

Cirrus Consulting, LLC

November 6, 2019

Ted Schooley
Permit Programs Manager
New Mexico Environment Department Air Quality Bureau
525 Camino de los Marquez, Suite 1
Santa Fe, New Mexico, 87505-1816

Re: Application to Modify Title V Operating Permit P023-R3
Harvest Four Corners, LLC – La Jara Compressor Station, A.I. No. 1010

Dear Mr. Schooley,

The **Harvest Four Corners, LLC (Harvest) La Jara Compressor Station** is authorized under **Title V Operating Permit P023-R3**, issued by the New Mexico Environment Department Air Quality Bureau (NMAQB) on January 10, 2017.

On November 6, 2018, the NMAQB issued construction permit 0339-M8 for the La Jara Compressor Station that authorized a decrease in the allowable SSM blowdown emissions of VOC by 2.0 tpy, and an increase in the permitted malfunction VOC emissions of 2.0 tpy.

For Title V purposes, the facility is considered to have “commenced operation” on the date of issuance of the modified construction permit (November 6, 2018). Under 20.2.70.404.C(3)(b) of the New Mexico Administrative Code (NMAC), a complete application to modify the Operating Permit must be filed within 12 months of commencing operation under a revised [New Source Review] construction permit (i.e., permit 0339-M8). Therefore, Harvest is submitting this application to modify Title V Operating Permit P023-R3.

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

If any additional information is needed with regard to this application, please contact Mr. Kijun Hong of Harvest at (505) 632-4475.

Sincerely,



Lisa Killion
Sr. Environmental Scientist

Enclosures – One (1) hard copy application original
One (1) hard copy application review copy
Two (2) CDs - electronic files

cc: Kijun Hong, Harvest (electronic copy)
Bobby Myers, Cirrus (electronic copy)

**NEW MEXICO 20.2.70.404.C NMAC APPLICATION
TO MODIFY TITLE V OPERATING PERMIT P023-R3**

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**

November 2019

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

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

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

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

Acknowledgements:

I acknowledge that a pre-application meeting is available to me upon request. Title V Operating, Title IV Acid Rain, and NPR applications have no fees.
 \$500 NSR application Filing Fee enclosed **OR** The full permit fee associated with 10 fee points (required w/ streamline applications).
 Check No.: [redacted] in the amount of [redacted]
 I acknowledge the required submittal format for the hard copy application is printed double sided 'head-to-toe', 2-hole punched (except the Sect. 2 landscape tables is printed 'head-to-head'), numbered tab separators. Incl. a copy of the check on a separate page.
 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: **20.2.70.404.C(3)(b) NMAC** (e.g. application for a new minor source would be 20.2.72.200.A NMAC, one example for a Technical Permit Revision is 20.2.72.219.B.1.b NMAC, a Title V acid rain application would be: 20.2.70.200.C NMAC)

Section 1 – Facility Information

Section 1-A: Company Information

		AI # if known (see 1 st 3 to 5 #s of permit IDEA ID No.): 1010	Updating Permit/NOI #: P023-R3-M1
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): From Bloomfield, drive 37 miles east on Hwy 64. 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.		
2	Plant Operator Company Name: Harvest Four Corners, LLC	Phone/Fax: 505-632-4600 / 505-632-4782	

a	Plant Operator Address:	1755 Arroyo Drive, Bloomfield, NM 87413	
b	Plant Operator's New Mexico Corporate ID or Tax ID:	76-0451075	
3	Plant Owner(s) name(s):	Harvest Four Corners, LLC	Phone/Fax: 505-632-4600 / 505-632-4782
a	Plant Owner(s) Mailing Address(s):	1755 Arroyo Drive, Bloomfield NM 87413	
4	Bill To (Company):	Harvest Four Corners, LLC	Phone/Fax: 505-632-4600 / 505-632-4782
a	Mailing Address:	1755 Arroyo Drive, Bloomfield NM 87413	E-mail: N/A
5	<input type="checkbox"/> Preparer: <input checked="" type="checkbox"/> Consultant:	Lisa Killion, Cirrus Consulting, LLC	Phone/Fax: 505-466-1790 / 505-466-4599
a	Mailing Address:		E-mail: killion@cirrusllc.com
6	Plant Operator Contact:	Kijun Hong	Phone/Fax: 505-632-4475 / 505-632-4782
a	Address:	1755 Arroyo Drive, Bloomfield NM 87413	E-mail: khong@harvestmidstream.com
7	Air Permit Contact:	Kijun Hong	Title: Environmental Specialist
a	E-mail:	khong@harvestmidstream.com	Phone/Fax: 505-632-4475 / 505-632-4782
b	Mailing Address:	1755 Arroyo Drive, Bloomfield NM 87413	
c	The designated Air permit Contact will receive all official correspondence (i.e. letters, permits) from the Air Quality Bureau.		

Section 1-B: Current Facility Status

1.a	Has this facility already been constructed? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.b If yes to question 1.a, is it currently operating in New Mexico? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2	If yes to question 1.a, was the existing facility subject to a Notice of Intent (NOI) (20.2.73 NMAC) before submittal of this application? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes to question 1.a, was the existing facility subject to a construction permit (20.2.72 NMAC) before submittal of this application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
3	Is the facility currently shut down? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes, give month and year of shut down (MM/YY):
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5	If Yes to question 3, has this facility been modified (see 20.2.72.7.P NMAC) or the capacity increased since 8/31/1972? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes, the permit No. is: P-195-R3-M1
7	Has this facility been issued a No Permit Required (NPR)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes, the NPR No. is:
8	Has this facility been issued a Notice of Intent (NOI)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes, the NOI No. is:
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes, the permit No. is: 0339-M8
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes, the register No. is:

Section 1-C: Facility Input Capacity & Production Rate

1	What is the facility's maximum input capacity, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: 20.8 mmcfh ^(a)	Daily: 500 mmcf ^(a)	Annually: 182,500 mmcfy ^(a)
b	Proposed	Hourly: 20.8 mmcfh ^(a)	Daily: 500 mmcf ^(a)	Annually: 182,500 mmcfy ^(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 mmcfh ^(a)	Daily: 500 mmcf ^(a)	Annually: 182,500 mmcfy ^(a)

b	Proposed	Hourly: 20.8 mmcf ^(a)	Daily: 500 mmcf ^(a)	Annually: 182,500 mmcf ^(a)
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^(a) Station capacity is a direct function of available horsepower. The throughput is therefore dependent on atmospheric temperature, gas temperature, atmospheric pressure, gas pressure, relative humidity and gas quality, as well as other factors. The “capacity” expressed in the application is a nominal quantity, neither an absolute maximum nor an average. The actual throughput will vary from the nominal amount.

Section 1-D: Facility Location Information

1	Section: 17	Range: 06W	Township: 30N	County: Rio Arriba	Elevation (ft): 6,325
2	UTM Zone: <input type="checkbox"/> 12 or <input checked="" type="checkbox"/> 13			Datum: <input type="checkbox"/> NAD 27 <input type="checkbox"/> NAD 83 <input checked="" type="checkbox"/> WGS 84	
a	UTM E (in meters, to nearest 10 meters): 277,710 m			UTM N (in meters, to nearest 10 meters): 4,077,505 m	
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, NM 87419				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): See Section 1-A.1.a.				
5	The facility is ~11.4 (distance) miles east (direction) of Navajo Dam, NM (nearest town).				
6	Status of land at facility (check one): <input type="checkbox"/> Private <input type="checkbox"/> Indian/Pueblo <input checked="" type="checkbox"/> Federal BLM <input type="checkbox"/> Federal Forest Service <input type="checkbox"/> Other (specify)				
7	List all municipalities, Indian tribes, and counties within a ten (10) mile radius (20.2.72.203.B.2 NMAC) of the property on which the facility is proposed to be constructed or operated: None; none; Rio Arriba County, NM & San Juan County, NM				
8	20.2.72 NMAC applications only: Will the property on which the facility is proposed to be constructed or operated be closer than 50 km (31 miles) to other states, Bernalillo County, or a Class I area (see www.env.nm.gov/aqb/modeling/classIareas.html)? <input type="checkbox"/> Yes <input type="checkbox"/> No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers: N/A				
9	Name nearest Class I area: Weminuche Wilderness				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): 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 meters				
12	Method(s) used to delineate the Restricted Area: Fencing “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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No A portable stationary source is not a mobile source, such as an automobile, but a source that can be installed permanently at one location or that can be re-installed at various locations, such as a hot mix asphalt plant that is moved to different job sites.				
14	Will this facility operate in conjunction with other air regulated parties on the same property? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, what is the name and permit number (if known) of the other facility?				

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

1	Facility 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			

Section 1-F: Other Facility Information

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

Section 1-G: Streamline Application

(This section applies to 20.2.72.300 NMAC Streamline applications only)

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

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

1	Responsible Official (R.O.) (20.2.70.300.D.2 NMAC): Travis Jones	Phone: 713-289-2630
a	R.O. Title: EH&S Manager	R.O. e-mail: trjones@harvestmidstream.com
b	R. O. Address: 1111 Travis Street, Houston, TX 77002	
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC): TBD	Phone: TBD
a	A. R.O. Title: TBD	A. R.O. e-mail: TBD
b	A. R. O. Address: TBD	
3	Company's Corporate or Partnership Relationship to any other Air Quality Permittee (List the names of any companies that have operating (20.2.70 NMAC) permits and with whom the applicant for this permit has a corporate or partnership relationship): N/A	
4	Name of Parent Company ("Parent Company" means the primary name of the organization that owns the company to be permitted wholly or in part.): Hilcorp Energy Company	
a	Address of Parent Company: 1111 Travis Street, Houston, TX 77002	
5	Names of Subsidiary Companies ("Subsidiary Companies" means organizations, branches, divisions or subsidiaries, which are owned, wholly or in part, by the company to be permitted.): N/A	
6	Telephone numbers & names of the owners' agents and site contacts familiar with plant operations: N/A	
7	Affected Programs to include Other States, local air pollution control programs (i.e. Bernalillo) and Indian tribes: Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B)? If yes, state which ones and provide the distances in kilometers: Yes. Colorado (20.2 km), Southern Ute Tribe (20.2 km), Navajo Nation Tribal Lands (52 km); Navajo checkerboard lands (29.2 km), Jicarilla Apache Tribe (26.3 km), and 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-toe 2-hole punched copy required in 1) above. Minor NSR Technical Permit revisions (20.2.72.219.B NMAC) only need to fill out Sections 1-A, 1-B, 3, and should fill out those portions of other Section(s) relevant to the technical permit revision. TV Minor Modifications need only fill out Sections 1-A, 1-B, 1-H, 3, and those portions of other Section(s) relevant to the minor modification. NMED may require additional portions of the application to be submitted, as needed.
- 3) The entire NOI or Permit application package, including the full modeling study, should be submitted electronically. Electronic files for applications for NOIs, any type of General Construction Permit (GCP), or technical revisions to NSRs must be submitted with compact disk (CD) or digital versatile disc (DVD). For these permit application submittals, **two CD** copies are required (in sleeves, not crystal cases, please), with additional CD copies as specified below. NOI applications require only a **single CD** submittal. Electronic files for other New Source Review (construction) permits/permit modifications or Title V permits/permit modifications can be submitted on CD/DVD or sent through AQB's secure file transfer service.

Electronic files sent by (check one):

CD/DVD attached to paper application

secure electronic transfer. Air Permit Contact Name _____

Email _____

Phone number _____

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

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

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

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

- 1) All required electronic documents shall be submitted as 2 separate CDs or submitted through the AQB secure file transfer service. Submit a single PDF document of the entire application as submitted and the individual documents comprising the application.
- 2) The documents should also be submitted in Microsoft Office compatible file format (Word, Excel, etc.) allowing us to access the text and formulas in the documents (copy & paste). Any documents that cannot be submitted in a Microsoft Office compatible

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

- 3) It is preferred that this application form be submitted as 4 electronic files (**3 MSWord docs**: Universal Application section 1 [UA1], Universal Application section 3-19 [UA3], and Universal Application 4, the modeling report [UA4]) and **1 Excel file** of the tables (Universal Application section 2 [UA2]). Please include as many of the 3-19 Sections as practical in a single MS Word electronic document. Create separate electronic file(s) if a single file becomes too large or if portions must be saved in a file format other than MS Word.
- 4) The **electronic file names** shall be a maximum of 25 characters long (including spaces, if any). The format of the electronic Universal Application shall be in the format: "A-3423-FacilityName". The "A" distinguishes the file as an application submittal, as opposed to other documents the Department itself puts into the database. Thus, all electronic application submittals should begin with "A-". Modifications to existing facilities should use the **core permit number** (i.e. '3423') the Department assigned to the facility as the next 4 digits. Use 'XXXX' for new facility applications. The format of any separate electronic submittals (additional submittals such as non-Word attachments, re-submittals, application updates) and Section document shall be in the format: "A-3423-9-description", where "9" stands for the **section #** (in this case Section 9-Public Notice). Please refrain, as much as possible, from submitting any scanned documents as this file format is extremely large, which uses up too much storage capacity in our database. Please take the time to fill out the **header information** throughout all submittals as this will identify any loose pages, including the Application Date (date submitted) & Revision number (0 for original, 1, 2, etc.; which will help keep track of subsequent partial update(s) to the original submittal. Do not use special symbols (#, @, etc.) in file names. The footer information should not be modified by the applicant.

