture /Reconstruction[2] / Date of Installation /Construction[2]	For Each Piece of Equipment, Check Onc
5	Fuel Gas Heater	Sivalls	1H-246	0.5	20.2.72.202.B(5) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				MMBtu/hr	Insignificant Activity Item No. 1		
L2	Truck Loading (produced water)			N/A	20.2.72.202.B(5) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				N/A	Insignificant Activity Item No. 1		
T4	Produced Water Storage Tank			80	20.2.72.202.B(5) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				bbl	Insignificant Activity Item No. 1		
T5 & T6	Lube Oil Storage Tank			315	20.2.72.202.B(2) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	Insignificant Activity Item No. 5		
T7	Lube Oil Storage Tank			350	20.2.72.202.B(2) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	Insignificant Activity Item No. 5		
T8	Used Oil Storage Tank			882	20.2.72.202.B(2) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	Insignificant Activity Item No. 5		
T10	Methanol Storage Tank			500	20.2.72.202.B(5) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				bbl	Insignificant Activity Item No. 1		
T11	Corrosion Inhibitor (CGO49)			750	20.2.72.202.B(5) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	Insignificant Activity Item No. 1		
T12	Diesel Tank			300	20.2.72.202.B(2) NMAC		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	Insignificant Activity Item No. 5		
T13	Biocide (Bactron K-87)			125	No VOCs or HAPs:		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	Trivial Activities List Item. No. 1		
T14	Transmission Fluid Storage Tank			150	No VOCs or HAPs:		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				gal	Trivial Activities List Item. No. 1		
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

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

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

Table 2-C: Emissions Control Equipment

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

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

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

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

☑ **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
N/A																		
Totals																		

[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	15.07	66.00	14.41	63.10	4.41	19.30	1.00E-01	4.39E-01	1.95E-01	8.53E-01	1.95E-01	8.53E-01	1.95E-01	8.53E-01	-	-	-	-
2	15.07	66.00	14.41	63.10	4.41	19.30	1.00E-01	4.39E-01	1.95E-01	8.53E-01	1.95E-01	8.53E-01	1.95E-01	8.53E-01	-	-	-	-
3	24.06	105.39	4.39	19.21	2.51	11.00	1.22E-01	5.35E-01	2.37E-01	1.04	2.37E-01	1.04	2.37E-01	1.04	-	-	-	-
4	12.62	3.16	8.74	2.18	2.91E-01	7.28E-02	1.09E-02	2.73E-03	6.24E-02	1.56E-02	6.24E-02	1.56E-02	6.24E-02	1.56E-02	-	-	-	-
6	3.64	15.93	4.43	19.40	1.27	5.56	1.23E-01	5.41E-01	2.40E-01	1.05	2.40E-01	1.05	2.40E-01	1.05	-	-	-	-
7	3.64	15.93	4.43	19.40	1.27	5.56	1.23E-01	5.41E-01	2.40E-01	1.05	2.40E-01	1.05	2.40E-01	1.05	-	-	-	-
8	3.52	15.42	4.29	18.79	1.23	5.39	1.20E-01	5.24E-01	2.32E-01	1.02	2.32E-01	1.02	2.32E-01	1.02	-	-	-	-
9	3.52	15.42	4.29	18.79	1.23	5.39	1.20E-01	5.24E-01	2.32E-01	1.02	2.32E-01	1.02	2.32E-01	1.02	-	-	-	-
F1	-	-	-	-	1.35	5.92	-	-	-	-	-	-	-	-	-	-	-	-
M1	-	-	-	-	unspecified	10.00	-	-	-	-	-	-	-	-	-	-	-	-
P1 & P2	-	-	-	-	unspecified	10.91	-	-	-	-	-	-	-	-	-	-	-	-
SSM	-	-	-	-	unspecified	32.39	-	-	-	-	-	-	-	-	-	-	-	-
T1-T3, L1 & 18	-	-	-	-	unspecified	48.80	-	-	-	-	-	-	-	-	-	-	-	-
Totals #1	74.10	272.41	50.80	186.39	15.51	168.80	5.81E-01	2.50	1.17	4.86	1.17	4.86	1.17	4.86	-	-	-	-
Totals #2	62.55	221.82	40.68	142.09	12.33	154.89	6.00E-01	2.58	1.21	5.02	1.21	5.02	1.21	5.02	-	-	-	-
Totals #3	62.55	221.82	40.68	142.09	12.33	154.89	6.00E-01	2.58	1.21	5.02	1.21	5.02	1.21	5.02	-	-	-	-
Totals #4	51.00	171.24	30.56	97.78	9.15	140.98	6.19E-01	2.67	1.24	5.19	1.24	5.19	1.24	5.19	-	-	-	-

[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).

Totals #1 - No change in the turbines at the facility - Units 1, 2, 3, 6 & 7 are in operation

Totals #2 - Unit #1 is replaced by Unit #8 - Units 2, 3, 6, 7 & 8 are in operation

Totals #3 - Unit #2 is replaced by Unit #9 - Units 1, 3, 6, 7 & 9 are in operation

Totals #4 - Units #1 & #2 are replaced by Units #8 & #9, respectively - Units 3, 6, 7, 8 & 9 are in operation

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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
M1	-	-	-	-	unspecified	10.00	-	-	-	-	-	-	-	-	-	-	-	-
P1 & P2	-	-	-	-	unspecified	10.91	-	-	-	-	-	-	-	-	-	-	-	-
SSM	-	-	-	-	unspecified	32.39	-	-	-	-	-	-	-	-	-	-	-	-
T1-T3, L1 & 18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	-	-	-	-	unspecified	53.30	-	-	-	-	-	-	-	-	-	-	-	-

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

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

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

☑ 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
N/A																	
Totals:																	

Table 2-H: Stack Exit Conditions

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

Stack Number	Serving Unit Number(s) from Table 2-A	Orientation (H-Horizontal V=Vertical)	Rain Caps (Yes or No)	Height Above Ground (ft)	Temp. (F)	Flow Rate		Moisture by Volume (%)	Velocity (ft/sec)	Inside Diameter (ft)
						(acfs)	(dscfs)			
1	1	V	No	21	788	1204			245	2.50
2	2	V	No	21	788	1204			245	2.50
3	3	V	No	32	797	1146			35	6.50
4	4	V	No	25	1053	37			270	0.42
6	6	V	No	39	789	1200			244	2.50
7	7	V	No	39	789	1200			244	2.50
8	8	V	No	21	811	1243			253	2.50
9	9	V	No	21	811	1243			253	2.50

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		Acetaldehyde ☑ HAP or ☐ TAP		Formaldehyde ☑ HAP or ☐ TAP		n-Hexane ☑ 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	0.3	1.3	0.1	0.5	0.1	0.5	-	-										
2	2	0.3	1.3	0.1	0.5	0.1	0.5	-	-										
3	3	0.3	1.5	0.1	0.6	0.1	0.6	-	0.1										
4	4	-	-	-	-	-	-	-	-										
6	6	0.4	1.6	0.2	0.7	0.1	0.6	-	0.1										
7	7	0.4	1.6	0.2	0.7	0.1	0.6	-	0.1										
8	8	0.3	1.5	0.1	0.6	0.1	0.6	-	0.1										
9	9	0.3	1.5	0.1	0.6	0.1	0.6	-	0.1										
F1	F1	-	0.1	-	-	-	-	-	0.1										
M1	M1	-	0.2	-	-	-	-	-	0.2										
P1 & P2	P1 & P2	-	0.3	-	-	-	-	-	0.2										
SSM	SSM	-	0.8	-	-	-	-	-	0.6										
T1-T3, L1 & 18	T1-T3, L1 & 18	-	4.9	-	-	-	-	-	4.6										
Totals #1		1.7	13.5	0.7	3.0	0.7	2.9	0.1	5.8										
Totals #2		1.8	13.8	0.7	3.1	0.7	3.0	0.1	5.8										
Totals #3		1.8	13.8	0.7	3.1	0.7	3.0	0.1	5.8										
Totals #4		1.8	14.0	0.7	3.2	0.7	3.2	0.1	5.9										

Totals #1 - No change in the turbines at the facility - Units 1, 2, 3, 6 & 7 are in operation

Totals #2 - Unit #1 is replaced by Unit #8 - Units 2, 3, 6, 7 & 8 are in operation

Totals #3 - Unit #2 is replaced by Unit #9 - Units 1, 3, 6, 7 & 9 are in operation

Totals #4 - Units #1 & #2 are replaced by Units #8 & #9, respectively - Units 3, 6, 7, 8 & 9 are in operation

Table 2-J: Fuel

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

Unit No.	Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, …)	Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other	Specify Units				
			Lower Heating Value	Hourly Usage	Annual Usage	% Sulfur	% Ash
1	Natural gas	Raw/Field Natural Gas	900 Btu/scf	32.775 Mscf	287.11 MMscf	--	--
2	Natural gas	Raw/Field Natural Gas	900 Btu/scf	32.775 Mscf	287.11 MMscf	--	--
3	Natural gas	Raw/Field Natural Gas	900 Btu/scf	39.931 Mscf	349.80 MMscf	--	--
4	Natural gas	Raw/Field Natural Gas	900 Btu/scf	3.573 Mscf	1.79 MMscf	--	--
6	Natural gas	Raw/Field Natural Gas	900 Btu/scf	40.345 Mscf	353.43 MMscf	--	--
7	Natural gas	Raw/Field Natural Gas	900 Btu/scf	40.345 Mscf	353.43 MMscf	--	--
8	Natural gas	Raw/Field Natural Gas	900 Btu/scf	39.122 Mscf	342.71 MMscf	--	--
9	Natural gas	Raw/Field Natural Gas	900 Btu/scf	39.122 Mscf	342.71 MMscf	--	--

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	40400311	Condensate	Hydrocarbon liquids	5.74	66.29	67.36	5.16	80.79	6.48
T2	40400311	Condensate	Hydrocarbon liquids	5.74	66.29	67.36	5.16	80.79	6.48
T3	40400311	Condensate	Hydrocarbon liquids	5.74	66.29	67.36	5.16	80.79	6.48
T4	40400315	Produced Water	Water; <1% hydrocarbon liquids	8.33	N/A*	N/A*	N/A*	N/A*	N/A*
T5 & T6	40400313	Lube Oil	Lube Oil	Exempt source under 20.2.72.202.B(2) NMAC (Vapor pressure < 0.2 PSI)					
T7	40400313	Lube Oil	Lube oil	Exempt source under 20.2.72.202.B(2) NMAC (Vapor pressure < 0.2 PSI)					
T8	40400313	Used Oil	Used Lube Oil	Exempt source under 20.2.72.202.B(2) NMAC (Vapor pressure < 0.2 PSI)					
T10	40700816	Methanol	Methanol	6.61	32.04	64.94	1.68	76.64	2.39
T11	40400314	Corrosion Inhibitor	Corrosion Inhibitor	7.15	41.54	64.94	1.21	76.64	1.68
T12	40400316	Diesel	Diesel	Exempt source under 20.2.72.202.B(2) NMAC (Vapor pressure < 0.2 PSI)					
T13	40400314	Biocide	Biocide	Not a source of regulated emissions					
T14		Transmission Fluid	Transmission fluid	Not a source of regulated emissions					
				N/A*: The emission calculations do not yield this data.					

Table 2-L: Tank Data

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

Tank No.	Date Installed	Materials Stored	Seal Type (refer to Table 2-LR below)	Roof Type (refer to Table 2-LR below)	Capacity		Diameter (M)	Vapor Space (M)	Color (from Table VI-C)		Paint Condition (from Table VI-C)	Annual Throughput (gal/yr)	Turn-overs (per year)
					(bbl)	(M^3)			Roof	Shell			
T1	1997	Condensate		FX	400	64	3.66	3.24	MG	MG	Good	91,000	5.42
T2	1997	Condensate		FX	400	64	3.66	3.24	MG	MG	Good	91,000	5.42
T3	1997	Condensate		FX	400	64	3.66	3.24	MG	MG	Good	91,000	5.42
T4		Produced Water		N/A	80	13	N/A*	N/A*	N/A*	N/A*	N/A*	40,320	12.00
T5 & T6		Lube Oil		FX	8	1	Exempt source under 20.2.72.202.B(2) NMAC (Vapor pressure < 0.2 PSI)						
T7		Lube Oil		FX	8	1	Exempt source under 20.2.72.202.B(2) NMAC (Vapor pressure < 0.2 PSI)						
T8		Used Oil		FX	21	3	Exempt source under 20.2.72.202.B(2) NMAC (Vapor pressure < 0.2 PSI)						
T10		Methanol		FX	500	79	4.57	2.48	LG	LG	Good	59,487	2.83
T11		Corrosion Inhibitor		FX	18	3	1.52	0.76	LG	LG	Good	9,000	12.00
T12		Diesel		FX	7	1	Exempt source under 20.2.72.202.B(2) NMAC (Vapor pressure < 0.2 PSI)						
T13		Biocide		FX	3	0	Not a source of regulated emissions						
T14		Transmission fluid		FX	4	1	Not a source of regulated emissions						
							* N/A: The emission calculations do not yield this data.						

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

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

Note: 1.00 bbl = 0.159 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	182,500 mmcfy	High pressure natural gas	C1-C6+	Gas	182,500 mmcfy
Condensate	Mixed HC	Liquid	273,000 gal/yr	Condensate	Mixed HC	Liquid	273,000 gal/yr
Produced water	H2O + trace of HC	Liquid	40,320 gal/yr	Produced water	H2O + trace of HC	Liquid	40,320 gal/yr
The station capacity is a direct function of available horsepower. The throughput is therefore dependant on atmospheric temperature and pressure, gas temperature and pressure, relative humidity and gas quality, was well as other factors. The "throughput" expressed above is a nominal quantity (with a 15 percent safety factor), neither an absolute maximum, nor an average. Actual throughput l 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**	16,758.82	3.16E-02	3.16E-01												16,759.17	-
	CO_2e	16,758.82	9.41	7.90												-	16,776.13
2	**mass GHG**	16,758.82	3.16E-02	3.16E-01												16,759.17	-
	CO_2e	16,758.82	9.41	7.90												-	16,776.13
3	**mass GHG**	20,417.36	3.85E-02	3.85E-01												20,417.78	-
	CO_2e	20,417.36	11.47	9.62												-	20,438.45
4	**mass GHG**	104.41	1.97E-04	1.97E-03												104.41	-
	CO_2e	104.41	5.86E-02	4.92E-02												-	104.52
5	**mass GHG**	284.05	5.35E-04	5.35E-03												284.05	-
	CO_2e	284.05	1.60E-01	1.34E-01												-	284.34
6	**mass GHG**	20,627.56	3.89E-02	3.89E-01												2.06E+04	-
	CO_2e	20,627.56	11.59	9.72												-	20,648.86
7	**mass GHG**	20,627.56	3.89E-02	3.89E-01												20,627.98	-
	CO_2e	20,627.56	11.59	9.72												-	20,648.86
8	**mass GHG**	20,002.65	3.77E-02	3.77E-01												20,003.07	-
	CO_2e	20,002.65	11.23	9.42												-	20,023.31
9	**mass GHG**	20,002.65	3.77E-02	3.77E-01												20,003.07	-
	CO_2e	20,002.65	11.23	9.42												-	20,023.31
F1	**mass GHG**	40.46		736.66	F1 includes equipment leaks, centrifugal compressor, pneumatic											777.12	-
	CO_2e	40.46		18,416.54	device venting, and pneumatic pump venting emissions.											-	18,456.99
M1	**mass GHG**	2.07		37.64												39.71	-
	CO_2e	2.07		940.93												-	943.00
P1 & P2	**mass GHG**	2.26		41.05												43.31	-
	CO_2e	2.26		1,026.26												-	1,028.52
SSM	**mass GHG**	6.71		121.92												128.62	-
	CO_2e	6.71		3,047.92												-	3,054.63
T1 - T3, L1 & 18	**mass GHG**	6.49E-01		2.68												3.33	-
	CO_2e	6.49E-01		67.00												-	67.65

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**										
	mass GHG															
	CO_2e															
Totals #1	**mass GHG**	95,630.72	1.80E-01	941.75											96,572.65	
	CO_2e	95,630.72	53.68	23,543.68												119,228.08
Totals #2	**mass GHG**	98,874.55	1.86E-01	941.81											99,816.54	
	CO_2e	98,874.55	55.50	23,545.21												122,475.26
Totals #3	**mass GHG**	98,874.55	1.86E-01	941.81											99,816.54	
	CO_2e	98,874.55	55.50	23,545.21												122,475.26
Totals #4	**mass GHG**	102,118.37	1.92E-01	941.87											103,060.43	
	CO_2e	102,118.37	57.32	23,546.74												125,722.43

[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.

Totals #1 - No change in the turbines at the facility - Units 1, 2, 3, 6 & 7 are in operation

Totals #2 - Unit #1 is replaced by Unit #8 - Units 2, 3, 6, 7 & 8 are in operation

Totals #3 - Unit #2 is replaced by Unit #9 - Units 1, 3, 6, 7 & 9 are in operation

Totals #4 - Units #1 & #2 are replaced by Units #8 & #9, respectively - Units 3, 6, 7, 8 & 9 are in operation

Section 3

Application Summary

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

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

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

Application Summary

The HFC La Jara Compressor Station currently operates under a construction permit, 339-M9, dated November 16, 2020 and a Title V operating permit, P023-R3-M2, dated September 18, 2020.

The Title V operating permit currently approves operation of the following equipment/emission sources:

- Two Solar Centaur T-4002 natural gas-fired turbines (Units 1 & 2);
- One Solar Centaur T-4702 natural gas-fired turbine (Unit 3);
- One Waukesha F3521G natural gas-fired engine (Unit 4);
- Two Solar Centaur 40-4700S natural gas-fired turbines (Units 6 & 7);
- One 3-phase separator (Unit 18);
- Equipment leak emissions (Unit F1);
- Truck loading emissions (Unit L1);
- Malfunction emissions (Unit M1);
- One pig launcher (Unit P1);
- One pig receiver (Unit P2);
- SSM emissions (Unit SSM); and
- Three 400 bbl condensate storage tanks (Units T1-T3).

The station is also permitted for exempt and insignificant equipment/sources: one fuel gas heater, produced water truck loading, and miscellaneous liquid storage tanks. The facility is authorized to operate continuously.

This application is being submitted to renew the Title V operating permit (renewal application is due 12 months prior to January 10, 2022). It includes the following modifications recently made to the construction permit:

- Permit the option to replace Unit 1 with a Solar Centaur T-4702S turbine (Unit 8);
- Permit the option to replace Unit 2 with a Solar Centaur T-4702S turbine (Unit 9);
- Permit the option to add two compressors to the permit (Units C-8 & C-9). These units will be installed if HFC elects to install Units 8 & 9;
- Increase the fuel sulfur limit for Units 1-4 & 6-9 to 1.35 gr/100 scf. The current limit is 0.2 gr/100 scf.

  As explained in the construction permit application, SO_2 emissions from the turbines at the facility have historically been calculated using the AP-42 default emission factor from Table 3.1-2a (3.40E-03 pounds SO2 per million British thermal units (lb/MMBtu)). This corresponds to 1.35 gr/100 scf (see the calculations in Section 6). This new total sulfur limit is still less than the 0.8 percent by weight (8,000 ppmw) required for affected turbines (Units 3, 6 & 7) subject to 40 Code of Federal Regulations (CFR), Part 60, Subpart GG (also see Condition A106 of the existing Title V permit). This new total sulfur limit is also less than the 0.060 lb SO_2/MMBtu required by 40 CFR, Part 60, Subpart KKKK for affected turbines.

- Increase calculated SO_2 emissions from Unit 4. For consistency in the calculations (between the turbines and emergency generator), the generator SO_2 emissions were calculated using the AP-42 default emission factor for turbines (Table 3.1-2a), rather than the AP-42 emission factor for engines in Table 3.2-3 (5.88E-04 lb SO_2/MMBtu).
- Reduce combined VOC emissions from the 3-phase separator, condensate tanks and condensate truck loading (Units 18, T1, T2, T3 & L1) to a limit of 48.8 tpy.
- Increase the combined (Units T1-T3) allowable 12-month rolling total condensate throughput to 6,500 bbl per year;
- Increase the 12-month rolling average 3-phase separator inlet pressure to 205.0 pounds per square inch absolute (psia); and
- Update fuel flow rates and stack exhaust parameters for the existing turbines at the facility.

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.

Because HFC has retained the option to operate Units 1 and 2, the facility will remain a prevention of significant deterioration (PSD) major source. The facility will also continue to be a Title V major source.

Process Description

The facility is a natural gas compressor station. The gas is compressed for pipeline transmission using compressors driven by natural gas-fired turbines. Condensate and produced water are routinely removed from the line (using a 3-phase separator and pigging operations), temporarily stored in tanks, and then transported offsite. A list of equipment and sources is provided in the application summary.

Startup, Shutdown and Maintenance Emissions

For the turbines, generator, equipment leaks (valves, connectors, seals, etc.), truck loading, 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.

SSM emissions from pig launching and receiving and blowdowns of the turbines, compressors and piping associated with the facility were calculated from the quantity of gas vented during each event, the composition of the gas, and the number of events. The number of blowdowns events were estimated based on historical operations. A safety factor was included.

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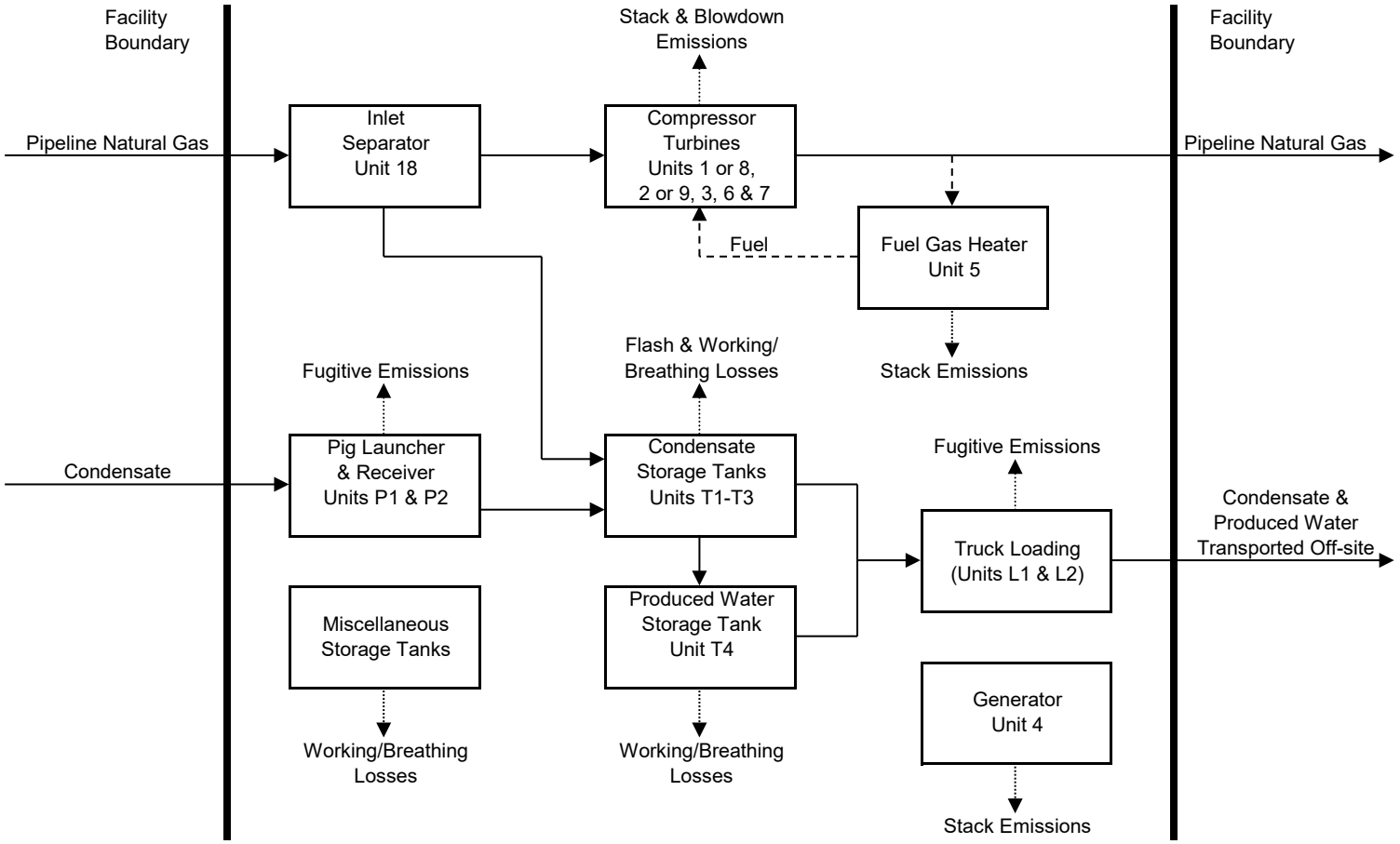
Section 4

Process Flow Sheet

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

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

Flow Diagram



Cirrus Consulting, LLC

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.

FACILITY LAYOUT

HARVEST FOUR CORNERS, LLC
LA JARA FACILITY
NW¼, NW¾, SECTION 17, T30N, R6W
RIO ARRIBA COUNTY, NEW MEXICO
N36.81754, W107.49144

DRAWN BY:	DATE DRAWN:
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REVISIONS BY:	**DATE REVISED:**
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CHECKED BY:	**DATE CHECKED:**
M. Hannan	April 20, 2016
APPROVED BY:	**DATE APPROVED:**
M. Hannan	April 20, 2016

NOTE: SITE DIAGRAM OBTAINED FROM HARVEST (PREVIOUSLY: WILLIAMS).

SCALE
75 45 0 75
15
(1 INCH = 75 FEET)

Section 6

All Calculations

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

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

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

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

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

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

Significant Figures:

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

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

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

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

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

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

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

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

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

Note that the hydrogen sulfide (H_2S) content of the natural gas at the station is non-detect. Therefore, it was assumed there are no H_2S emissions associated with any of the equipment. Also note that even if H_2S was present, H_2S emissions from the combustion of natural gas would be negligible. H_2S is converted to SO_2 during combustion.

Turbine

The nitrogen oxides (NO_X), carbon monoxide (CO), and VOC emissions from the turbines (Units 1-3 & 6-9) were calculated from manufacturer's data. 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. All emissions were calculated assuming the turbines operate at full site capacity for 8,760 hours per year.

The turbines at the station startup with no load and a rich fuel mixture. As a result, emissions are minimized. Because the turbines 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.

Permitted criteria pollutant emissions for Units 1 & 2 are carried forward and not revised.

Generator

NO_X, CO, and VOC emissions from the generator engine (Unit 4) were calculated from manufacturer's data. The SO_2 emissions were calculated using AP-42 emission factors from Table 3.1-2a. Particulate emissions were calculated using AP-42 emission factors from Table 3.2-3. Emissions were calculated assuming the engine operates at full site capacity for 500 hours per year.

The engine starts up with no load and a rich fuel mixture. As a result, emissions are minimized. Because the engine takes only minutes to reach operating temperature, emissions during startup are not expected to exceed the steady-state allowable limits. Similarly, emissions during shutdown are not expected to 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 engine is not in operation during maintenance.

Permitted criteria pollutant emissions, except SO_2, are carried forward and not revised.

Heater

The criteria pollutant emissions from the fuel gas heater (Unit 5) were calculated using AP-42 emission factors from Tables 1.4-1 & 1.4-2. As emissions are less than 0.5 tons per year per pollutant, the heater is an exempt source in accordance with 20.2.72.202.B(5) NMAC and a Title V insignificant source in accordance with Insignificant Activity Item #1.

SSM (Turbines, Compressors and Piping)

VOC and HAP emissions from blowdowns of the turbines, compressors and piping associated with the plant (Unit SSM) occur during startups and shutdowns. SSM emissions from the turbines result from the blowdown of motive gas used to drive turbine components during startups and shutdowns. SSM emissions from the compressors 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 blowdown of the turbines, compressors and piping associated with the plant 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 a recent extended gas analysis. The annual number of blowdown events were estimated based on historical operations. A safety factor was added because VOC and HAP emissions from each blowdown event are dependent on the composition of the gas in the pipeline and because the number of blowdowns in a year may vary. Experience indicates the composition of the gas is likely to vary. The use of the safety factor is also designed to ensure an adequate emissions limit, which includes emissions from other miscellaneous startup, shutdown and maintenance activities.

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

Permitted SSM emissions are carried forward and not revised.

Equipment Leak Emissions

VOC and HAP emissions from equipment leaks (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) and the gas stream composition obtained from a recent extended gas analysis. Emissions were calculated assuming the equipment operates 8,760 hours per year.

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

Permitted emissions from equipment leaks are carried forward and not revised.

Malfunctions

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

Permitted emissions from malfunctions are carried forward and not revised.

Pig Launcher and Receiver

VOC and HAP emissions from the pig launcher and receiver (Units P1 & P2) 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 a recent extended gas analysis. For each unit, the annual number of blowdown events were estimated based on historical operations. A safety factor was added because emissions from each blowdown event are dependent on the composition of the gas in the pipeline and because the number of blowdowns in a year may vary.

Permitted emissions from pigging operations are carried forward and not revised.

Truck Loading

The VOC emissions from condensate and produced water truck loading (Units L1 & L2) were calculated using the AP-42 emissions factor identified in Section 5.2-1.

The data used to calculate a condensate emission factor was obtained from the TANKS 4 output file. The condensate throughput was obtained from the VMGSim output file. HAP emissions were identified as percentages of the VOC emission rate, based on the HAP percentages predicted by TANKS 4.

Produced water truck loading is an exempt source in accordance with 20.2.72.202.B(5) NMAC (VOC emissions are less than 0.5 tons per year).

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

Storage Tanks

Emissions from the condensate storage tanks (Units T1-T3) were calculated using TANKS 4.0.9.d for working-breathing losses and VMGSim for flash emissions. Emissions were calculated using a condensate (post-flash) throughput of 6,500 barrels per year. Note that a majority of the condensate is received at the facility during pigging operations.

The produced water storage tank (Unit T4) receives water from the condensate tanks (after the water has been separated from the condensate). VOC and HAP emissions were calculated using estimated throughputs and emission factors from the CDPHE and TCEQ. As the VOC emission rate is less than 0.5 tpy, the produced water storage tank is an NSR exempt source in accordance with 20.2.72.202.B(5) NMAC and a Title V insignificant source in accordance with Insignificant Activity Item #1.

The following assumptions are made regarding the remaining storage tanks:

- Residual oil #6 is used as an estimate for lubrication oil. As the vapor pressure of residual oil #6 is less than 0.2 psia, the tanks containing lubrication oil (Units T5-T8) are NSR exempt sources under 20.2.72.202.B(2) NMAC and Title V insignificant sources in accordance with Insignificant Activity Item #5;

- As the vapor pressure of diesel is less than 0.2 pounds per square inch absolute (psia), the tank containing diesel (Unit T12) is an NSR exempt source under 20.2.72.202.B(2) NMAC and a Title V insignificant source in accordance with Insignificant Activity Item #5;

TANKS 4.0.9.d was used to calculate emissions from the methanol storage tank (Unit T10). The emission rate was 661.7 pounds per year. As such, it is an NSR exempt source under 20.2.72.202.B(5) NMAC and a Title V insignificant source in accordance with Insignificant Activity Item #1.

TANKS 4.0.9.d was used to calculate emissions from the corrosion inhibitor storage tank (Unit T11). The emission rate was 38.8 pounds per year. As such, it is an NSR exempt source under 20.2.72.202.B(5) NMAC and a Title V insignificant source in accordance with Insignificant Activity Item #1.

The biocide storage tank (Unit T13) and the transmission fluid storage tank (Unit T14) are identified for information only. They have no VOC or HAP emissions.

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

Turbine Exhaust Emissions Calculations

Unit Number: 1 & 2
Description: Solar Centaur T-4002

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

Horsepower Calculations

6,325	ft above MSL	Elevation	
3,961	hp	Nameplate hp	Mfg. data
3,123	hp	NMAQB Site-rated hp	NMAQB Procedure # 02.002-00 (Nameplate hp x [29.9 - (ft above MSL / 1000)] / 29.9)
3,025	hp	Mfg. Site-rated hp	Mfg. data

Fuel Consumption

9,445	Btu/hp-hr	Brake specific fuel consumption	Mfg. data
29.50	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
32,775	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760	hr/yr	Annual operating time	Williams Four Corners LLC
258,399	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
287.11	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000

Steady-State Emission Rates

Pollutants	Uncontrolled Emission Rates, pph	tpy
NOX	15.07	66.00
CO	14.41	63.10
VOC	4.41	19.30

Emission rates taken from the Solar Data Sheet

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates, pph	tpy
SO2	3.40E-03	1.00E-01	4.39E-01
PM	6.60E-03	1.95E-01	8.53E-01
PM10	6.60E-03	1.95E-01	8.53E-01
PM2.5	6.60E-03	1.95E-01	8.53E-01

Emission factors taken from AP-42, Table 3.1-2a
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

788.20	°F	Exhaust temperature	Mfg. data
72,242.16	cfm	Stack flowrate	Mfg. data
2.50	ft	Stack exit diameter	Williams Four Corners LLC
4.91	ft^2	Stack exit area	3.1416 x ((ft / 2) ^2)
245.28	fps	Stack exit velocity	acfm / ft^2 / 60 sec/min
21.00	ft	Stack height	Williams Four Corners LLC

Turbine Exhaust Emissions Calculations

Unit Number: 3
Description: Solar Centaur 40-4702

Horsepower Calculations

6,325	ft above MSL	Elevation	
4,680	hp	Nameplate hp	Mfg. data
3,690	hp	NMAQB Site-rated hp	NMAQB Procedure # 02.002-00 (Nameplate hp x [29.9 - (ft above MSL / 1000)] / 29.9)
3,779	hp	Mfg. Site-rated hp	Mfg. data (Nominal @ 20 °F)

Fuel Consumption

9,510	Btu/hp-hr	Brake specific fuel consumption	Mfg. data (Nominal @ 20 °F)
35.94	MMBtu/hr	Hourly fuel consumption	Btu/hp-hr x Mfg. site-rated hp / 1,000,000
900	Btu/scf	Field gas heating value	Nominal heat content
39,931	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760	hr/yr	Annual operating time	Williams Four Corners LLC
314,819	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
349.80	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000

Steady-State Emission Rates

Pollutants	Uncontrolled Emission Rates, pph	tpy
NOX	24.06	105.39
CO	4.39	19.21
VOC	2.51	11.00

Emission rates (tpy) taken from the Solar Data Sheet
Uncontrolled Emission Rates (pph) = Uncontrolled Emission Rates (tpy) x 2,000 lb/ton / hr/yr

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates, pph	tpy
SO2	3.40E-03	1.22E-01	5.35E-01
PM	6.60E-03	2.37E-01	1.04
PM10	6.60E-03	2.37E-01	1.04
PM2.5	6.60E-03	2.37E-01	1.04

Emission factors taken from AP-42, Table 3.1-2a
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

797	°F	Exhaust temperature	Mfg. data (Nominal @ 20 °F)
72,842	cfm	Stack flowrate	Mfg. data (Nominal @ 100 °F)
6.50	ft	Stack exit diameter	Williams Four Corners LLC
33.18	ft^2	Stack exit area	3.1416 x ((ft / 2) ^2)
36.59	fps	Stack exit velocity	acfm / ft^2 / 60 sec/min
32.00	ft	Stack height	Williams Four Corners LLC

Turbine Exhaust Emissions Calculations

Unit Number: 6 & 7
Description: Solar Centaur 40-4702S

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

Horsepower Calculations

6,325	ft above MSL	Elevation	
4,680	hp	Nameplate hp	Mfg. data
3,690	hp	NMAQB Site-rated hp	NMAQB Procedure # 02.002-00 (Nameplate hp x [29.9 - (ft above MSL / 1000)] / 29.9)
3,934	hp	Mfg. Site-rated hp	Mfg. data (Nominal @ 0 °F)

Fuel Consumption

9,230	Btu/hp-hr	Brake specific fuel consumption	Mfg. data (Nominal @ 0 °F)
36.31	MMBtu/hr	Hourly fuel consumption	Btu/hp-hr x Mfg. site-rated hp / 1,000,000
900	Btu/scf	Field gas heating value	Nominal heat content
40,345	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760	hr/yr	Annual operating time	Williams Four Corners LLC
318,083	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
353.43	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000

Steady-State Emission Rates

Pollutants	Uncontrolled Emission Rates, pph	tpy
NOX	3.64	15.93
CO	4.43	19.40
VOC	1.27	5.56

Emission rates (tpy) taken from the Solar Data Sheet
Uncontrolled Emission Rates (pph) = Uncontrolled Emission Rates (tpy) x 2,000 lb/ton / hr/yr

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates, pph	tpy
SO2	3.40E-03	1.23E-01	5.41E-01
PM	6.60E-03	2.40E-01	1.05
PM10	6.60E-03	2.40E-01	1.05
PM2.5	6.60E-03	2.40E-01	1.05

Emission factors taken from AP-42, Table 3.1-2a
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

789	°F	Exhaust temperature	Mfg. data (Nominal @ 0 °F)
76,090	cfm	Stack flowrate	Mfg. data (Nominal @ 85 °F)
2.50	ft	Stack exit diameter	Williams Four Corners LLC
4.91	ft^2	Stack exit area	3.1416 x ((ft / 2) ^2)
258.35	fps	Stack exit velocity	acfm / ft^2 / 60 sec/min
39.00	ft	Stack height	Williams Four Corners LLC

Turbine Exhaust Emissions Calculations

Unit Number: 8 & 9
Description: Solar Centaur 40-4702S

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

Horsepower Calculations

6,325	ft above MSL	Elevation	
4,680	hp	Nameplate hp	Mfg. data
3,690	hp	NMAQB Site-rated hp	NMAQB Procedure # 02.002-00 (Nameplate hp x [29.9 - (ft above MSL / 1000)] / 29.9)
3,795	hp	Mfg. Site-rated hp	Mfg. data (Nominal @ 32 °F)

Fuel Consumption

9,278	Btu/hp-hr	Brake specific fuel consumption	Mfg. data (Nominal @ 32 °F)
35.21	MMBtu/hr	Hourly fuel consumption	Btu/hp-hr x Mfg. site-rated hp / 1,000,000
900	Btu/scf	Field gas heating value	Nominal heat content
39,122	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC
308,440	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
342.71	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000

Steady-State Emission Rates

Pollutants	Uncontrolled Emission Rates, pph	tpy
NOX	3.52	15.42
CO	4.29	18.79
VOC	1.23	5.39

Emission rates (pph) taken from the Solar Data Sheet
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates, pph	tpy
SO2	3.40E-03	1.20E-01	5.24E-01
TSP	6.60E-03	2.32E-01	1.02
PM10	6.60E-03	2.32E-01	1.02
PM2.5	6.60E-03	2.32E-01	1.02

Emission factors taken from AP-42, Table 3.1-2a
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

811	°F	Exhaust temperature	Mfg. data (Nominal @ 32 °F)
74,565	cfm	Stack flowrate	Mfg. data (Nominal @ 90 °F)
2.50	ft	Stack exit diameter	Harvest Four Corners, LLC
4.91	ft^2	Stack exit area	3.1416 x ((ft / 2) ^2)
253.17	fps	Stack exit velocity	acfm / ft^2 / 60 sec/min
21.00	ft	Stack height	Harvest Four Corners, LLC

Natural Gas Sulfur Content Calculations

Sulfur Content of Fuel (Natural Gas)

Pollutant	Emission Factor, lb SO2/MMBtu	Sulfur Percent, %	Natural Gas Density, lb/scf	Sulfur Content, lb/scf	Sulfur Content, gr/100 scf
Sulfur	3.40E-03	3.62E-03	5.33E-02	1.93E-06	1.35

Emission factor (lb/MMBtu) obtained from AP-42, Table 3.1-2a (see Note 1)
Sulfur Percent (%) = lb/MMBtu / 0.94 (see Note 1)
Natural gas density (lb/scf) was calculated from the most recent extended gas analysis (see SSM calculations)
Sulfur Content (lb/scf) = Natural Gas Density (lb/scf) x (Sulfur Percent (%) / 100)
Sulfur Content (gr/100 scf) = Sulfur Content (lb/scf) x 7,000 gr/lb x 100 scf

Note 1: The AP-42 Table 3.1-2a emission factor for SO2 is 0.94S, where S is the percent sulfur in the fuel. If S is not available, the default emission factor from the table for turbines burning natural gas is 3.4E-03. The sufur percent in the above table is calculated from the default emission factor, assuming the equation, 0.94S, was used by EPA to estimate the default factor.

Note 2: 40 CFR, Part 60, Subpart GG requires affected turbines burn natural gas containing no more than 0.8 percent sulfur by weight. The above table demonstrates complaince with this requirement.,

GRI-HAPCalc® 3.0
Turbine Report

Facility ID:	**LA JARA**	**Notes:**
Operation Type:	**COMPRESSOR STATION**	
Facility Name:	**LA JARA COMPRESSOR STATION**	
User Name:	**Harvest Four Corners, LLC**	
Units of Measure:	**U.S. STANDARD**	

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

Turbine Unit

Unit Name: 40-4702

Hours of Operation: 8,760 Yearly

Rate Power: 3779 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	0.6175	0.01693680 g/bhp-hr	GRI Field
Acetaldehyde	0.6320	0.01733570 g/bhp-hr	GRI Field
1,3-Butadiene	0.0022	0.00006160 g/bhp-hr	GRI Field
Acrolein	0.0095	0.00026000 g/bhp-hr	GRI Field
Propional	0.0315	0.00086500 g/bhp-hr	GRI Field
Propylene Oxide	0.0045	0.00012480 g/bhp-hr	EPA
n-Nitrosodimethylamine	0.0000	0.00000100 g/bhp-hr	EPA
Benzene	0.0196	0.00053840 g/bhp-hr	GRI Field
Toluene	0.0150	0.00041100 g/bhp-hr	GRI Field
Ethylbenzene	0.0038	0.00010330 g/bhp-hr	EPA
Xylenes(m,p,o)	0.0454	0.00124410 g/bhp-hr	GRI Field
2,2,4-Trimethylpentane	0.0585	0.00160530 g/bhp-hr	GRI Field
n-Hexane	0.0549	0.00150580 g/bhp-hr	GRI Field
Phenol	0.0040	0.00011010 g/bhp-hr	GRI Field
n-Nitrosomorpholine	0.0000	0.00000100 g/bhp-hr	EPA
Naphthalene	0.0003	0.00000760 g/bhp-hr	GRI Field
2-Methylnaphthalene	0.0000	0.00000130 g/bhp-hr	GRI Field
Biphenyl	0.0120	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	0.0024	0.00006520 g/bhp-hr	GRI Field
Chromium	0.0003	0.00000820 g/bhp-hr	GRI Field
Chromium	0.0002	0.00000560 g/bhp-hr	EPA
Manganese	0.0006	0.00001750 g/bhp-hr	GRI Field
Nickel	0.0002	0.00000610 g/bhp-hr	GRI Field
Cobalt	0.0001	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	0.0001	0.00000270 g/bhp-hr	GRI Field
Lead	0.0001	0.00000340 g/bhp-hr	GRI Field
Total	1.5147		

Criteria Pollutants

PM	1.1611	0.03184680 g/bhp-hr	EPA
CO	76.8642	2.10828420 g/bhp-hr	GRI Field
NMHC	7.0684	0.19387800 g/bhp-hr	GRI Field
NMEHC	0.4393	0.01205010 g/bhp-hr	EPA
NOx	45.6516	1.25216290 g/bhp-hr	GRI Field
SO2	0.0374	0.00102720 g/bhp-hr	GRI Field

Other Pollutants

Methane	35.9912	0.98719230 g/bhp-hr	GRI Field
Acetylene	0.2612	0.00716540 g/bhp-hr	GRI Field
Ethylene	0.5088	0.01395450 g/bhp-hr	GRI Field
Ethane	5.4718	0.15008370 g/bhp-hr	GRI Field
Propane	0.5833	0.01600000 g/bhp-hr	GRI Field
Isobutane	0.1750	0.00480000 g/bhp-hr	GRI Field
Butane	0.1896	0.00520000 g/bhp-hr	GRI Field
Trimethylamine	0.0000	0.00000070 g/bhp-hr	EPA
Cyclopentane	0.0602	0.00165110 g/bhp-hr	GRI Field
Butyrald/Isobutyraldehyde	0.0489	0.00134000 g/bhp-hr	GRI Field
n-Pentane	2.9586	0.08115000 g/bhp-hr	GRI Field
Cyclohexane	0.2233	0.00612400 g/bhp-hr	GRI Field
Methylcyclohexane	0.3220	0.00883120 g/bhp-hr	GRI Field
n-Octane	0.1163	0.00318890 g/bhp-hr	GRI Field
1,3,5-Trimethylbenzene	0.1094	0.00300000 g/bhp-hr	GRI Field
n-Nonane	0.0194	0.00053260 g/bhp-hr	GRI Field
CO2	17,259.2403	473.39811550 g/bhp-hr	EPA
Vanadium	0.0000	0.00000070 g/bhp-hr	GRI Field
Copper	0.0007	0.00002050 g/bhp-hr	GRI Field
Molybdenum	0.0007	0.00002030 g/bhp-hr	GRI Field
Barium	0.0008	0.00002290 g/bhp-hr	GRI Field

Unit Name: 40-4702S#1

Hours of Operation: 8,760 Yearly

Rate Power: 3934 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	0.6428	0.01693680 g/bhp-hr	GRI Field
Acetaldehyde	0.6580	0.01733570 g/bhp-hr	GRI Field
1,3-Butadiene	0.0023	0.00006160 g/bhp-hr	GRI Field
Acrolein	0.0099	0.00026000 g/bhp-hr	GRI Field
Propional	0.0328	0.00086500 g/bhp-hr	GRI Field

Propylene Oxide	0.0047	0.00012480	g/bhp-hr	EPA
n-Nitrosodimethylamine	0.0000	0.00000100	g/bhp-hr	EPA
Benzene	0.0204	0.00053840	g/bhp-hr	GRI Field
Toluene	0.0156	0.00041100	g/bhp-hr	GRI Field
Ethylbenzene	0.0039	0.00010330	g/bhp-hr	EPA
Xylenes(m,p,o)	0.0472	0.00124410	g/bhp-hr	GRI Field
2,2,4-Trimethylpentane	0.0609	0.00160530	g/bhp-hr	GRI Field
n-Hexane	0.0572	0.00150580	g/bhp-hr	GRI Field
Phenol	0.0042	0.00011010	g/bhp-hr	GRI Field
n-Nitrosomorpholine	0.0000	0.00000100	g/bhp-hr	EPA
Naphthalene	0.0003	0.00000760	g/bhp-hr	GRI Field
2-Methylnaphthalene	0.0000	0.00000130	g/bhp-hr	GRI Field
Biphenyl	0.0125	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	0.0025	0.00006520	g/bhp-hr	GRI Field
Chromium	0.0003	0.00000820	g/bhp-hr	GRI Field
Chromium	0.0002	0.00000560	g/bhp-hr	EPA
Manganese	0.0007	0.00001750	g/bhp-hr	GRI Field
Nickel	0.0002	0.00000610	g/bhp-hr	GRI Field
Cobalt	0.0001	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	0.0001	0.00000270	g/bhp-hr	GRI Field
Lead	0.0001	0.00000340	g/bhp-hr	GRI Field
Total	1.5769			

Criteria Pollutants

PM	1.2087	0.03184680	g/bhp-hr	EPA
CO	80.0169	2.10828420	g/bhp-hr	GRI Field
NMHC	7.3584	0.19387800	g/bhp-hr	GRI Field
NMEHC	0.4573	0.01205010	g/bhp-hr	EPA
NOx	47.5241	1.25216290	g/bhp-hr	GRI Field
SO2	0.0390	0.00102720	g/bhp-hr	GRI Field

Other Pollutants

Methane	37.4675	0.98719230	g/bhp-hr	GRI Field
Acetylene	0.2720	0.00716540	g/bhp-hr	GRI Field
Ethylene	0.5296	0.01395450	g/bhp-hr	GRI Field
Ethane	5.6962	0.15008370	g/bhp-hr	GRI Field
Propane	0.6073	0.01600000	g/bhp-hr	GRI Field
Isobutane	0.1822	0.00480000	g/bhp-hr	GRI Field
Butane	0.1974	0.00520000	g/bhp-hr	GRI Field
Trimethylamine	0.0000	0.00000070	g/bhp-hr	EPA
Cyclopentane	0.0627	0.00165110	g/bhp-hr	GRI Field
Butyrald/Isobutyraldehyde	0.0509	0.00134000	g/bhp-hr	GRI Field
n-Pentane	3.0799	0.08115000	g/bhp-hr	GRI Field
Cyclohexane	0.2324	0.00612400	g/bhp-hr	GRI Field
Methylcyclohexane	0.3352	0.00883120	g/bhp-hr	GRI Field
n-Octane	0.1210	0.00318890	g/bhp-hr	GRI Field
1,3,5-Trimethylbenzene	0.1139	0.00300000	g/bhp-hr	GRI Field
n-Nonane	0.0202	0.00053260	g/bhp-hr	GRI Field
CO2	17,967.1477	473.39811550	g/bhp-hr	EPA

Vanadium	0.0000	0.00000070 g/bhp-hr	GRI Field
Copper	0.0008	0.00002050 g/bhp-hr	GRI Field
Molybdenum	0.0008	0.00002030 g/bhp-hr	GRI Field
Barium	0.0009	0.00002290 g/bhp-hr	GRI Field

Unit Name: 40-4702S#2

Hours of Operation: 8,760 Yearly

Rate Power: 3795 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	0.6201	0.01693680 g/bhp-hr	GRI Field
Acetaldehyde	0.6347	0.01733570 g/bhp-hr	GRI Field
1,3-Butadiene	0.0023	0.00006160 g/bhp-hr	GRI Field
Acrolein	0.0095	0.00026000 g/bhp-hr	GRI Field
Propional	0.0317	0.00086500 g/bhp-hr	GRI Field
Propylene Oxide	0.0046	0.00012480 g/bhp-hr	EPA
n-Nitrosodimethylamine	0.0000	0.00000100 g/bhp-hr	EPA
Benzene	0.0197	0.00053840 g/bhp-hr	GRI Field
Toluene	0.0150	0.00041100 g/bhp-hr	GRI Field
Ethylbenzene	0.0038	0.00010330 g/bhp-hr	EPA
Xylenes(m,p,o)	0.0455	0.00124410 g/bhp-hr	GRI Field
2,2,4-Trimethylpentane	0.0588	0.00160530 g/bhp-hr	GRI Field
n-Hexane	0.0551	0.00150580 g/bhp-hr	GRI Field
Phenol	0.0040	0.00011010 g/bhp-hr	GRI Field
n-Nitrosomorpholine	0.0000	0.00000100 g/bhp-hr	EPA
Naphthalene	0.0003	0.00000760 g/bhp-hr	GRI Field
2-Methylnaphthalene	0.0000	0.00000130 g/bhp-hr	GRI Field
Biphenyl	0.0121	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	0.0024	0.00006520 g/bhp-hr	GRI Field
Chromium	0.0003	0.00000820 g/bhp-hr	GRI Field
Chromium	0.0002	0.00000560 g/bhp-hr	EPA
Manganese	0.0006	0.00001750 g/bhp-hr	GRI Field
Nickel	0.0002	0.00000610 g/bhp-hr	GRI Field
Cobalt	0.0001	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	0.0001	0.00000270 g/bhp-hr	GRI Field
Lead	0.0001	0.00000340 g/bhp-hr	GRI Field
Total	1.5212		
Criteria Pollutants			
PM	1.1660	0.03184680 g/bhp-hr	EPA
CO	77.1897	2.10828420 g/bhp-hr	GRI Field
NMHC	7.0984	0.19387800 g/bhp-hr	GRI Field

NMEHC	0.4412	0.01205010	g/bhp-hr	EPA
NOx	45.8449	1.25216290	g/bhp-hr	GRI Field
SO2	0.0376	0.00102720	g/bhp-hr	GRI Field

Other Pollutants

Methane	36.1436	0.98719230	g/bhp-hr	GRI Field
Acetylene	0.2623	0.00716540	g/bhp-hr	GRI Field
Ethylene	0.5109	0.01395450	g/bhp-hr	GRI Field
Ethane	5.4949	0.15008370	g/bhp-hr	GRI Field
Propane	0.5858	0.01600000	g/bhp-hr	GRI Field
Isobutane	0.1757	0.00480000	g/bhp-hr	GRI Field
Butane	0.1904	0.00520000	g/bhp-hr	GRI Field
Trimethylamine	0.0000	0.00000070	g/bhp-hr	EPA
Cyclopentane	0.0605	0.00165110	g/bhp-hr	GRI Field
Butyrald/Isobutyraldehyde	0.0491	0.00134000	g/bhp-hr	GRI Field
n-Pentane	2.9711	0.08115000	g/bhp-hr	GRI Field
Cyclohexane	0.2242	0.00612400	g/bhp-hr	GRI Field
Methylcyclohexane	0.3233	0.00883120	g/bhp-hr	GRI Field
n-Octane	0.1168	0.00318890	g/bhp-hr	GRI Field
1,3,5-Trimethylbenzene	0.1098	0.00300000	g/bhp-hr	GRI Field
n-Nonane	0.0195	0.00053260	g/bhp-hr	GRI Field
CO2	17,332.3146	473.39811550	g/bhp-hr	EPA
Vanadium	0.0000	0.00000070	g/bhp-hr	GRI Field
Copper	0.0008	0.00002050	g/bhp-hr	GRI Field
Molybdenum	0.0007	0.00002030	g/bhp-hr	GRI Field
Barium	0.0008	0.00002290	g/bhp-hr	GRI Field

Unit Name: T-4002

Hours of Operation: 8,760 Yearly

Rate Power: 3123 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	0.5103	0.01693680	g/bhp-hr	GRI Field
Acetaldehyde	0.5223	0.01733570	g/bhp-hr	GRI Field
1,3-Butadiene	0.0019	0.00006160	g/bhp-hr	GRI Field
Acrolein	0.0078	0.00026000	g/bhp-hr	GRI Field
Propional	0.0261	0.00086500	g/bhp-hr	GRI Field
Propylene Oxide	0.0038	0.00012480	g/bhp-hr	EPA
n-Nitrosodimethylamine	0.0000	0.00000100	g/bhp-hr	EPA
Benzene	0.0162	0.00053840	g/bhp-hr	GRI Field
Toluene	0.0124	0.00041100	g/bhp-hr	GRI Field
Ethylbenzene	0.0031	0.00010330	g/bhp-hr	EPA
Xylenes(m,p,o)	0.0375	0.00124410	g/bhp-hr	GRI Field
2,2,4-Trimethylpentane	0.0484	0.00160530	g/bhp-hr	GRI Field
n-Hexane	0.0454	0.00150580	g/bhp-hr	GRI Field
Phenol	0.0033	0.00011010	g/bhp-hr	GRI Field
n-Nitrosomorpholine	0.0000	0.00000100	g/bhp-hr	EPA
Naphthalene	0.0002	0.00000760	g/bhp-hr	GRI Field

2-Methylnaphthalene	0.0000	0.00000130	g/bhp-hr	GRI Field
Biphenyl	0.0100	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	0.0020	0.00006520	g/bhp-hr	GRI Field
Chromium	0.0002	0.00000820	g/bhp-hr	GRI Field
Chromium	0.0002	0.00000560	g/bhp-hr	EPA
Manganese	0.0005	0.00001750	g/bhp-hr	GRI Field
Nickel	0.0002	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	0.0001	0.00000270	g/bhp-hr	GRI Field
Lead	0.0001	0.00000340	g/bhp-hr	GRI Field
Total	1.2520			

Criteria Pollutants

PM	0.9595	0.03184680	g/bhp-hr	EPA
CO	63.5213	2.10828420	g/bhp-hr	GRI Field
NMHC	5.8414	0.19387800	g/bhp-hr	GRI Field
NMEHC	0.3631	0.01205010	g/bhp-hr	EPA
NOx	37.7269	1.25216290	g/bhp-hr	GRI Field
SO2	0.0309	0.00102720	g/bhp-hr	GRI Field