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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	Controlled by Unit #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One		RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB) ⁴	Replacing Unit No.
							Date of Construction/Reconstruction ²	Emissions vented to Stack #		Existing (unchanged) New/Additional To Be Modified	To be Removed Replacement Unit To be Replaced		
1 <small>Field Unit 3</small>	Natural Gas Fired Turbine	Solar	T-4002	OHB16-C1819 (Pkg # 3020005)	3961 hp	3123 hp	1/1/1972	N/A	20200201	X Existing (unchanged) New/Additional To Be Modified	To be Removed Replacement Unit To be Replaced	N/A	N/A
							1/1/1972	1					
2 <small>Field Unit 4</small>	Natural Gas Fired Turbine	Solar	T-4002	OHB16-C2641 (Pkg # 3020004)	3961 hp	3123 hp	1/1/1972	N/A	20200201	X Existing (unchanged) New/Additional To Be Modified	To be Removed Replacement Unit To be Replaced	N/A	N/A
							1/1/1972	2					
3 <small>Field Unit 2</small>	Natural Gas Fired Turbine	Solar	T-4702	OHG17-C5915 (Pkg # CC81338)	4680 hp	3779 hp	8/1/1981	N/A	20200201	X Existing (unchanged) New/Additional To Be Modified	To be Removed Replacement Unit To be Replaced	N/A	N/A
							8/1/1981	3					
6 <small>Field Unit 1</small>	Natural Gas Fired Turbine	Solar	T-4702S	OHA15-C1719 (Pkg # DCC0164)	4680 hp	3934 hp	1/1/1999	N/A	20200201	X Existing (unchanged) New/Additional To Be Modified	To be Removed Replacement Unit To be Replaced	N/A	N/A
							1/1/1999	6					
7 <small>Field Unit 1A</small>	Natural Gas Fired Turbine	Solar	T-4702S	OHB15-C3628 (Pkg # DCC0165)	4680 hp	3934 hp	1/1/1999	N/A	20200201	X Existing (unchanged) New/Additional To Be Modified	To be Removed Replacement Unit To be Replaced	N/A	N/A
							1/1/1999	7					
4	Recip. Internal Combustion Engine	Waukesha	F3521G	361832	515 hp	440 hp	3/13/1981	N/A	20100202	X Existing (unchanged) New/Additional To Be Modified	To be Removed Replacement Unit To be Replaced	4SRB	N/A
							3/13/1981	4					
18 ⁵	3-Phase Separator	Peerless	14-248	U-197	N/A	N/A	N/A	N/A	31000129	X Existing (unchanged) New/Additional To Be Modified	To be Removed Replacement Unit To be Replaced	N/A	N/A
							N/A	N/A					
SSM ⁶	Startup, Shutdown & Maintenance	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31000299	Existing (unchanged) New/Additional To Be Modified	To be Removed Replacement Unit To be Replaced	N/A	N/A
							N/A	N/A		X To Be Modified			
P1 ⁷	Trunk S Loop Pig Launcher	TDW	N/A	N/A	N/A	N/A	N/A	N/A	31000299	X Existing (unchanged) New/Additional To Be Modified	To be Removed Replacement Unit To be Replaced	N/A	N/A
							N/A	N/A					
P2 ⁷	Trunk S Loop Pig Receiver	TDW	N/A	N/A	N/A	N/A	N/A	N/A	31000299	X Existing (unchanged) New/Additional To Be Modified	To be Removed Replacement Unit To be Replaced	N/A	N/A
							N/A	N/A					
F1	Equipment Leaks	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31088811	X Existing (unchanged) New/Additional To Be Modified	To be Removed Replacement Unit To be Replaced	N/A	N/A
							N/A	N/A					
M1	Malfunctions	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31000299	Existing (unchanged) New/Additional To Be Modified	To be Removed Replacement Unit To be Replaced	N/A	N/A
							N/A	N/A		X To Be Modified			
T1 ⁵	Condensate Storage Tank	Pesco	N/A	T-1987	400 bbl	400 bbl	1/1/1997	N/A	40400311	X Existing (unchanged) New/Additional To Be Modified	To be Removed Replacement Unit To be Replaced	N/A	N/A
							1/1/1997	N/A					
T2 ⁵	Condensate Storage Tank	Pesco	N/A	T-1986	400 bbl	400 bbl	1/1/1997	N/A	40400311	X Existing (unchanged) New/Additional To Be Modified	To be Removed Replacement Unit To be Replaced	N/A	N/A
							1/1/1997	N/A					
T3 ⁵	Condensate Storage Tank	Pesco	N/A	T-1985	400 bbl	400 bbl	1/1/1997	N/A	40400311	X Existing (unchanged) New/Additional To Be Modified	To be Removed Replacement Unit To be Replaced	N/A	N/A
							1/1/1997	N/A					
L1 ⁵	Truck Loading (condensate)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31000299	X Existing (unchanged) New/Additional To Be Modified	To be Removed Replacement Unit To be Replaced	N/A	N/A
							N/A	N/A					
T9	Gasoline Storage Tank	N/A	N/A	N/A	300 gal	300 gal	N/A	N/A	31000299	Existing (unchanged) New/Additional To Be Modified	X To be Removed Replacement Unit To be Replaced	N/A	N/A
							N/A	N/A					

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

² Specify dates required to determine regulatory applicability.

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

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

⁵ The VOC emission limits (including flash + tank working/breathing losses) from the separator, condensate storage tanks, and condensate loading activities are aggregated under a single VOC emission source "T1 to T3, L1, 18" in Operating Permit P023-R3, Table A.106. No changes are sought.

⁶ "SSM" is described as "1 Compressor and Associated Piping Blowdowns during Routine and Predictable Startup, Shutdown, and/or Maintenance (SSM)" in Operating Permit P023-R3.

⁷ The VOC emission limits from the pig launching and pig receiving activities are aggregated under a single emission source "P1 and P2" in Operating Permit P023-R3, Table A.107. No changes are sought.

Table 2-B: Insignificant Activities¹ (20.2.70 NMAC) OR Exempted Equipment (20.2.72 NMAC)

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

Unit Number	Source Description	Manufacturer	Model No.	Max Capacity	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction ²	For Each Piece of Equipment, Check One
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction ²	
5	Fuel Gas Heater	Sivalls	1H-246	0.5			<input checked="" type="checkbox"/> Existing (unchanged) To be Removed <input type="checkbox"/> New/Additional Replacement Unit <input type="checkbox"/> To Be Modified To be Replaced
T4	Produced Water Storage Tank			80			<input checked="" type="checkbox"/> Existing (unchanged) To be Removed <input type="checkbox"/> New/Additional Replacement Unit <input type="checkbox"/> To Be Modified To be Replaced
T5 & T6	Lube Oil Storage Tank			315			<input checked="" type="checkbox"/> Existing (unchanged) To be Removed <input type="checkbox"/> New/Additional Replacement Unit <input type="checkbox"/> To Be Modified To be Replaced
T7	Lube Oil Storage Tank			350			<input checked="" type="checkbox"/> Existing (unchanged) To be Removed <input type="checkbox"/> New/Additional Replacement Unit <input type="checkbox"/> To Be Modified To be Replaced
T8	Used Oil Storage Tank			882			<input checked="" type="checkbox"/> Existing (unchanged) To be Removed <input type="checkbox"/> New/Additional Replacement Unit <input type="checkbox"/> To Be Modified To be Replaced
T10	Methanol Storage Tank			500			<input checked="" type="checkbox"/> Existing (unchanged) To be Removed <input type="checkbox"/> New/Additional Replacement Unit <input type="checkbox"/> To Be Modified To be Replaced
T11	Corrosion Inhibitor (CGO49)			750			<input checked="" type="checkbox"/> Existing (unchanged) To be Removed <input type="checkbox"/> New/Additional Replacement Unit <input type="checkbox"/> To Be Modified To be Replaced
T12	Diesel Tank			300			<input checked="" type="checkbox"/> Existing (unchanged) To be Removed <input type="checkbox"/> New/Additional Replacement Unit <input type="checkbox"/> To Be Modified To be Replaced
T13	Biocide (Bactron K-87)			125	No VOCs or HAPs: Trivial Activities List Item. No. 1		<input checked="" type="checkbox"/> Existing (unchanged) To be Removed <input type="checkbox"/> New/Additional Replacement Unit <input type="checkbox"/> To Be Modified To be Replaced
T14	Transmission Fluid Storage Tank			150	No VOCs or HAPs: Trivial Activities List Item. No. 1		<input checked="" type="checkbox"/> Existing (unchanged) To be Removed <input type="checkbox"/> New/Additional Replacement Unit <input type="checkbox"/> To Be Modified To be Replaced
L2	Truck Loading (produced water)			N/A			<input checked="" type="checkbox"/> Existing (unchanged) To be Removed <input type="checkbox"/> New/Additional Replacement Unit <input type="checkbox"/> To Be Modified To be Replaced
							<input type="checkbox"/> Existing (unchanged) To be Removed <input type="checkbox"/> New/Additional Replacement Unit <input type="checkbox"/> To Be Modified To be Replaced
							<input type="checkbox"/> Existing (unchanged) To be Removed <input type="checkbox"/> New/Additional Replacement Unit <input type="checkbox"/> To Be Modified To be Replaced
							<input type="checkbox"/> Existing (unchanged) To be Removed <input type="checkbox"/> New/Additional Replacement Unit <input type="checkbox"/> To Be Modified To be Replaced
							<input type="checkbox"/> Existing (unchanged) To be Removed <input type="checkbox"/> New/Additional Replacement Unit <input type="checkbox"/> 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-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 ₂ S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	15.07	66.00	14.41	63.10	4.41	19.30	0.10	0.44	0.19	0.85	0.19	0.85	0.19	0.85	-	-	1.6E-05	7.2E-05
2	15.07	66.00	14.41	63.10	4.41	19.30	0.10	0.44	0.19	0.85	0.19	0.85	0.19	0.85	-	-	1.6E-05	7.2E-05
3	24.06	105.40	4.38	19.20	2.51	11.00	0.13	0.58	0.26	1.13	0.26	1.13	0.26	1.13	-	-	2.2E-05	9.5E-05
6	3.63	15.90	4.43	19.40	1.28	5.60	0.13	0.59	0.26	1.14	0.26	1.14	0.26	1.14	-	-	2.2E-05	9.6E-05
7	3.63	15.90	4.43	19.40	1.28	5.60	0.13	0.59	0.26	1.14	0.26	1.14	0.26	1.14	-	-	2.2E-05	9.6E-05
4	12.62	3.16	8.74	2.18	0.29	0.07	1.89E-03	4.73E-04	6.24E-02	1.56E-02	6.24E-02	1.56E-02	6.24E-02	1.56E-02	-	-	-	-
SSM ²	-	-	-	-	Not specified	32.36	-	-	-	-	-	-	-	-	-	-	-	-
P1 & P2 ³					Not specified	10.90												
T1 to T3, L1, 18 ³	-	-	-	-	Not specified	188.00												
F1	-	-	-	-	1.2	5.05	-	-	-	-	-	-	-	-	-	-	-	-
M1 ²	-	-	-	-	Not specified	10.00	-	-	-	-	-	-	-	-	-	-	-	-
Totals	74.08	272.36	50.79	186.38	15.32	307.18	0.60	2.64	1.23	5.14	1.23	5.14	1.23	5.14	-	-	9.8E-05	4.31E-04

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).

² The VOC emission rate is carried forward from Construction Permit 0339-M8

³ The VOC emission rate is carried forward from Operating Permit P023-R3.

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

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

All applications for facilities that have emissions during routine or predictable startup, shutdown or scheduled maintenance (SSM)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 ₂ S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
SSM ³	-	-	-	-	unspecified	32.36	-	-	-	-	-	-	-	-	-	-	-	-
M1 ³	-	-	-	-	unspecified	10.00	-	-	-	-	-	-	-	-	-	-	-	-
P1 & P2 ⁴	-	-	-	-	unspecified	10.90	-	-	-	-	-	-	-	-	-	-	-	-
Totals	-	-	-	-	not specified	42.36	-	-	-	-	-	-	-	-	-	-	-	-

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).

³ The VOC emission rate is carried forward from Construction Permit 0339-M8

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 ¹		Acetaldehyde X HAP or TAP		Formaldehyde X HAP or TAP		n-Hexane X HAP or TAP		Provide Pollutant Name Here HAP or TAP		Provide Pollutant Name Here HAP or TAP		Provide Pollutant Name Here HAP or TAP		Provide Pollutant Name Here HAP or TAP		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										
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										
4	4	-	-	-	-	-	-	-	-										
18	18	-	-	-	-	-	-	-	-										
SSM	SSM	-	0.9	-	-	-	-	-	0.6										
P1	P1	-	0.3	-	-	-	-	-	0.2										
P2	P2	-	-	-	-	-	-	-	-										
T1	T1	-	0.2	-	-	-	-	-	0.2										
T1 T2 T3 flash ²	T1 T2 T3 flash ²	0.0	4.5	-	-	-	-	-	3.7										
T2	T2	0.0	0.2	-	-	-	-	-	0.2										
T3	T3	0.0	0.2	-	-	-	-	-	0.2										
F1	F1	0.0	0.2	-	-	-	-	-	0.1										
M1	M1	-	0.3	-	-	-	-	-	0.2										
L1	L1	2.7	0.0	-	-	-	-	2.4	-										
Totals		4.5	13.9	0.7	3.0	1.2	5.2	2.5	5.7										

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	32.78 Mscf	287.11 MMscf	--	--
2	Natural gas	Raw/Field Natural Gas	900 Btu/scf	32.78 Mscf	287.11 MMscf	--	--
3	Natural gas	Raw/Field Natural Gas	900 Btu/scf	43.50 Mscf	381.03 MMscf	--	--
6	Natural gas	Raw/Field Natural Gas	900 Btu/scf	43.90 Mscf	384.56 MMscf	--	--
7	Natural gas	Raw/Field Natural Gas	900 Btu/scf	43.90 Mscf	384.56 MMscf	--	--
4	Natural gas	Raw/Field Natural Gas	900 Btu/scf	3.573 Mscf	1.79 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	5.53	65.53	67.36	7.43	80.79	9.62
T2	40400311	Condensate	Hydrocarbon liquids	5.53	65.53	67.36	7.43	80.79	9.62
T3	40400311	Condensate	Hydrocarbon liquids	5.53	65.53	67.36	7.43	80.79	9.62
T4	40400315	Produced Water	Water; <1% hydrocarbon liquids	8.3	N/A*	N/A*	N/A*	N/A*	N/A*
T5 & T6	40400313	Lube Oil	Lube Oil	Insignificant source under Insignificant Activites List, Item No. 5 (Vapor pressure < 10 mm Hg)					
T7	40400313	Lube Oil	Lube oil	Insignificant source under Insignificant Activites List, Item No. 5 (Vapor pressure < 10 mm Hg)					
T8	40400313	Used Oil	Used Lube Oil	Insignificant source under Insignificant Activites List, Item No. 5 (Vapor pressure < 10 mm Hg)					
T10	40700816	Methanol	Methanol	6.6	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	Insignificant source under Insignificant Activites List, Item No. 5 (Vapor pressure < 10 mm Hg)					
T13	40400314	Biocide	Biocide	Trivial activity under Title V Trivial Activites List, Item No. 1 (<i>not a source of regulated emissions</i>)					
T14		Transmission Fluid	Transmission fluid	Trivial activity under Title V Trivial Activites List, Item No. 1 (<i>not a source of regulated emissions</i>)					
					* 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	63.6	3.66	3.24	MG	MG	Good	89,950	5.6
T2	1997	Condensate		FX	400	63.6	3.66	3.24	MG	MG	Good	89,950	5.6
T3	1997	Condensate		FX	400	63.6	3.66	3.24	MG	MG	Good	89,950	5.6
T4		Produced Water		N/A	80	12.7	N/A*	N/A*	N/A*	N/A*	N/A*	40,320	12
T5 & T6		Lube Oil		FX	7.5	1.2	Insignificant source under Insignificant Activites List, Item No. 5 (Vapor pressure < 10 mm Hg)						
T7		Lube Oil		FX	8.3	1.3	Insignificant source under Insignificant Activites List, Item No. 5 (Vapor pressure < 10 mm Hg)						
T8		Used Oil		FX	21.0	3.3	Insignificant source under Insignificant Activites List, Item No. 5 (Vapor pressure < 10 mm Hg)						
T10		Methanol		FX	500.0	79.5	4.6	0.05	LG	LG	Good	59,487	3
T11		Corrosion Inhibitor		FX	17.9	2.8	1.0	0.49	LG	LG	Good	9,000	12
T12		Diesel		FX	7.1	1.1	Insignificant source under Insignificant Activites List, Item No. 5 (Vapor pressure < 10 mm Hg)						
T13		Biocide		FX	3.0	0.5	Trivial activity under Title V Trivial Activites List, Item No. 1 (not a source of regulated emissions)						
T14		Transmission fluid		FX	3.6	0.6	Trivial activity under Title V Trivial Activites List, Item No. 1 (not a source of regulated emissions)						
							* N/A: The emission calculations do not yield this data.						