Other Pollutants

Methane	29.7435	0.98719230	g/bhp-hr	GRI Field
Acetylene	0.2159	0.00716540	g/bhp-hr	GRI Field
Ethylene	0.4204	0.01395450	g/bhp-hr	GRI Field
Ethane	4.5219	0.15008370	g/bhp-hr	GRI Field
Propane	0.4821	0.01600000	g/bhp-hr	GRI Field
Isobutane	0.1446	0.00480000	g/bhp-hr	GRI Field
Butane	0.1567	0.00520000	g/bhp-hr	GRI Field
Trimethylamine	0.0000	0.00000070	g/bhp-hr	EPA
Cyclopentane	0.0497	0.00165110	g/bhp-hr	GRI Field
Butyrald/Isobutyraldehyde	0.0404	0.00134000	g/bhp-hr	GRI Field
n-Pentane	2.4450	0.08115000	g/bhp-hr	GRI Field
Cyclohexane	0.1845	0.00612400	g/bhp-hr	GRI Field
Methylcyclohexane	0.2661	0.00883120	g/bhp-hr	GRI Field
n-Octane	0.0961	0.00318890	g/bhp-hr	GRI Field
1,3,5-Trimethylbenzene	0.0904	0.00300000	g/bhp-hr	GRI Field
n-Nonane	0.0160	0.00053260	g/bhp-hr	GRI Field
CO2	14,263.1933	473.39811550	g/bhp-hr	EPA
Vanadium	0.0000	0.00000070	g/bhp-hr	GRI Field
Copper	0.0006	0.00002050	g/bhp-hr	GRI Field
Molybdenum	0.0006	0.00002030	g/bhp-hr	GRI Field
Barium	0.0007	0.00002290	g/bhp-hr	GRI Field

Engine Exhaust Emissions Calculations

Unit Number: 4
Description: Waukesha F3521G Emergency Generator (EXEMPT)
Type: Four Stroke Rich Burn (Naturally Aspirated)

Horsepower Calculations

6325	ft above MSL	Elevation	
515	hp	Nameplate hp (ISO)	Mfg. data
440	hp	NMAQB Site-rated hp	NMAQB Procedure # 02.002-00 (loss of 3% for every 1,000 ft over 1,500 ft)

Engine Specifications

1200	rpm	Engine rpm	Mfg. data
3520	in^3	Engine displacement	Mfg. data
82.59	psi	BMEP	Mfg. data (+[(792,000 x NMAQB Site-rated hp) / (rpm * in^3)])

Fuel Consumption

7301	Btu/hp-hr	Brake specific fuel consumption	Mfg. data
3.22	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
3,573	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
500	hr/yr	Annual operating time	Harvest Four Corners, LLC
1,608	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
1.79	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000

Steady-State Emission Rates

Pollutants	Emission Factors, g/hp-hr	Uncontrolled Emission Rates, pph	tpy
NOX	13.00	12.62	3.16
CO	9.00	8.74	2.18
VOC	0.30	2.91E-01	7.28E-02

NOX, CO & VOC emissions taken from Waukesha Bulletin 7008 1211
Uncontrolled Emission Rates (pph) = g/hp-hr x NMAQB Site-rated hp / 453.59 g/lb
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates, pph	tpy
SO2	3.40E-03	1.09E-02	2.73E-03
PM	1.94E-02	6.24E-02	1.56E-02
PM10	1.94E-02	6.24E-02	1.56E-02
PM2.5	1.94E-02	6.24E-02	1.56E-02

SO2 emission factor taken from AP-42, Table 3.1-2a
Particulate emission factors taken from AP-42, Table 3.2-3
Particulate factors include both filterable and condensible emissions
Uncontrolled Emission Rate (pph) = lb/MMBtu x MMBtu/hr
Uncontrolled Emission Rate (tpy) = Uncontrolled Emission Rate (pph) x hr/yr / 2,000 lb/ton

Exhaust Parameters

1053	°F	Stack exit temperature	Mfg. data
2211.93	acfm	Stack flowrate	Mfg. data
0.42	ft	Stack exit diameter	Harvest Four Corners, LLC
0.14	ft^2	Stack exit area	3.1416 x ((ft / 2) ^2)
270.37	fps	Stack exit velocity	acfm / ft^2 / 60 sec/min
25	ft	Stack height	Harvest Four Corners, LLC

GRI-HAPCalc® 3.0
Engines Report

Facility ID:	**LA JARA**	**Notes:**
Operation Type:	**COMPRESSOR STATION**	
Facility Name:	**LA JARA COMPRESSOR STATION**	
User Name:	**Harvest Four Corners, LLC**	
Units of Measure:	**U.S. STANDARD**	

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

Engine Unit

Unit Name: F3521G

Hours of Operation:	500	Yearly
Rate Power:	440	hp
Fuel Type:	FIELD GAS	
Engine Type:	4-Stroke, Rich 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	0.0101	0.04188340 g/bhp-hr	GRI Field
Methanol	0.0016	0.00666670 g/bhp-hr	GRI Field
Benzene	0.0054	0.02210000 g/bhp-hr	GRI Field
Toluene	0.0017	0.00710000 g/bhp-hr	GRI Field
Xylenes(m,p,o)	0.0004	0.00170000 g/bhp-hr	GRI Field
Naphthalene	0.0001	0.00027540 g/bhp-hr	GRI Field
2-Methylnaphthalene	0.0000	0.00005050 g/bhp-hr	GRI Field
Acenaphthylene	0.0000	0.00001890 g/bhp-hr	GRI Field
Acenaphthene	0.0000	0.00001090 g/bhp-hr	GRI Field
Dibenzofuran	0.0000	0.00000570 g/bhp-hr	GRI Field
Fluorene	0.0000	0.00001720 g/bhp-hr	GRI Field
Anthracene	0.0000	0.00000400 g/bhp-hr	GRI Field
Phenanthrene	0.0000	0.00003210 g/bhp-hr	GRI Field
Fluoranthene	0.0000	0.00001260 g/bhp-hr	GRI Field
Pyrene	0.0000	0.00000860 g/bhp-hr	GRI Field
Benz(a)anthracene	0.0000	0.00000180 g/bhp-hr	GRI Field
Chrysene	0.0000	0.00000220 g/bhp-hr	GRI Field
Benzo(a)pyrene	0.0000	0.00000040 g/bhp-hr	GRI Field
Benzo(b)fluoranthene	0.0000	0.00000220 g/bhp-hr	GRI Field
Benzo(k)fluoranthene	0.0000	0.00000220 g/bhp-hr	GRI Field
Benzo(g,h,i)perylene	0.0000	0.00000070 g/bhp-hr	GRI Field
Indeno(1,2,3-c,d)pyrene	0.0000	0.00000050 g/bhp-hr	GRI Field
Dibenz(a,h)anthracene	0.0000	0.00000020 g/bhp-hr	GRI Field
Total	0.0193		

Criteria Pollutants

CO	2.2008	9.08349210 g/bhp-hr	GRI Field
NMEHC	0.0640	0.26396820 g/bhp-hr	GRI Field
NOx	1.8236	7.52654670 g/bhp-hr	GRI Field

Other Pollutants

Methane	0.2374	0.98000000 g/bhp-hr	GRI Field
Ethylene	0.0307	0.12666670 g/bhp-hr	GRI Field
Ethane	0.0743	0.30666670 g/bhp-hr	GRI Field
Propylene	0.0058	0.02400000 g/bhp-hr	GRI Field
Propane	0.0233	0.09600000 g/bhp-hr	GRI Field

Heater Exhaust Emissions Calculations

Unit Number: 5
Description: Fuel Gas Heater (3-phase separator) (EXEMPT)

Fuel Consumption

0.50	MMBtu/hr	Capacity	Mfg. data
900	Btu/scf	Field gas heating value	Nominal heat content
556	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC
4,380	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
4.87	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000

Steady-State Emission Rates

Pollutants	Emission Factors, lb/MMscf	Uncontrolled Emission Rates, pph	tpy
NOX	100	5.56E-02	2.43E-01
CO	84	4.67E-02	2.04E-01
VOC	5.5	3.06E-03	1.34E-02
SO2	0.6	3.33E-04	1.46E-03
PM	7.60	4.22E-03	1.85E-02
PM10	7.60	4.22E-03	1.85E-02
PM2.5	7.60	4.22E-03	1.85E-02
Lead	5.00E-04	2.78E-07	1.22E-06

Emission factors taken from AP-42, Tables 1.4-1 & 1.4-2
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

600	°F	Exhaust temperature	Mfg. data
11,400	acfm	Stack flowrate	Mfg. data
2.5	ft	Stack exit diameter	Harvest Four Corners, LLC
4.91	ft^2	Stack exit area	3.1416 x ((ft / 2) ^2)
38.71	fps	Stack exit velocity	acfm / ft^2 / 60 sec/min
30	ft	Stack height	Harvest Four Corners, LLC

Equipment Leaks Emissions Calculations

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

Steady-State Emission Rates

Equipment	Number of Components, # of sources	Emission Factors, kg/hr/source	Emission Factors, lb/hr/source	Uncontrolled Emission Rates, pph	Uncontrolled Emission Rates, tpy
Valves	504	0.0045	0.0099	4.99	21.85
Connectors	491	0.0002	0.0004	0.22	0.95
Pump Seals	0	0.0024	0.0053	0.00	0.00
Compressor Seals	44	0.0088	0.0194	0.85	3.73
Pressure Relief Valves	37	0.0088	0.0194	0.72	3.14
Open-Ended Lines	133	0.0020	0.0044	0.59	2.56
Total				**7.36**	**32.23**

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

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight, Percent %	Uncontrolled Emission Rates, pph	Uncontrolled Emission Rates, tpy
Carbon dioxide	1.6565	44.010				
Hydrogen sulfide	0.0000	34.070				
Nitrogen	1.0688	28.013				
Methane	82.6372	16.043	13.257			
Ethane	8.0037	30.070	2.407			
Propane	3.8334	44.097	1.690	8.810	6.48E-01	2.84E+00
Isobutane	0.6777	58.123	0.394	2.053	1.51E-01	6.62E-01
n-Butane	1.1402	58.123	0.663	3.454	2.54E-01	1.11E+00
Isopentane	0.3515	72.150	0.254	1.322	9.73E-02	4.26E-01
n-Pentane	0.2576	72.150	0.186	0.969	7.13E-02	3.12E-01
Cyclopentane	0.0098	70.134	0.007	0.036	2.64E-03	1.15E-02
n-Hexane	0.0702	86.177	0.060	0.315	2.32E-02	1.02E-01
Cyclohexane	0.0237	84.161	0.020	0.104	7.65E-03	3.35E-02
Other hexanes	0.1446	86.177	0.125	0.649	4.78E-02	2.09E-01
Heptanes	0.0446	100.204	0.045	0.233	1.71E-02	7.51E-02
Methylcyclohexane	0.0379	98.188	0.037	0.194	1.43E-02	6.25E-02
Isooctane	0.0024	114.231	0.003	0.014	1.05E-03	4.61E-03
Benzene	0.0096	78.114	0.007	0.039	2.88E-03	1.26E-02
Toluene	0.0113	92.141	0.010	0.054	3.99E-03	1.75E-02
Ethylbenzene	0.0022	106.167	0.002	0.012	8.96E-04	3.92E-03
Xylenes	0.0004	106.167	0.000	0.002	1.63E-04	7.13E-04
C8+ Heavies	0.0170	114.231	0.019	0.101	7.45E-03	3.26E-02
Total	100.0003		19.187			
Total VOC				18.362	1.35	5.92

Gas stream composition obtained from La Jara extended gas analysis dated 12/31/2019
Component Weights (lb/lb-mole) = (% / 100) * Molecular Weights (lb/lb-mole)
Weight Percent (%) = 100 x Component Weights (lb/lb-mole) / Total Component Weight (lb/lb-mole)
Uncontrolled Emission Rates (pph) = Total Uncontrolled Emission Rate (from Table 1 above) (pph) x (% / 100)
Uncontrolled Emission Rates (tpy) = Total Uncontrolled Emission Rate (from Table 1 above) (tpy) x (% / 100)

Equipment Leaks Emissions Calculations

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

Number of Compression Units at the Facility: 5
Number of Dehydrators at the Facility: 0

Process Equipment Description	Equipment Count						Instrument Count		
	Valves	Connectors	Pump Seals	Compressor Seals	Pressure Relief Valves	Open-end	Flow	Level	Pressure
Station inlet, meter run to pulsation dampener	17	14	0	0	1	13	3	0	3
Pulsation dampener	12	8	0	0	0	2	0	4	1
Compressor suction header	7	4	0	0	0	3	0	0	1
Suction header feed to instrument gas header	3	1	0	0	0	1	0	0	0
Compressor discharge header and bypass to station discharge	6	5	0	0	0	3	0	1	1
Compressor discharge header and suction header bypass lines	4	2	0	0	0	2	0	0	1
Fuel gas header	2	2	0	0	1	2	0	0	1
Instrument gas header	2	2	0	0	1	2	0	0	0
Station discharge header	9	5	0	0	1	6	0	0	2
Fuel gas recovery header	2	2	0	0	1	2	0	0	0
Fuel gas feed and filter loop	15	9	0	0	0	1	0	4	1
Instrument gas feed and filter loop	9	11	0	0	0	3	0	0	0
Produced water storage tank	1	0	0	0	0	1	0	1	0
ESD panel	12	0	0	0	0	0	0	0	0
Starting gas header	6	2	0	0	1	3	0	0	0
Hot gas header	2	2	0	0	0	2	0	0	0
Volume bottle lop	12	4	0	24	1	2	0	0	1
Components from Compressors	220	295	0	20	30	55	0	20	45
Components from dehydrators	0	0	0	0	0	0	0	0	0
Total	341	368	0	44	37	103	3	30	57
Adjusted Total	504	491	0	44	37	133			

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)

Truck Loading (Condensate) Emissions Calculations

Unit Number: L1
Description: Truck Loading (Condensate)

Emission Factor

0.6		Saturation factor, S	AP-42, Table 5.2-1 (submerged loading & dedicated service)
6.4802	psia (maximum)	True vapor pressure of liquid, P	TANKS 4.0 output file
5.1663	psia (average)	True vapor pressure of liquid, P	TANKS 4.0 output file
66.2931	lb/lb-mole	Molecular weight of vapors, M	TANKS 4.0 output file
80.79	°F (maximum)	Temperature of liquid	TANKS 4.0 output file
67.36	°F (average)	Temperature of liquid	TANKS 4.0 output file
540.46	°R (maximum)	Temperature of liquid, T	°F + 459.67
527.03	°R (average)	Temperature of liquid, T	°F + 459.67
5.94	lb/10^3 gal (maximum)	Emission factor, L	AP-42, Section 5.2, Equation 1
4.86	lb/10^3 gal (average)	Emission factor, L	AP-42, Section 5.2, Equation 1

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

Production Rate

8.40	10^3 gal/hr	Maximum hourly production rate	Harvest Four Corners, LLC
273.00	10^3 gal/yr	Maximum annual production rate	Harvest Four Corners, LLC

Steady-State Emission Rates

Pollutant	Uncontrolled Emission Rates, pph	tpy
VOC	49.92	6.63E-01

The short-term emission rates are calculated using the maximum true vapor pressure and maximum temperature of the liquid
The annual emission rates are calculated using the average true vapor pressure and average temperature of the liquid
Uncontrolled Emission Rate (pph) = lb/10^3 gal x 10^3 gal/hr
Uncontrolled Emission Rate (tpy) = lb/10^3 gal x 10^3 gal/yr / 2,000 lb/ton

Pollutants	Percent of VOC, %	Uncontrolled Emission Rates, pph	tpy
Benzene	0.40	1.99E-01	2.65E-03
Ethylbenzene	0.01	4.28E-03	5.68E-05
n-Hexane	14.87	7.42	9.86E-02
Toluene	0.37	1.85E-01	2.46E-03
Xylenes	0.06	3.19E-02	4.23E-04

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

Truck Loading (Produced Water) Emissions Calculations

Unit Number: L2
Description: Truck Loading (Produced Water)(EXEMPT)

Emission Factor

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

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

Production Rate

8.40 10^3 gal/hr	Maximum hourly production rate	Harvest Four Corners, LLC
40.32 10^3 gal/yr	Maximum annual production rate	Harvest Four Corners, LLC

Steady-State Emission Rates

Pollutant	Uncontrolled Emission Rates, pph	tpy
VOC	9.66E-01	1.58E-03

The short-term emission rates are calculated using the maximum true vapor pressure and maximum temperature of the liquid
The annual emission rates are calculated using the average true vapor pressure and average temperature of the liquid
Uncontrolled Emission Rate (pph) = lb/10^3 gal x 10^3 gal/hr
Uncontrolled Emission Rate (tpy) = lb/10^3 gal x 10^3 gal/yr / 2,000 lb/ton

Pollutants	Mass Fraction	Uncontrolled Emission Rates, pph	tpy
Benzene	0.0267	2.58E-04	4.21E-07
Ethylbenzene	0.0027	2.58E-05	4.21E-08
n-Hexane	0.0840	8.11E-04	1.32E-06
Toluene	0.0344	3.32E-04	5.41E-07
m-Xylene	0.0229	2.21E-04	3.61E-07

HAP mass fractions are estimated from the produced water tank emission factors
HAP Mass Fraction = HAP Emission Factor (lb/bbl) / VOC Emission Factor (lb/bbl)
Emission Rates (pph) = VOC Emission Rate (pph) x HAP Mass Fraction
Emission Rates (tpy) = VOC Emission Rate (tpy) x HAP Mass Fraction

Truck Loading (Produced Water) Emissions Calculations

Unit Number: L2
Description: Truck Loading (Produced Water)(EXEMPT)

Vapor Pressure of Produced Water:

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

Maximum:

Temperature = 77 °F

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

A = 8.07131
B = 1730.63
C = 233.426
T = 25.00 °C
P = mmHg

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

P = 23.69 mmHg
P = 0.4581 psi

Average:

Temperature = 65 °F

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

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

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

P = 15.75 mmHg
P = 0.3045 psi

Note: 760 mmHg = 14.7 psia

Malfunction Emissions Data and Calculations

Unit Number: M1
Description: Malfunctions

Emission Rates

Pollutants	Weight Percents, %	Uncontrolled Emission Rates, tpy
VOC		10.00
Benzene	2.129E-01	2.13E-02
Ethylbenzene	6.632E-02	6.63E-03
n-Hexane	1.718E+00	1.72E-01
Isooctane	6.829E-02	6.83E-03
Toluene	2.956E-01	2.96E-02
Xylene	1.206E-02	1.21E-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	1.6565	44.01		
Hydrogen sulfide	0.0000	34.07		
Nitrogen	1.0688	28.01		
Methane	82.6372	16.04		
Ethane	8.0037	30.07		
Propane	3.8334	44.09	1.6901	4.799E+01
Isobutane	0.6777	58.12	0.3939	1.118E+01
n-Butane	1.1402	58.12	0.6627	1.882E+01
Isopentane	0.3515	72.15	0.2536	7.201E+00
n-Pentane	0.2576	72.15	0.1859	5.277E+00
Cyclopentane	0.0098	70.14	0.0069	1.952E-01
n-Hexane	0.0702	86.17	0.0605	1.718E+00
Cyclohexane	0.0237	84.16	0.0199	5.664E-01
Other hexanes	0.1446	86.18	0.1246	3.538E+00
Heptanes	0.0446	100.20	0.0447	1.269E+00
Methylcyclohexane	0.0379	98.19	0.0372	1.057E+00
Isooctane	0.0024	100.21	0.0024	6.829E-02
Benzene	0.0096	78.11	0.0075	2.129E-01
Toluene	0.0113	92.14	0.0104	2.956E-01
Ethylbenzene	0.0022	106.17	0.0023	6.632E-02
Xylenes	0.0004	106.17	0.0004	1.206E-02
C8+ Heavies	0.0170	110.00	0.0187	5.310E-01
Total	100.0003			
Total VOC			3.5218	

Gas stream composition obtained from La Jara extended gas analysis dated 12/31/2019
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)

Pig Launcher Emissions Calculations

Unit Number: P1
Description: Pig Launcher

Throughput

215	events/yr	Blowdowns per year	Harvest Four Corners, LLC
10,043	scf/event	Gas loss per blowdown	Harvest Four Corners, LLC
2,159,245	scf/yr	Annual gas loss	events/yr x scf/event

Emission Rates

Pollutants	Emission Factors, lb/scf	Uncontrolled, Emission Rates, tpy
VOC	9.283E-03	10.02
Benzene	1.976E-05	2.13E-02
Ethylbenzene	6.156E-06	6.65E-03
n-Hexane	1.594E-04	1.72E-01
Isooctane	6.339E-06	6.84E-03
Toluene	2.744E-05	2.96E-02
Xylene	1.119E-06	1.21E-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	1.6565	44.01	1.922E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	1.0688	28.01	7.891E-04
Methane	82.6372	16.04	3.494E-02
Ethane	8.0037	30.07	6.343E-03
Propane	3.8334	44.09	4.455E-03
Isobutane	0.6777	58.12	1.038E-03
n-Butane	1.1402	58.12	1.747E-03
Isopentane	0.3515	72.15	6.684E-04
n-Pentane	0.2576	72.15	4.899E-04
Cyclopentane	0.0098	70.14	1.812E-05
n-Hexane	0.0702	86.17	1.594E-04
Cyclohexane	0.0237	84.16	5.257E-05
Other hexanes	0.1446	86.18	3.285E-04
Heptanes	0.0446	100.20	1.178E-04
Methylcyclohexane	0.0379	98.19	9.809E-05
Isooctane	0.0024	100.21	6.339E-06
Benzene	0.0096	78.11	1.976E-05
Toluene	0.0113	92.14	2.744E-05
Ethylbenzene	0.0022	106.17	6.156E-06
Xylenes	0.0004	106.17	1.119E-06
C8+ Heavies	0.0170	110.00	4.929E-05
Total	100.0003		
Total VOC			9.283E-03

Gas stream composition obtained from La Jara extended gas analysis dated 12/31/2019
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

Pig Receiver Emissions Calculations

Unit Number: P2
Description: Pig Receiver

Throughput

510	events/yr	Blowdowns per year	Harvest Four Corners, LLC
374	scf/event	Gas loss per blowdown	Harvest Four Corners, LLC
190,740	scf/yr	Annual gas loss	events/yr x scf/event

Emission Rates

Pollutants	Emission Factors, lb/scf	Uncontrolled, Emission Rates, tpy
VOC	9.283E-03	8.85E-01
Benzene	1.976E-05	1.88E-03
Ethylbenzene	6.156E-06	5.87E-04
n-Hexane	1.594E-04	1.52E-02
Isooctane	6.339E-06	6.05E-04
Toluene	2.744E-05	2.62E-03
Xylene	1.119E-06	1.07E-04

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	1.6565	44.01	1.922E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	1.0688	28.01	7.891E-04
Methane	82.6372	16.04	3.494E-02
Ethane	8.0037	30.07	6.343E-03
Propane	3.8334	44.09	4.455E-03
Isobutane	0.6777	58.12	1.038E-03
n-Butane	1.1402	58.12	1.747E-03
Isopentane	0.3515	72.15	6.684E-04
n-Pentane	0.2576	72.15	4.899E-04
Cyclopentane	0.0098	70.14	1.812E-05
n-Hexane	0.0702	86.17	1.594E-04
Cyclohexane	0.0237	84.16	5.257E-05
Other hexanes	0.1446	86.18	3.285E-04
Heptanes	0.0446	100.20	1.178E-04
Methylcyclohexane	0.0379	98.19	9.809E-05
Isooctane	0.0024	100.21	6.339E-06
Benzene	0.0096	78.11	1.976E-05
Toluene	0.0113	92.14	2.744E-05
Ethylbenzene	0.0022	106.17	6.156E-06
Xylenes	0.0004	106.17	1.119E-06
C8+ Heavies	0.0170	110.00	4.929E-05
Total	100.0003		
Total VOC			9.283E-03

Gas stream composition obtained from La Jara extended gas analysis dated 12/31/2019
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

Turbine & Compressor Blowdown Emissions Calculations

Unit Number: SSM
Description: Startups, Shutdowns & Maintenance (Turbines, Compressors & Piping Associated With Station)

Throughput

5	# of units	Number of units	Harvest Four Corners, LLC
83.3	events/yr/unit	Blowdowns per year per unit	Harvest Four Corners, LLC
4,357	scf/event	Gas loss per blowdown (compressor)	Harvest Four Corners, LLC
12,400	scf/event	Gas loss per blowdown (turbine)	Harvest Four Corners, LLC
6,979,291	scf/yr	Annual gas loss	# of units x events/yr/unit x [scf/event (compressor) + scf/event (turbine)]

Emission Rates

Pollutants	Emission Factors, lb/scf	Uncontrolled, Emission Rates, tpy
VOC	9.283E-03	32.39
Benzene	1.976E-05	6.90E-02
Ethylbenzene	6.156E-06	2.15E-02
n-Hexane	1.594E-04	5.56E-01
Isooctane	6.339E-06	2.21E-02
Toluene	2.744E-05	9.58E-02
Xylene	1.119E-06	3.91E-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	1.6565	44.01	1.922E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	1.0688	28.01	7.891E-04
Methane	82.6372	16.04	3.494E-02
Ethane	8.0037	30.07	6.343E-03
Propane	3.8334	44.09	4.455E-03
Isobutane	0.6777	58.12	1.038E-03
n-Butane	1.1402	58.12	1.747E-03
Isopentane	0.3515	72.15	6.684E-04
n-Pentane	0.2576	72.15	4.899E-04
Cyclopentane	0.0098	70.14	1.812E-05
n-Hexane	0.0702	86.17	1.594E-04
Cyclohexane	0.0237	84.16	5.257E-05
Other hexanes	0.1446	86.18	3.285E-04
Heptanes	0.0446	100.20	1.178E-04
Methylcyclohexane	0.0379	98.19	9.809E-05
Isooctane	0.0024	100.21	6.339E-06
Benzene	0.0096	78.11	1.976E-05
Toluene	0.0113	92.14	2.744E-05
Ethylbenzene	0.0022	106.17	6.156E-06
Xylenes	0.0004	106.17	1.119E-06
C8+ Heavies	0.0170	110.00	4.929E-05
Total	100.0003		5.327E-02
Total VOC			9.283E-03

Gas stream composition obtained from La Jara extended gas analysis dated 12/31/2019
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

Codensate Storage Tank Emissions Data and Calculations

Unit Number: T1 - T3
Description: Condensate Storage Tanks

Emission Rates

Source/Pollutants	Working/Breathing Losses, ppy	Working/Breathing Losses, tpy	Flash Losses, tpy	Uncontrolled Emission Rates, tpy
T1				
VOC	3852.42	1.93	10.83	12.76
Benzene	15.39	7.70E-03	5.28E-02	6.05E-02
Ethylbenzene	0.33	1.65E-04	9.92E-04	1.16E-03
n-Hexane	572.96	2.86E-01	1.20	1.49
Toluene	14.31	7.16E-03	4.20E-02	4.91E-02
Xylene	2.46	1.23E-03	5.07E-03	6.30E-03
T2				
VOC	3,852.42	1.93	10.83	12.76
Benzene	15.39	7.70E-03	5.28E-02	6.05E-02
Ethylbenzene	0.33	1.65E-04	9.92E-04	1.16E-03
n-Hexane	572.96	2.86E-01	1.20	1.49
Toluene	14.31	7.16E-03	4.20E-02	4.91E-02
Xylene	2.46	1.23E-03	5.07E-03	6.30E-03
T3				
VOC	3,852.42	1.93	10.83	12.76
Benzene	15.39	7.70E-03	5.28E-02	6.05E-02
Ethylbenzene	0.33	1.65E-04	9.92E-04	1.16E-03
n-Hexane	572.96	2.86E-01	1.20	1.49
Toluene	14.31	7.16E-03	4.20E-02	4.91E-02
Xylene	2.46	1.23E-03	5.07E-03	6.30E-03
Combined Total				
VOC	11,557.26	5.78	32.49	38.27
Benzene	46.17	2.31E-02	1.58E-01	1.82E-01
Ethylbenzene	0.99	4.95E-04	2.98E-03	3.47E-03
n-Hexane	1,718.88	0.86	3.60	4.46
Toluene	42.93	2.15E-02	1.26E-01	1.47E-01
Xylene	7.38	3.69E-03	1.52E-02	1.89E-02

Working/breathing losses taken from TANKS 4.0.9d results
Flash emissions taken from VMGSim results [Tank_Flash_Emissions (Material Stream)]

Codensate Storage Tank Emissions Data and Calculations

Unit Number: T1 - T3
Description: Condensate Storage Tanks

Condensate Composition (Used to Calculate Working/Breathing Losses)

Components	Mass Fraction,	Adjusted Mass Fraction,	Weight Percent, lb/scf
Carbon dioxide	0.0001		
Hydrogen sulfide	0.0000		
Nitrogen	0.0000		
Methane	0.0001		
Ethane	0.0021		
Propane	0.0144		
Isobutane	0.0116	0.0200	1.9997
n-Butane	0.0320	0.0404	4.0391
Isopentane	0.0381	0.0381	3.8118
n-Pentane	0.0413	0.0413	4.1295
Cyclopentane	0.0000	0.0000	0.0000
n-Hexane	0.2403	0.2403	24.0302
Cyclohexane	0.0442	0.0442	4.4218
Other hexanes	0.0000	0.0000	0.0000
Heptanes	0.2254	0.2254	22.5411
Methylcyclohexane	0.0000	0.0000	0.0000
Isooctane	0.0000	0.0000	0.0000
Benzene	0.0104	0.0104	1.0446
Toluene	0.0335	0.0335	3.3526
Ethylbenzene	0.0023	0.0023	0.2304
Xylenes	0.0205	0.0205	2.0459
C8+ Heavies	0.2835	0.2835	28.3533
Total	1.0000	1.0000	100.0000

Condensate composition obtained from VMGSim results [Condensate_Truck_Loading (Material Stream)]
Mass of components lighter than butane were evenly distributed between isobutane and n-butane

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

Identification

User Identification:	La Jara T1 - T3 (Condensate)
City:	Navajo Dam
State:	New Mexico
Company:	Harvest Four Corners, LLC
Type of Tank:	Vertical Fixed Roof Tank
Description:	400 bbl (16,800 gal) Condensate Storage Tank

Tank Dimensions

Shell Height (ft):	20.00
Diameter (ft):	12.00
Liquid Height (ft) :	19.00
Avg. Liquid Height (ft):	9.50
Volume (gallons):	16,800.00
Turnovers:	5.42
Net Throughput(gal/yr):	91,000.00
Is Tank Heated (y/n):	N

Paint Characteristics

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

Roof Characteristics

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

Breather Vent Settings

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

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

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

La Jara T1 - T3 (Condensate) - 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
Condensate	All	67.36	53.93	80.79	59.23	5.1663	3.9346	6.4802	66.2931			91.76	
Benzene						1.4274	0.9846	2.0237	78.1100	0.0104	0.0040	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Butane (-n)						29.9357	23.3576	34.6684	58.1230	0.0404	0.3240	58.12	Option 1: VP60 = 26.1 VP70 = 31.31
Cyclohexane						1.4738	1.0254	2.0729	84.1600	0.0442	0.0175	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethylbenzene						0.1396	0.0876	0.2162	106.1700	0.0023	0.0001	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Heptane (-n)						0.7600	0.5088	1.1128	100.2000	0.2254	0.0459	100.20	Option 3: A=37358, B=8.2585
Hexane (-n)						2.3100	1.6303	3.2059	86.1700	0.2403	0.1487	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Iso-Butane						43.3083	34.4026	53.8185	58.1230	0.0200	0.2320	58.12	Option 1: VP60 = 38.14 VP70 = 45.16
Isopentane						11.8640	8.7212	15.5743	72.1500	0.0381	0.1212	72.15	Option 1: VP60 = 10.005 VP70 = 12.53
Octane (-n)						0.1769	0.1254	0.2493	114.2300	0.2835	0.0134	114.23	Option 1: VP60 = .145444 VP70 = .188224
Pentane (-n)						8.0308	5.9649	10.6537	72.1500	0.0413	0.0889	72.15	Option 3: A=27691, B=7.558
Toluene						0.4136	0.2726	0.6120	92.1300	0.0335	0.0037	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylenes (mixed isomers)						0.1165	0.0728	0.1813	106.1700	0.0205	0.0006	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)

La Jara T1 - T3 (Condensate) - Vertical Fixed Roof Tank
Navajo Dam, New Mexico

Annual Emission Calcaulations	
Standing Losses (lb):	3,110.3667
Vapor Space Volume (cu ft):	1,201.6592
Vapor Density (lb/cu ft):	0.0606
Vapor Space Expansion Factor:	0.4578
Vented Vapor Saturation Factor:	0.2558
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,201.6592
Tank Diameter (ft):	12.0000
Vapor Space Outage (ft):	10.6250
Tank Shell Height (ft):	20.0000
Average Liquid Height (ft):	9.5000
Roof Outage (ft):	0.1250
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.1250
Roof Height (ft):	0.0000
Roof Slope (ft/ft):	0.0625
Shell Radius (ft):	6.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0606
Vapor Molecular Weight (lb/lb-mole):	66.2931
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.1663
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:	0.4578
Daily Vapor Temperature Range (deg. R):	53.7176
Daily Vapor Pressure Range (psia):	2.5456
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.1663
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	3.9346
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	6.4802
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:	0.2558
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	5.1663
Vapor Space Outage (ft):	10.6250
Working Losses (lb):	742.0562
Vapor Molecular Weight (lb/lb-mole):	66.2931
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	5.1663
Annual Net Throughput (gal/yr.):	91,000.0000
Annual Turnovers:	5.4200
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	16,800.0000
Maximum Liquid Height (ft):	19.0000
Tank Diameter (ft):	12.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	3,852.4229

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

Emissions Report for: Annual

La Jara T1 - T3 (Condensate) - Vertical Fixed Roof Tank
Navajo Dam, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Condensate	742.06	3,110.37	3,852.42
Iso-Butane	172.19	721.73	893.92
Butane (-n)	240.40	1,007.66	1,248.06
Isopentane	89.91	376.88	466.79
Pentane (-n)	65.94	276.37	342.31
Hexane (-n)	110.36	462.60	572.96
Cyclohexane	12.96	54.31	67.27
Heptane (-n)	34.06	142.77	176.83
Benzene	2.96	12.43	15.39
Toluene	2.76	11.56	14.31
Ethylbenzene	0.06	0.27	0.33
Xylenes (mixed isomers)	0.47	1.99	2.46
Octane (-n)	9.97	41.81	51.78

Simulation Report

Symmetry

File Name: La Jara - Tank Flash PTE
Company: Virtual Materials Group
Customer:
Project:
Job No:
Prepared By:
Report Date: Wednesday, November 20, 2019
Unit Set: Field

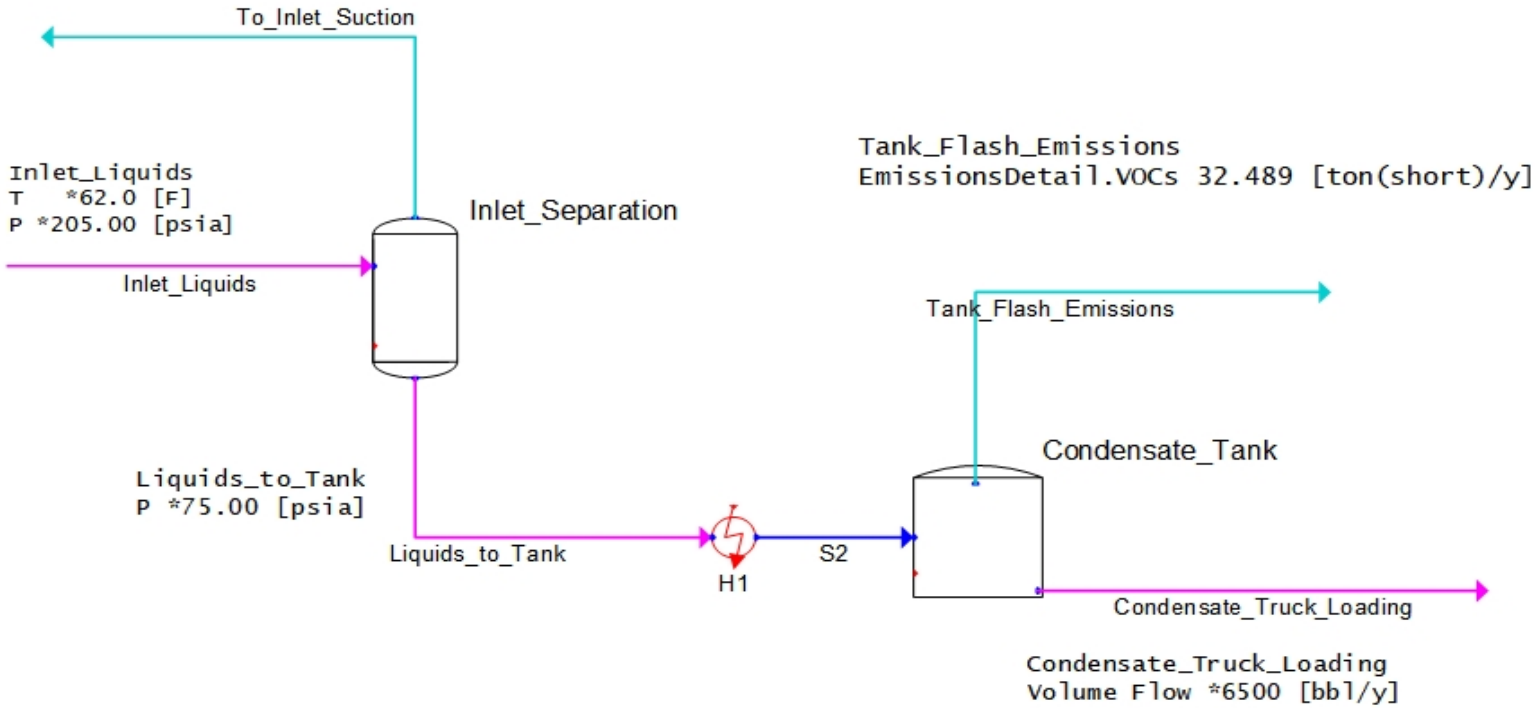
File: C:\Users\khong\Desktop\Permitting\La Jara\La Jara - Tank Flash PTE.vsym

Symmetry

*Bold face throughout the report denotes specified values.

*Italic face throughout the report denotes recycle values.

La Jara – Condensate Tank Flash Model



Storage Tank Emissions Calculations

Unit Number: T4
Description: Produced Water Tank (EXEMPT)

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

Throughput

80	bbl/turnover	Tank capacity	Harvest Four Corners, LLC
12	turnover/yr	Turnovers per year	Harvest Four Corners, LLC
960	bbl/yr	Annual liquid throughput	bbl/turnover x turnover/yr

Emission Rates

Pollutant	Emission Factor, lb/bbl	Uncontrolled, Emission Rate, tpy
VOC	0.262	1.26E-01
Benzene	0.007	3.36E-03
Ethylbenzene	0.0007	3.36E-04
n-Hexane	0.022	1.06E-02
Toluene	0.009	4.32E-03
Xylene	0.006	2.88E-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:	La Jara T10 (Methanol)
City:	Navajo Dam
State:	New Mexico
Company:	Harvest Four Corners, LLC
Type of Tank:	Vertical Fixed Roof Tank
Description:	21,000 Gallon Methanol Storage Tank

Tank Dimensions

Shell Height (ft):	16.00
Diameter (ft):	15.00
Liquid Height (ft) :	15.00
Avg. Liquid Height (ft):	8.00
Volume (gallons):	19,829.00
Turnovers:	3.00
Net Throughput(gal/yr):	59,487.00
Is Tank Heated (y/n):	N

Paint Characteristics

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

Roof Characteristics

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

Breather Vent Settings

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

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

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

La Jara T10 (Methanol) - 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
Methyl alcohol	All	64.94	53.24	76.64	58.39	1.6820	1.1617	2.3895	32.0400			32.04	Option 2: A=7.897, B=1474.08, C=229.13

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

La Jara T10 (Methanol) - Vertical Fixed Roof Tank
Navajo Dam, New Mexico

Annual Emission Calcaulations	
Standing Losses (lb):	585.3748
Vapor Space Volume (cu ft):	1,441.3283
Vapor Density (lb/cu ft):	0.0096
Vapor Space Expansion Factor:	0.2008
Vented Vapor Saturation Factor:	0.5790
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,441.3283
Tank Diameter (ft):	15.0000
Vapor Space Outage (ft):	8.1563
Tank Shell Height (ft):	16.0000
Average Liquid Height (ft):	8.0000
Roof Outage (ft):	0.1563
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.1563
Roof Height (ft):	0.0000
Roof Slope (ft/ft):	0.0625
Shell Radius (ft):	7.5000
Vapor Density	
Vapor Density (lb/cu ft):	0.0096
Vapor Molecular Weight (lb/lb-mole):	32.0400
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.6820
Daily Avg. Liquid Surface Temp. (deg. R):	524.6094
Daily Average Ambient Temp. (deg. F):	56.1542
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	518.0642
Tank Paint Solar Absorptance (Shell):	0.5400
Tank Paint Solar Absorptance (Roof):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.2008
Daily Vapor Temperature Range (deg. R):	46.7976
Daily Vapor Pressure Range (psia):	1.2278
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.6820
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	1.1617
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	2.3895
Daily Avg. Liquid Surface Temp. (deg R):	524.6094
Daily Min. Liquid Surface Temp. (deg R):	512.9100
Daily Max. Liquid Surface Temp. (deg R):	536.3088
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.5790
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	1.6820
Vapor Space Outage (ft):	8.1563
Working Losses (lb):	76.3272
Vapor Molecular Weight (lb/lb-mole):	32.0400
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.6820
Annual Net Throughput (gal/yr.):	59,487.0000
Annual Turnovers:	3.0000
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	19,829.0000
Maximum Liquid Height (ft):	15.0000
Tank Diameter (ft):	15.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	661.7019

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

Emissions Report for: Annual

La Jara T10 (Methanol) - Vertical Fixed Roof Tank
Navajo Dam, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Methyl alcohol	76.33	585.37	661.70

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

Identification

User Identification:	La Jara T11 (Corrosion Inhibitor)
City:	Bloomfield
State:	New Mexico
Company:	Harvest Four Corners, LLC
Type of Tank:	Horizontal Tank
Description:	750 gallon Corrosion Inhibitor tank

Tank Dimensions

Shell Length (ft):		5.00
Diameter (ft):		5.00
Volume (gallons):		750.00
Turnovers:		12.00
Net Throughput(gal/yr):		9,000.00
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	N	

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition	Good

Breather Vent Settings

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

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

La Jara T11 (Corrosion Inhibitor) - Horizontal Tank
Bloomfield, 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	64.94	53.24	76.64	58.39	1.2094	0.8499	1.6791	41.5452			68.87	
1,2,3-Trimethylbenzene						0.0180	0.0111	0.0284	120.2000	0.0450	0.0011	120.20	Option 2: A=7.04082, B=1593.958, C=207.078
1,2,4-Trimethylbenzene						0.0248	0.0155	0.0388	120.1900	0.2700	0.0092	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
1,3,5-Trimethylbenzene						0.0266	0.0166	0.0414	120.1900	0.0900	0.0033	120.19	Option 2: A=7.07436, B=1573.622, C=208.564
1-Dodecanethiol						0.0000	0.0000	0.0000	202.4000	0.0100	0.0000	202.40	Option 2: A=7.0244, B=1817.8, C=164.1
Jet naphtha (JP-4)						1.4482	1.0972	1.7992	80.0000	0.2700	0.3573	120.00	Option 1: VP60 = 1.3 VP70 = 1.6
Methyl alcohol						1.6820	1.1617	2.3895	32.0400	0.2700	0.6225	32.04	Option 2: A=7.897, B=1474.08, C=229.13
Xylene (-m)						0.1073	0.0710	0.1586	106.1700	0.0450	0.0066	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)

La Jara T11 (Corrosion Inhibitor) - Horizontal Tank
Bloomfield, New Mexico

Annual Emission Calcaulations

Standing Losses (lb):	28.0051
Vapor Space Volume (cu ft):	62.5317
Vapor Density (lb/cu ft):	0.0089
Vapor Space Expansion Factor:	0.1595
Vented Vapor Saturation Factor:	0.8619
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	62.5317
Tank Diameter (ft):	5.0000
Effective Diameter (ft):	5.6433
Vapor Space Outage (ft):	2.5000
Tank Shell Length (ft):	5.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0089
Vapor Molecular Weight (lb/lb-mole):	41.5452
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.2094
Daily Avg. Liquid Surface Temp. (deg. R):	524.6094
Daily Average Ambient Temp. (deg. F):	56.1542
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	518.0642
Tank Paint Solar Absorptance (Shell):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.1595
Daily Vapor Temperature Range (deg. R):	46.7976
Daily Vapor Pressure Range (psia):	0.8292
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.2094
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.8499
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	1.6791
Daily Avg. Liquid Surface Temp. (deg R):	524.6094
Daily Min. Liquid Surface Temp. (deg R):	512.9100
Daily Max. Liquid Surface Temp. (deg R):	536.3088
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.8619
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	1.2094
Vapor Space Outage (ft):	2.5000
Working Losses (lb):	10.7666
Vapor Molecular Weight (lb/lb-mole):	41.5452
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.2094
Annual Net Throughput (gal/yr.):	9,000.0000
Annual Turnovers:	12.0000
Turnover Factor:	1.0000

Tank Diameter (ft):	5.0000
Working Loss Product Factor:	1.0000

Total Losses (lb):	38.7717

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

Emissions Report for: Annual

La Jara T11 (Corrosion Inhibitor) - Horizontal Tank
Bloomfield, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Corrosion Inhibitor	10.77	28.01	38.77
1,2,3-Trimethylbenzene	0.01	0.03	0.04
1,2,4-Trimethylbenzene	0.10	0.26	0.36
1,3,5-Trimethylbenzene	0.04	0.09	0.13
1-Dodecanethiol	0.00	0.00	0.00
Jet naphtha (JP-4)	3.85	10.01	13.85
Methyl alcohol	6.70	17.43	24.13
Xylene (-m)	0.07	0.19	0.26

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)

Carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) exhaust emissions were calculated using emission factors from 40 Code of Federal Regulations (CFR), Part C, Tables C-1 & C-2 and the turbine, engine, and heater higher heating value (HHV) design heat rates. It was assumed the turbines and heater all operate at full capacity for 8,760 hours per year. It was assumed the engine operates at full capacity for 500 hours per year.

GHG emissions from SSM and pig receiver blowdowns 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 a recent extended gas analysis. For each unit, the annual number of blowdown events were estimated based on historical operations. A safety factor was added.

GHG emissions from centrifugal compressor venting (blowdown valve leakage, oil degassing vents, and isolation valve leakage) were calculated in accordance with the applicable Subpart W methodology using emission factors (scf/hr) calculated by Williams Four Corners LLC when they owned the facility. The facility CO_2 and CH_4 contents were taken from a recent extended gas analysis. Since the combined blowdown valve leakage and oil degassing vent emissions (when the compressors are in operation) were greater than the isolation valve leakage (when the compressors are not in operation), potential emissions were calculated assuming the compressors operate 8,760 hours per year (in other words, isolation valve leakage occurs 0 hours per year).

The CO_2 and CH_4 emissions from valves, connectors, open-ended lines and pressure relief valves were calculated using the Subpart W methodology applicable to these source types. The component count was determined from the number of compressors and dehydrators permitted to operate at the station, using an equation derived by HFC that is representative of their facilities. Emission factors were obtained from Table W-1A of Subpart W (Western U.S. – Gas Service). The facility CO_2 and CH_4 contents were taken from a recent extended gas analysis. Emissions were calculated assuming the equipment operates 8,760 hours per year.

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

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

Malfunction (Unit M1) emissions were set at 10.0 tons of VOC per year to account for emissions that may occur during upsets and malfunctions. Based on the gas release rate associated with the set annual VOC emission rate, CO_2 and CH_4 emissions were calculated using a recent extended gas analysis.

GHG emissions from the condensate storage tanks are calculated from theVMGSim modeling results. There are no GHG emissions associate with the other storage tanks.

Green House Gas Emissions Data and Calculations

Sources	Facility Total Emissions				
	CO2, tpy	CH4, tpy	N2O, tpy	GHG, tpy	CO2e, tpy
Turbine Exhaust (Total #1)	95,294.53	1.80	1.80E-01	95,296.51	95,392.95
Turbine Exhaust (Total #2)	98,538.36	1.86	1.86E-01	98,540.40	98,640.13
Turbine Exhaust (Total #3)	98,538.36	1.86	1.86E-01	98,540.40	98,640.13
Turbine Exhaust (Total #4)	101,782.18	1.92	1.92E-01	101,784.29	101,887.30
SSM Blowdowns	6.71	121.92	--	128.62	3054.63
Centrifugal Compressor Venting	38.43	699.85	--	738.29	17534.76
Heater Exhaust	284.05	5.35E-03	5.35E-04	284.05	284.34
Pig Launchers & Receivers	2.26	41.05	--	43.31	1028.52
Equipment Leaks	6.78E-01	12.35	--	13.03	309.37
Natural Gas Pneumatic Device Venting	1.23	22.43	--	23.66	561.92
Natural Gas Driven Pneumatic Pump Venting	1.12E-01	2.03	--	2.15	50.95
Malfunctions	2.07	37.64	--	39.71	943.00
Separators & Storage Tanks (Flash Emissions)	6.49E-01	2.68	--	3.33	67.65
Total #1	95630.72	941.75	1.80E-01	96,572.65	119,228.08
Total #2	98874.55	941.81	1.86E-01	99,816.54	122,475.26
Total #3	98874.55	941.81	1.86E-01	99,816.54	122,475.26
Total #4	102,118.37	941.87	1.92E-01	103,060.43	125,722.43

Total #1 - No change in the turbines at the facility - Units 1, 2, 3, 6 & 7 are in operation
Total #2 - Unit #1 is replaced by Unit #8 - Units 2, 3, 6, 7 & 8 are in operation
Total #3 - Unit #2 is replaced by Unit #9 - Units 1, 3, 6, 7 & 9 are in operation
Total #3 - Units #1 & #2 are replaced by Units #8 & #9, respectively - Units 3, 6, 7, 8 & 9 are in operation

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	Solar Centaur T-4002	53.06	1.00E-03	1.00E-04	16,758.82	3.16E-01	3.16E-02
2	Solar Centaur T-4002	53.06	1.00E-03	1.00E-04	16,758.82	3.16E-01	3.16E-02
3	Solar Centaur 40-4702	53.06	1.00E-03	1.00E-04	20,417.36	3.85E-01	3.85E-02
4	Waukesha F3521G	53.06	1.00E-03	1.00E-04	104.41	1.97E-03	1.97E-04
6	Solar Centaur 40-4702S	53.06	1.00E-03	1.00E-04	20,627.56	3.89E-01	3.89E-02
7	Solar Centaur 40-4702S	53.06	1.00E-03	1.00E-04	20,627.56	3.89E-01	3.89E-02
8	Solar Centaur 40-4702S	53.06	1.00E-03	1.00E-04	20,002.65	3.77E-01	3.77E-02
9	Solar Centaur 40-4702S	53.06	1.00E-03	1.00E-04	20,002.65	3.77E-01	3.77E-02
	Total #1				95,294.53	1.80	1.80E-01
	Total #2				98,538.36	1.86	1.86E-01
	Total #3				98,538.36	1.86	1.86E-01
	Total #4				101,782.18	1.92	1.92E-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
Total #1 - No change in the turbines at the facility - Units 1, 2, 3, 6 & 7 are in operation
Total #2 - Unit #1 is replaced by Unit #8 - Units 2, 3, 6, 7 & 8 are in operation
Total #3 - Unit #2 is replaced by Unit #9 - Units 1, 3, 6, 7 & 9 are in operation
Total #3 - Units #1 & #2 are replaced by Units #8 & #9, respectively - Units 3, 6, 7, 8 & 9 are in operation

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	Solar Centaur T-4002	Nat. Gas	8,760	29.50	32.78	287,133
2	Solar Centaur T-4002	Nat. Gas	8,760	29.50	32.78	287,133
3	Solar Centaur 40-4702	Nat. Gas	8,760	35.94	39.93	349,816
4	Waukesha F3521G	Nat. Gas	500	3.22	3.58	1,789
6	Solar Centaur 40-4702S	Nat. Gas	8,760	36.31	40.34	353,417
7	Solar Centaur 40-4702S	Nat. Gas	8,760	36.31	40.34	353,417
8	Solar Centaur 40-4702S	Nat. Gas	8,760	35.21	39.12	342,711
9	Solar Centaur 40-4702S	Nat. Gas	8,760	35.21	39.12	342,711

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

Green House Gas Emissions Data and Calculations

SSM Blowdown Emissions

Unit Numbers	Description	Total Gas Losses, scf/yr	CO2 Emission Factors, lb/scf	CH4 Emission Factors, lb/scf	Emission Rates	
					CO2, tpy	CH4, tpy
SSM	SSM Blowdowns	6,979,291	0.0019	0.0349	6.71	121.92

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

Centrifugal Compressor Venting Emissions

Unit Numbers	Description	Emission Rates	
		CO2, tpy	CH4, tpy
NA	Blowdown Valve Leakage	7.04	128.23
NA	Oil Degassing Vents	31.39	571.62
NA	Isolation Valve Leakage	0.00E+00	0.00E+00
	Total	38.43	699.85

Operating mode - includes blowdown valve leakage (wet and dry seal) and the oil degassing vents (wet seal)
Non-operating depressurized mode - includes isolation valve leakage (wet & dry seal) through open blowdown vents (without blind flanges)
A combination of equations W-22 & W-36 (Subpart W) is used to calculate centrifugal 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	5	167.4	8,760	1.66	82.64	0.0526	0.0192
NA	Oil Degassing Vents	5	746.2	8,760	1.66	82.64	0.0526	0.0192
NA	Isolation Valve Leakage	5	10.8	0	1.66	82.64	0.0526	0.0192

The number of compressors is provided by Harvest
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)

Heater Exhaust Emissions

Unit Numbers	Description	Emission Factors			Emission Rates		
		CO2, kg/MMBtu	CH4, kg/MMBtu	N2O, kg/MMBtu	CO2, tpy	CH4, tpy	N2O, tpy
5	Heater	53.06	1.00E-03	1.00E-04	284.05	5.35E-03	5.35E-04

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
5	Heater	Nat. Gas	8,760	0.50	0.556	4,867

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

Green House Gas Emissions Data and Calculations

Pig Launcher & Receiver Emissions

Unit Numbers	Description	Total Gas Losses, scf/yr	CO2 Emission Factors, lb/scf	CH4 Emission Factors, lb/scf	Emission Rates	
					CO2, tpy	CH4, tpy
P1	Pig Launcher	2,159,245	0.0019	0.0349	2.07	37.72
P2	Pig Receiver	190,740	0.0019	0.0349	1.83E-01	3.33
	Total				2.26	41.05

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

Equipment Leaks Emissions

Unit Numbers	Description	Emission Rates	
		CO2, tpy	CH4, tpy
F1	Valves	5.1E-01	9.3
F1	Connectors	7.0E-02	1.3
F1	Open-Ended Lines	3.5E-02	6.3E-01
F1	Pressure Relief Valves	6.0E-02	1.1
	Total	6.8E-01	12.3

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

Unit Numbers	Description	Number of Components, #	Emission Factors, scf/hr /component	CO2 Contents, mole %	CH4 Contents, mole %	Operating Times, hr/yr	CO2 Density, kg/scf	CH4 Density, kg/scf
F1	Valves	504	0.121	1.66	82.64	8,760	0.0526	0.0192
F1	Connectors	491	0.017	1.66	82.64	8,760	0.0526	0.0192
F1	Open-Ended Lines	133	0.031	1.66	82.64	8,760	0.0526	0.0192
F1	Pressure Relief Valves	37	0.193	1.66	82.64	8,760	0.0526	0.0192

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

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	1	37.3	8,760	3.14E-01	5.70
NA	Intermittent Bleed Pneumatic Devices	8	13.5	8,760	9.09E-01	16.51
NA	Continuous Low Bleed Pneumatic Devices	1	1.39	8,760	1.17E-02	2.13E-01
	Total				1.23	22.43

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)

Green House Gas Emissions Data and Calculations

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	1.66	82.64	5.262E-05	4.790E-04	1	25
NA	Continuous Low Bleed Pneumatic Devices	1.66	82.64	5.262E-05	4.790E-04	1	25
NA	Intermittent Bleed Pneumatic Devices	1.66	82.64	5.262E-05	4.790E-04	1	25

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

Natural Gas Driven Pneumatic Pump Venting Emissions

Emission Rates

Unit Number	Description	Number of Pumps, #	Emission Factor, scf/hr/pump	Operating Time, hr/yr	Emission Rates	
					CO2, tpy	CH4, tpy
NA	Pneumatic Pump Venting	1	13.3	8,760	1.12E-01	2.03

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	1.66	82.64	5.262E-05	4.790E-04	1	25

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

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	20.21	3.52	3.61	65.58	10.00	2.07	37.64

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

Storage Tanks (Flash Emissions)

Unit Number	Description	Emission Rates		Operating Time, hr/yr	Emission Rates	
		CO2, pph	CH4, pph		CO2, tpy	CH4, tpy
T1	Condensate Tank	4.94E-02	2.04E-01	8,760	2.16E-01	8.93E-01
T2	Condensate Tank	4.94E-02	2.04E-01	8,760	2.16E-01	8.93E-01
T3	Condensate Tank	4.94E-02	2.04E-01	8,760	2.16E-01	8.93E-01
	Total				6.49E-01	2.68

Short-term emission rates (pph) are taken from the ProMax output
The operating times are provided by Harvest
Emission Rate (tpy) = Emission Rate (pph) x Operating Time (hr/yr) / 2,000 lb/ton

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	1.6565	44.01	0.73	3.6069	0.0019
Hydrogen Sulfide	0.0000	34.07	0.00	0.0000	0.0000
Nitrogen	1.0688	28.01	0.30	1.4812	0.0008
Methane	82.6372	16.04	13.26	65.5802	0.0349
Ethane	8.0037	30.07	2.41	11.9074	0.0063
Propane	3.8334	44.09	1.69	8.3621	0.0045
IsoButane	0.6777	58.12	0.39	1.9487	0.0010
Normal Butane	1.1402	58.12	0.66	3.2787	0.0017
IsoPentane	0.3515	72.15	0.25	1.2547	0.0007
Normal Pentane	0.2576	72.15	0.19	0.9195	0.0005
Cyclopentane	0.0098	70.14	0.01	0.0340	0.0000
n-Hexane	0.0702	86.17	0.06	0.2993	0.0002
Cyclohexane	0.0237	84.16	0.02	0.0987	0.0001
Other Hexanes	0.1446	86.18	0.12	0.6165	0.0003
Heptanes	0.0446	100.20	0.04	0.2211	0.0001
Methylcyclohexane	0.0379	98.19	0.04	0.1841	0.0001
2,2,4-Trimethylpentane	0.0024	100.21	0.00	0.0119	0.0000
Benzene	0.0096	78.11	0.01	0.0371	0.0000
Toluene	0.0113	92.14	0.01	0.0515	0.0000
Ethylbenzene	0.0022	106.17	0.00	0.0116	0.0000
Xylenes	0.0004	106.17	0.00	0.0021	0.0000
C8+ heavies	0.0170	110.00	0.02	0.0925	0.0000
Total	100.0003		20.21	100.0000	0.0533
VOC			3.52	--	0.0093

Gas stream composition obtained from La Jara extended gas analysis dated 12/31/2019
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.