Table 2-P: Green House Gas Emissions

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

By checking this box, the applicant acknowledges the total CO₂e emissions are less than 75,000 tons per year.

Unit No.		CO ₂ ton/yr	N ₂ O ton/yr	CH ₄ ton/yr	SF ₆ ton/yr	PFC/HFC ton/yr ²						Total GHG Mass Basis ton/yr ⁴	Total CO ₂ e ton/yr ⁵
Unit No.	GWPs¹	1	298	25	22,800	footnote 3							
1	mass GHG	18,815.3	0.0354605	0.354605								18815.7	-
	CO ₂ e	18,815.3	10.6	8.9								-	18834.76
2	mass GHG	18,815.3	0.0	0.4								18815.7	-
	CO ₂ e	18,815.3	10.6	8.9								-	18834.8
3	mass GHG	20,417.4	0.0	0.4								20417.8	-
	CO ₂ e	20,417.4	11.5	9.6								-	20438.45
6	mass GHG	20,627.6	0.0	0.4								20627.98	-
	CO ₂ e	20,627.6	11.6	9.7								-	20648.9
7	mass GHG	20,627.6	0.0	0.4								20627.98	-
	CO ₂ e	20,627.6	11.6	9.7								-	20648.9
4	mass GHG	104.4	1.97E-04	1.97E-03								104.41	-
	CO ₂ e	104.4	0.1	0.0								-	104.5
5	mass GHG	284.0	5.35E-04	5.35E-03								284.05	-
	CO ₂ e	284.0	0.16	0.13								-	284.3
SSM	mass GHG	6.4	0.0	114.4								120.8	-
	CO ₂ e	6.4	0.0	2,861.0								-	2867.4
P1 & P2	mass GHG	2.2	0.0	38.6								40.8	-
	CO ₂ e	2.2	0.0	964.9								-	967.0
F1	mass GHG	0.7	0.0	12.3								13.0	-
	CO ₂ e	0.7	0.0	307.6								-	308.3

Unit No.		CO ₂ ton/yr	N ₂ O ton/yr	CH ₄ ton/yr	SF ₆ ton/yr	PFC/HFC ton/yr ²						Total GHG Mass Basis ton/yr ⁴	Total CO ₂ e ton/yr ⁵
Unit No.	GWPs ¹	1	298	25	22,800	footnote 3							
M1	mass GHG	2.0	0.0	35.4								37.3	-
	CO ₂ e	2.0	0.0	884.1								-	886.1
Separtors, Storage Tanks, L1	mass GHG	3.7	0.0	27.5								31.2	-
	CO ₂ e	3.7	0.0	687.8								-	691.5
L1	mass GHG	0.0	0.0	0.0								0.0	-
	CO ₂ e	0.0	0.0	0.0								-	0.0
Centrif. Com- pressors	mass GHG	39.0	0.0	697.3								736.3	-
	CO ₂ e	39.0	0.0	17,432.2								-	17471.2
Pneumatic Devices	mass GHG	1.3	0.0	22.3								23.6	-
	CO ₂ e	1.3	0.0	558.6								-	559.9
Pumps	mass GHG	0.1	0.0	2.0								2.1	-
	CO ₂ e	0.1	0.0	50.6								-	50.8
	mass GHG											0.0	-
	CO ₂ e											-	0.0
	mass GHG											0.0	-
	CO ₂ e											-	0.0
	mass GHG											0.0	-
	CO ₂ e											-	0.0
Total⁶	mass GHG	99,746.9	0.19	951.75								100,698.8	-
	CO ₂ e	99,746.9	55.99	23,793.8								-	123,596.7

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

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 CO₂e means Carbon Dioxide Equivalent and is calculated by multiplying the TPY mass emissions of the green house gas by its GWP.

⁶ The increase in mass GHG and CO₂e compared to previous permit applications is based on higher methane and lower VOC content of the updated gas sample. (The gas GHG con

Section 3

Application Summary

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

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

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

The Harvest Four Corners, LLC (Harvest) – La Jara Compressor Station is submitting this air quality permit application to the New Mexico Air Quality Bureau (NMAQB) for a modification to its Title V Operating Permit P023-R3, issued January 10, 2017, as administratively revised in P023-R3-M1 for a change in ownership. The facility is a production gathering field compressor station that pressurizes and dehydrates natural gas for transport through natural gas pipelines.

On November 6, 2018, the NMAQB issued construction permit 0339-M8 for the La Jara Compressor Station, which authorized a decrease in the allowable SSM blowdown emissions of VOC by 2.0 tpy and allowed an increase in the malfunction VOC emissions by 2.0 tpy. This application includes an administrative permit revision to remove the 300-gallon gasoline storage tank (unit T-9) from the construction permit (NSR 0339-M8-R1), being submitted under separate cover.

For Title V purposes, the facility is considered to have "commenced operation" on the date of issuance of the modified construction permit (November 6, 2018). Under 20.2.70.404.C(3)(b) of the New Mexico Administrative Code (NMAC), a complete application to modify the Operating Permit must be filed within 12 months of commencing operation under a revised [New Source Review (NSR)] construction permit (i.e., permit 0339-M8). Therefore, Harvest is submitting this application to modify its Title V Operating Permit.

The proposed Operating Permit modification does not result in any de-bottlenecking of facility processes, nor does it change the facility's major/minor status under the Title V and Prevention of Significant Deterioration [PSD] programs.

The La Jara Compressor Station authorized emission sources include:

- Two Solar Centaur T-4002 natural gas-fired turbines, units 1 and 2;
- One Solar Centaur T-4702 natural gas-fired turbine, unit 3;
- Two Solar Centaur 40-4702S natural gas-fired turbines, units 6 and 7;
- One Waukesha F3512G natural gas-fired standby generator, unit 4;
- One 3-phase separator, unit 18;
- SSM emissions of volatile organic compounds (VOC) from the turbines, compressors and piping associated with the station;
- A pig launcher and receiver, unit P1 and P2;
- Fugitive emissions of VOC from process piping leaks (valves, flanges, seals, etc.), unit F1;
- Three 400-barrel condensate storage tanks, units T1, T2 and T3;
- Truck loading of condensate liquid, unit L1; and
- Up to 10 tons per year (tpy) of VOC emissions from malfunctions (unit M1);

The facility is authorized to operate continuously.

Insignificant emission sources at the facility include one produced water storage tank (unit T4) and produced water truck loading (unit L2); one natural gas-fired fuel gas heater (unit 5); and miscellaneous other liquid storage tanks and gas transmission equipment. The regulatory justification for their insignificance is noted in Table 2-B of the application. Emission calculations are provided in section 6 for those units with insignificance based on emissions less than 1 ton per year (NMAQB *Operating Permit Program List of Insignificant Activities* (Title V Insignificant Activities List), March 24, 2005: Item No. 1.)

Under the current NSR and Title V Operating permits, the VOC emissions from the unit 18 separator, the condensate storage tanks (T1, T2 and T3) and condensate truck loading (L1) are aggregated under a single combined emission limit for "T1 to T3, L1, 18" in Table 106.A. Similarly, the VOC emissions from the pig launching (P1) and pig receiving (P2) are aggregated under a single combined emission limit for "P1 and P2" in Table 107.A. Harvest is not seeking any changes regarding the aggregated emission limits for these sources.

Proposed Operating Permit Modification

In order to align the Operating Permit with Construction Permit NSR 0339-M8 and its administrative revision (-R1), the following permit changes are requested:

- **Reduce** the allowable unit SSM (“Compressor and Associated Piping Blowdowns during Routine and Predictable Startup, Shutdown, and/or Maintenance (SSM)”) emissions limit in **Table 107.A: Allowable SSM and Malfunction Units, Activities, and Emission Limits** by 2.0 tpy of VOC (from the currently permitted 34.4 tpy VOC to 32.4 tpy of VOC); and
- **Increase** the allowable unit M1 (“Venting of Gas Due to Malfunction”) emission limit in **Table 107.A: Allowable SSM and Malfunction Units, Activities, and Emission Limits** by 2.0 tpy of VOC (from the currently permitted 8.0 tpy VOC to 10.0 tpy VOC).
- **Remove** the 300-gallon gasoline storage tank (unit T9) from the **Table 104.A: Regulated Sources List**, as well as requirements under 40 CFR 63, subpart CCCCCC cited in the permit, including:
 - **Table 103.A: Applicable Requirements**;
 - **Condition A106.A (Facility Allowable Emissions)**; and
 - **Condition A203 Tanks, subsection B (40 CFR 63, Subpart CCCCCC, Gasoline Dispensing Facilities (Unit T9))**;

The proposed changes do not result in any de-bottlenecking of operations, or any impacts or changes to the facility’s major/minor source status under Title V and PSD. (The facility remains a major source under the 20.2.70 NMAC Operating Permits program and the 20.2.74 NMAC Prevention of Significant Deterioration (PSD) program.)

The facility remains an area source of Hazardous Air Pollutants (HAP).

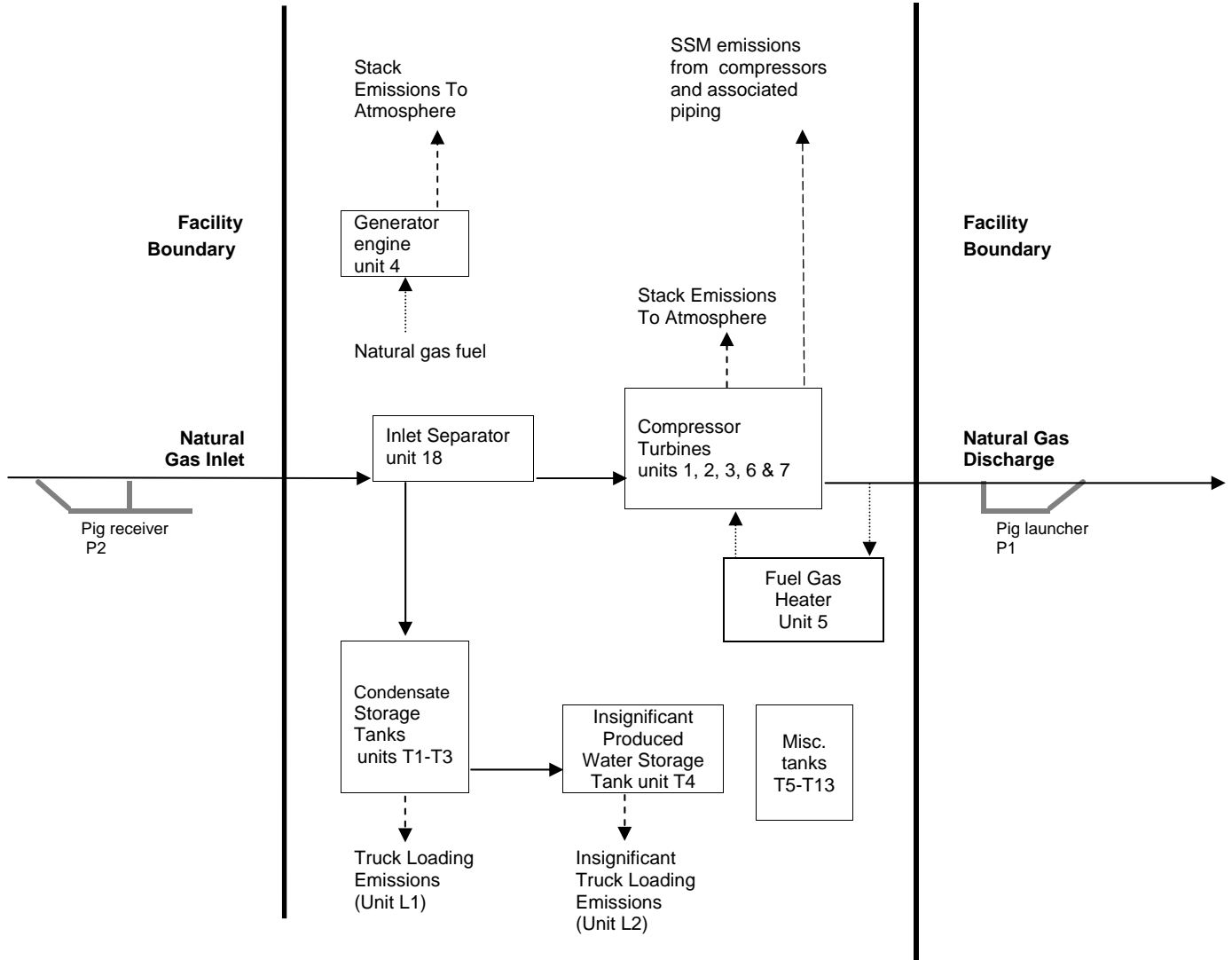
Additional Notes

Generator Engine. The Unit 4 Waukesha F3521G generator engine is a standby unit that operates less than 500 hours per year, and only during the unavoidable loss of commercial utility power, making it an insignificant emission source under the NMAQB Title V Insignificant Activities List, Item No. 7. However, as identified in Section 13, the engine is subject to the provisions of *National Emission Standards for Hazardous Air Pollutants (NESHAP)*, Title 40 of the Code of Regulations, part 63 (40 CFR 63), subpart ZZZZ for *Stationary Reciprocating Internal Combustion Engines*. Therefore, the unit is considered a regulated emission source under Title V and so included in Table 2-A, “Regulated Emission Sources”. (The unit 4 engine is regulated under the Construction Permit as well as the Operating Permit for the sake of consistency.)