SOLAR TURBINES INCORPORATED DATE RUN: -APR-92
ENGINE PERFORMANCE DATA REV. 5.5
EXHAUST GAS AND EMISSION DATA REV. 5.9
TEXT CHANGES REV. 5.4
PCB ID : 0

--- SUMMARY OF ENGINE PERFORMANCE DATA --- 2 ITERATIONS

ENGINE : CENTAUR
MODEL : T-4000
TYPE : CS/MD
RATING : STANDARD
FUEL : GAS FUEL

DATA FOR NOMINAL PERFORMANCE

GENERAL INPUT SPECIFICATIONS

SD NATURAL GAS		FUEL USE
6325.0	FEET	ALTITUDE
59.00	DEG. F	AMBIENT TEMPERATURE
60.0	PERCENT	RELATIVE HUMIDITY
0.00	INCH. H2O	INLET PRESSURE LOSS
3.00	INCH. H2O	EXHAUST PRESSURE LOSS
0.0	HP	ACCESSORY HORSEPOWER AT GP SHAFT
0.0000	LB/MIN	COMPRESSOR DISCHARGE BLEED

MECHANICAL INPUT SPECIFICATIONS

1.0000	---	GEARBOX RATIO,(N EQUIPMENT/N POWER TURBINE)
1.0000	---	GEARBOX EFFICIENCY
14977.	R.P.M.	OPTIMUM POWER TURBINE SPEED
14901.	R.P.M.	SPEED OF GAS PRODUCER TURBINE

DYNAMIC AND THERMODYNAMIC PERFORMANCE DATA

3025.4	HP	OUTPUT POWER AFTER GEARBOX
1060.9	LBS-FT	OUTPUT TORQUE AFTER GEARBOX
28.5752	MMBTU/HR	FUEL FLOW
9.445	KBTU/HP-HR	SPECIFIC FUEL CONSUMPTION
1774.7	LB/MIN	INLET AIR FLOW
1797.8	LB/MIN	ENGINE EXHAUST FLOW
93.36	P.S.I.G.	CMP. DIFFUSER EXIT STATIC PRESSURE
595.1	DEG. F	CMP. DIFFUSER EXIT TEMPERATURE
1550.0	DEG. F	GAS PRODUCER TURBINE INLET TMP.
1085.4	DEG. F	POWER TURBINE INLET TEMPERATURE
788.2	DEG. F	ENGINE EXHAUST TEMPERATURE

FUEL GAS COMPOSITION (VOLUME PERCENT)

=	0.0000	CH4	= 92.7900	C2H4	= 0.0000	C2H6	=	4.1600
C3H6	= 0.0000	C3H8	= 0.8400	C4	= 0.1800	C5	=	0.0400
C6	= 0.0400	C7	= 0.0000	C8	= 0.0000	CO	=	0.0000
CO2	= 0.4400	H2	= 0.0000	H2O	= 0.0000	H2S	=	0.0001
N	= 1.5100	O2	= 0.0000	SO2	= 0.0000			

SOLAR TURBINES INCORPORATED
ENGINE PERFORMANCE CODE REV. 2.71
CUSTOMER: WILLIAMS FIELD SERVICES
JOB ID: LAJARA STATION

DATE RUN: 12-AUG-96
RUN BY: BYRD, DE

CENTAUR 40-T4700
CS/MD
59F MATCH
GAS
TCD-2 REV. 2.0
ES-1872

DATA FOR MINIMUM PERFORMANCE

Fuel Type	SD NATURAL GAS	
Elevation	Feet	0
Inlet Loss	in. H2O	0
Exhaust Loss	in. H2O	0
Engine Inlet Temp.	Deg. F	59.0
Relative Humidity	%	60.0
Inlet Loss	Hp	0
Exhaust Loss	Hp	0
Off-Optimum NPT Loss	Hp	9
Driven Equipment Speed	RPM	15500
Optimum Equipment Speed	RPM	16228
Gas Generator Speed	RPM	15000
Specified Load	Hp	FULL
Net Output Power	Hp	4559
Fuel Flow	MMBtu/hr	42.79
Heat Rate	Btu/Hp-hr	9386
Inlet Air Flow	lbm/hr	148698
Engine Exhaust Flow	lbm/hr	150744
PCD	psi(g)	134.4
PT Inlet Temp. (T5)	Deg. F	1140
Compensated PTIT	Deg. F	1190
Exhaust Temperature	Deg. F	835

SOLAR TURBINES INCORPORATED
ENGINE PERFORMANCE CODE REV. 2.71
CUSTOMER: WILLIAMS FIELD SERVICES
JOB ID: LAJARA STATION

DATE RUN: 12-AUG-96
RUN BY: BYRD, DE

CENTAUR 40-T4700
CS/MD
59F MATCH
GAS
TCD-2 REV. 2.0
ES-1872

DATA FOR MINIMUM PERFORMANCE

Fuel Type		SD NATURAL GAS					
Elevation	Feet	6200					
Inlet Loss	in. H2O	3.0					
Exhaust Loss	in. H2O	3.0					
Accessory on GP Shaft	Hp	8.0					
Engine Inlet Temp.	Deg. F	20.0	40.0	60.0	80.0	100.0	
Relative Humidity	%	20.0	20.0	20.0	20.0	20.0	
Elevation Loss	Hp	1085	1039	1005	897	789	
Inlet Loss	Hp	70	68	66	62	56	
Exhaust Loss	Hp	31	31	31	30	28	
Off-Optimum NPT Loss	Hp	4	5	4	0	0	
Driven Equipment Speed	RPM	15500	15500	15500	15500	14884	
Optimum Equipment Speed	RPM	16042	16090	16038	15583	14884	
Gas Generator Speed	RPM	15000	15000	14944	14709	14476	
Specified Load	Hp	FULL	FULL	FULL	FULL	FULL	
Net Output Power	Hp	3779	3672	3502	3110	2674	
Fuel Flow	MMBtu/hr	35.94	34.95	33.45	30.73	27.70	
Heat Rate	Btu/Hp-hr	9510	9516	9551	9879	10359	
Inlet Air Flow	lbm/hr	125552	121505	116680	109073	100593	
Engine Exhaust Flow	lbm/hr	127271	123176	118280	110542	101917	
PCD	psi(g)	112.3	109.2	105.2	97.4	89.7	
PT Inlet Temp. (T5)	Deg. F	1100	1118	1140	1140	1140	
Compensated PTIT	Deg. F	1150	1168	1190	1190	1190	
Exhaust Temperature	Deg. F	797	818	840	855	872	

SOLAR TURBINES INCORPORATED
ENGINE PERFORMANCE CODE REV. 2.71
CUSTOMER: WILLIAMS FIELD SERVICES
JOB ID: LAJARA STATION

DATE RUN: 12-AUG-96
RUN BY: BYRD, DE

NEW EQUIPMENT PREDICTED EMISSION PERFORMANCE
DATA FOR POINT NUMBER 1

Fuel: SD NATURAL GAS
Water Injection: NO
Number of Engines Tested: 15
Model: CENTAUR 40-T4700 CS/MD 59F MATCH GAS
Emissions Data: REV. 1.2

Customer: WILLIAMS FIELD SERVICES
Inquiry Number: LAJARA STATION

CRITICAL WARNINGS IN USE OF DATA FOR PERMITTING

1. Short term permitting values such as PPMV or lbs/hr should be based on worst case actual operating conditions specific to the application and the site. Worst case for one pollutant is not necessarily the same for another. The values on this form are only predicted emissions at one specific operating condition; not necessarily the worst case.

2. Long term reference emission units (e.g. tons/yr) should reference the average conditions at the site (e.g. ISO). That number should not be derived from the worst case value referenced above, or conversely this average must not be used to calculate worst case.

3. Nominal values are based on actual test results, or predicted in the case of no actual engine tests. Expected maximum values should be referenced for permitting.

4. If a SoLoNOx model is planned to be installed in the future, use no less than 50 PPMv CO.

The following predicted emissions performance is based on the following specific single point: (see attached)

Hp= 3779, %Full Load= 100.0, Elev= 6200 ft, %RH= 20.0, Temperature= 20.0 F

NOX		CO		UHC		
NOM	MAX	NOM	MAX	NOM	MAX	
105.23	167.00	28.78	50.00	2.863	50.000	PPMvd at 15% O2
66.41	105.39	11.06	19.21	0.630	11.003	ton/yr
0.422	0.669	0.070	0.122	0.0040	0.0699	lbm/MMBtu (Fuel LHV)

OTHER IMPORTANT NOTES

1. Solar does not provide maximum values for water-to-fuel ratio, SOx, particulates, or conditions outside those above without separate written approval.
2. Solar can optionally provide factory testing in San Diego to ensure the actual unit(s) meet the above values within the tolerances quoted. Pricing and schedule impact will be provided upon request.
3. Fuel must meet Solar standard fuel specification ES 9-98. Predicted emissions are based on the attached fuel composition, or, San Diego natural gas or equivalent.
4. If the above information is being used regarding existing equipment, it should be verified by actual site testing.

Solar Turbines
A Caterpillar Company

PREDICTED EMISSION PERFORMANCE

Customer: Wm Brothers	Engine Model: CENTAUR 40-T4700S CS/MD 59F MATCH SHIPMENTS AFTER 1/95
Job ID:	
Inquiry Number:	Fuel Type: SD NATURAL GAS — Water Injection: NO
Run By: NAPIERALA. GP — Date Run: 18-AUG-97	Engine Emissions Data: REV. 0.1 — Engines Tested: 0

Critical Warnings in Use of Data for Permitting

1. Short term permitting values such as PPMV or lbs/hr should be based on worst case actual operating conditions specific to the application and the site. Worst case for one pollutant is not necessarily the same for another. The values on this form are only predicted emissions at one specific operating condition; not necessarily the worst case.
2. Long term reference emission units (e.g. tons/yr) should reference the average conditions at the site (e.g. ISO). That number should not be derived from the worst case value referenced above, or conversely this average must not be used to calculate worst case.
3. Nominal values are based on actual test results, or predicted in the case of no actual engine tests. Expected maximum values should be referenced for permitting.
4. If a SoLoNOx model is planned to be installed in the future, use no less than 50 PPMv CO.

	NOx EMISSIONS		CO EMISSIONS		UHC EMISSIONS	
	Nominal	Maximum	Nominal	Maximum	Nominal	Maximum
1 — 3934 Hp — 100.0% Load — Elev. 6325 ft — Rel. Humidity 60.0% — Temperature 10.0 Deg. F						
PPMvd at 15% O2	*	25.00	*	50.00	*	25.000
ton/yr	*	15.93	*	19.40	*	5.565
lbm/MMBtu (Fuel LHV)	*	0.100	*	0.122	*	0.0349
2 — 3834 Hp — 100.0% Load — Elev. 6325 ft — Rel. Humidity 60.0% — Temperature 30.0 Deg. F						
PPMvd at 15% O2	*	25.00	*	50.00	*	25.000
ton/yr	*	15.50	*	18.88	*	5.406
lbm/MMBtu (Fuel LHV)	*	0.100	*	0.122	*	0.0349
3 — 3593 Hp — 100.0% Load — Elev. 6325 ft — Rel. Humidity 60.0% — Temperature 60.0 Deg. F						
PPMvd at 15% O2	*	25.00	*	50.00	*	25.000
ton/yr	*	14.53	*	17.70	*	5.068
lbm/MMBtu (Fuel LHV)	*	0.099	*	0.121	*	0.0347
4 — 3089 Hp — 100.0% Load — Elev. 6325 ft — Rel. Humidity 60.0% — Temperature 85.0 Deg. F						
PPMvd at 15% O2	*	25.00	*	50.00	*	25.000
ton/yr	*	12.96	*	15.78	*	4.520
lbm/MMBtu (Fuel LHV)	*	0.098	*	0.120	*	0.0343

Other Important Notes

1. Solar does not provide maximum values for water-to-fuel ratio, SOx, particulates, or conditions outside those above without separate written approval.
2. Solar can optionally provide factory testing in San Diego to ensure the actual unit(s) meet the above values within the tolerances quoted. Pricing and schedule impact will be provided upon request.
3. Fuel must meet Solar standard fuel specification ES 9-98. Predicted emissions are based on the attached fuel composition, or, San Diego natural gas or equivalent.
4. If the above information is being used regarding existing equipment, it should be verified by actual site testing.

Solar Turbines

A Caterpillar Company

PREDICTED ENGINE PERFORMANCE

Customer	Model
Wm Brothers	CENTAUR 40-T4700S
Job ID	Package Type: CS/MD
	Match: 59F MATCH
Run By: NAPIERALA, GP	Date Run: 18-AUG-97
Engine Performance Code: REV. 2.82	Engine Performance Data: REV. 2.2
	Fuel System: GAS
	Fuel Type: SD NATURAL GAS

Elevation	Feet	6325
Inlet Loss	in. H2O	3.0
Exhaust Loss	in. H2O	3.0
Accessory on GP Shaft	Hp	14.0

		1	2	3	4
Engine Inlet Temperature	Deg. F	10.0	30.0	60.0	85.0
Relative Humidity	%	60.0	60.0	60.0	60.0
Driven Equipment Speed	RPM	15500	15500	15500	15500
Specified Load	Hp	FULL	FULL	FULL	FULL
Net Output Power	Hp	3816	3719	3485	2997
Heat Rate	Btu/Hp-hr	9516	9515	9573	10043
ominal Net Output Power	Hp	3934	3834	3593	3089
ominal Heat Rate	Btu/Hp-hr	9230	9230	9286	9742
Fuel Flow	MMBtu/hr	36.31	35.39	33.36	30.09
Engine Exhaust Flow	lbm/hr	128611	124664	117357	107429
Exhaust Temperature	Deg. F	789	807	841	860

Solar Turbines
A Caterpillar Company

PREDICTED EMISSION PERFORMANCE

Customer: **Harvest Midstream**	Engine Model: **CENTAUR 40-4700S CS/MD 59F MATCH**
Job ID: **La Jara**	
Inquiry Number:	Fuel Type: **SD NATURAL GAS** / Water Injection: **NO**
Run By: **Jose Guillen** / Date Run: **26-Nov-19**	Engine Emissions Data: **REV. 0.1**

	NOx EMISSIONS	CO EMISSIONS	UHC EMISSIONS
1 — 3795 HP, 100.0% Load, Elev. 6325 ft, Rel. Humidity 50.0%, Temperature 32.0 Deg. F			
PPMvd at 15% O2	25.00	50.00	25.00
ton/yr	15.43	18.79	5.38
lbm/MMBtu (Fuel LHV)	0.100	0.122	0.035
lbm/(MW-hr)	1.24	1.52	0.43
(gas turbine shaft pwr) lbm/hr	3.52	4.29	1.23
2 — 3678 HP, 100.0% Load, Elev. 6325 ft, Rel. Humidity 50.0%, Temperature 50.0 Deg. F			
PPMvd at 15% O2	25.00	50.00	25.00
ton/yr	14.95	18.21	5.21
lbm/MMBtu (Fuel LHV)	0.100	0.122	0.035
lbm/(MW-hr)	1.24	1.52	0.43
(gas turbine shaft pwr) lbm/hr	3.41	4.16	1.19
3 — 3368 HP, 100.0% Load, Elev. 6325 ft, Rel. Humidity 50.0%, Temperature 70.0 Deg. F			
PPMvd at 15% O2	25.00	50.00	25.00
ton/yr	13.86	16.88	4.83
lbm/MMBtu (Fuel LHV)	0.099	0.121	0.035
lbm/(MW-hr)	1.26	1.53	0.44
(gas turbine shaft pwr) lbm/hr	3.16	3.85	1.10

Notes

1. For short-term emission limits such as lbs/hr., Solar recommends using "worst c conditions specific to the application and the site conditions. Worst case for ecessarily the same for another.
2. Solar's typical SoLoNOx warranty, for ppm values, is available for greater than and between 50% and 100% load for gas fuel, and between 65% and 100% load for r the Centaur 40). An emission warranty for non-SoLoNOx equipment is available F or -20 deg F and between
3. Fuel must meet Solar standard fuel specification ES 9-98. Emissions are based composition, or, San Diego natural gas or equivalent.
4. If needed, Solar can provide Product Information Letters to address turbine ope warranty ranges, as well as non-warranted emissions of SO2, PM10/2.5, VOC, and
5. Solar can provide factory testing in San Diego to ensure the actual unit(s) mee the tolerances quoted. Pricing and schedule impact will be provided upon reque
6. Any emissions warranty is applicable only for steady-state conditions and does shut-down, malfunction, or transient event.

Solar Turbines
A Caterpillar Company

PREDICTED EMISSION PERFORMANCE

Customer: **Harvest Midstream**	Engine Model: **CENTAUR 40-4700S CS/MD 59F MATCH**
Job ID: **La Jara**	
Inquiry Number:	Fuel Type: **SD NATURAL GAS** — Water Injection: **NO**
Run By: **Jose Guillen** — Date Run: **26-Nov-19**	Engine Emissions Data: **REV. 0.1**

4	2939 HP	100.0% Load	Elev. 6325 ft	Rel. Humidity 50.0%	Temperature 90.0 Deg. F

	NOx EMISSIONS	CO EMISSIONS	UHC EMISSIONS
PPMvd at 15% O2	25.00	50.00	25.00
ton/yr	12.56	15.29	4.38
lbm/MMBtu (Fuel LHV)	0.098	0.120	0.034
lbm/(MW-hr)	1.31	1.59	0.46
(gas turbine shaft pwr) lbm/hr	2.87	3.49	1.00

Notes

1. For short-term emission limits such as lbs/hr., Solar recommends using "worst c conditions specific to the application and the site conditions. Worst case for ecessarily the same for another.
2. Solar's typical SoLoNOx warranty, for ppm values, is available for greater than and between 50% and 100% load for gas fuel, and between 65% and 100% load for r the Centaur 40). An emission warranty for non-SoLoNOx equipment is available F or -20 deg F and between
3. Fuel must meet Solar standard fuel specification ES 9-98. Emissions are based composition, or, San Diego natural gas or equivalent.
4. If needed, Solar can provide Product Information Letters to address turbine ope warranty ranges, as well as non-warranted emissions of SO2, PM10/2.5, VOC, and
5. Solar can provide factory testing in San Diego to ensure the actual unit(s) mee the tolerances quoted. Pricing and schedule impact will be provided upon reque
6. Any emissions warranty is applicable only for steady-state conditions and does shut-down, malfunction, or transient event.

Solar Turbines
A Caterpillar Company

PREDICTED ENGINE PERFORMANCE

Customer: *Harvest Midstream*	Model: **CENTAUR 40-4700S**
Job ID: **La Jara**	Package Type: **CS/MD**
Run By: **Jose Guillen** / Date Run: **26-Nov-19**	Match: **59F MATCH**
Engine Performance Code: **REV. 4.20.1.24.13** / Engine Performance Data: **REV. 2.3**	Fuel System: **GAS**
	Fuel Type: **SD NATURAL GAS**

DATA FOR NOMINAL PERFORMANCE

Elevation	feet	6325
Inlet Loss	in H2O	4.0
Exhaust Loss	in H2O	4.0
Accessory on GP Shaft	HP	15.5

		1	2	3	4
Engine Inlet Temperature	deg F	32.0	50.0	70.0	90.0
Relative Humidity	%	50.0	50.0	50.0	50.0
Driven Equipment Speed	RPM	15500	15500	15500	15247
Specified Load	HP	FULL	FULL	FULL	FULL
Net Output Power	HP	3795	3678	3368	2939
Fuel Flow	mmBtu/hr	35.21	34.20	31.87	29.14
Heat Rate	Btu/HP-hr	9278	9300	9461	9914
Therm Eff	%	27.424	27.359	26.895	25.664
Engine Exhaust Flow	lbm/hr	123920	119834	113169	104800
PT Exit Temperature	deg F	811	834	849	866
Exhaust Temperature	deg F	811	834	849	866

Fuel Gas Composition (Volume Percent)

Methane (CH4)	92.79
Ethane (C2H6)	4.16
Propane (C3H8)	0.84
N-Butane (C4H10)	0.18
N-Pentane (C5H12)	0.04
Hexane (C6H14)	0.04
Carbon Dioxide (CO2)	0.44
Hydrogen Sulfide (H2S)	0.0001
Nitrogen (N2)	1.51

Fuel Gas Properties

LHV (Btu/Scf)	939.2	Specific Gravity	0.5970	Wobbe Index at 60F	1215.6

This performance was calculated with a basic inlet and exhaust system. Special noise silencers, special filters, heat recovery systems or cooling devices will Performance shown is "Expected" performance at the pressure drops stated, not g

DRESSER Waukesha

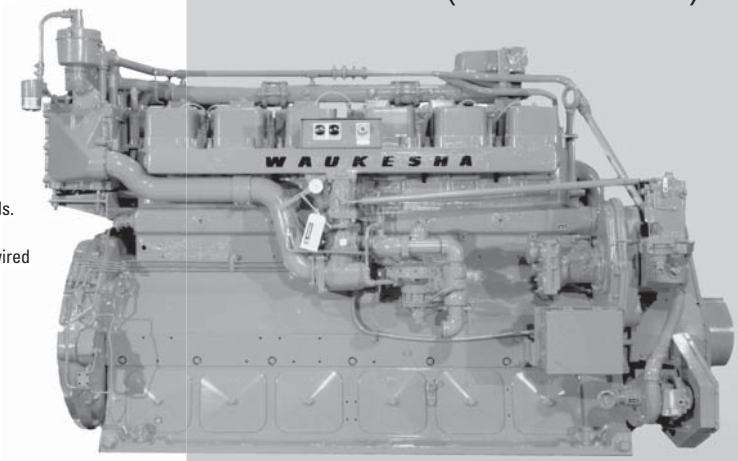
F3521G

STANDARD EQUIPMENT

AIR CLEANER – 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.
CYLINDER HEADS - Six interchangeable, valve-in-head type. Two hard faced exhaust valves per cylinder. Hard faced intake and exhaust valve seat inserts. Roller valve lifters and hydraulic push rods.
ENGINE MONITOR DEVICES – Engine thermocouples, K-type, are wired to a common junction box for jacket water temperature, lube oil temperature and intake manifold temperature. Magnetic pickup wired for customer supplied tachometer. Lube oil pressure and intake manifold pressure sensing lines are terminated in a common bulk head.
ENGINE ROTATION – Counterclockwise when facing flywheel.
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 – Natural gas, 4" (102 mm) updraft. Fisher Model S-201 2" (51 mm) gas regulator, 13 psi (89 kPa) maximum inlet pressure.
GOVERNOR – Woodward UG-8LD 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.
LEVELING BOLTS
LIFTING EYES – Requires 9.5 ton Working Load Limit (W.L.L.) anchor shackles.
LUBRICATION – Full pressure. Gear type pump. Full flow filter, 20 gallon (76 litres) capacity, not mounted. Includes flexible connections. Includes lube oil strainer, mounted on engine. Air/gas motor driven prelube pump. Requires final piping.
MANIFOLD – Exhaust, water cooled, vertical 5" (127 mm) pipe flange at rear and flexible stainless steel exhaust connection.
OIL COOLER – Shell and tube type, with thermostatic temperature controller. Mounted on left hand side.
OIL PAN – Base type. 66 gallon (250 litres) capacity including filter.
PAINT – Oilfield orange primer.
PISTONS – Aluminum with floating pin. Standard 10:1 compression ration. Oil cooled.
SHIPPING SKID – For domestic truck or rail.
VIBRATION DAMPER – Viscous type. Guard included with remote mounted radiator or no radiator.
WATER CIRCULATING SYSTEM, AUXILIARY CIRCUIT – For oil cooler. Pump is belt driven from crankshaft pulley.
WATER CIRCULATING SYSTEM, ENGINE JACKET – Belt driven water circulating pump, cluster type thermostatic temperature regulating valve, full flow bypass type with 165° - 170°F (74° - 77°C) start to open thermostats. Flange connections and mating flanges for 4" (102 mm) inlet and outlet.

VHP® Series Gas Engine

366 - 515 BHP (273 - 384 kWb)



Model F3521G

Six Cylinder, Four-Cycle Gas Fueled Engine

SPECIFICATIONS

Cylinders
Inline 6
Piston Displacement
3520 cu. in. (58 L)
Bore & Stroke
9.375" x 8.5" (238 x 216 mm)
Compression Ratio
10:1
Jacket Water System Capacity
48.5 gal. (184 L)
Lube Oil Capacity
72 gal. (273 L)
Starting System
50 - 150 psi air/gas
24 V DC electric
Dry Weight
14,500 lb. (6577 kg)

CONTINUOUS POWER RATINGS: F3521G VHP® SERIES GAS ENGINES

		Brake Horsepower (kWb Output)			
Model	C.R.	800 rpm	900 rpm	1000 rpm	1200 rpm
F3521G	10:1	366 (273)	409 (305)	448 (334)	515 (384)

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, with a 91 WKI®. For conditions or fuels other than standard, contact the Dresser Waukesha Application Engineering Department.

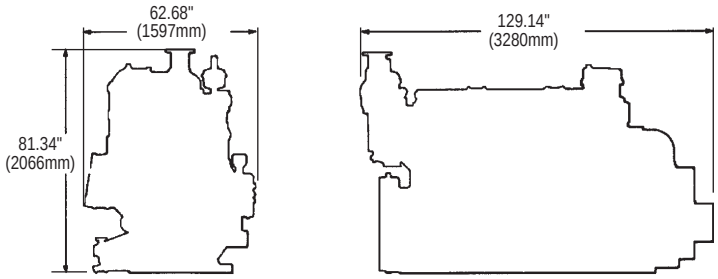
PERFORMANCE: F3521G VHP® SERIES GAS ENGINES

	English			Metric		
3-Way Catalyst Settings	RPM	1200	1000	RPM	1200	1000
	Power (Bhp)	515	448	Power (kWb)	384	334
	BSFC (Btu/bhp-hr)	7301	7269	BSFC (kJ/kW-hr)	10330	10284
	NOx (grams/bhp-hr)	13.0	13.0	NOx (g/nm^3)	4.8	4.8
	CO (grams/bhp-hr)	9.0	9.0	CO (g/nm^3)	3.3	3.3
	NMHC (grams/bhp--hr)	0.3	0.3	NMHC (g/nm^3)	0.12	0.12

NOTES:

1) Fuel consumption and exhaust emissions are based on ISO 3046/1-1995 standard reference conditions and commercial quality natural gas of 900 Btu/ft^3 (35.38 MJ/m^3 [25, V(0; 101.325)]) saturated lower heat value, Waukesha Knock Index® of 91 and 93% methane content by volume. ISO 3046/1-1995 standard reference conditions are 77°F (25°C) ambient temperature, 29.54 inches Hg (100 kPa) barometric pressure, 30% relative humidity (1kPa/0.3 inches Hg water vapor pressure).
2) S.I. exhaust emissions are corrected to 5% O_2 (0°C and 101.325 kPa).
3) Data will vary due to variations in site conditions. For conditions and/or fuels other than standard, consult the Dresser Waukesha Application Engineering Department.
4) Fuel consumption bassed on ISO 3046/1-1995 with a +5% tolerance for commercial quality natural gas having a 900 Btu/ft^3 saturated low heat valve

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.