Section 4

Process Flow Sheet

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



Section 5

Plot Plan Drawn To Scale

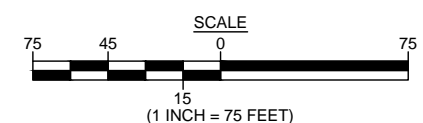
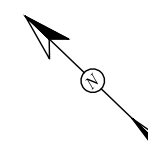
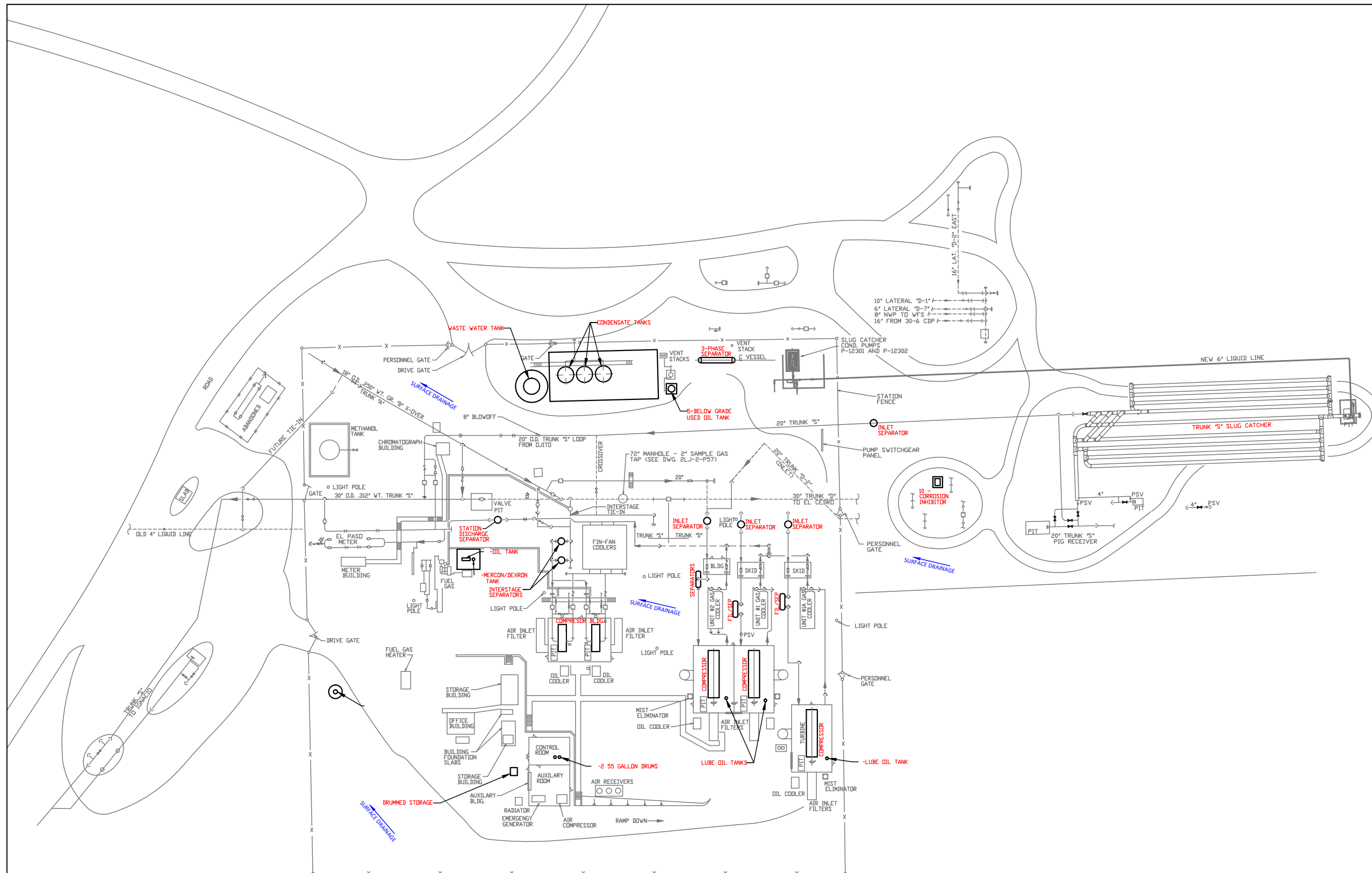
A **plot plan drawn to scale** showing emissions points, roads, structures, tanks, and fences of property owned, leased, or under direct control of the applicant. This plot plan must clearly designate the restricted area as defined in UA1, Section 1-D.12. The unit numbering system should be consistent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

Please see the following page(s).

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

DRAWN BY: C. Lameman	DATE DRAWN: November 7, 2013
REVISIONS BY: T. Goossen	DATE REVISED: April 20, 2016
CHECKED BY: M. Hannan	DATE CHECKED: April 20, 2016
APPROVED BY: M. Hannan	DATE APPROVED: April 20, 2016

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



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 rationale for why the others are reported as zero (or left blank in the SSM/GHG Tables). Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) 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.

Turbines

The Potential To Emit (PTE) for nitrogen oxides (NO_x), carbon monoxide (CO) and volatile organic compound (VOC) emissions from the combustion turbines (units 1, 2, 3, 6 and 7) are brought forward from the current Operating Permit (P023-R3). The sulfur dioxide (SO₂) and particulate emissions are calculated using AP-42 emission factors from Table 3.1-2a. Hazardous air pollutant (HAP) emissions are calculated using GRI-HAPCalc 3.0 emissions estimation software. All emission calculations assume operation at full site capacity for 8,760 hours per year.

The turbines start up with no load and a rich fuel mixture. As a result, the emissions during startups 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.

Harvest is not seeking any changes to the currently permitted emission limits associated with the turbines. Accordingly, the requested allowable emissions in Table 2-E are carried forward from the existing permit.

Backup Emergency Generator Reciprocating Engine

Emissions of nitrogen oxides (NO_x), carbon monoxide (CO) and volatile organic compound (VOC) emissions from the 4-stroke, rich burn (4SRB) natural gas fired Waukesha F3521G, unit 4, are calculated from engine manufacturer's data and the site-rated horsepower (hp) rating of the engine. Emissions of sulfur dioxide (SO₂) and particulate emissions are calculated from AP-42, Table 3.2-2 emission factors and the maximum fuel use. Uncontrolled hazardous air pollutants (HAPs) from the RICE are calculated with the GRI-HAPCalc 3.01 emissions estimation software. The emission calculations assume operation at full site capacity for 500 hours per year. The generator and its associated engine are limited to less than 500 hours of operation per year as it operates only during the loss of commercial utility power. The unit is a regulated source under the Operating Permit.

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 the operating temperature of the engine, emissions during startup are not expected to exceed the steady-state allowable emission rate limits. There are no Environmental Protection Agency (EPA)-approved test methods available to measure emissions during startup.

Similarly, emissions during shut down do not exceed the steady-state allowable limits because the fuel and air flow to the engine cease within seconds of shutdown. Emissions due to scheduled maintenance are negligible, as the engine is not in operation during maintenance.

Harvest is not seeking any changes to the currently permitted emission limits for the unit 4 emergency generator engine. Accordingly, the requested allowable emissions in Table 2-E are carried forward from the existing permit.

Fuel Gas Heater (Insignificant)

NO_x, CO, VOC, SO₂ and particulate emissions from the fuel gas heater (unit 5) are calculated using AP-42 emission factors and the maximum fuel use. Hazardous air pollutant (HAP) emissions are calculated using GRI-HAPCalc 3.0 emissions es. All emission calculations assume operation at full site capacity for 8,760 hours per year. The emission calculations are provided in this section. Based on a PTE of less than 1 tpy for any regulated air pollutant, the heater is an insignificant emission source under the Title V Insignificant Activities List, Item No. 1.

Startup, Shutdown & Routine Maintenance (SSM) Emissions of VOC from Turbines, Compressors, and Piping

During routine and predictable startup, shutdown and/or maintenance activities (SSM) of the turbines, compressors and piping blowdowns, emissions of VOC are released to the atmosphere. 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. Also, after a shutdown, high pressure gas in the compressor and associated piping is released to atmosphere as a safety precaution.

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

A compressor is also shut down for maintenance of the turbine engine, the compressor, or other equipment at the station. The maintenance is scheduled based the unit time in service and/or monitoring of equipment (visual and automated), in accordance with company and standard industry practice. This maintenance is also “routine or predictable”.

SSM venting emissions of VOC and HAP from facility turbines, compressors and piping blowdowns are calculated from the composition of the natural gas, the quantity of gas vented during each event, and the estimated number of annual events. The composition of the natural gas is based on an extended gas

analysis of the facility inlet gas line sampled on May 25, 2018. The quantity of gas vented during each event is determined by Harvest engineering. The annual number of blowdown events for the compressors are estimated based on historical data. A safety factor is added because VOC and HAP emissions from each blowdown event are dependent on the composition of the gas in the pipeline, and because the annual number of blowdowns may vary. Experience indicates the composition of the gas is also likely to vary. The use of the safety factor is designed to ensure an adequate emissions limit, which includes emissions from other non-blowdown miscellaneous startup, shutdown and maintenance activities.

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

Pig Launcher and Receiver

The facility includes a pipeline pig launcher (unit P1) and pig receiver (unit P2) for removal of hydrocarbons and water from the natural gas pipeline during pigging operations. A “pig” is a device that is periodically inserted into a pipeline for the purpose of cleaning and/or internal inspection. The pig is inserted into the line at an upstream location, and through the pressure of the natural gas behind it, is propelled downstream, pushing along with it residual material through the pipeline. The pig is then “caught” into a receptacle (pig receiver) at a downstream compressor station facility. Gas, hydrocarbon liquids and pressurized water “slugs” are pushed into the catcher (or into the inlet scrubber) where the gas is separated from the liquids and routed into the gathering pipeline. The depressurized hydrocarbon liquid and/or water mixture is drained and diverted to a storage tank for separation and storage.

A small amount of natural gas is released when the pig receiver is opened to insert or retrieve the pig, including VOC and HAP constituents in the natural gas. The pig launcher and receiver /slug catcher VOC emissions are fugitive emissions that result from opening valves at the pig receiving compartment along the line.

Emissions of VOC and HAP are calculated from the composition of the natural gas, and the sum aggregated volume of gas released per year during pigging operations. The composition of the natural gas is based on the inlet extended gas analysis identified above. The annual quantity of gas released is determined by Harvest engineering based on historical data with safety factor is incorporated. Harvest does not seek any changes to the currently permitted pigging (unit P1 and P2) emissions. Accordingly, the requested allowable emissions in Table 2-E and 2-F are carried forward from the existing permit.

Fugitive Emissions

Fugitive emissions of VOC and HAP from equipment leaks (unit F1) are calculated using emission factors from Table 2.4 of the 1995 Protocol for Equipment Leak Emission Estimates published by the

Environmental Protection Agency (EPA), equipment counts from Harvest, and the gas stream composition obtained from the extended gas analysis. The HAP components of the natural gas are derived from the species molar percentages in the natural gas. Due to the nature of the source, it is estimated that SSM emissions from valves, connectors, seals, etc. are accounted for in the calculations. Emission calculations are provided in this section.

Storage Tanks

Except for the condensate storage tanks (units T1, T2 and T3) all of the storage tanks at the La Jara Compressor Station are considered insignificant sources under the NMAQB's Title V Insignificant Activities List.

The PTE for VOC and HAP from the condensate storage tanks (units T1, T2 and T3) is calculated using USEPA's TANKS 4.0.9d tank emissions calculation software for the working/breathing losses, and HYSYS 2.4.1 for the facility-wide flash emissions. The HYSYS calculation output includes the flash emissions from the condensate storage tanks and the inlet separator (unit 18). The emission calculations are in this section. Note that the HYSYS emission model output set the basis of the current permit emission limits; however, a 2016 Title V application update (Rev.2) was provided to NMAQB that included a ProMax 3.2 flash emissions simulation update which demonstrated compliance with the permitted (allowable) emissions for the aggregated emission unit "T1 to T3, L1, 18"; however, no changes to the permitted emissions were requested. The 2016 Rev.2 application ProMax model output and supporting liquid analysis is provided in the section 7 documentation of this application. Harvest is not seeking any changes to the currently permitted emission limits (i.e., 188.0 tpy VOC) for the unit "T1 to T3, L1, 18" aggregated source. Accordingly, the requested allowable emissions in Table 2-E are carried forward from the existing permit.

Calculations for the methanol storage tank also utilizes the USEPA's TANKS 4.0.9d tank emissions calculation software, downloaded from the E.P.A. website.

- VOC and HAP emissions for the produced water storage tank (unit T4) are calculated by selecting the most conservative emission factors from the Colorado Department of Public Health and Environment (CDPHE) February 8, 2010 PS Memo 09-02 "Oil and Gas Produced Water Tank Batteries Regulatory Definitions and Guidance" and the Texas Commission on Environmental Quality (TCEQ) August 2010 project "Emission Factor Determination for Produced Water Storage Tanks", and the maximum annual facility-wide produced water throughput. Based on a PTE of less than 1 tpy for any regulated air pollutant, the unit T4 produced water storage tank is an insignificant source under the Title V Insignificant Activities List, Item No. 1.
- Residual oil #6 is used as an estimate for lubrication oil and used oil. As the vapor pressure of residual oil #6 is less than less than 10 mm of mercury (Hg), the tanks containing lubrication oil (units

T5, T6, and T7) and used oil (unit T8) are insignificant under the Title V Insignificant Activities List, Item No. 5.

- Emissions for the methanol storage tank (unit T10) are calculated using TANKS 4.09d emission calculation software. The calculated PTE is 661.7 pounds per year of VOC (methanol), less than 1 tpy. Therefore, the tank is an insignificant source under Item No. 1 of the Title V Insignificant Activities List.
- Emissions for the corrosion inhibitor storage tank (unit T11) are calculated using TANKS 4.09d emission calculation software. The calculated PTE is 38.77 pounds per year of VOC, well below 1 tpy. Therefore, the tank is an insignificant source under Item No. 1 of the Title V Insignificant Activities List.
- The vapor pressure of the diesel fuel stored in the unit T12 storage tank is less than less than 10 mm of Hg. Therefore, the unit T12 diesel tank is an insignificant source under the Title V Insignificant Activities List, Item No. 5.
- The MSDS for the BACTRON K-87 biocide in storage tank T13 shows it does not contain VOC or HAP. It is not a regulated source under the NMAQB *Operating Permit Program List of Trivial Activities* (Title V Trivial Activities List), September 15, 2008: Item No. 1.
- The MSDS for the Chevron ATF DEXTRON III/MERCON automatic transmission fluid in storage tank T14 shows it does not contain VOC or HAP. It is not a regulated source under the Title V Trivial Activities List, Item No. 1.

Due to the nature of operations, startup and shutdown emissions from the storage tanks are assumed to be accounted for in the TANKS 4.0.9d program used to calculate emissions. Emissions due to maintenance are negligible.

Condensate Truck Loading Emissions

VOC and HAP emissions from condensate truck loading activities (unit L1) are estimated using emission factors from AP-42 Section 5.2, *Truck Loading*, and the estimated maximum throughput of condensate loaded annually. The emission calculations assume submerged loading during transfer operations. The composition of the liquid (including HAP) is based on the vapor mass fractions of VOC in the TANKS 4.09d output.

Produced Water Truck Loading Emissions (Insignificant)

Emissions of VOC and HAP from produced water truck loading activities (unit L2) are estimated using emission factors from AP-42 Section 5.2, *Truck Loading* and the estimated maximum annual facility

throughput of produced water. The emission calculations assume submerged loading during transfer operations. The HAPs are calculated from the weight ratios of the CDPHE/TCEQ produced water emission factors of HAP to VOC (lb/bbl HAP / lb/bbl VOC), and applied to the truck loading pph and tpy VOC emission rates. Based on a calculated PTE of less than 1 tpy for any regulated air pollutant, the produced water truck loading emissions are an insignificant emission source under the Insignificant Activities List, Item No. 1.

Malfunctions

Malfunction (unit M1) emissions are set at 10 tons of VOC per year. Based on the gas release rate associated with the set emission rate, HAP emissions are estimated using the natural gas extended analysis described above. The HAP calculations are provided in this section.

Turbine Exhaust Emissions Data and Calculations

Unit Number: **1 & 2**

Description: **Solar Centaur T-4002**

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

Horsepower Calculations

6,325 ft above MSL	Elevation	
3,961 hp	Nameplate hp	Mfg. data
3,123 hp	Site-rated hp	NMAQB Procedure # 02.002-00
3,025 hp	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
32,775.16 scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
258,399.35 MMBtu/yr	Annual fuel consumption	MMBtu/hr x 8,760 hr/yr
287.11 MMscf/yr	Annual fuel consumption	scf/hr x 8,760 hr/yr / 1,000,000
900 Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutant	Uncontrolled,	
	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 (with safety factors)

Pollutant	Uncontrolled,		
	lb/MMBtu	pph	tpy
SO2	3.40E-03	1.00E-01	4.39E-01
TSP	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 (lb/MMBtu) taken from AP-42, Table 3.1-2a

Pollutant	Uncontrolled,		
	lb/MMscf	pph	tpy
Lead	5.00E-04	1.64E-05	7.18E-05

Emission factor (lb/MMscf) taken from AP-42, Table 1.4-2

Annual emissions based on 8,760 hr/yr operation

Exhaust Parameters

788.20 °F	Exhaust temperature	Mfg. data
72,242.16 cfm	Stack flowrate	Calculated from 1,797.8 lbm/min
2.50 ft	Stack diameter	Harvest
245.28 fps	Stack velocity	Stack flowrate / stack area / 60
21.00 ft	Stack height	Harvest

Turbine Exhaust Emissions Data and Calculations

Unit Number: **3**
 Description: **Solar Centaur 40-4702**

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

Horsepower Calculations

6,325 ft above MSL	Elevation	
4,680 hp	Nameplate hp	Mfg. data
3,690 hp	Site-rated hp	NMAQB Procedure # 02.002-00
3,779 hp	Site-rated hp	Mfg. data

Fuel Consumption

10,359 Btu/hp-hr	Brake specific fuel consumption	Mfg. data
39.15 MMBtu/hr	Hourly fuel consumption	Btu/hp-hr x Mfg. site-rated hp / 1,000,000
43,496 scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
342,925 MMBtu/yr	Annual fuel consumption	MMBtu/hr x 8,760 hr/yr
381.03 MMscf/yr	Annual fuel consumption	scf/hr x 8,760 hr/yr / 1,000,000
900 Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutant	Uncontrolled,	
	pph	tpy
NOX	24.06	105.40
CO	4.38	19.20
VOC	2.51	11.00

Emission rates taken from the Solar Data Sheet

Pollutant	Uncontrolled,		
	lb/MMBtu	pph	tpy
SO2	3.40E-03	1.33E-01	5.83E-01
TSP	6.60E-03	2.58E-01	1.13
PM10	6.60E-03	2.58E-01	1.13
PM2.5	6.60E-03	2.58E-01	1.13

Emission factors (lb/MMBtu) taken from AP-42, Table 3.1-2a

Pollutant	Uncontrolled,		
	lb/MMscf	pph	tpy
Lead	5.00E-04	2.17E-05	9.53E-05

Emission factor (lb/MMscf) taken from AP-42, Table 1.4-2

Annual emissions based on 8,760 hr/yr operation

Exhaust Parameters

797.00 °F	Exhaust temperature	Mfg. data
68737.83 cfm	Stack flowrate	Calculated from 101,917 lbm/hr & 872 °F
6.50 ft	Stack diameter	Harvest
34.52 fps	Stack velocity	Stack flowrate / stack area / 60
32.00 ft	Stack height	Harvest

Turbine Exhaust Emissions Data and Calculations

Unit Number: **6 & 7**

Description: **Solar Centaur 40-4702S**

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

Horsepower Calculations

6,325 ft above MSL	Elevation	
4,680 hp	Nameplate hp	Mfg. data
3,690 hp	Site-rated hp	NMAQB Procedure # 02.002-00
3,934 hp	Site-rated hp	Mfg. data

Fuel Consumption

10,043 Btu/hp-hr	Brake specific fuel consumption	Mfg. data
39.51 MMBtu/hr	Hourly fuel consumption	Btu/hp-hr x Mfg. site-rated hp / 1,000,000
43,899.07 scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
346,100.26 MMBtu/yr	Annual fuel consumption	MMBtu/hr x 8,760 hr/yr
384.56 MMscf/yr	Annual fuel consumption	scf/hr x 8,760 hr/yr / 1,000,000
900 Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutant	Uncontrolled,	
	pph	tpy
NOX	3.63	15.90
CO	4.43	19.40
VOC	1.28	5.60

Emission rates taken from the Solar Data Sheet

Pollutant	Uncontrolled,		
	lb/MMBtu	pph	tpy
SO2	3.40E-03	1.34E-01	5.88E-01
TSP	6.60E-03	2.61E-01	1.14
PM10	6.60E-03	2.61E-01	1.14
PM2.5	6.60E-03	2.61E-01	1.14

Emission factors (lb/MMBtu) taken from AP-42, Table 3.1-2a

Pollutant	Uncontrolled,		
	lb/MMscf	pph	tpy
Lead	5.00E-04	2.19E-05	9.61E-05

Emission factor (lb/MMscf) taken from AP-42, Table 1.4-2

Annual emissions based on 8,760 hr/yr operation

Exhaust Parameters

789.00 °F	Exhaust temperature	Mfg. data
71994.26 cfm	Stack flowrate	Calculated from 107,429 lbm/hr
2.50 ft	Stack diameter	Harvest
244.44 fps	Stack velocity	Stack flowrate / stack area / 60
39.00 ft	Stack height	Harvest

GRI-HAPCalc® 3.0
Turbine Report

Facility ID:	LA JARA	Notes:
Operation Type:	COMPRESSOR STATION	
Facility Name:	LA JARA COMPRESSOR STATION	
User Name:	Williams Four Corners, LL	
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)

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

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)

<u>Chemical Name</u>	<u>Emissions</u>	<u>Emission Factor</u>	<u>Emission Factor Set</u>
<u>HAPs</u>			
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: T4002

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)

<u>Chemical Name</u>	<u>Emissions</u>	<u>Emission Factor</u>	<u>Emission Factor Set</u>
<u>HAPs</u>			
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 (emergency generator)**
 Description: Waukesha F3521G (Naturally Aspirated)

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

Horsepower Calculations

6,325 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 + $[(792,000 \times \text{NMAQB Site-rated hp}) / (\text{rpm} \times \text{in}^3)]$

Fuel Consumption

7301 Btu/hp-hr	Brake specific fuel consumption	Mfg. data
3.216 MMBtu/hr	Hourly fuel consumption	Btu/hp-hr x NMAQB Site-rated hp / 1,000,000
3,573 scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
500 hr/yr	Annual operating time	Harvest
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
900 Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutants	Emission Factors, g/hp-hr	Uncontrolled Emission Rates,	
		pph	tpy
NOX	13.0	12.62	3.16
CO	9.0	8.74	2.18
VOC	0.3	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	5.88E-04	1.89E-03	4.73E-04
TSP	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

Emission factors taken from AP-42, Table 3.2-3

Particulate factors include both filterable and condensable 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

Pollutant	Emission Factor, lb/MMscf	Uncontrolled Emission Rates,	
		pph	tpy
Lead	5.00E-04	1.79E-06	4.47E-07

Emission factor taken from AP-42, Table 1.4-2

Uncontrolled Emission Rate (pph) = lb/MMscf x (scf/hr / 1,000,000)

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
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

GRI-HAPCalc® 3.01
Engines Report

Facility ID:	LA JARA C.S.	Notes:
Operation Type:	COMPRESSOR STATION	
Facility Name:	LA JARA COMPRESSOR STATION	
User Name:	Cirrus	
Units of Measure:	U.S. STANDARD	

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

Engine Unit

Unit Name: 4

Hours of Operation: 500 Yearly

Rate Power: 440 hp

Fuel Type: NATURAL GAS

Engine Type: 4-Stroke, Rich Burn

Emission Factor Set: EPA > FIELD > LITERATURE

Additional EF Set: -NONE-

Calculated Emissions (ton/yr)

<u>Chemical Name</u>	<u>Emissions</u>	<u>Emission Factor</u>	<u>Emission Factor Set</u>
HAPs			
Formaldehyde	0.0164	0.06765700 g/bhp-hr	EPA
Methanol	0.0024	0.01009900 g/bhp-hr	EPA
Acetaldehyde	0.0022	0.00920800 g/bhp-hr	EPA
1,3-Butadiene	0.0005	0.00218810 g/bhp-hr	EPA
Acrolein	0.0021	0.00867990 g/bhp-hr	EPA
Benzene	0.0013	0.00521450 g/bhp-hr	EPA
Toluene	0.0004	0.00184160 g/bhp-hr	EPA
Ethylbenzene	0.0000	0.00008180 g/bhp-hr	EPA
Xylenes(m,p,o)	0.0002	0.00064360 g/bhp-hr	EPA
Styrene	0.0000	0.00003930 g/bhp-hr	EPA
Naphthalene	0.0001	0.00032050 g/bhp-hr	EPA
Ethylene Dibromide	0.0000	0.00007030 g/bhp-hr	EPA
Vinyl Chloride	0.0000	0.00002370 g/bhp-hr	EPA
Methylene Chloride	0.0000	0.00013600 g/bhp-hr	EPA
1,1-Dichloroethane	0.0000	0.00003730 g/bhp-hr	EPA
1,3-Dichloropropene	0.0000	0.00004190 g/bhp-hr	EPA
Chlorobenzene	0.0000	0.00004260 g/bhp-hr	EPA
Chloroform	0.0000	0.00004520 g/bhp-hr	EPA
1,1,2-Trichloroethane	0.0000	0.00005050 g/bhp-hr	EPA
1,1,2,2-Tetrachloroethane	0.0000	0.00008350 g/bhp-hr	EPA
Carbon Tetrachloride	0.0000	0.00005840 g/bhp-hr	EPA
Total	0.0256		

Criteria Pollutants

PM	0.0155	0.06405970 g/bhp-hr	EPA
CO	2.9747	12.27727470 g/bhp-hr	EPA
NMEHC	0.0237	0.09769010 g/bhp-hr	EPA
NOx	1.7672	7.29375730 g/bhp-hr	EPA
SO2	0.0005	0.00194060 g/bhp-hr	EPA

Other Pollutants

Butryaldehyde	0.0000	0.00016040 g/bhp-hr	EPA
Methane	0.1839	0.75907880 g/bhp-hr	EPA
Ethane	0.0563	0.23234410 g/bhp-hr	EPA
1,2-Dichloroethane	0.0000	0.00003730 g/bhp-hr	EPA
1,2-Dichloropropane	0.0000	0.00004290 g/bhp-hr	EPA
CO2	87.9607	363.03769350 g/bhp-hr	EPA

Heater Exhaust Emissions Data and Calculations

Unit Number: **5**

Description: Fuel Gas Heater (3-phase separator)

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

Fuel Consumption

0.50 MMBtu/hr	Capacity	Mfg. data
555.56 scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
4,380.00 MMBtu/yr	Annual fuel consumption	MMBtu/hr x 8,760 hr/yr
4.87 MMscf/yr	Annual fuel consumption	scf/hr x 8,760 hr/yr / 1,000,000
900 Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutant	Uncontrolled,		
	lb/MMscf	pph	tpy
NOX	100	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
TSP	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 (lb/MMBtu) taken from AP-42, Tables 1.4-1 & 1.4-2

Annual emissions based on 8,760 hr/yr operation

Exhaust Parameters

600.0 °F	Exhaust temperature	Mfg. data
127.8 acfm	Stack flowrate	Stack velocity * stack area * 60
0.67 ft	Stack diameter	Harvest
6.1 fps	Stack velocity	Estimated
13.0 ft	Stack height	Harvest

Turbine & Compressor Blowdown Emissions Calculations

Unit Number: **SSM**
 Description: Turbine, Compressor & Piping Associated With Station

Throughput

5 # of units	Number of units	Harvest
78 events/yr/unit	Blowdowns per year per unit	Harvest
4,357 scf/event	Gas loss per blowdown (compressor)	Harvest
12,400 scf/event	Gas loss per blowdown (turbine)	Harvest
6,575,447 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	9.843E-03	32.36
2,2,4-Trimethylpentane	5.547E-06	1.82E-02
Benzene	2.244E-05	7.38E-02
Ethylbenzene	8.395E-07	2.76E-03
n-Hexane	1.958E-04	6.44E-01
Toluene	3.861E-05	1.27E-01
Xylene	8.675E-06	2.85E-02

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

Gas Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Emission Factors, lb/scf
Carbon dioxide	1.6800	44.01	1.949E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.6988	28.01	5.159E-04
Methane	82.3344	16.04	3.481E-02
Ethane	8.3012	30.07	6.579E-03
Propane	4.0246	44.09	4.677E-03
Isobutane	0.6927	58.12	1.061E-03
n-Butane	1.1559	58.12	1.771E-03
Isopentane	0.3638	72.15	6.918E-04
n-Pentane	0.2712	72.15	5.157E-04
Cyclopentane	0.0127	70.14	2.348E-05
n-Hexane	0.0862	86.17	1.958E-04
Cyclohexane	0.0306	84.16	6.788E-05
Other hexanes	0.1985	86.18	4.509E-04
Heptanes	0.0545	100.20	1.439E-04
Methylcyclohexane	0.0444	98.19	1.149E-04
2,2,4-Trimethylpentane	0.0021	100.21	5.547E-06
Benzene	0.0109	78.11	2.244E-05
Toluene	0.0159	92.14	3.861E-05
Ethylbenzene	0.0003	106.17	8.395E-07
Xylenes	0.0031	106.17	8.675E-06
C8+ Heavies	0.0186	110.00	5.393E-05
Total	100.0004		
Total VOC			9.843E-03

Gas stream composition obtained from the Inlet - La Jara extended gas analysis dated June 25, 2018.
 Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

Pig Launcher Emissions Calculations

Unit Number: **P1**
 Description: Pig Launcher

Throughput

202 events/yr
 10,043 scf/event
 2,028,686 scf/yr

Blowdowns per year
 Gas loss per blowdown
 Annual gas loss

Harvest
 Harvest
 events/yr x scf/event

Emission Rates

Pollutants	Emission Factors, lb/scf	Uncontrolled, Emission Rates, tpy
VOC	9.843E-03	9.98
2,2,4-Trimethylpentane	5.547E-06	5.63E-03
Benzene	2.244E-05	2.28E-02
Ethylbenzene	8.395E-07	8.52E-04
n-Hexane	1.958E-04	1.99E-01
Toluene	3.861E-05	3.92E-02
Xylene	8.675E-06	8.80E-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	1.6800	44.01	1.949E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.6988	28.01	5.159E-04
Methane	82.3344	16.04	3.481E-02
Ethane	8.3012	30.07	6.579E-03
Propane	4.0246	44.09	4.677E-03
Isobutane	0.6927	58.12	1.061E-03
n-Butane	1.1559	58.12	1.771E-03
Isopentane	0.3638	72.15	6.918E-04
n-Pentane	0.2712	72.15	5.157E-04
Cyclopentane	0.0127	70.14	2.348E-05
n-Hexane	0.0862	86.17	1.958E-04
Cyclohexane	0.0306	84.16	6.788E-05
Other hexanes	0.1985	86.18	4.509E-04
Heptanes	0.0545	100.20	1.439E-04
Methylcyclohexane	0.0444	98.19	1.149E-04
2,2,4-Trimethylpentane	0.0021	100.21	5.547E-06
Benzene	0.0109	78.11	2.244E-05
Toluene	0.0159	92.14	3.861E-05
Ethylbenzene	0.0003	106.17	8.395E-07
Xylenes	0.0031	106.17	8.675E-06
C8+ Heavies	0.0186	110.00	5.393E-05
Total	100.0004		
Total VOC			9.843E-03