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DRESSER® Waukesha

www.dresser.com

HEAT BALANCE DATA — MODEL F3521G NATURAL GAS 10:1 CR								
	BMEP	ENGINE SPEED — RPM						
		600	700	800	900	1000	1100	1200
HORSEPOWER	110	293	342	391	440	489	538	587
	100	267	311	356	400	445	489	534
	90	240	280	320	360	400	440	480
	80	214	249	285	320	354	391	427
	70	187	218	249	280	311	342	373
	60	160	187	214	240	267	294	320
	50	133	156	178	200	222	244	267
	40	107	125	142	160	178	196	214
FUEL CONSUMPTION (BTU/MIN)	110	35,135	40,814	46,462	52,401	58,324	64,485	70,436
	100	32,739	37,782	43,040	48,334	53,917	59,436	64,981
	90	30,259	34,775	39,506	44,388	49,411	54,431	59,432
	80	27,946	31,954	36,269	40,587	45,049	49,816	54,429
	70	25,544	29,081	32,943	36,849	40,401	45,121	49,112
	60	23,197	26,330	29,770	33,186	36,843	40,531	44,010
	50	20,595	23,517	26,367	29,488	32,722	35,848	39,016
	40	18,180	20,693	23,090	25,876	28,678	31,433	34,153
HEAT REJECTION TO JACKET WATER (BTU/MIN)	110	11,368	13,269	15,170	17,072	18,973	20,874	22,775
	100	10,546	12,284	14,062	15,800	17,577	19,315	21,093
	90	9,720	11,340	12,960	14,580	16,200	17,820	19,440
	80	8,988	10,458	11,970	13,440	14,868	16,422	17,934
	70	8,228	9,592	10,956	12,320	13,648	15,048	16,412
	60	7,424	8,676	9,929	11,136	12,388	13,641	14,848
	50	6,583	7,722	8,811	9,900	10,989	12,078	13,216
	40	5,735	6,700	7,611	8,576	9,540	10,505	11,470
HEAT REJECTION TO EXHAUST (BTU/MIN)	110	7,739	9,163	10,555	12,237	13,906	15,811	17,507
	100	7,330	8,527	9,834	11,264	12,897	14,554	16,147
	90	6,949	7,905	9,076	10,398	11,861	13,321	14,762
	80	6,502	7,321	8,356	9,458	10,851	12,247	13,508
	70	6,092	6,727	7,688	8,691	9,387	11,161	12,250
	60	5,756	6,289	7,117	8,016	9,062	10,138	11,100
	50	5,227	5,827	6,460	7,358	8,373	9,238	10,127
	40	4,787	5,375	5,954	6,814	7,693	8,522	9,254
HEAT REJECTION TO OIL (BTU/MIN)	110	1,714	2,000	2,287	2,574	2,860	3,147	3,433
	100	1,628	1,897	2,171	2,440	2,714	2,982	3,257
	90	1,512	1,764	2,016	2,268	2,520	2,772	3,024
	80	1,476	1,718	1,966	2,208	2,442	2,697	2,946
	70	1,383	1,613	1,842	2,072	2,301	2,530	2,760
	60	1,304	1,524	1,744	1,956	2,176	2,396	2,608
	50	1,223	1,435	1,637	1,840	2,042	2,244	2,456
	40	1,193	1,393	1,583	1,784	1,984	2,185	2,386

HEAT BALANCE DATA — MODEL F3521G NATURAL GAS 10:1 CR								
	BMEP	ENGINE SPEED — RPM						
		600	700	800	900	1000	1100	1200
EXHAUST TEMPERATURE (°F)	110	848	934	982	1,018	1,038	1,054	1,062
	100	850	923	972	1,009	1,033	1,050	1,060
	90	850	912	962	998	1,025	1,047	1,056
	80	842	898	949	986	1,018	1,042	1,052
	70	826	881	934	973	1,010	1,035	1,047
	60	805	863	916	959	1,000	1,027	1,040
	50	777	840	895	945	987	1,017	1,026
	40	745	816	870	930	972	1,003	1,020
EXHAUST FLOW (CFM)	110	1,348	1,534	1,746	1,981	2,236	2,528	2,792
	100	1,276	1,434	1,612	1,830	2,077	2,330	2,576
	90	1,209	1,336	1,502	1,681	1,911	2,135	2,358
	80	1,136	1,245	1,390	1,554	1,757	1,966	2,161
	70	1,073	1,153	1,286	1,432	1,617	1,796	1,963
	60	1,008	1,077	1,201	1,328	1,477	1,636	1,783
	50	941	1,019	1,106	1,226	1,372	1,504	1,635
	40	810	944	1,026	1,142	1,268	1,385	1,497
INDUCTION AIR REQUIREMENT (CFM)	110	493	539	592	657	736	815	901
	100	470	506	552	615	684	756	835
	90	440	476	519	578	638	697	763
	80	417	447	486	536	593	644	699
	70	398	412	453	500	546	592	638
	60	375	401	427	467	506	546	585
	50	351	378	407	431	467	503	539
	40	338	355	381	407	434	463	493

NOTES:

1. 6 Cylinder 9-3/8 in. Bore x 8-1/2 in. stroke, 3520 Cu. In. Displacement, water cooled exhaust manifold.
2. LB/MIN EXH. = CFM x 0.0745 x $\frac{520}{\text{EXH.TEMP.} + 460}$

DRESSER Waukesha	HEAT BALANCE DATA MODEL F3521G NATURAL GAS 10:1 CR	DR: GERARD DATE: 1/76 APP'D: OFM	Ref. S 6124-2

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

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

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. Emission factors are based on an average natural gas higher heating value of 1,020 Btu/scf. To convert from $1b/10^6$ scf to lb/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. SCC = Source Classification Code. ND = no data. NA = not applicable.

[b] Expressed as NO_2. For large and small wall fired boilers with SNCR control, apply a 24 percent reduction to the appropriate NO_X emission factor. For tangential-fired boilers with SNCR control, apply a 13 percent reduction to the appropriate NO_X emission factor.

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

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

Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
CO_2[b]	120,000	A
Lead	0.0005	D
N_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.

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.

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

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

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

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

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

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

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

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

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

where:

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

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

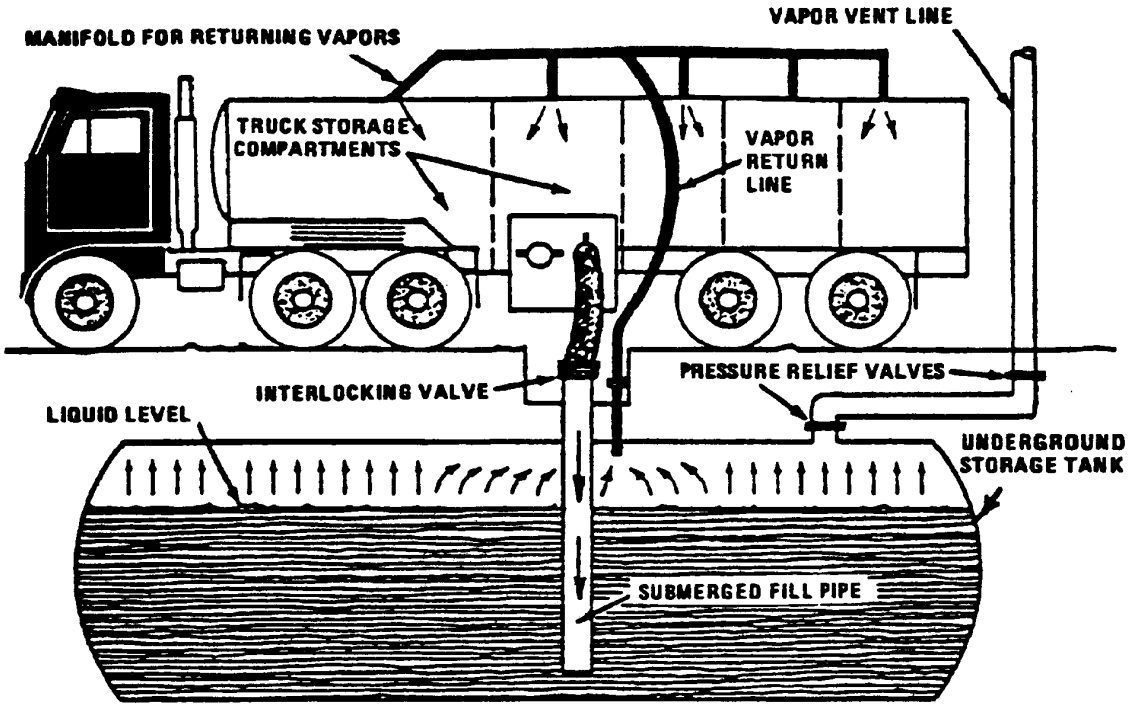

Figure 5.2-5. Tank truck unloading into a service station underground storage tank and practicing "vapor balance" form of emission control.

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

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

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

The saturation factor, S, represents the expelled vapor's fractional approach to saturation, and it accounts for the variations observed in emission rates from the different unloading and loading methods. Table 5.2-1 lists suggested saturation factors.

Emissions from controlled loading operations can be calculated by multiplying the uncontrolled emission rate calculated in Equation 1 by an overall reduction efficiency term:

$$\left(1 - \frac{\text{eff}}{100}\right)$$

The overall reduction efficiency should account for the capture efficiency of the collection system as well as both the control efficiency and any downtime of the control device. Measures to reduce loading emissions include selection of alternate loading methods and application of vapor recovery equipment. The latter captures organic vapors displaced during loading operations and recovers the vapors by the use of refrigeration, absorption, adsorption, and/or compression. The recovered product is piped back to storage. Vapors can also be controlled through combustion in a thermal oxidation unit, with no product recovery. Figure 5.2-6 demonstrates the recovery of gasoline vapors from tank trucks during loading operations at bulk terminals. Control efficiencies for the recovery units range from 90 to over 99 percent, depending on both the nature of the vapors and the type of control equipment used.[5-6] However, not all of the displaced vapors reach the control device, because of leakage from both the tank truck and collection system. The collection efficiency should be assumed to be 99.2 percent for tanker trucks passing the MACT-level annual leak test (not more than 1 inch water column pressure change in 5 minutes after pressurizing to 18 inches water followed by pulling a vacuum of 6 inches water).[7] A collection efficiency of 98.7 percent (a 1.3 percent leakage rate) should be assumed for trucks passing the NSPS-level annual test (3 inches pressure change) A collection efficiency of 70 percent should be assumed for trucks not passing one of these annual leak tests[6].

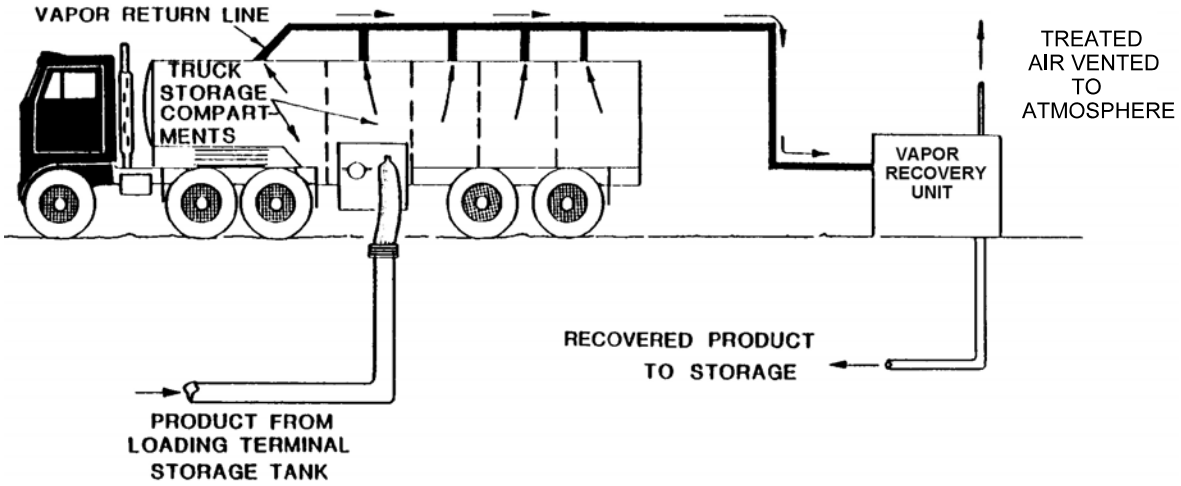

Figure 5.2-6. Tank truck loading with vapor recovery.

Description:	La Jara Station		Company:	HARVEST MIDSTREAM
Field:			WorkOrder:	
Meter Number:			GPA Method:	GPA 2286
Analysis Date/Time:	1/7/2020	3:01:21	Sampled By:	Bobby Snell
Date Sampled:	12/31/2019		Analyst Initials:	PK
Sample Temperature:	53		Instrument:	SRI 8610
Sample Pressure:	187			

GRI GlyCalc Information

Component	Mol%	Normalized Weight %
Carbon Dioxide	1.6565	3.6021
Hydrogen Sulfide	N/R	0
Nitrogen	1.0688	1.4794
Methane	82.6372	65.5048
Ethane	8.0037	11.8915
Propane	3.8334	8.3523
Iso-Butane	0.6777	1.9462
n-Butane	1.1402	3.2745
Iso-Pentane	0.3515	1.2531
n-Pentane	0.2576	0.9183
Cyclopentane	0.0098	0.034
n-Hexane	0.0702	0.3131
Cyclohexane	0.0237	0.0986
Other Hexanes	0.1446	0.7159
Heptanes	0.0446	0.2208
Methylcyclohexane	0.0379	0.1839
2 2 4 Trimethylpentane	0.0024	0.0135
Benzene	0.0096	0.0371
Toluene	0.0113	0.0514
Ethylbenzene	0.0022	0.0115
Xylenes	0.0004	0.0021
C8+ Heavies	0.017	0.0959
Subtotal	100.0003	
Oxygen	N/R	
Subtotal	100.0003	100

Calculated Molecular Weight	20.2389

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

Analysis No: HM200001
Cust No: 33700-10410

Well/Lease Information

Customer Name:	HARVEST MIDSTREAM	Source:	Station Inlet
Well Name:	La Jara Station	Well Flowing:	
County/State:		Pressure:	192 PSIG
Location:		Flow Temp:	53 DEG. F
Lease/PA/CA:		Ambient Temp:	31 DEG. F
Formation:		Flow Rate:	265 MCF/D
Cust. Stn. No.:		Sample Method:	Purge & Fill
		Sample Date:	12/31/2019
		Sample Time:	1.30 PM
		Sampled By:	Bobby Snell
Heat Trace:	N	Sampled by (CO):	Harvest Mid
Remarks:	Calculated Moleculare Weight = 20.2389		

Analysis

Component:	Mole%:	Unormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	1.0688	1.0543	0.1180	0.00	0.0103
CO2	1.6565	1.6340	0.2840	0.00	0.0252
Methane	82.6372	81.5147	14.0510	834.64	0.4577
Ethane	8.0037	7.8950	2.1470	141.64	0.0831
Propane	3.8334	3.7813	1.0590	96.45	0.0584
Iso-Butane	0.6777	0.6685	0.2220	22.04	0.0136
N-Butane	1.1385	1.1230	0.3600	37.14	0.0228
Neopentane 2,2 dmc3	0.0017	0.0017	0.0010	0.07	0.0000
I-Pentane	0.3515	0.3467	0.1290	14.06	0.0088
N-Pentane	0.2576	0.2541	0.0940	10.33	0.0064
Neohexane	0.0009	N/R	0.0000	0.04	0.0000
2-3-Dimethylbutane	0.0094	N/R	0.0040	0.45	0.0003
Cyclopentane	0.0098	N/R	0.0030	0.37	0.0002
2-Methylpentane	0.0635	N/R	0.0260	3.01	0.0019
3-Methylpentane	0.0282	N/R	0.0120	1.34	0.0008
C6	0.0702	0.3683	0.0290	3.34	0.0021
Methylcyclopentane	0.0426	N/R	0.0150	1.92	0.0012
Benzene	0.0096	N/R	0.0030	0.36	0.0003
Cyclohexane	0.0237	N/R	0.0080	1.06	0.0007
2-Methylhexane	0.0091	N/R	0.0040	0.50	0.0003
3-Methylhexane	0.0086	N/R	0.0040	0.47	0.0003
2-2-4-Trimethylpentane	0.0024	N/R	0.0010	0.15	0.0001
i-heptanes	0.0059	N/R	0.0030	0.31	0.0002
Heptane	0.0210	N/R	0.0100	1.16	0.0007

Methylcyclohexane	0.0379	N/R	0.0150	1.98	0.0013
Toluene	0.0113	N/R	0.0040	0.51	0.0004
2-Methylheptane	0.0056	N/R	0.0030	0.35	0.0002
4-Methylheptane	0.0028	N/R	0.0010	0.17	0.0001
i-Octanes	0.0025	N/R	0.0010	0.15	0.0001
Octane	0.0052	N/R	0.0030	0.32	0.0002
Ethylbenzene	0.0022	N/R	0.0010	0.11	0.0001
m, p Xylene	0.0002	N/R	0.0000	0.01	0.0000
o Xylene (& 2,2,4 tmc7)	0.0002	N/R	0.0000	0.01	0.0000
i-C9	0.0004	N/R	0.0000	0.03	0.0000
C9	0.0005	N/R	0.0000	0.03	0.0000
i-C10	0.0000	N/R	0.0000	0.00	0.0000
C10	0.0000	N/R	0.0000	0.00	0.0000
i-C11	0.0000	N/R	0.0000	0.00	0.0000
C11	0.0000	N/R	0.0000	0.00	0.0000
C12P	0.0000	N/R	0.0000	0.00	0.0000
Total	100.00	98.642	18.615	1174.51	0.6980

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

COMPRESSIBLITY FACTOR (1/Z):	1.0032	CYLINDER #:	11
BTU/CU.FT IDEAL:	1177.2	CYLINDER PRESSURE:	187 PSIG
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	1181.0	ANALYSIS DATE:	01/07/2020
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	1160.5	ANALYIS TIME:	03:01:21 AM
DRY BTU @ 15.025:	1204.7	ANALYSIS RUN BY:	PATRICIA KING
REAL SPECIFIC GRAVITY:	0.6999		

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: 01/08/2020**
GC Method: C12+BTEX Gas

HARVEST MIDSTREAM

WELL ANALYSIS COMPARISON

Lease: La Jara Station | Station Inlet | 01/08/2020

Stn. No.: | | 33700-10410

Mtr. No.:

Smpl Date:	12/31/2019
Test Date:	01/07/2020
Run No:	HM200001
Nitrogen:	1.0688
CO2:	1.6565
Methane:	82.6372
Ethane:	8.0037
Propane:	3.8334
I-Butane:	0.6777
N-Butane:	1.1385
2,2 dmc3:	0.0017
I-Pentane:	0.3515
N-Pentane:	0.2576
Neohexane:	0.0009
2-3-	0.0094
Cyclopentane:	0.0098
2-Methylpentane:	0.0635
3-Methylpentane:	0.0282
C6:	0.0702
Methylcyclopentane:	0.0426
Benzene:	0.0096
Cyclohexane:	0.0237
2-Methylhexane:	0.0091
3-Methylhexane:	0.0000
2-2-4-	0.0024
i-heptanes:	0.0059
Heptane:	0.0210
Methylcyclohexane:	0.0379
Toluene:	0.0113
2-Methylheptane:	0.0056
4-Methylheptane:	0.0028
i-Octanes:	0.0025
Octane:	0.0052
Ethylbenzene:	0.0022
m, p Xylene:	0.0002
o Xylene (& 2,2,4	0.0002
i-C9:	0.0004
C9:	0.0005
i-C10:	0.0000
C10:	0.0000
i-C11:	0.0000
C11:	0.0000
C12P:	0.0000
BTU:	1181.0
GPM:	18.6310
SPG:	0.6999

Houston Laboratories
8820 Interchange Drive
Houston, TX 77054
Phone 713-660-0901

Certificate of Analysis

Number: 1030-19071057-001B

Aug. 06, 2019

Environmental Department
Harvest Midstream
1755 Arroyo Dr.
Bloomfield, NM 87413

Station Name: La Jara Compressor Station
Method: GPA 2186
Cylinder No: CP17
Analyzed: 08/05/2019 09:36:31 by JB

Sampled By: AB
Sample Of: Liquid Spot
Sample Date: 07/19/2019 09:20
Sample Conditions: 205 psig

Analytical Data

Components	Mol. %	Wt. %	L.V. %
Nitrogen	0.024	0.008	0.007
Methane	3.600	0.698	1.585
Carbon Dioxide	0.226	0.120	0.100
Ethane	3.117	1.132	2.165
Propane	5.504	2.932	3.938
Iso-Butane	2.263	1.589	1.923
n-Butane	5.606	3.936	4.590
Iso-Pentane	4.652	4.055	4.419
n-Pentane	4.934	4.301	4.645
i-Hexanes	15.862	16.337	16.694
n-Hexane	6.903	7.186	7.376
Benzene	1.092	1.031	0.794
Cyclohexane	4.265	4.337	3.769
i-Heptanes	13.774	15.786	14.938
n-Heptane	4.339	5.253	5.199
Toluene	2.927	3.258	2.546
i-Octanes	13.490	17.204	15.687
n-Octane	1.376	1.899	1.831
Ethylbenzene	0.174	0.224	0.175
Xylenes	1.544	1.982	1.550
i-Nonanes	2.414	3.543	3.169
n-Nonane	0.513	0.795	0.752
i-Decanes	0.879	1.439	1.271
Decanes Plus	0.522	0.955	0.877
	100.000	100.000	100.000

Calculated Physical Properties	Total	C10+
API Gravity at 60°F	76.2153	54.9797
Pounds per Gallon (in Air)	5.673	6.319
Pounds per Gallon (in Vacuum)	5.679	6.326
Cu. Ft. Vapor per Gallon @ 14.696 psia	26.039	16.916
Specific Gravity at 60°F	0.6812	0.7588
Molecular Weight	82.771	141.915
BTU / GAL. (as a vapor)	116774	128786
BTU / LB. (as a vapor)	20561	20355

Tom Berry

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.

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

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

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

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

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

PS Memo 09-02

To: **Stationary Sources Program, Local Agencies, and Regulated Community**

From: **Chris Laplante and Roland C. Hea, Colorado Air Pollution Control Division**

Date: **February 8, 2010**

Subject: **Oil & Gas Produced Water Tank Batteries**
Regulatory Definitions and Permitting Guidance

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

Revision History

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

Topic **Page**

3. EMISSION FACTORS AND SITE SPECIFIC SAMPLING Q&A

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Emission Factor Determination for Produced Water Storage Tanks

TCEQ Project 2010-29

Prepared for:
Texas Commission on Environmental Quality
Austin, Texas

Prepared by:
ENVIRON International Corporation
Novato, California

Date:
August 2010

ENVIRON Project Number:
06-17477T

Executive Summary

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

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

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

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

Table ES-1. Recommended Emission Factors and Comparative Data

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

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.

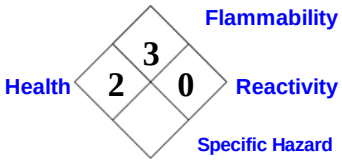
[6]Hydrocarbon liquids less than 20°API are considered “heavy crude.”

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)

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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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Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME	Bactron® K-87 Microbiocide
PRODUCT USE	Biocide
COMPANY MAILING ADDRESS	Champion Technologies, Inc. P.O. Box 450499 Houston, TX, 77245 USA
EMERGENCY TELEPHONE NUMBERS 24 HRS.	1-800-424-9300 (CHEMTREC) 1-703-527-3887 (CHEMTREC - International) 1-613-996-6666 (CANUTEC - Canada) 1-281-431-2561 (Champion)

2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS-NO.	WEIGHT %
Glutaraldehyde	111-30-8	10.0 - 30.0
Alkyl dimethyl ethylbenzyl ammonium chloride (68%C12, 32%C14)	85409-23-0	5.0 - 10.0
Quaternary ammonium compounds, benzyl-C12-18-alkyldimethyl, chlorides	68391-01-5	5.0 - 10.0
Ethanol	64-17-5	0.1 - 1.0

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
DANGER!

APPEARANCE & ODOR	Clear Colorless, Liquid , Sharp Acrid
HEALTH HAZARDS	Toxic, Corrosive, May cause sensitization by inhalation., May cause sensitization by skin contact.
PHYSICAL HAZARDS	This product is not expected to be a fire hazard.

HEALTH HAZARDS

SKIN	Causes burns. May cause sensitization by skin contact.
EYE	Causes burns.
INHALATION	Causes burns. Toxic by inhalation. May cause sensitization by inhalation.
INGESTION	Causes burns. Harmful if swallowed.
POTENTIAL ENVIRONMENTAL EFFECTS	Prevent product from entering drains (waterways).

4. FIRST AID MEASURES

SKIN	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician immediately.
EYE	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.
INHALATION	Move to fresh air. Call a physician immediately. Give artificial respiration if not breathing.
INGESTION	Call a physician immediately. Immediately give large quantities of water to drink. Never give anything by mouth to an unconscious person.

5. FIRE-FIGHTING MEASURES

FLASH POINT	> 200 °F (> 93 °C) PMCC
EXTINGUISHING MEDIA	Water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
SPECIAL HAZARDS	Vapors are heavier than air and may travel considerable distance along the ground or be moved by ventilation to ignition sources. Empty product containers may contain product residue. Do not pressurize, cut, heat, weld or expose containers to flame or other sources of ignition.
SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS	Wear positive-pressure self-contained breathing apparatus (SCBA) and full protective fire fighting gear. Equipment should be thoroughly decontaminated after use.
HAZARDOUS COMBUSTION PRODUCTS	Combustion products may include carbon monoxide, carbon dioxide and nitrogen oxides.
FIRE FIGHTING / FURTHER ADVICE	Evacuate area and fight fire from safe distance. Use water spray to cool fire exposed structures and to protect personnel. Shut off source of flow if possible. If a leak or spill has not ignited, use water spray to disperse the vapors.

6. ACCIDENTAL RELEASE MEASURES

CLEAN UP METHODS	Eliminate all ignition sources. No flares, smoking or flames in hazard area. Stop leak if you can do it without risk. Liquids may need to be neutralized before collection begins. Take up spill with sand or other noncombustible absorbent material and place in containers for later disposal. Always wear proper personal protective equipment when addressing spill or leak.
ENVIRONMENTAL PRECAUTIONS	Prevent product from entering drains (waterways).

7. HANDLING AND STORAGE

GENERAL PRECAUTIONS	Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary exposure and removal of material from eyes, skin and clothing. Wash thoroughly after handling. Avoid breathing vapor. Use only with adequate ventilation. Keep away from heat and sources of ignition. Take precautionary measures against static discharges.
STORAGE	Keep container closed when not in use. Store in cool, dry place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS

NAME	SOURCE	TYPE	PPM	MG/M3	NOTATION
Glutaraldehyde	ACGIH	Ceiling	0.05		
	NIOSH	Ceiling	0.2	0.8	
Ethanol	ACGIH	TWA	1,000		
	NIOSH	REL	1,000	1,900	
	OSHA	PEL	1,000	1,900	

*** = Can be absorbed through the skin.**

ENGINEERING MEASURES Provide general and/or local exhaust ventilation, process enclosures or other engineering controls to control airborne levels below exposure guidelines.

RESPIRATORY PROTECTION When respiratory protection is required, use an approved air purifying respirator or positive-pressure supplied-air respirator depending on potential airborne concentration.