Gas stream composition obtained from the Inlet - La Jara extended gas analysis dated June 25, 2018.
 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

505 events/yr
374 scf/event
 188,870 scf/yr

Blowdowns per year
 Gas loss per blowdown
 Annual gas loss

Harvest
 Harvest
 events/yr x scf/event

Emission Rates

Pollutants	Emission Factors, lb/scf	Uncontrolled, Emission Rates, tpy
VOC	9.843E-03	0.930
2,2,4-Trimethylpentane	5.547E-06	5.24E-04
Benzene	2.244E-05	2.12E-03
Ethylbenzene	8.395E-07	7.93E-05
n-Hexane	1.958E-04	1.85E-02
Toluene	3.861E-05	3.65E-03
Xylene	8.675E-06	8.19E-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	1.6800	44.01	1.949E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.6988	28.01	5.159E-04
Methane	82.3344	16.04	3.481E-02
Ethane	8.3012	30.07	6.579E-03
Propane	4.0246	44.09	4.677E-03
Isobutane	0.6927	58.12	1.061E-03
n-Butane	1.1559	58.12	1.771E-03
Isopentane	0.3638	72.15	6.918E-04
n-Pentane	0.2712	72.15	5.157E-04
Cyclopentane	0.0127	70.14	2.348E-05
n-Hexane	0.0862	86.17	1.958E-04
Cyclohexane	0.0306	84.16	6.788E-05
Other hexanes	0.1985	86.18	4.509E-04
Heptanes	0.0545	100.20	1.439E-04
Methylcyclohexane	0.0444	98.19	1.149E-04
2,2,4-Trimethylpentane	0.0021	100.21	5.547E-06
Benzene	0.0109	78.11	2.244E-05
Toluene	0.0159	92.14	3.861E-05
Ethylbenzene	0.0003	106.17	8.395E-07
Xylenes	0.0031	106.17	8.675E-06
C8+ Heavies	0.0186	110.00	5.393E-05
Total	100.0004		
Total VOC			9.843E-03

Gas stream composition obtained from the Inlet - La Jara extended gas analysis dated June 25, 2018.
 Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

Equipment Leaks Emissions Calculations

Unit Number: **F1**

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

Steady-State Emission Rates

Equipment	Number of Components, # of sources	Emission Factors, kg/hr/source	Emission Factors, lb/hr/source	Uncontrolled TOC Emission Rates,	
				pph	tpy
Valves	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 of TOC, %	Uncontrolled Emission Rates,	
					pph	tpy
Carbon dioxide	1.6800	44.010	73.937	3.803		
Hydrogen sulfide	0.0000	34.070	0.000	0.000		
Nitrogen	0.6988	28.013	19.576	1.007		
Methane	82.3344	16.043	1320.891	67.943		
Ethane	8.3012	30.070	249.617	12.840		
Propane	4.0246	44.097	177.473	9.129	6.72E-01	2.94
Isobutane	0.6927	58.123	40.262	2.071	1.52E-01	6.68E-01
n-Butane	1.1559	58.123	67.184	3.456	2.54E-01	1.11E+00
Isopentane	0.3638	72.150	26.248	1.350	9.94E-02	4.35E-01
n-Pentane	0.2712	72.150	19.567	1.006	7.41E-02	3.24E-01
Cyclopentane	0.0127	70.134	0.891	0.046	3.37E-03	1.48E-02
n-Hexane	0.0862	86.177	7.428	0.382	2.81E-02	1.23E-01
Cyclohexane	0.0306	84.161	2.575	0.132	9.75E-03	4.27E-02
Other hexanes	0.1985	86.177	17.106	0.880	6.48E-02	2.84E-01
Heptanes	0.0545	100.204	5.461	0.281	2.07E-02	9.05E-02
Methylcyclohexane	0.0444	98.188	4.360	0.224	1.65E-02	7.23E-02
2,2,4-Trimethylpentane	0.0021	114.231	0.240	0.012	9.08E-04	3.98E-03
Benzene	0.0109	78.114	0.851	0.044	3.22E-03	1.41E-02
Toluene	0.0159	92.141	1.465	0.075	5.55E-03	2.43E-02
Ethylbenzene	0.0003	106.167	0.032	0.002	1.21E-04	5.28E-04
Xylenes	0.0031	106.167	0.329	0.017	1.25E-03	5.46E-03
C8+ Heavies	0.0186	114.231	2.125	0.109	8.04E-03	3.52E-02
Total	100.0004		1944.105			
Total VOC				19.217	1.41	6.19

Gas stream composition obtained from the Inlet - La Jara extended gas analysis dated June 25, 2018.

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

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

Uncontrolled Emission Rates (pph) = Total Uncontrolled TOC Emission Rate (pph) x (% / 100)

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

Equipment Leaks Emissions Calculations

Unit Number: **F1**

Description: Valves, Connectors, Seals & Lines

Number of Compression Units at the Facility: **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 an evaluation of the Sim Mesa Compressor Station (two stage compression)

Storage Tank Emissions Data and Calculations

Unit Number: **Storage tanks**

Description: Storage tank emissions summary

Source	Description	Uncontrolled Working / Breathing (W/B) Losses (TANKS)		Uncontrolled Flash Emissions (HYSYS or VMGSim) (ton/yr)	Total Uncontrolled Emissions (ton/yr)
		(lb/yr)	(ton/yr)		
Tank T1	Condensate Storage Tank (400 bbl)				
VOC	<i>(includes facility-wide flash emissions, including from the Unit 18 3-phase separator)</i>	8,012.93	4.01	175.00	179.01
Benzene		27.67	1.38E-02	0.53624	5.50E-01
Ethylbenzene		0.13	6.50E-05	0.00160	1.67E-03
n-Hexane		326.37	1.63E-01	3.73153	3.89
Toluene		13.68	6.84E-03	0.21685	2.24E-01
Xylenes		0.97	4.85E-04	0.01129	1.18E-02
Tank T2	Condensate Storage Tank (400 bbl)				
VOC		8,012.93	4.01	with T1	4.01E+00
Benzene		27.67	1.38E-02	with T1	1.38E-02
Ethylbenzene		0.13	6.50E-05	with T1	6.50E-05
n-Hexane		326.37	1.63E-01	with T1	1.63E-01
Toluene		13.68	6.84E-03	with T1	6.84E-03
Xylenes		0.97	4.85E-04	with T1	4.85E-04
Tank T3	Condensate Storage Tank (400 bbl)				
VOC		8,012.93	4.01	with T1	4.01E+00
Benzene		27.67	1.38E-02	with T1	1.38E-02
Ethylbenzene		0.13	6.50E-05	with T1	6.50E-05
n-Hexane		326.37	1.63E-01	with T1	1.63E-01
Toluene		13.68	6.84E-03	with T1	6.84E-03
Xylenes		0.97	4.85E-04	with T1	4.85E-04
Tank T4	Produced Water Storage Tank 300 bbl)				
VOC	<i>Insignificant - Emissions < 1 tpy.</i>	0.13	0.13	N/A	0.13
Benzene		3.36E-03	3.36E-03	N/A	3.36E-03
Ethylbenzene		3.36E-04	3.36E-04	N/A	3.36E-04
n-Hexane		1.06E-02	1.06E-02	N/A	1.06E-02
Toluene		4.32E-03	4.32E-03	N/A	4.32E-03
Xylenes		2.88E-03	2.88E-03	N/A	2.88E-03

continued

Storage Tank Emissions Data and Calculations

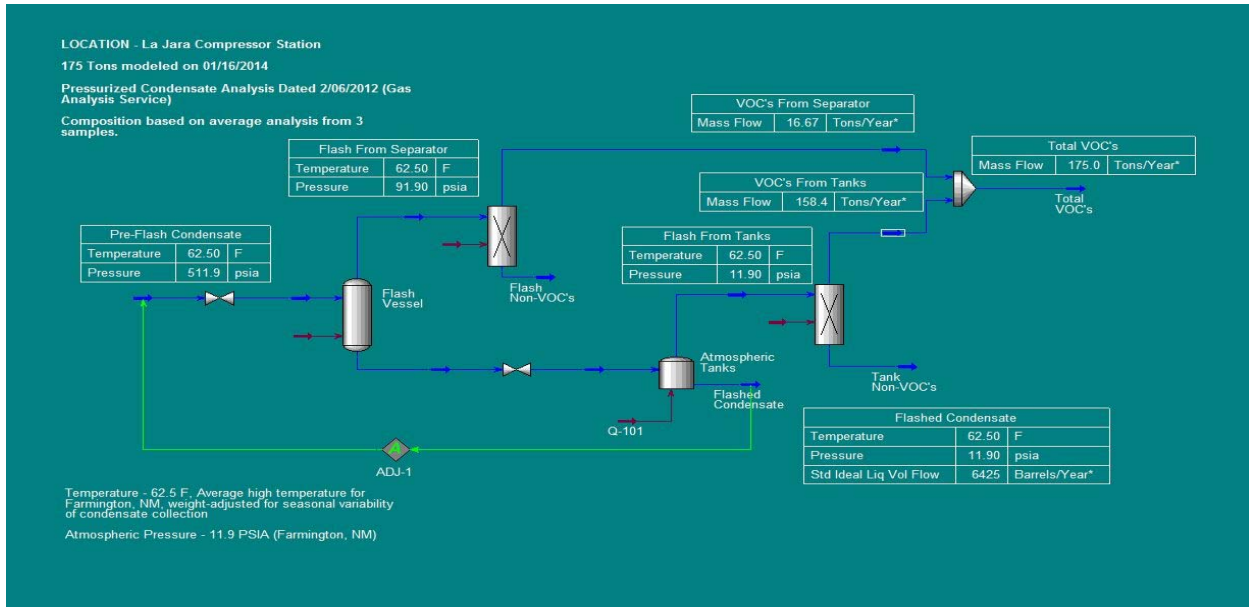
Unit Number: **Storage tanks**

Description: Storage tank emissions summary

Source	Description	Uncontrolled Working / Breathing (W/B) Losses (TANKS)		Uncontrolled Flash Emissions (HYSYS or VMGSim) (ton/yr)	Total Uncontrolled Emissions (ton/yr)
		(lb/yr)	(ton/yr)		
Tank T5 VOC	Lube Oil Storage Tank (500 gal) <i>Insignificant - $P_{\text{vapor}} < 10 \text{ mm Hg}$</i>	N/A	N/A	N/A	N/A
Tank T6 VOC	Lube Oil Storage Tank (500 gal) <i>Insignificant - $P_{\text{vapor}} < 10 \text{ mm Hg}$</i>	N/A	N/A	N/A	N/A
Tank T7 VOC	Lube Oil Storage Tank (500 gal) <i>Insignificant - $P_{\text{vapor}} < 10 \text{ mm Hg}$</i>	N/A	N/A	N/A	N/A
Tank T8 VOC	Used Oil Storage Tank (30 bbl) <i>Insignificant - $P_{\text{vapor}} < 10 \text{ mm Hg}$</i>	N/A	N/A	N/A	N/A
Tank T10 VOC Methanol	Methanol Storage Tank (100 bbl) <i>Insignificant - Emissions < 1 tpy.</i>	661.70 661.70	0.33 0.33	N/A N/A	0.33 0.33
Tank T11 VOC	Corrosion Inhibitor Storage Tank (50 gal) <i>Insignificant - Emissions < 1 tpy.</i>	38.77	1.94E-02	N/A	1.94E-02
Tank T12 VOC	Diesel Storage Tank (300 gal) <i>Insignificant - $P_{\text{vapor}} < 10 \text{ mm Hg}$</i>	N/A	N/A	N/A	N/A
Tank T13 VOC	Biocide Tank (125 gal) <i>Trivial Emissions, not regulated</i>	N/A	N/A	N/A	N/A
Tank T14 VOC	Transmission fluid tank (150 gal) <i>Trivial Emissions, not regulated</i>	N/A	N/A	N/A	N/A
FACILITY STORAGE TANK EMISSIONS TOTALS					
VOC		17,380.30	8.82	178.73	187.55
Benzene		83.01	4.49E-02	5.36E-01	5.81E-01
Ethylbenzene		0.39	5.31E-04	1.60E-03	2.13E-03
n-Hexane		979.12	5.00E-01	3.73E+00	4.23E+00
Methanol		661.70	3.31E-01	N/A	3.31E-01
Toluene		41.04	2.48E-02	2.17E-01	2.42E-01
Xylene		2.91	4.34E-03	1.13E-02	1.56E-02
Total HAP		1,768.18	9.06E-01	4.50E+00	5.40E+00

Working/breathing losses are calculated using TANKS 4.0.9d.

Facility-wide VOC flash emissions are calculated using HYSYS or VMGSim process programs.



Location: **La Jara Compressor Station**
 Operating Conditions: Pre-Flash Condensate (Inlet Separator) pressure of 500 psig and Flash Vessel inlet pressure of 80 psig
 Condensate Volume (post-flash): 6,425 bbls
 VOC Emissions: 175.0 Tons

Name	Pre-flash Condensate	Flashed Condensate	Flash Gas from Separator	Flash Gas from Tanks	Total VOC's
Vapor Fraction	0.01	0.00	1.00	1.00	1.00
Temperature [F]	62.50	62.50	62.50	62.50	na
Pressure [psia]	511.90	11.90	91.90	11.90	11.90
Mass Flow [tons/yr*]	961.94	745.63	16.67	158.37	175.04
Liquid Volume Flow [barrels/Year*]	8844.71	6425.00	171.07	1551.64	1722.70
Molecular Weight	70.22	84.35	53.71	59.76	59.13

Component Mass Fraction	Pre-flash Condensate	Flashed Condensate	Flash Gas from Separator	Flash Gas from Tanks	Tons of VOC (calculated)
Nitrogen	0.00007	0.00000	0.00000	0.00000	na
CO2	0.00245	0.00004	0.00000	0.00000	na
Methane	0.01979	0.00007	0.00000	0.00000	na
Ethane	0.02165	0.00127	0.00000	0.00000	na
Propane	0.05735	0.01480	0.53566	0.31492	58.80308
i-Butane	0.03759	0.02049	0.11115	0.12255	21.26097
n-Butane	0.08935	0.05975	0.18735	0.24679	42.20712
i-Pentane	0.10229	0.09831	0.06884	0.12319	20.65751
n-Pentane	0.09969	0.10287	0.04981	0.09452	15.80029
n-Hexane	0.08411	0.10126	0.01064	0.02244	3.73153
n-Heptane	0.24396	0.30807	0.00836	0.01772	2.94532
n-Octane	0.03566	0.04570	0.00034	0.00070	0.11714
n-Nonane	0.00774	0.00996	0.00002	0.00004	0.00729
n-Decane	0.00246	0.00317	0.00000	0.00000	0.00070
n-C11	0.00214	0.00275	0.00000	0.00000	0.00018
n-C12	0.00184	0.00237	0.00000	0.00000	0.00005
n-C13	0.00157	0.00203	0.00000	0.00000	0.00001
n-C14	0.00133	0.00172	0.00000	0.00000	0.00000
n-C15	0.00113	0.00146	0.00000	0.00000	0.00000
n-C16	0.00095	0.00123	0.00000	0.00000	0.00000
n-C17	0.00080	0.00103	0.00000	0.00000	0.00000
n-C18	0.00067	0.00086	0.00000	0.00000	0.00000
n-C19	0.00055	0.00072	0.00000	0.00000	0.00000
n-C20	0.00220	0.00283	0.00000	0.00000	0.00000
Benzene	0.01150	0.01389	0.00153	0.00322	0.53624
E-Benzene	0.00052	0.00066	0.00000	0.00001	0.00160
Toluene	0.01873	0.02371	0.00062	0.00130	0.21685
p-Xylene	0.00435	0.00558	0.00003	0.00007	0.01129
2-Mpentane	0.06801	0.07963	0.01209	0.02507	4.17227
22-Mbutane	0.00560	0.00633	0.00136	0.00277	0.46072
22-Mpropane	0.00084	0.00065	0.00106	0.00158	0.26781
224-Mpentane	0.01058	0.01334	0.00034	0.00072	0.12028
23-Mbutane	0.02217	0.02568	0.00439	0.00904	1.50469
3-Mpentane	0.04036	0.04776	0.00638	0.01332	2.21595
TOTAL	0.99748	0.99996	1.00000	1.00000	175.03889

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

Identification

User Identification:	La Jara T1 (Condensate)
City:	La Jara
State:	New Mexico
Company:	Williams Four Corners LLC
Type of Tank:	Vertical Fixed Roof Tank
Description:	16,800 Gallon Condensate 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):	16,075.00
Turnovers:	5.60
Net Throughput(gal/yr):	89,950.00
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

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

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

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

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Condensate	All	67.36	53.93	80.79	59.23	7.4261	5.6336	9.6210	66.9898			85.22	
2-Methylpentane						3.2662	2.3439	4.4634	86.1800	0.1762	0.0986	86.18	Option 2: A=6.8391, B=1135.41, C=226.57
Benzene						1.4274	0.9846	2.0237	78.1100	0.0141	0.0035	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Butane (-n)						29.9323	23.3587	37.8099	58.1230	0.0607	0.3114	58.12	Option 1: VP60 = 26.098 VP70 = 31.306
Decane (-n)						0.0395	0.0291	0.0536	142.2900	0.0205	0.0001	142.29	Option 1: VP60 = .033211 VP70 = .041762
Ethylbenzene						0.1396	0.0876	0.2162	106.1700	0.0007	0.0000	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Heptane (-n)						0.7600	0.5088	1.1128	100.2000	0.3131	0.0408	100.20	Option 3: A=37358, B=8.2585
Hexane (-n)						2.3100	1.6303	3.2059	86.1700	0.1029	0.0407	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Isobutane						43.3101	34.4054	53.8156	58.1230	0.0208	0.1545	58.12	Option 1: VP60 = 38.144 VP70 = 45.161
Isopentane						11.8640	8.7212	15.5743	72.1500	0.0999	0.2031	72.15	Option 1: VP60 = 10.005 VP70 = 12.53
Nonane (-n)						0.0784	0.0568	0.1080	128.2600	0.0101	0.0001	128.26	Option 1: VP60 = .065278 VP70 = .08309
Octane (-n)						0.1769	0.1254	0.2493	114.2300	0.0465	0.0014	114.23	Option 1: VP60 = .145444 VP70 = .188224
Pentane (-n)						8.0308	5.9649	10.6537	72.1500	0.1046	0.1439	72.15	Option 3: A=27691, B=7.558
Toluene						0.4136	0.2726	0.6120	92.1300	0.0241	0.0017	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylene (-p)						0.1250	0.0786	0.1932	106.1700	0.0057	0.0001	106.17	Option 2: A=7.02063, B=1474.403, C=217.773

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

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

Annual Emission Calculations

Standing Losses (lb):	6,947.5040
Vapor Space Volume (cu ft):	1,201.6592
Vapor Density (lb/cu ft):	0.0880
Vapor Space Expansion Factor:	0.9331
Vented Vapor Saturation Factor:	0.1930
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):	0.0880
Vapor Molecular Weight (lb/lb-mole):	66.9898
Vapor Pressure at Daily Average Liquid	
Surface Temperature (psia):	7.4261
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:	0.9331
Daily Vapor Temperature Range (deg. R):	53.7176
Daily Vapor Pressure Range (psia):	3.9874
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid	
Surface Temperature (psia):	7.4261
Vapor Pressure at Daily Minimum Liquid	
Surface Temperature (psia):	5.6336
Vapor Pressure at Daily Maximum Liquid	
Surface Temperature (psia):	9.6210
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:	0.1930
Vapor Pressure at Daily Average Liquid:	
Surface Temperature (psia):	7.4261

Vapor Space Outage (ft):	10.6250
Working Losses (lb):	1,065.4220
Vapor Molecular Weight (lb/lb-mole):	66.9898
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.4261
Annual Net Throughput (gal/yr.):	89,950.0000
Annual Turnovers:	5.6000
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	16,075.0000
Maximum Liquid Height (ft):	19.0000
Tank Diameter (ft):	12.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	8,012.9260

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

Emissions Report for: Annual

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

Components	Losses(lbs)		
	Working Loss	Breathing Loss	Total Emissions
Condensate	1,065.42	6,947.50	8,012.93
Isobutane	164.64	1,073.58	1,238.21
Butane (-n)	331.80	2,163.62	2,495.42
Isopentane	216.38	1,411.02	1,627.41
Pentane (-n)	153.27	999.44	1,152.70
Hexane (-n)	43.39	282.97	326.37
Heptane (-n)	43.44	283.26	326.69
Benzene	3.68	23.99	27.67
Ethylbenzene	0.02	0.11	0.13
Toluene	1.82	11.86	13.68
Xylene (-p)	0.13	0.84	0.97
2-Methylpentane	105.07	685.12	790.19
Octane (-n)	1.50	9.78	11.28
Nonane (-n)	0.14	0.94	1.09
Decane (-n)	0.15	0.96	1.11

Truck Loading Emissions Calculations

Unit Number: **L1 - Insignificant source demonstration**

Description: Truck Loading (condensate)

Emission Factor

<p>0.6</p> <p>7.43 psia</p> <p>66.99 lb/lb-mole</p> <p>67.36 °F</p> <p>527.03 °R</p> <p>7.06 lb/10³ gal</p>	<p>Saturation factor, S</p> <p>True vapor pressure of liquid, P</p> <p>Molecular weight of vapors, M</p> <p>Temperature of liquid</p> <p>Temperature of liquid, T</p> <p>Emission factor, L</p>	<p>AP-42, Table 5.2-1 (submerged loading & dedicated service)</p> <p>TANKS 4.0 output file</p> <p>TANKS 4.0 output file</p> <p>TANKS 4.0 output file</p> <p>°F + 459.67</p> <p>AP-42, Section 5.2, Equation 1</p> $L = 12.46 \frac{SPM}{T}$
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Note: The total control efficiency is equal to the collection efficiency of the system (90 percent for trucks subjected to annual leak checks) times the control efficiency of the control device

Production Rate

<p>8.40 10³ gal/hr</p> <p>269.85 10³ gal/yr</p>	<p>Maximum hourly production rate</p> <p>Maximum annual production rate</p>	<p>Harvest</p> <p>Harvest</p>
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Steady-State Emission Rates

Pollutant	Uncontrolled Emission Rates,	
	pph	tpy
VOC	59.28	9.52E-01

Uncontrolled Emission Rate (pph) = lb/10³ gal x 10³ gal/hr

Uncontrolled Emission Rate (tpy) = lb/10³ gal x 10³ gal/yr / 2,000 lb/ton

Pollutants	Percent of VOC, %	Uncontrolled Emission Rates	
		pph	tpy
Benzene	0.3453	2.05E-01	3.29E-03
Ethylbenzene	0.0016	9.62E-04	1.54E-05
n-Hexane	4.0730	2.41	3.88E-02
Toluene	0.1707	1.01E-01	1.63E-03
m-Xylene	0.0121	7.18E-03	1.15E-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)

Storage Tank Emissions Calculations

Unit Number: **T4 - Insignificant source demonstration**

Description: Produced Water Tank

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

Throughput

3,360	gallons	Tank capacity	Harvest
12.000	annual turnovers	Turnovers per year	Harvest
40,320	gallons per year (gpy)	Annual liquid throughput	gallon capacity x turnovers/yr
960	barrels per year (bpy)	Annual liquid throughput	barrel capacity x turnovers/yr

Emission Rates

Pollutant	Emission Factor, lb/bbl	Uncontrolled Emission Rate, tpy
VOC	0.262	0.126
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 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 from the TCEQ Project 2010-29 (Emission Factor Determination for Produced Water Storage Tanks) report
 Emission Rate (tpy) = lb/bbl x bbl/yr / 2,000 lb/ton

Truck Loading Emissions Calculations

Unit Number: **L2 - Insignificant source demonstration**

Description: Truck Loading

Emission Factor

<p>0.6</p> <p>7.43 psia</p> <p>66.99 lb/lb-mole</p> <p>67.36 °F</p> <p>527.03 °R</p> <p>7.06 lb/10³ gal</p>	<p>Saturation factor, S</p> <p>True vapor pressure of liquid, P</p> <p>Molecular weight of vapors, M</p> <p>Temperature of liquid</p> <p>Temperature of liquid, T</p> <p>Emission factor, L</p>	<p>AP-42, Table 5.2-1 (submerged loading & dedicated service)</p> <p>TANKS 4.0 output file</p> <p>TANKS 4.0 output file</p> <p>TANKS 4.0 output file</p> <p>°F + 459.67</p> <p>AP-42, Section 5.2, Equation 1</p> $L = 12.46 \frac{SPM}{T}$
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Note: The total control efficiency is equal to the collection efficiency of the system (90 percent for trucks subjected to annual leak checks) times the control efficiency of the control device

Production Rate

<p>8.40 10³ gal/hr</p> <p>40.320 10³ gal/yr</p>	<p>Maximum hourly production rate</p> <p>Maximum annual production rate</p>	<p>Harvest</p> <p>Harvest</p>
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Steady-State Emission Rates

Pollutant	Uncontrolled Emission Rates,	
	pph	tpy
VOC	59.28	1.42E-01

Uncontrolled Emission Rate (pph) = lb/10³ gal x 10³ gal/hr

Uncontrolled Emission Rate (tpy) = lb/10³ gal x 10³ gal/yr / 2,000 lb/ton

Pollutants	Percent of VOC, %	Uncontrolled Emission Rates	
		pph	tpy
Benzene	2.67E-02	1.58E-02	3.80E-05
Ethylbenzene	2.67E-03	1.58E-03	3.80E-06
n-Hexane	8.40E-02	4.98E-02	1.19E-04
Toluene	3.44E-02	2.04E-02	4.89E-05
m-Xylene	2.29E-02	1.36E-02	3.26E-05

Wt. Fraction of VOC = Produced Water tank emission rate of pollutant (tpy) / tpy VOC.

Emission rate, pph = Wt. Fraction of VOC x VOC Emission rate (pph)

Emission rate, tpy = Wt. Fraction of VOC x VOC Emission rate (tpy)

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

Identification

User Identification:	La Jara T10 (Methanol)
City:	Bloomfield
State:	New Mexico
Company:	Williams 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

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

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

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

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
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
Bloomfield, New Mexico

Annual Emission Calculations

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
Bloomfield, 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 Identification 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

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

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

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

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Corrosion Inhibitor	All	64.94	53.24	76.64	58.39	1.2094	0.8499	1.6791	41.5452	0.0450	0.0011	68.87	
1,2,3-Trimethylbenzene						0.0180	0.0111	0.0284	120.2000	0.2700	0.0092	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	0.0900	0.0033	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	0.2700	0.3573	120.00	Option 2: A=7.07436, B=1573.622, C=208.564
1-Dodecanethiol						0.0000	0.0000	0.0000	202.4000	0.2700	0.6225	32.04	Option 2: A=7.0244, B=1817.8, C=164.1
Jet naphtha (JP-4)						1.4482	1.0972	1.7992	80.0000	0.0450	0.0066	106.17	Option 1: VP60 = 1.3 VP70 = 1.6
Methyl alcohol						1.6820	1.1617	2.3895	32.0400				Option 2: A=7.897, B=1474.08, C=229.13
Xylene (-m)						0.1073	0.0710	0.1586	106.1700				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 Calculations

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):	
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

Components	Losses(lbs)		
	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

Malfunction Emissions Data and Calculations

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

Emission Rates

Pollutants	Weight Percents, %	Uncontrolled Emission Rates, tpy
VOC		10.00
2,2,4-Trimethylpentane	5.635E-02	5.63E-03
Benzene	2.280E-01	2.28E-02
Ethylbenzene	8.529E-03	8.53E-04
n-Hexane	1.989E+00	0.199
Toluene	3.923E-01	3.92E-02
Xylene	8.813E-02	8.81E-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	1.6800	44.01		
Hydrogen sulfide	0.0000	34.07		
Nitrogen	0.6988	28.01		
Methane	82.3344	16.04		
Ethane	8.3012	30.07		
Propane	4.0246	44.09	1.7744	4.751E+01
Isobutane	0.6927	58.12	0.4026	1.078E+01
n-Butane	1.1559	58.12	0.6718	1.799E+01
Isopentane	0.3638	72.15	0.2625	7.028E+00
n-Pentane	0.2712	72.15	0.1957	5.239E+00
Cyclopentane	0.0127	70.14	0.0089	2.385E-01
n-Hexane	0.0862	86.17	0.0743	1.989E+00
Cyclohexane	0.0306	84.16	0.0258	6.896E-01
Other hexanes	0.1985	86.18	0.1711	4.581E+00
Heptanes	0.0545	100.20	0.0546	1.462E+00
Methylcyclohexane	0.0444	98.19	0.0436	1.167E+00
2,2,4-Trimethylpentane	0.0021	100.21	0.0021	5.635E-02
Benzene	0.0109	78.11	0.0085	2.280E-01
Toluene	0.0159	92.14	0.0147	3.923E-01
Ethylbenzene	0.0003	106.17	0.0003	8.529E-03
Xylenes	0.0031	106.17	0.0033	8.813E-02
C8+ Heavies	0.0186	110.00	0.0205	5.479E-01
Total	100.0004			
Total VOC			3.7346	

Gas stream composition obtained from the Inlet - La Jara extended gas analysis dated June 25, 2018.
 Component Weights (lb/lb-mole) = (% / 100) x Molecular Weights (lb/lb-mole)
 Weight Percents (%) = 100 x Component Weights (lb/lb-mole) / Total VOC Weight (lb/lb-mole)

Section 6.a

Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMAC)

Title V (20.2.70 NMAC), Minor NSR (20.2.72 NMAC), and PSD (20.2.74 NMAC) applicants must estimate and report greenhouse gas (GHG) emissions to verify the emission rates reported in the public notice, determine applicability to 40 CFR 60 Subparts, and to evaluate Prevention of Significant Deterioration (PSD) applicability. GHG emissions that are subject to air permit regulations consist of the sum of an aggregate group of these six greenhouse gases: carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

Calculating GHG Emissions:

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

Sources for Calculating GHG Emissions:

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

Global Warming Potentials (GWP):

Applicants must use the Global Warming Potentials codified in Table A-1 of the most recent version of 40 CFR 98 Mandatory Greenhouse Gas Reporting. The GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to that of one unit mass of CO₂ over a specified time period.