HAND PROTECTION Wear chemical-resistant gloves to prevent skin contact. Glove/protective clothing suppliers can provide recommendations for your specific applications. Wash immediately if skin is contaminated. Good personal hygiene practices such as properly handling contaminated clothing, using wash facilities before eating, drinking or smoking are essential for preventing personal chemical contamination. Contaminated gloves should be replaced.

EYE PROTECTION Use chemical splash goggles, safety glasses and/or face shield. An emergency eye wash fountain should be located in immediate work area.

BODY PROTECTION A safety shower should be located in the immediate work area. Remove contaminated clothing, wash skin with soap and water and launder clothing before reuse or dispose of properly.

9. PHYSICAL AND CHEMICAL PROPERTIES

FORM	Liquid
COLOR	Clear Colorless
ODOR	Sharp Acrid
ODOR THRESHOLD	Not available
BOILING POINT	Not available
POUR POINT	15 °F (-9 °C)
FLASH POINT	> 200 °F (> 93 °C) PMCC
LOWER EXPLOSION LIMIT	Not available
UPPER EXPLOSION LIMIT	Not available
AUTOIGNITION TEMPERATURE	Not available

EVAPORATION RATE	Not available	
pH	3.5 - 5.5	
SOLUBILITY	Water	
RELATIVE VAPOR DENSITY (AIR = 1)	Not available	
SPECIFIC GRAVITY (H2O = 1)	1.0539 - 1.0839	@ 60 °F (16 °C)
VAPOR PRESSURE	Not available	
VISCOSITY	10 - 20 cPs	
PARTITION COEFFICIENT (N-OCTANOL/WATER)	Not available	

10. STABILITY AND REACTIVITY

STABILITY	Stable
CONDITIONS TO AVOID	Flames, High temperatures, Evaporation of water
MATERIALS TO AVOID	Alkalies catalyze an aldol type condensation.
HAZARDOUS DECOMPOSITION PRODUCTS	Oxides of carbon
HAZARDOUS POLYMERIZATION	Will not occur

11. TOXICOLOGICAL INFORMATION

SUBSTANCE	SOURCE	GROUP	LIST ATTRIBUTE
CARCINOGENICITY			
Glutaraldehyde	ACGIH		Sensitiser.
	ACGIH	Group A4	Not classifiable as a human carcinogen.
Ethanol	ACGIH	Group A4	Not classifiable as a human carcinogen.

SENSITIZATION

The following component(s) may cause sensitization by skin contact:

Glutaraldehyde

The following component(s) may cause sensitization by inhalation:

Glutaraldehyde

12. ECOLOGICAL INFORMATION

No data is available on the product itself.

13. DISPOSAL CONSIDERATIONS

ADVICE ON DISPOSAL Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION

Refer to the bill of lading or container label for DOT or other transportation hazard classification. Additionally, be aware that shipping descriptions may vary based on mode of transport, shipment volume or weight, container size or type, and/or origin and destination. Consult your company's Hazardous Materials / Dangerous Goods expert or your legal counsel for information specific to your situation.

15. REGULATORY INFORMATION

FEDERAL REGULATORY STATUS

CERCLA

SUBSTANCE	REPORTABLE QUANTITY
Ethanol	100 lbs

STATE REGULATORY STATUS

STATE RIGHT TO KNOW

NEW JERSEY RIGHT-TO-KNOW CHEMICAL LIST

Hydrochloric acid

MASSACHUSETTS RIGHT-TO-KNOW CHEMICAL LIST

Ethanol
Glutaraldehyde
Hydrochloric acid

PENNSYLVANIA RIGHT-TO-KNOW CHEMICAL LIST

Ethanol
Glutaraldehyde
Hydrochloric acid

INVENTORY STATUS

NOTIFICATION STATUS

TSCA	Listed or Exempt

16. OTHER INFORMATION

NFPA RATING

HEALTH	2
FLAMMABILITY	2
INSTABILITY	0

Prepared By: Product Stewardship
Preparation Date: 04/16/2008

The data and information contained herein are being furnished for informational purposes only, upon the express condition that each customer shall make its own assessment of appropriate use and appropriate shipping, transfer and storage materials and procedures for Champion Technologies, Inc. products. Although based on information sources which Champion Technologies, Inc. considers accurate and reliable, Champion Technologies Inc. makes no warranty, either express or implied, including any

warranties or merchantability or fitness for a particular purpose, regarding the validity of this information, the information sources upon which the same are based, or the results to be obtained, and expressly disclaims liabilities for damages or injuries resulting from the use thereof.

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron Automatic Transmission Fluid MD-3

Product Use: Transmission Fluid
Product Number(s): CPS226502
Synonyms: Automatic Transmission Fluid, Chevron ATF DEXRON® III/MERCON®, DEXRON® - III, MERCON®
Company Identification
Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevron.com
Product Information: (800) LUBE TEK

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 99 %wt/wt
Alkyl phosphItes	Mixture	0.1 - 1 %weight

SECTION 3 HAZARDS IDENTIFICATION

****
EMERGENCY OVERVIEW

- HARMFUL TO AQUATIC ORGANISMS. MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT
****

IMMEDIATE HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin

is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.
Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

Leaks/ruptures in high pressure system using materials of this type can create a fire hazard when in the vicinity of ignition sources (eg. open flame, pilot lights, sparks, or electric arcs).

FIRE CLASSIFICATION:
OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:
Flashpoint: (Cleveland Open Cup) 178 °C (352 °F) Minimum
Autoignition: No data available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: DO NOT USE IN HIGH PRESSURE SYSTEMS in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed.
Keep out of the reach of children.
General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.
Respiratory Protection: No respiratory protection is normally required.
If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	10 mg/m3	--	--
Highly refined mineral oil (C15 - C50)	OSHA Z-1	5 mg/m3	--	--	--

Consult local authorities for appropriate values.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Red
Physical State: Liquid
Odor: Petroleum odor
pH: Not Applicable
Vapor Pressure: <0.01 mmHg @ 37.8 °C (100 °F)
Vapor Density (Air = 1): >1
Boiling Point: 315°C (599°F)
Solubility: Soluble in hydrocarbons; insoluble in water
Freezing Point: Not Applicable @ 15.6°C (60.1°F) / 15.6°C (60.1°F)
Density: 0.85 kg/l @ 15°C (59°F) (Typical)
Viscosity: 7 mm2/s @ 100°C (212°F) (Typical)

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS
Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.
Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product

components.
Skin Sensitization: The skin sensitization hazard is based on evaluation of data for similar materials or product components.
Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
This material is expected to be harmful to aquatic organisms and may cause long-term adverse effects in the aquatic environment. The ecotoxicity hazard is based on an evaluation of data for the components or a similar material.

ENVIRONMENTAL FATE
Ready Biodegradability: This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PETROLEUM LUBRICATING OIL, NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS

DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO TI OR IATA DGR

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES:

1.	Immediate (Acute) Health Effects:	NO
2.	Delayed (Chronic) Health Effects:	NO
3.	Fire Hazard:	NO
4.	Sudden Release of Pressure Hazard:	NO
5.	Reactivity Hazard:	NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

NEW JERSEY RTK CLASSIFICATION:
Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Automatic transmission fluid)

WHMIS CLASSIFICATION:
This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:
Label Category : INDUSTRIAL OIL 1 - IND1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 1-16
Revision Date: AUGUST 20, 2012

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the Chevron Energy Technology Company, 100 Chevron Way, Richmond, California 94802.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

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Section 8

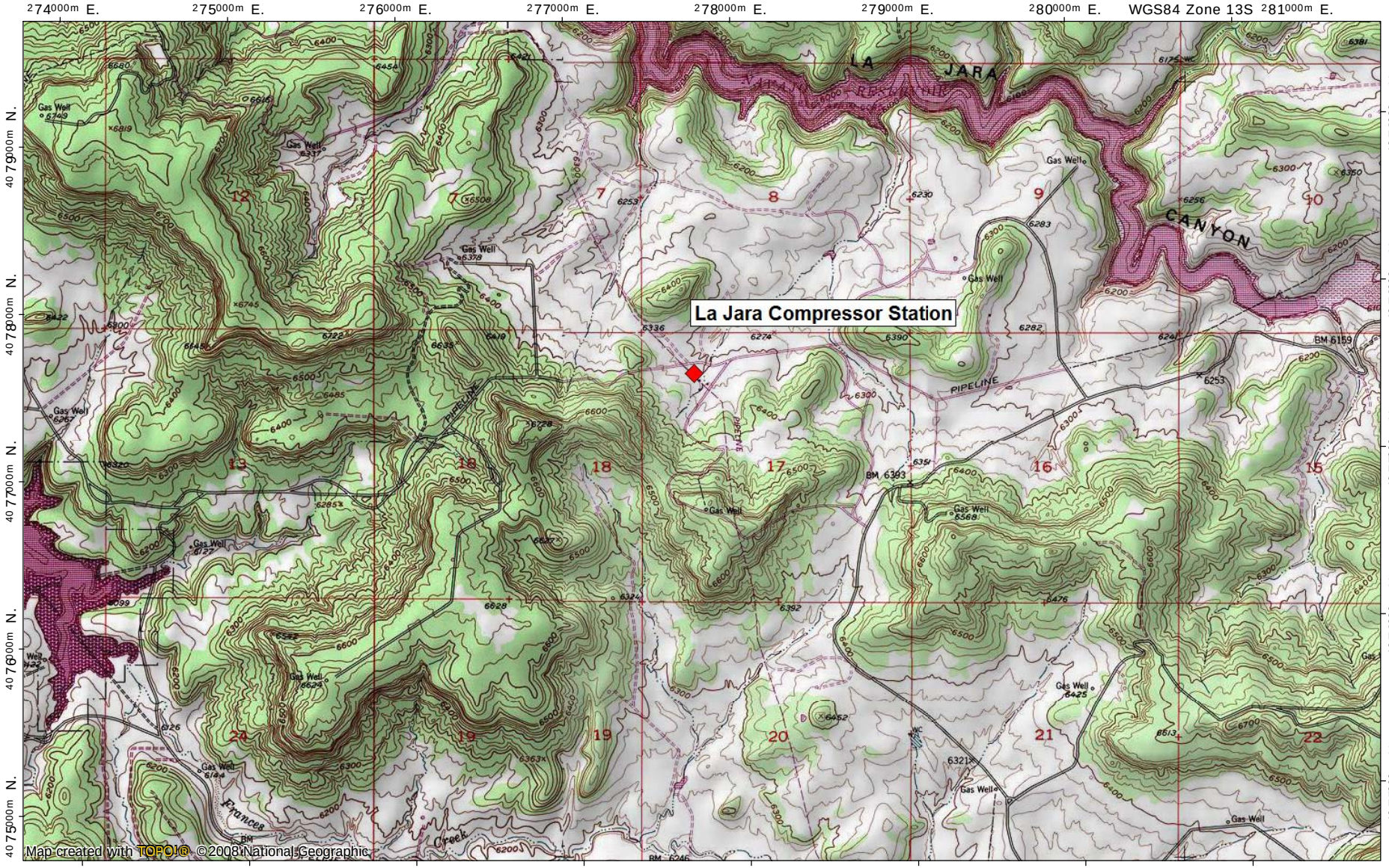
Map(s)

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

HARVEST FOUR CORNERS, LLC - LA JARA COMPRESSOR STATION - Rio Arriba County, NM T 30 N, R 06 W, Section 17



0.0 0.5 1.0 miles
0.0 0.5 1.0 1.5 km

TN MN 9°

10/15/19

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, since this is a Title V application.

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Section 10

Written Description of the Routine Operations of the Facility

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

The La Jara Compressor Station compresses pipeline quality natural gas.

The natural gas is received from independent producers and is metered as it enters the facility. As gas enters the facility, some water is separated from the stream via an inlet separator. The gas is then compressed for pipeline transmission using compressors driven by natural gas-fired turbines.

Condensate and produced water from pigging operations is stored in tanks. It is hauled off-site by truck, as required.

The facility is also equipped with a fuel gas heater, a standby generator, and miscellaneous liquid storage tanks.

The facility will operate up to 24 hours per day, seven days per week, 52 weeks per year, 8,760 hours per year.

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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)**:**

La Jara Compressor Station – natural gas compression 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, since this is a Title V application.

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 not a PSD application.

Section 13

Determination of State & Federal Air Quality Regulations

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

Required Information for Specific Equipment:

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

Required Information for Regulations that Apply to the Entire Facility:

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

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

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

Regulatory Citations for Emission Standards:

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

Federally Enforceable Conditions:

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

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

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

State Regulations

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

Table for STATE REGULATIONS:

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

STATE REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	1-4 & 6-9	This regulation is applicable because the facility is equipped with stationary combustion sources. Emissions from these combustion sources are limited to less than 20% opacity (see 20.2.61.109 NMAC). The regulation is not applicable to the Title V insignificant heaters (see 20.2.61.111.D NMAC).
20.2.70 NMAC	Operating Permits	Yes	Facility	This regulation is applicable because the facility is a major source of NO_2, CO & VOC emissions (see 20.2.70.200 NMAC).
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	This regulation is applicable because the facility is subject to 20.2.70 NMAC (see 20.2.71.6 NMAC).
20.2.72 NMAC	Construction Permits	Yes	Facility	This regulation is applicable because the facility has potential emission rates (PER) greater than 10 pph or 25 tpy for pollutants subject to a state or federal ambient air quality standards (does not include VOCs or HAPs).
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	The Notice of Intent 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	N/A	This regulation is applicable because the facility is a PSD major source. Under scenario 1, NO_2 emissions exceed 250 tpy.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	This regulation is applicable because the facility is subject to 20.2.72 NMAC and it establishes the fee schedule associated with the filing of construction permits (see 20.2.75.6 NMAC).
20.2.77 NMAC	New Source Performance	Yes	3,6 &7	This regulation is applicable because it adopts by reference the federal NSPS codified in 40 CFR 60 (see 20.2.77.6 NMAC). The facility is subject to 40 CFR 60, Subparts A and GG. If HFC elects scenarios 2, 3 or 4, the facility may also be subject KKKK and OOOOa.
20.2.78 NMAC	Emission Standards for HAPS	No	N/A	This regulation is not applicable because it incorporates by reference the NESHAPs codified under 40 CFR 61 (see 20.2.78.6 NMAC). The facility is not subject to 40 CFR 61.
20.2.79 NMAC	Permits – Nonattainment Areas	No	N/A	This regulation is not applicable because the facility is neither located in nor has a significant impact on a nonattainment area (see 20.2.79.6 NMAC).
20.2.80 NMAC	Stack Heights	Yes	1-4 & 6-9	This regulation is applicable because it establishes guidelines for the selection of an appropriate stack height for the purposes of atmospheric dispersion modeling (see 20.2.80.6 NMAC).
20.2.82 NMAC	MACT Standards for Source Categories of HAPS	Yes	4	This regulation is applicable because it adopts by reference the federal MACT Standards for source categories codified in 40 CFR 63 (see 20.2.82.6 NMAC). The engine at the facility is subject to 40 CFR 63, Subparts A & ZZZZ.

Federal Regulations

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

FEDERAL REGULATIONS APPLICABILITY CHECKLIST

FEDERAL REGULATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 50	NAAQS	Yes	Facility	This regulation is applicable because 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	Yes	Facility	40 CFR 52.21 *Prevention of Significant Deterioration of Air Quality* is applicable because the facility is a major Prevention of Significant Deterioration source. The remainder of 40 CFR 52 is not applicable because it addresses approval and promulgation of implementation plans.
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	1, 7 & 13	This regulation is applicable because 40 CFR Part 60 is applicable. Subparts A & GG are applicable to Units 3, 6 & 7. Subparts KKKK and OOOOa may be applicable if HFC elects to install one or both of the new turbines (see §60.1(a)).
NSPS 40 CFR 60, Subpart K	Standards of Performance for Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978	No	N/A	This regulation is not applicable because the petroleum liquids storage tanks at the facility have capacities less than the minimum applicability threshold capacity of 40,000 gallons (see §60.110(a)). For tank capacities and contents, see Tables 2-A & 2-B in Section 2 of this application.
NSPS 40 CFR 60, Subpart Ka	Standards of Performance for Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984	No	N/A	This regulation is not applicable because the storage tanks at the facility have capacities less than the minimum applicability threshold capacity of 40,000 gallons (see §60.110a(a)). For tank capacities and contents, see Tables 2-A & 2-B in Section 2 of this application.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
NSPS 40 CFR 60, Subpart Kb	Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984	No	N/A	This regulation is not applicable because all storage tanks at the facility have capacities less than the minimum applicability threshold capacity of 75 cubic meters (19,812 gallons), and/or construction, modification or reconstruction commenced prior to July 23, 1984, and/or they contain condensate prior to custody transfer (see §60.110b(a) & §60.110b(d)(4)). For tank capacities and contents, see Tables 2-A & 2-B in Section 2 of this application. Note that the condensate tanks contain condensate prior to custody transfer. Commenced construction means a continuous program of fabrication, erection or installation (see §60.2). Modification means any physical change in or change in the method of operation of and existing facility which increases emissions or results in new emissions (see §60.2). The following, by themselves, are not modifications: routine maintenance, repair or replacement, production increase without capital expenditure, increase in hours of operation, addition of emission controls, or the relocation or change in ownership of an existing facility (see §60.14). Reconstruction means the replacement of components of an existing facility such that the fixed capital cost of the new components exceeds 50 % of the fixed capital cost required to construct a comparable entirely new facility. Fixed capital cost means the capital needed to provide all the depreciable components (see §60.15).
NSPS 40 CFR 60 Subpart GG	Standards of Performance for Stationary Gas Turbines	Yes	3, 6 & 7	This regulation applies to Units 3, 6 & 7 because they were constructed after the applicability date of October 3, 1977 and have heat inputs at peak load greater than 10.15 MMBtu/hr (see §60.330). The exemptions in §60.332(e) & (j) do not apply. The regulation does not apply to the remaining turbines (Units 1 & 2), as construction commenced prior to October 3, 1977. Nor have they been modified or reconstructed. See the definitions of construction, modification, and reconstruction referenced in Subpart Kb above. The turbines must comply with the NO_X limits in §60.333(a)(2) & (c) and the sulfur limits in §60.333.
NSPS 40 CFR 60, Subpart KKK	Standards of Performance for Equipment Leaks of VOC from Onshore Gas Plants	No	N/A	This regulation is not applicable because the facility is not an onshore natural gas processing plant as defined by the subpart (see §60.630(a)(1)). Natural gas processing plant (gas plant) means any processing site engaged in the extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids to natural gas products, or both (see §60.631).
NSPS 40 CFR 60, Subpart LLL	Standards of Performance for Onshore Natural Gas Processing: SO_2 Emissions	No	N/A	This regulation is not applicable because the facility is not a natural gas processing plant as defined by the subpart. It is not equipped with a sweetening unit (see §60.640(a)).
NSPS 40 CFR 60, Subpart IIII	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	No	N/A	This regulation is not applicable because the facility is not equipped with a stationary compression ignition (CI) internal combustion engine (ICE) that commenced construction after July 11, 2005 and was manufactured after April 1, 2006 (see §60.4200(a)(2)(i)). For the purpose of this subpart, construction commences on the date the engine is ordered by the owner or operator (see §60.4200(a)).
NSPS 40 CFR 60, Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	No	N/A	This regulation is not applicable because the facility is not equipped with spark ignition (SI) internal combustion engines (ICE) constructed, modified, or reconstructed after June 12, 2006. Unit 4 was constructed in 1981 and has not been modified or reconstructed. See the definitions of construction, modification, and reconstruction referenced in Subpart Kb above.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
NSPS 40 CFR 60, Subpart KKKK	Standards of Performance for Stationary Combustion Turbines	Potentially Subject	N/A	This regulation is not applicable because the turbines at the station (Units 1-3, 6 & 7) commenced construction prior to February 18, 2005 (see §60.4305(a)). They have not been modified or reconstructed. See the definitions of construction, modification, and reconstruction referenced in Subpart Kb above. If HFC elects to install Units 8 and/or 9, Subpart KKKK may be applicable.
NSPS 40 CFR 60, Subpart OOOO	Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution for which Construction, Modification or Reconstruction Commenced After August 23, 2011 and On or Before September 18, 2015	No	N/A	This regulation is not applicable because the facility is not equipped with "affected" sources that commenced construction, modification or reconstruction after August 23, 2011 and on or before September 18, 2015: gas wells, centrifugal or reciprocating compressors, pneumatic controllers, and storage vessels (see §60.5365). Note that the facility is not a natural gas processing plant as defined by the subpart (see §60.5430). See the definitions of construction, modification, and reconstruction referenced in Subpart Kb above.
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	N/A	This regulation is not applicable because the facility is not currently equipped with "affected" sources that commenced construction, modification or reconstruction after September 18, 2015: gas wells, centrifugal or reciprocating compressors, pneumatic controllers, storage vessels, sweetening units, pneumatic pumps, and equipment leaks (see §60.5365a). In general, this regulation may apply if existing affected equipment is replaced or new affected equipment is installed. See the definitions of construction, modification, and reconstruction referenced in Subpart Kb above. In particular, this regulation will apply to fugitive emissions components at the facility if Units 8 and/or 9 (a turbine and compressor) are installed. Fugitive components monitoring is required if a compressor station is modified. For the purpose of fugitive components monitoring as required by this subpart, modification of a compressor station is the addition of a compressor or replacement of a compressor with a larger unit (greater total horsepower) (see §60.5365a(j)). Note that the facility is not a natural gas processing plant as defined by the subpart (see §60.5430a).
NESHAP 40 CFR 61, Subpart A	General Provisions	No	N/A	This regulation is not applicable because none of the other 40 CFR Part 61 subparts apply (see §61.01(c)).
NESHAP 40 CFR 61, Subpart V	National Emission Standards for Equipment Leaks (Fugitive Emission Sources)	No	N/A	This regulation is not applicable because none of the listed equipment at the facility is in VHAP service. The provisions of this subpart apply to each of the following sources that are intended to operate in volatile hazardous air pollutant (VHAP) service: pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, and control devices or systems required by this subpart (see §61.240(a)). VHAP service means a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 10 percent by weight of VHAP. VHAP means a substance regulated under this subpart for which a standard for equipment leaks of the substance has been promulgated (see §61.241).
MACT 40 CFR 63, Subpart A	General Provisions	Yes	4	This regulation is applicable because 40 CFR 63, Subpart ZZZZ applies (see §63.1(b)).

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
MACT 40 CFR 63, Subpart HH	National Emission Standards for Hazardous Air Pollutants For Oil and Natural Gas Production Facilities	No	N/A	This regulation is not applicable because the station is not equipped with affected equipment. The facility is a minor HAP source. Note that since it is a production field facility (located prior to the point of custody transfer), only HAP emissions from glycol dehydration units and storage vessels are aggregated for a major source determination. Storage vessels include crude oil tanks, condensate tanks, intermediate hydrocarbon liquid tanks, and produced water tanks (see §63.761). At minor HAP facilities, the regulation is only applicable to dehydrators (see §63.760(b)(2)). The facility is not equipped with a dehydrator.
MACT 40 CFR 63, Subpart HHH	National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities	No	N/A	This regulation is not applicable because the facility is not a natural gas transmission and storage facility as defined by the subpart. A compressor station that transports natural gas prior to the point of custody transfer or to a natural gas processing plant (if present) are not considered a part of the natural gas transmission and storage source category (see §63.1270(a)).
MACT 40 CFR 63, Subpart YYYY	National Emission Standards for Hazardous Air Pollutants From Stationary Combustion Turbines	No	N/A	This regulation is not applicable because the station is not a major HAP source as defined by the Subpart (see §63.6080). Note that for production field facilities, only HAP emissions from engines, turbines, dehydrators, and storage vessels with the potential for flash emissions are aggregated for the HAP major source determination (see §63.6175). The condensate storage tanks at the facility are not storage vessels with the potential for flash emissions as defined by the subpart. Their actual annual average hydrocarbon throughput is less than 79,500 liters per day (500 barrels per day) (see §63.6175)
MACT 40 CFR 63, Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT)	Yes	4	This regulation applies because the facility is equipped with a stationary RICE (Unit 4). The station is an area HAP source as defined by the subpart. For production field facilities, only HAP emissions from engines, turbines, dehydrators, and storage vessels with the potential for flash emissions are aggregated for the HAP major source determination (see §63.6675). The condensate storage tanks at the facility are not storage vessels with the potential for flash emissions as defined by the subpart. Their actual annual average hydrocarbon throughput is less than 79,500 liters per day (500 barrels per day) (see §63.6675). The engine is an existing source under the subpart. It was constructed in 1981. It is a 4-stroke, rich burn (4SRB) SI-RICE with a site-rating of less than 500 hp. The engine is an *Emergency Stationary RICE* as defined under §63.6675, and must comply with the requirements of §63.6640(f). The unit must also comply with the requirements established in §63.6603(a), 63.6625(c)(3), and 63.6625(f).
MACT 40 CFR 63, Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	No	N/A	This regulation is not applicable because the facility is an area HAP source as defined by the subpart (see §63.7480). Since the facility is a natural gas production facility, only HAP emissions from dehydrators and storage vessels with the potential for flash emissions are aggregated for a major source determination (see §63.7575).

FEDERAL REGU-LATIONS 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	N/A	This regulation is not applicable because the facility is not equipped with industrial, commercial, or institutional boilers.
40 CFR 64	Compliance Assurance Monitoring	No	N/A	This regulation is not applicable because no equipment at the facility requires a control device to achieve compliance with emission limits or standards where pre control emissions equal or exceed the major source threshold (100 tons per year). (see §64.2(a)).
40 CFR 68	Chemical Accident Prevention	No	N/A	This regulation is not applicable because the facility does not store any of the identified toxic and flammable substances in quantities exceeding the applicability thresholds (see §68.10(a), §68.115(a), and §68.130 Tables 1-4).
40 CFR 70	State Operating Permit Programs	No	N/A	This regulation is not applicable, as the requirements associated with Title V are delegated to the State of New Mexico and implemented under 20 NMAC 2.70.
40 CFR 82	Protection of Stratospheric Ozone	No	N/A	This regulation is not applicable because the facility does not produce, transform, destroy, import, or export ozone-depleting substances (see §82.1(b),); does not service motor vehicle air conditioning units (see §82.30(b)); and does not sell, distribute, or offer for sale or distribution any product that contains ozone-depleting substances (see §82.64).

Section 14

Operational Plan to Mitigate Emissions

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

☑ **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.

The station has four operating scenarios:

Scenario 0 – No changes made to the facility.

Scenario 1 – Replace Unit 1 with Unit 8

Scenario 2 – Replace Unit 2 with unit 9

Scenario 3 – Replace Units 1 & 2 with Units 8 & 9.

Since the replacement turbines, if installed, will be placed at the same location as the replaced turbines, there will be no overlapping of operation (no simultaneous operation). The existing unit or units will be shut down and removed. Only then can the new unit or units be installed.

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Section 16

Air Dispersion Modeling

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

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

Check each box that applies:

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

Modeling was last conducted for the existing construction permit, 0339-M9.

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Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

Compliance Test History Table

Unit No.	Test Description	Test Date
1	NOX and CO testing in accordance with P023-R3	09/18/2020
2	NOX and CO testing in accordance with P023-R3	09/17/2020
3	NOX and CO testing in accordance with P023-R3	09/17/2020
6	NOX and CO testing in accordance with P023-R3	09/16/2020
7	NOX and CO testing in accordance with P023-R3	09/16/2020

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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 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 La Jara Compressor Station 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 La Jara Compressor Station is in compliance with all applicable requirements affecting the facility. A copy Part 1 (Permit Requirements Certification Table) of the 2020 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 La Jara Compressor Station 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**

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 La Jara Compressor Station 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 La Jara Compressor Station 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 La Jara 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 La Jara Compressor Station is located within 50 miles of the following states, local pollution control programs, Indian tribes and pueblos:

Colorado (≈20 km)
Navajo Indian Reservation (≈29 km)
Jicarilla Apache Indian Reservation (≈26 km)
Ute Mountain Indian Reservation (≈68 km)

19.9 - Responsible Official

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

The responsible official for the La Jara Compressor Station 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 contains Part 1 (Permit Requirements Certification Table) of the 2020 annual compliance certification. Please see the following pages.

Title V Annual Compliance Certification
for Permits P023-R3 & P023-R3M1

Title (TV) Permit Administration Amendment

On **April 6, 2019** NMED AQB issued an Administrative Amendment to Operating Permit **P023-R3**.

The Administrative Amendment **P023-R3M1** corrected the following:

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

c. Responsible Company Official is changed to
Travis Jones
111 Travis Street
Houston, TX 77002

For this Administrative Amendment **(P023-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 **P023-R3M1** permit.

Annual Compliance Certification - Permit Requirements Certification Table

Annual Compliance Certification Data for Title V Permits No. P023-R3 & P023-R3M1

Was this facility *continuously* in compliance with *all conditions* of this *permit* during the reporting period? (Did you check either "Yes" or "N/A" for *every condition* in response to question 3?)	☐ **Yes** ☒ **No**

1. Provide *Method(s) or other information or other facts used to determine the compliance status* in the "Methods:" row beneath each permit condition. 2. If you answered *No* to question 3, list *all* deviations in the *Deviations* section. For *all* Deviations that *produced* excess emissions, provide *only* **a)** the AQBCR EER Tracking Number. For *all* Deviations that *did not produce* excess emissions, provide **a)** The Unit ID, **b)** The Cause of and a Description of the Deviation, and **c)** the Start & End Dates of the deviation. Please indicate in **b)**, your *Description*, whether each deviation has been previously reported to NMED.	3. Was this facility *continuously* in compliance with *all* requirements of this condition 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)	☒ **Yes** ☐ **No**
Methods: A renewal application was submitted November 6, 2019, at least 12 months prior to expiration of this permit P023-R3M1, demonstrating compliance with this condition.	☐ **N/A**

Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date

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)	☒ **Yes** ☐ **No**
Methods: A renewal application was submitted November 6, 2019, at least 12 months prior to expiration of this permit P023-R3M1, demonstrating compliance with this condition.	☐ **N/A**

Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date

A102 Facility: Description **B.** This facility is located approximately 25 miles northeast of Bloomfield, New Mexico in Rio Arriba County. (20.2.70.302.A(7) NMAC)	☒ **Yes** ☐ **No**
Methods: Semi-annual reports and this ACC are used to determine that the source continues to comply with this condition.	☐ **N/A**

Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date

A103 Facility: Applicable Regulations **A.** The permittee shall comply with all applicable sections of the requirements listed in Table 103.A.	☒ **Yes** ☐ **No** ☐ **N/A**

1. Provide *Method(s) or other information or other facts used to determine the compliance status* in the "Methods:" row beneath each permit condition. 2. If you answered *No* to question 3, list *all* deviations in the *Deviations* section. For *all* Deviations that *produced* excess emissions, provide *only* **a)** the AQBCR EER Tracking Number. For *all* Deviations that *did not produce* excess emissions, provide **a)** The Unit ID, **b)** The Cause of and a Description of the Deviation, and **c)** the Start & End Dates of the deviation. Please indicate in **b)**, your *Description*, whether each deviation has been previously reported to NMED.				3. Was this facility *continuously* in compliance with *all* requirements of this condition during the reporting period?
Methods: Semi-annual reports and the annual emissions inventory are used to demonstrate compliance with the identified applicable requirements of Table 103.A.				
Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date	
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 were applicable at the time air dispersion modeling was performed for the facility's NSR Permit 339-M6.				☒ **Yes** ☐ **No** ☐ **N/A**
Methods: Semi-annual reports and the annual emissions inventory are used to demonstrate compliance with the identified applicable requirements of Table 103.A.				
Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date	
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.				☒ **Yes** ☐ **No** ☐ **N/A**
Methods: 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.				
Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date	
A106 Facility: Allowable Emissions **A.** The following Section lists the emission units, and their allowable emission limits. (40 CFR 50; 40 CFR 60, Subparts A and GG; 40 CFR 63, Subparts A, ZZZZ, and CCCCCC; Paragraphs 1, 7, and 8 of 20.2.70.302.A NMAC; and NSR Permit 339-M7).				☒ **Yes** ☐ **No** ☐ **N/A**
Methods: Semi-annual reports and this ACC are used to determine that the source continues to comply with applicable requirements.				
Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date	
A106 Facility: Allowable Emissions **B.** Units 6 and 7, nitrogen dioxide emissions shall not exceed 168 ppmv at 15 percent oxygen and on a dry basis, and the fuel burned in Units 3, 6 and 7 shall not contain total sulfur in excess 0.8 percent by weight (8000 ppmw) or gases discharged shall not contain sulfur dioxide in excess of 0.015 percent by volume at 15 percent oxygen and on a dry basis. (40 CFR 60, Subpart GG)				☒ **Yes** ☐ **No** ☐ **N/A**

1. Provide *Method(s) or other information or other facts used to determine the compliance status* in the "Methods:" row beneath each permit condition. 2. If you answered *No* to question 3, list *all* deviations in the *Deviations* section. For *all* Deviations that *produced* excess emissions, provide *only* **a)** the AQBCR EER Tracking Number. For *all* Deviations that *did not produce* excess emissions, provide **a)** The Unit ID, **b)** The Cause of and a Description of the Deviation, and **c)** the Start & End Dates of the deviation. Please indicate in **b)**, your *Description*, whether each deviation has been previously reported to NMED.				3. Was this facility *continuously* in compliance with *all* requirements of this condition during the reporting period?
Methods: Periodic compliance tests and fuel sulfur monitoring records are included in the applicable semi-annual reports.				
Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date	

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. (NSR 339-M7, Condition A107)				☒ **Yes** ☐ **No**
Methods: Compliance with these limits is demonstrated through compliance with the requirements of A107.C and A107.D, below.				☐ **N/A**
Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date	

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.				☒ **Yes** ☐ **No**
Methods: Harvest has developed and follows its SSM/M Plan.				☐ **N/A**
Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date	

A107 Facility: Allowable Startup, Shutdown, & Maintenance (SSM) and Malfunction Emissions

C. SSM VOC Emissions for Venting of Gas

Requirement: The permittee shall perform a facility inlet gas analysis once every calendar 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 339-M7, Condition A107.C)

Monitoring: The permittee shall monitor the permitted routine and predictable startups and shutdowns and scheduled maintenance events.

☒ **Yes** ☐ **No**

☐ **N/A**

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 and thereafter of the monthly rolling 12-month total VOC emissions.

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 demonstrated compliance 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.

1. Provide *Method(s) or other information or other facts used to determine the compliance status* in the "Methods:" row beneath each permit condition. 2. If you answered *No* to question 3, list *all* deviations in the *Deviations* section. For *all* Deviations that *produced* excess emissions, provide *only* **a)** the AQBCR EER Tracking Number. For *all* Deviations that *did not produce* excess emissions, provide **a)** The Unit ID, **b)** The Cause of and a Description of the Deviation, and **c)** the Start & End Dates of the deviation. Please indicate in **b)**, your *Description*, whether each deviation has been previously reported to NMED.	3. Was this facility *continuously* in compliance with *all* requirements of this condition during the reporting period?

Reporting: The permittee shall report in accordance with Section B110.

Methods: Inlet extended gas analyses are collected and reported in the semi-annual reports; routine and predictable SSM events and VOC emissions are monitored and recorded, as described, and summarized in the semi-annual reports.

Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date

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 calendar year and complete the following recordkeeping to demonstrate compliance with malfunction (M1) emission limits in Table 107.A. (NSR 339-M7, Condition A107.D)

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.

Recordkeeping: To demonstrate compliance, each month records shall be kept of the cumulative total of VOC emissions due to malfunctions during the first 12 months and thereafter of the monthly rolling 12-month total VOC emissions.

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, 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 demonstrated compliance 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.

Reporting: The permittee shall report in accordance with Section B110.

☒ **Yes** ☐ **No** ☐ **N/A**

Methods: Inlet extended gas analyses are collected and reported in the semi-annual reports; malfunction events and VOC emissions are monitored and recorded, as described, and summarized in the semi-annual reports.

Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date

A107 Facility: Allowable Startup, Shutdown, & Maintenance (SSM) and Malfunction Emissions

E. VOC Emissions from Pig Launching and Receiving (Units P1 and P2)

Requirement: The permittee shall perform a facility inlet gas analysis once every calendar year and complete the following recordkeeping to demonstrate compliance with VOC emission limits in Table 107.A, due to pig launching (Unit P1) and receiving (Unit P2). (NSR 339-M7, Condition

☒ **Yes** ☐ **No** ☐ **N/A**

1. Provide *Method(s) or other information or other facts used to determine the compliance status* in the "Methods:" row beneath each permit condition. 2. If you answered *No* to question 3, list *all* deviations in the *Deviations* section. For *all* Deviations that *produced* excess emissions, provide *only* **a)** the AQBCR EER Tracking Number. For *all* Deviations that *did not produce* excess emissions, provide **a)** The Unit ID, **b)** The Cause of and a Description of the Deviation, and **c)** the Start & End Dates of the deviation. Please indicate in **b)**, your *Description*, whether each deviation has been previously reported to NMED.	3. Was this facility *continuously* in compliance with *all* requirements of this condition during the reporting period?

A107.E)

Monitoring: The permittee shall monitor the number of events, and the volume of gas (in scf) per event, for each of Units P1 and P2.

Recordkeeping: To demonstrate compliance, each month records shall be kept of the cumulative total of VOC emissions due to pig launching and receiving events during the first 12 months and thereafter of the monthly rolling 12-month total VOC emissions.

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 demonstrated compliance in accordance with Condition B109, except the requirement in B109.E to record the start and end times of pig launching and receiving events shall not apply to the venting of known quantities of VOC.

Reporting: The permittee shall report in accordance with Section B110.

Methods: Inlet extended gas analyses are collected and reported in the semi-annual reports; pig launching and receiving venting events and VOC emissions are monitored and recorded, as described, and summarized in the semi-annual reports.

Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date

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

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 June 1st and December 1st of each year.

☒ **Yes** ☐ **No** ☐ **N/A**

Methods: The first semiannual report associated with this ACC was submitted January 14, within 45 days of November 30. Submittal of the semi-annual report associated with this ACC by July 15 will demonstrate compliance with this requirement.

Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date

A109 Facility: Reporting Schedules

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 June 1st of each year.

☒ **Yes** ☐ **No** ☐ **N/A**

1. Provide *Method(s) or other information or other facts used to determine the compliance status* in the "Methods:" row beneath each permit condition. 2. If you answered *No* to question 3, list *all* deviations in the *Deviations* section. For *all* Deviations that *produced* excess emissions, provide *only* **a)** the AQBCR EER Tracking Number. For *all* Deviations that *did not produce* excess emissions, provide **a)** The Unit ID, **b)** The Cause of and a Description of the Deviation, and **c)** the Start & End Dates of the deviation. Please indicate in **b)**, your *Description*, whether each deviation has been previously reported to NMED.				3. Was this facility *continuously* in compliance with *all* requirements of this condition during the reporting period?
Methods: Submittal of this ACC by June 30 will demonstrate compliance with the ACC reporting requirement.				
Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date	

A109 Facility: Reporting Schedules **C.** Any required quarterly reports shall be maintained on-site and summarized in the semi-annual reports.				☐ **Yes** ☐ **No** ☒ **N/A**
Methods: No quarterly reports are required.				
Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date	

A110 Facility: Fuel and Fuel Sulfur Requirements **A. Fuel and Fuel Sulfur Requirements (Units 1, 2, 3, 4, 6, and 7)** **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 339-M7, Condition A110.A) **Monitoring**: If a fuel gas analysis is used to show compliance with the above requirement, a sample and analysis shall be performed a minimum of once per calendar year. If only one sample and analysis is performed in a calendar year, it shall be performed no less than nine months and no more than 15 months after the last sample and analysis of the previous calendar year. **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. **Reporting**: The permittee shall report in accordance with Section B110.				☐ **Yes** ☒ **No** ☐ **N/A**
Methods: Records of fuel sulfur monitoring are maintained as required and are included in the applicable semi-annual reports.				
Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date	
1, 2, 3, 4, 6, 7	Fuel sulfur results exceed the allowable 0.2 gr/100 scf limit	12/5/19	12/5/19	

A111 Facility: 20.2.61 NMAC Opacity **A. 20.2.61 NMAC Opacity Limit (Units 1, 2, 3, 4, 6 and 7)** **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. (NSR 339-M7, Condition A111.A)	☒ **Yes** ☐ **No** ☐ **N/A**

1. Provide *Method(s) or other information or other facts used to determine the compliance status* in the "Methods:" row beneath each permit condition. 2. If you answered *No* to question 3, list *all* deviations in the *Deviations* section. For *all* Deviations that *produced* excess emissions, provide *only* **a)** the AQBCR EER Tracking Number. For *all* Deviations that *did not produce* excess emissions, provide **a)** The Unit ID, **b)** The Cause of and a Description of the Deviation, and **c)** the Start & End Dates of the deviation. Please indicate in **b)**, your *Description*, whether each deviation has been previously reported to NMED.	3. Was this facility *continuously* in compliance with *all* requirements of this condition during the reporting period?

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 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.

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.

Methods: Natural gas is used for fuel. No visible emissions were observed during the applicable monitoring period.

Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date

EQUIPMENT SPECIFIC REQUIREMENTS:

OIL AND GAS INDUSTRY

A201 Engines

☒ **Yes** ☐ **No**

☐ **N/A**

A. Hours of Operation (Emergency generator engine, Unit 4)

Requirement: To demonstrate compliance with the allowable limits in Table 106.A, and to verify that the emergency generator unit (Unit 4) meets the NSR exemption at 20.2.72.202.B(3) NMAC, the hours of operation for the unit shall not exceed 500 hours per monthly rolling 12-month total. The unit shall be equipped with a non-resettable hour meter. (NSR 339-M7, Condition A201.A, revised)

1. Provide *Method(s) or other information or other facts used to determine the compliance status* in the "Methods:" row beneath each permit condition. 2. If you answered *No* to question 3, list *all* deviations in the *Deviations* section. For *all* Deviations that *produced* excess emissions, provide *only* **a)** the AQBCR EER Tracking Number. For *all* Deviations that *did not produce* excess emissions, provide **a)** The Unit ID, **b)** The Cause of and a Description of the Deviation, and **c)** the Start & End Dates of the deviation. Please indicate in **b)**, your *Description*, whether each deviation has been previously reported to NMED.	3. Was this facility *continuously* in compliance with *all* requirements of this condition during the reporting period?

Monitoring: The permittee shall monitor the hours of operation monthly for the unit.

Recordkeeping: The permittee shall record the hours of operation from the non-resettable hour meter for the unit into monthly recorded total hours of operation. Monthly recorded total hours shall be used to calculate and record for the unit the monthly rolling 12-month total hours of operation, and shall meet the recordkeeping requirements in Section B109.

Reporting: The permittee shall report in accordance with Section B110.

Methods: The generator engine's hours of operation are recorded monthly and a monthly rolling 12-month total calculated. Records of hours of operation are included in the applicable semi-annual reports.

Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date

A201 Engines

B. 40 CFR 63, Subpart ZZZZ (Emergency generator engine, Unit 4)

Requirement: For units that are subject to 40 CFR 63, Subpart ZZZZ the permittee shall comply with all applicable requirements of Subpart A and Subpart ZZZZ.

Monitoring: The permittee shall comply with all applicable monitoring requirements of 40 CFR 63, Subpart A and Subpart ZZZZ.

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.

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.

☒ **Yes** ☐ **No**

☐ **N/A**

Methods: The generator Unit 4 maintains records of operating hours and maintenance as required. Reporting of these records is not required by 40 CFR 63, Subpart ZZZZ.

Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date

1. Provide *Method(s) or other information or other facts used to determine the compliance status* in the "Methods:" row beneath each permit condition. 2. If you answered *No* to question 3, list *all* deviations in the *Deviations* section. For *all* Deviations that *produced* excess emissions, provide *only* **a)** the AQBCR EER Tracking Number. For *all* Deviations that *did not produce* excess emissions, provide **a)** The Unit ID, **b)** The Cause of and a Description of the Deviation, and **c)** the Start & End Dates of the deviation. Please indicate in **b)**, your *Description*, whether each deviation has been previously reported to NMED.	3. Was this facility *continuously* in compliance with *all* requirements of this condition during the reporting period?

A203 Tanks

A. Condensate Tanks, 3-Phase Separator, and Truck Loadout (Units T1, T2, T3, 18, and L1)

Requirement: To demonstrate compliance with the annual VOC allowable limit in Table 106.A, the 12-month rolling total condensate throughput/truck loading to/from these units combined shall not exceed 6,425 barrels/year and the 12-month rolling average 3-phase separator (Unit 18) inlet pressure shall not exceed 91.9 psia. (NSR 339-M7, Condition A203.A)

Monitoring: The permittee shall monitor the monthly total throughput/truck loading and the upstream 3-phase separator inlet pressure once per month.

Recordkeeping: Recordkeeping: The permittee shall record:

(1) The monthly total throughput/truck loading of liquids, and

(2) The monthly 3-phase separator inlet pressure.

Each month the permittee shall use these values to calculate and record:

(3) The monthly rolling 12-month total throughput/truck loading, and

(4) The monthly rolling 12-month average 3-phase separator inlet pressure.

☒ **Yes** ☐ **No**

☐ **N/A**

Tank breathing and working emissions were calculated using the USEPA Tanks program Version 4.0.9.d and tank flashing emissions using ProMax 3.2. Emission rates computed using the same parameters, but with a different Department-approved algorithm that exceed these values will not be deemed non-compliance with this permit.

Records shall be maintained in accordance with Section B109.

Reporting: The permittee shall report in accordance with Section B110.

Methods: Records of tank throughput & separator presure monitoring are maintained as required and are included in the applicable semi-annual reports.

Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date

1. Provide *Method(s) or other information or other facts used to determine the compliance status* in the "Methods:" row beneath each permit condition. 2. If you answered *No* to question 3, list *all* deviations in the *Deviations* section. For *all* Deviations that *produced* excess emissions, provide *only* **a)** the AQBCR EER Tracking Number. For *all* Deviations that *did not produce* excess emissions, provide **a)** The Unit ID, **b)** The Cause of and a Description of the Deviation, and **c)** the Start & End Dates of the deviation. Please indicate in **b)**, your *Description*, whether each deviation has been previously reported to NMED.	3. Was this facility *continuously* in compliance with *all* requirements of this condition during the reporting period?

A203 Tanks

B. 40 CFR 63, Subpart CCCCCC, Gasoline Dispensing Facilities (Unit T9)

Requirement: Applies to each Gasoline Dispensing Facility (GDF) that is located at an area source of HAPs. The affected sources include each gasoline cargo tank during the delivery of product to a GDF and also includes each storage tank. Unit T9 is subject to 40 CFR 63, Subpart CCCCCC at §63.11111(b) with a monthly throughput less than 10,000 gallons of gasoline, and the permittee shall comply with the requirements in §63.11116.

Monitoring: The permittee shall comply with all applicable monitoring requirements in 40 CFR 63, Subpart CCCCCC, according to §63.11116.

Recordkeeping: The permittee shall comply with all applicable recordkeeping requirements in 40 CFR 63, Subpart CCCCCC, according to §63.11116.

Reporting: The permittee shall comply with all applicable reporting and notification requirements in 40 CFR 63, Subpart CCCCCC, according to §63.11116.

☒ **Yes** ☐ **No**

☐ **N/A**

Methods: Records of gasoline throughput are maintained in accordance with the requirements of NESHAP CCCCCC

Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date

A205 Turbines

A. Periodic Testing (Units 1, 2, 3, 6, and 7)

Requirement: Compliance with the allowable emission limits in Table 106.A shall be demonstrated by conducting periodic emission tests during the monitoring period. (NSR 339-M7, Condition A205.A)

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. Emission testing is required for NOx and CO, and 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.

☒ **Yes** ☐ **No**

☐ **N/A**

(1) The testing shall be conducted as follows:

a. Testing frequency shall be once per year.

b. The monitoring period is defined as a calendar year, from January 1 and December 31.

(2) The first test shall occur within the first monitoring period occurring after permit issuance.

(3) All subsequent monitoring shall occur in each succeeding monitoring period. No two monitoring events shall occur closer together in time than 25%

1. Provide *Method(s) or other information or other facts used to determine the compliance status* in the "Methods:" row beneath each permit condition. 2. If you answered *No* to question 3, list *all* deviations in the *Deviations* section. For *all* Deviations that *produced* excess emissions, provide *only* **a)** the AQBCR EER Tracking Number. For *all* Deviations that *did not produce* excess emissions, provide **a)** The Unit ID, **b)** The Cause of and a Description of the Deviation, and **c)** the Start & End Dates of the deviation. Please indicate in **b)**, your *Description*, whether each deviation has been previously reported to NMED.	3. Was this facility *continuously* in compliance with *all* requirements of this condition during the reporting period?

of a monitoring period.

(4) The permittee shall follow the General Testing Procedures of Section B111. The permittee shall determine mass flow by use of EPA reference Methods 1-4 or by EPA Method 19 using directly measured fuel usage data and measured stack O2 and/or CO2 percent (this satisfies the requirements of Section B111.C(4)).

(5) Performance testing required by 40 CFR 60, Subpart GG 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 periodic emissions test records in accordance with Sections B109, B110, and B111. The permittee shall also record the results of the periodic emissions tests, including the turbine's fuel flow rate and horsepower at the time of the test, and the type of fuel fired (natural gas, field gas, etc.).

If a combustion analyzer is used to measure NOx, CO, and/or excess air in the exhaust gas, records shall be kept of the make and model of the instrument and instrument calibration data. If an ORSAT apparatus or other gas absorption analyzer is used, the permittee shall record all calibration results.

The permittee shall also keep records of all raw data used to determine exhaust gas flow and of all calculations used to determine flow rates and mass emissions rates.

Reporting: The permittee shall submit reports in accordance with Sections B109, B110 and B111.

Methods: Records of periodic testing are maintained as required, and reports submitted in accordance with B109, B110 and B111. A summary of the test reports is included in the applicable semiannual report.

Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date

A205 Turbines

B. Maintenance and Repair Monitoring (Units 1, 2, 3, 6, and 7)

Requirement: The Compliance with the allowable emission limits in Table 106.A shall be demonstrated by properly maintaining and repairing the units. (NSR 339-M7, Condition A205.B)

☒ **Yes** ☐ **No**

☐ **N/A**

Monitoring: Maintenance and repair shall meet the minimum manufacturer's or permittee's recommended maintenance schedule. Maintenance and repair activities that involve adjustment, replacement, or repair of functional components with the potential to affect operation of an emission unit shall be documented as they occur for the following events:

1. Provide *Method(s) or other information or other facts used to determine the compliance status* in the "Methods:" row beneath each permit condition. 2. If you answered *No* to question 3, list *all* deviations in the *Deviations* section. For *all* Deviations that *produced* excess emissions, provide *only* **a)** the AQBCR EER Tracking Number. For *all* Deviations that *did not produce* excess emissions, provide **a)** The Unit ID, **b)** The Cause of and a Description of the Deviation, and **c)** the Start & End Dates of the deviation. Please indicate in **b)**, your *Description*, whether each deviation has been previously reported to NMED.				3. Was this facility *continuously* in compliance with *all* requirements of this condition during the reporting period?
(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, including dates and maintenance activities conducted in accordance with Section B109. The permittee shall also maintain a copy of the manufacturer's or permittee's recommended maintenance schedule. **Reporting**: The permittee shall report in accordance with Section B110.				
Methods: Maintenance and repair records are maintained as required and included with the applicable semi-annual monitoring reports.				
Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date	
A205 Turbines **C. 40 CFR 60, Subpart GG (Units 3, 6, and 7)** **Requirement**: The units are subject to 40 CFR 60, Subpart GG and the permittee shall comply with the applicable requirements of 40 CFR 60, Subpart A and Subpart GG. **Monitoring**: The permittee shall comply with the monitoring and testing requirements of 40 CFR 60.334 and 60.335. **Recordkeeping**: The permittee shall comply with the recordkeeping requirements of 40 CFR 60.334 and 40 CFR 60.7. **Reporting**: The permittee shall comply with the reporting requirements of 40 CFR 60.7.				☐ **Yes** ☒ **No** ☐ **N/A**
Methods: Fuel sulfur monitoring records are maintained as required and included with the applicable semi-annual monitoring reports.				
Deviations: Unit ID	Cause & Description of Deviation **or** Tracking number	Start Date	End Date	
3, 6, 7	3Q 2019 CFMS sample was collected 12/5/19, outside of the 3rd quarter 1Q 2020 was not collected by March 31.	10/1/19 3/31/20	12/5/19 4/1/20	

PART B General Conditions

1. **Have these General Conditions been met during this reporting period?** ***Check only one box per subject heading.*** ***Explain answers in remarks row under subject heading.***	2. Was this facility *continuously* in compliance with this requirement during the reporting period?
B101 Legal	☐ **Yes** ☒ **No** ☐ **N/A** – *Explain Below*
REMARKS: Except as noted above (A110.A and A205.C), facility was in compliance with applicable requirements during the applicable period.	
B102 Authority	☒ **Yes** ☐ **No** ☐ **N/A** – *Explain Below*
REMARKS: Only the permitted owner operated the facility during the applicable period.	
B103 Annual Fee	☒ **Yes** ☐ **No** ☐ **N/A** – *Explain Below*
REMARKS: The 2018 operating permit emission fees were submitted on May 30, 2019. The 2019 fee had not been paid as of the end of this compliance period.	
B104 Appeal Procedures	☐ **Yes** ☐ **No** ☒ **N/A** – *Explain Below*
REMARKS: This is a Departmental action.	
B105 Submittal of Reports and Certifications	☒ **Yes** ☐ **No** ☐ **N/A** – *Explain Below*
REMARKS: Reports and certifications are submitted to the appropriate regulatory personnel.	
B106 NSPS and/or MACT Startup, Shutdown, and Malfunction Operations	☒ **Yes** ☐ **No** ☐ **N/A** – *Explain Below*
REMARKS: NSPS and/or NESHAP sources are operated in accordance with the permittee's SSM work practice plan.	
B107 Startup, Shutdown, and Maintenance Operations	☒ **Yes** ☐ **No** ☐ **N/A** – *Explain Below*
REMARKS: The facility is operated in accordance with the permittee's SSM work practice plan.	
B108 General Monitoring Requirements	☒ **Yes** ☐ **No** ☐ **N/A** – *Explain Below*
REMARKS: Periodic monitoring activites are included in the applicable semi-annual reports.	
B109 General Recordkeeping Requirements	☒ **Yes** ☐ **No** ☐ **N/A** – *Explain Below*
REMARKS: Records are maintained in accordance with recordkeeping requirements.	
B110 General Reporting Requirements	☒ **Yes** ☐ **No** ☐ **N/A** – *Explain Below*
REMARKS: Reports are submitted in accordance with reporting requirements.	
B111 General Testing Requirements	☒ **Yes** ☐ **No** ☐ **N/A** – *Explain Below*
REMARKS: Testing that occurred during the applicable period was completed in accordance with the appropriate procedures.	
B112 Compliance	☒ **Yes** ☐ **No** ☐ **N/A** – *Explain Below*
REMARKS: Records and permits are maintained as required. Representatives have not been denied access to the facility and applicable files during the applicable period.	

PART B General Conditions

B113 Permit Reopening and Revocation	☒ **Yes** ☐ **No** ☐ **N/A** – *Explain Below*
REMARKS: No communication has been received from the regulating agency to indicate that the permit has been reopened, revoked, reissued, or revised.	
B114 Emergencies	☒ **Yes** ☐ **No** ☐ **N/A** – *Explain Below*
REMARKS: No emergencies occurred during the applicable period.	
B115 Stratospheric Ozone	☐ **Yes** ☐ **No** ☒ **N/A** – *Explain Below*
REMARKS: The facililty is not subject to 40 CFR 82, Subpart F.	
B116 Acid Rain Sources	☐ **Yes** ☐ **No** ☒ **N/A** – *Explain Below*
REMARKS: The facililty is not subject to 40 CFR 72.	
B117 Risk Management Plan	☐ **Yes** ☐ **No** ☒ **N/A** – *Explain Below*
REMARKS: The facililty is not subject to 40 CFR 68.	

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 this facility is not a landfill.

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Section 22

Certification

Company Name: Harvest Four Corners, LLC

I, TRAVIS JONES, hereby certify that the information and data submitted in this application are true and as accurate as possible, to the best of my knowledge and professional expertise and experience. Signed this 5th day of JANUARY, 2021, upon my oath or affirmation, before a notary of the State of New Mexico.

*Signature — Date: 1/5/2021

TRAVIS JONES — Printed Name

EHS MANAGER — Title

Scribed and sworn before me on this 5th day of January, 2021.

My authorization as a notary of the State of New Mexico expires on the 4th day of April, 2022.

Rebecca Beard — Notary's Signature — Date: 1/5/2021

Rebecca Beard — Notary's Printed Name

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