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

Metric to Short Ton Conversion:

Short tons for GHGs and other regulated pollutants are the standard unit of measure for PSD and title V permitting programs. 40 CFR 98 Mandatory Greenhouse Reporting requires metric tons.

1 metric ton = 1.10231 short tons (per Table A-2 to Subpart A of Part 98 – Units of Measure Conversions)

Greenhouse Gas (GHG) Emissions

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

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

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

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

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

40 CFR 98, Subpart W is published and available for download in its entirety through the U.S. Government Publications Office (GPO) website at <http://ecfr.gpoaccess.gov/> under the “Code of Federal Regulations” link. The API Compendium in its entirety is available at <http://www.api.org/environment-health-and-safety/climate-change/whats-new/compendium-ghg-methodologies-oil-and-gas-industry> . Excerpts of the cited 40 CFR 98 and API Compendium materials are provided in Section 7.

SSM Compressor Blowdown GHG. Compressor blowdown emissions (unit SSM), including emissions from SSM and compressor venting and associated piping, are calculated from the estimated total annual gas losses (scf/yr) and the molar fraction of CO₂ and CH₄ in the natural gas extended

analysis. The SSM emissions are estimated from the annual blowdown volume of gas. The emission calculations are provided in this section. The extended gas analysis used in the emission estimates is in Section 7.

Malfunction Emissions GHG. GHG emissions from the malfunction VOC emissions (Unit M-1) are calculated based on the estimated total volume of annual gas (scf/yr) associated with the specified type of VOC emissions and the molar fractions of CO₂ and CH₄ in the natural gas extended analysis.

Centrifugal Compressor Venting Emissions. Annual GHG emissions from centrifugal compressor vented emissions, including compressor blowdown leakage, oil degassing vents and isolation valve leakage, are estimated from the number of compressors; the estimated compressor operating times; the CO₂ and CH₄ molar composition of the gas stream; and the density of the GHG gases according to appropriate equations from 40 CFR 98, Subpart W, equations W-22 and W-36, and paragraph 98.233(v).

Isolation valve leakage occurs when the compressors are not in operation, i.e., when the compressors operate zero hours. The GHG emissions from isolation valve leakage are less than the combined blowdown valve leakage and oil degassing vent emissions that occur when compressor(s) are in operation. Therefore, the PTE is calculated assuming 87600 hours per year of compressor operation (corresponding with zero hours of isolation valve leakage per year).

Equipment Leaks Emissions. GHG emissions from facility-wide equipment leaks (Unit F-1) are based on the estimated total annual gas losses (scf/yr) associated with the estimated number of components, the corresponding emission factors from the EPA's 1995 *Protocol for Equipment Leak Emission Estimates*, and the molar fraction of CO₂ and CH₄ contained in the natural gas extended analysis.

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

Storage Tank and Truck Loading GHG. CO₂ and CH₄ type emissions from the facility-wide condensate flashed gas emissions (condensate tanks and inlet separator) are estimated based on an extrapolation of the 2018 La Jara Compressor Station Emission Inventory using the ProMax 3.2 program output file (stream "MIX-100", lb/hr) with a scaling factor to adjust the output to the PTE for VOC (tpy). The corresponding CO₂ and CH₄ emissions in tpy were then back-calculated. (The scaled ProMax calculation is an estimate, and (for the purposes of this permit application) only applies to the flashed emissions of CO₂ and CH₄.) The stabilized (post-flashed) condensate liquid transferred during truck loading operations (unit L1) does not contain appreciable amounts of any gases, including GHG.

GHG emissions from the produced water, lube oil, used lube oil, methanol, corrosion inhibitor and transmission fluid storage tanks are considered zero based on that the stored contents are either non-flashing liquids or are stabilized (post-flashed) liquid. Similarly, any liquids transferred during truck loading would not contain appreciable amounts of any gases, including GHG.

Green House Gas Emissions Data and Calculations

Sources	Facility Total Emissions				
	CO2, tpy	CH4, tpy	N2O, tpy	GHG, tpy	CO2e, tpy
Engine & Turbine Exhaust	99,407.54	1.87	0.19	99,409.61	99510.21
SSM Blowdowns	6.4071	114.4415	--	120.85	2867.45
Centrifugal Compressor Venting	38.98	697.29	--	736.27	17471.19
Heater & Boiler Exhaust	284.05	5.35E-03	5.35E-04	284.05	284.34
Pig Launchers & Receivers	2.1608	38.5952	--	40.76	967.04
Equipment Leaks	0.69	12.30	--	12.99	308.25
Natural Gas Pneumatic Device Venting	1.25	22.35	--	23.60	559.88
Natural Gas Driven Pneumatic Pump Venting	0.11	2.03	--	2.14	50.76
Malfunctions	1.98	35.36	--	37.34	886.05
Separators & Storage Tanks (Flash Emissions)	3.72	27.51	--	31.23	691.50
Total	99,746.89	951.75	1.88E-01	100,698.83	123,596.68

Engine & Turbine Exhaust Emissions

Unit Numbers	Description	Emission Factors			Emission Rates		
		CO2, kg/MMBtu	CH4, kg/MMBtu	N2O, kg/MMBtu	CO2, tpy	CH4, tpy	N2O, tpy
1	Solar Centaur T4002 Turbine	53.06	1.00E-03	1.00E-04	18,815.33	0.35	0.04
2	Solar Centaur T4002 Turbine	53.06	1.00E-03	1.00E-04	18,815.33	3.55E-01	3.55E-02
3	Solar Centaur 40-4702 Turbin	53.06	1.00E-03	1.00E-04	20,417.36	3.85E-01	3.85E-02
6	Solar Centaur 40-4702S Turb	53.06	1.00E-03	1.00E-04	20,627.56	3.89E-01	3.89E-02
7	Solar Centaur 40-4702S Turb	53.06	1.00E-03	1.00E-04	20,627.56	3.89E-01	3.89E-02
4	Waukesha F3521G RICE	53.06	1.00E-03	1.00E-04	104.41	1.97E-03	1.97E-04
Total					99,407.54	1.87	0.19

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

99,407.54

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 T4002 Turbine	Nat. Gas	8,760	33.12	36.80	322,368
2	Solar Centaur T4002 Turbine	Nat. Gas	8,760	33.12	36.80	322,368
3	Solar Centaur 40-4702 Turbin	Nat. Gas	8,760	35.94	39.93	349,816
6	Solar Centaur 40-4702S Turb	Nat. Gas	8,760	36.31	40.34	353,417
7	Solar Centaur 40-4702S Turb	Nat. Gas	8,760	36.31	40.34	353,417
4	Waukesha F3521G RICE	Nat. Gas	500	3.22	3.58	1,789

The fuel types and operating times are provided by Harvest

The LHV design heat rates are taken from manufacturers data

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

HHV Fuel Usages (MMBtu/yr) = HHV Design Heat Rates (MMBtu/hr) x hr/yr

SSM Blowdown Emissions

Unit Numbers	Description	Total Gas Losses, scf/yr	CO2 Emission Factors, lb/scf	CH4 Emission Factors, lb/scf	Emission Rates	
					CO2, tpy	CH4, tpy
SSM	SSM Blowdowns	6,575,447	0.0019	0.0348	6.41	114.44

The annual blowdown volumes are calculated from data provided by Harvest

The CO2 and CH4 emission factors are calculated from the facility extended gas analysis

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

Green House Gas Emissions Data and Calculations

Centrifugal Compressor Venting Emissions

Unit Numbers	Description	Emission Rates	
		CO2, tpy	CH4, tpy
NA	Blowdown Valve Leakage	7.14	127.77
NA	Oil Degassing Vents	31.84	569.52
NA	Isolation Valve Leakage	0.00	0.00
	Total	38.98	697.29

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

$$\text{CO2 Emission Rates (tpy)} = \# \times \text{scf/hr} \times \text{hr/yr} \times (\text{CO2 Mole Percent (\%)} / 100) \times \text{CO2 Density (kg/scf)} \times (2,204.6 \text{ lb/tonne} / 2,000 \text{ lb/ton}) / 1,000 \text{ kg/tonne}$$

$$\text{CH4 Emission Rates (tpy)} = \# \times \text{scf/hr} \times \text{hr/yr} \times (\text{CH4 Mole Percent (\%)} / 100) \times \text{CH4 Density (kg/scf)} \times (2,204.6 \text{ lb/tonne} / 2,000 \text{ lb/ton}) / 1,000 \text{ kg/tonne}$$

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	1.68	82.33	0.0526	0.0192
NA	Oil Degassing Vents	5	746.2	8,760	1.68	82.33	0.0526	0.0192
NA	Isolation Valve Leakage	5	10.8	0	1.68	82.33	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 & Boiler 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 (insignificant)	53.06	1.00E-03	1.00E-04	284.05	5.35E-03	5.35E-04
	Total				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 (insignificant)	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
PL	Pig Launcher	2,028,686	0.0019	0.0348	1.98	35.31
PR	Pig Receiver	188,870	0.0019	0.0348	0.18	3.29
	Total				2.1608	38.5952

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
NA	Valves	0.5	9.3
NA	Connectors	0.1	1.3
NA	Open-Ended Lines	0.0	0.6
NA	Pressure Relief Valves	0.1	1.1
	Total	0.69	12.30

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

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

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

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

Unit Numbers	Description	Number of Components, #	Emission Factors, scf/hr /component	CO2 Contents, mole %	CH4 Contents, mole %	Operating Times, hr/yr	CO2 Density, kg/scf	CH4 Density, kg/scf
NA	Valves	504	0.121	1.68	82.33	8,760	0.0526	0.0192
NA	Connectors	491	0.017	1.68	82.33	8,760	0.0526	0.0192
NA	Open-Ended Lines	133	0.031	1.68	82.33	8,760	0.0526	0.0192
NA	Pressure Relief Valves	37	0.193	1.68	82.33	8,760	0.0526	0.0192

The number of sources are calculated based on the number of compressors and dehydrators at the station (see criteria pollutant and HAP equipment leaks calculations)

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

The facility CO2 and CH4 contents are taken from the facility extended gas analysis

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

The CO2 & CH4 densities are taken from Subpart W, Paragraph 98.233(v)

Green House Gas Emissions Data and Calculations

Natural Gas Pneumatic Device Venting Emissions

Unit Numbers	Description	Number of Devices, #	Emission Factors, scf/hr/device	Operating Times, hr/yr	Emission Rates		
					CO2, tpy	CH4, tpy	
NA	Continuous High Bleed Pneumatic Devices	1	37.3	8,760	0.32	5.68	
NA	Intermittent Bleed Pneumatic Devices	8	13.5	8,760	0.92	16.45	
NA	Continuous Low Bleed Pneumatic Devices	1	1.39	8,760	0.01	0.21	
Total						1.25	22.35

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

$$\text{CO2 Emission Rates (tpy)} = \# \times \text{scf/hr/device} \times (\text{CO2 Content (mole \%)} / 100) \times \text{CO2 Conversion Factors (tonne CO2e/scf)} \times \text{hr/yr} \\ \times (2,204.6 \text{ lb/tonne} / 2,000 \text{ lb/ton}) / \text{CO2 Global Warming Potentials (tonne CO2e/tonne CO2)}$$

$$\text{CH4 Emission Rates (tpy)} = \# \times \text{scf/hr/device} \times (\text{CH4 Contents (mole \%)} / 100) \times \text{CH4 Conversion Factors (tonne CO2e/scf)} \times \text{hr/yr} \\ \times (2,204.6 \text{ lb/tonne} / 2,000 \text{ lb/ton}) / \text{CH4 Global Warming Potentials (tonne CO2e/tonne CH4)}$$

Unit Numbers	Description	CO2 Contents, mole %	CH4 Contents, mole %	CO2 Conversion Factors, tonne CO2e /scf	CH4 Conversion Factors, tonne CO2e /scf	CO2 Global Warming Potentials, tonne CO2e /tonne CO2	CH4 Global Warming Potentials, tonne CO2e /tonne CH4
NA	Continuous High Bleed Pneumatic Devices	1.68	82.33	5.262E-05	4.790E-04	1	25
NA	Continuous Low Bleed Pneumatic Devices	1.68	82.33	5.262E-05	4.790E-04	1	25
NA	Intermittent Bleed Pneumatic Devices	1.68	82.33	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	0.11	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

$$\text{CO2 Emission Rate (tpy)} = \# \times \text{scf/hr/pump} \times (\text{CO2 Content (mole \%)} / 100) \times \text{CO2 Conversion Factor (tonne CO2e/scf)} \times \text{hr/yr} \\ \times (2,204.6 \text{ lb/tonne} / 2,000 \text{ lb/ton}) / \text{CO2 Global Warming Potentials (tonne CO2e/tonne CO2)}$$

$$\text{CH4 Emission Rate (tpy)} = \# \times \text{scf/hr/pump} \times (\text{CH4 Content (mole \%)} / 100) \times \text{CH4 Conversion Factor (tonne CO2e/scf)} \times \text{hr/yr} \\ \times (2,204.6 \text{ lb/tonne} / 2,000 \text{ lb/ton}) / \text{CH4 Global Warming Potentials (tonne CO2e/tonne CH4)}$$

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	1.68	82.33	5.262E-05	4.790E-04	1	25

The facility CO2 and CH4 contents are taken from the facility extended gas analysis

The conversion factors are taken from Subpart W, Paragraph 98.233(a)

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

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

Green House Gas Emissions Data and Calculations

Malfunction Emissions

Unit Number	Description	Total Component Weight, lb/lb-mole	VOC Component Weight, lb/lb-mole	CO2 Weight % of Total, %	CH4 Weight % of Total, %	Emission Rates		
						VOC, tpy	CO2, tpy	CH4, tpy
M1	Malfunctions	20.37	3.73	3.63	64.83	10.00	1.98	35.36

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)

$$\text{CO2 Emission Rate (tpy)} = \text{VOC Emission Rate (tpy)} \times (\text{Total Component Weight (lb/lb-mole)} / \text{VOC Component Weight (lb-lb-mole)}) \times (\text{CO2 Weight \% of Total (\%)} / 100)$$

$$\text{CH4 Emission Rate (tpy)} = \text{VOC Emission Rate (tpy)} \times (\text{Total Component Weight (lb/lb-mole)} / \text{VOC Component Weight (lb-lb-mole)}) \times (\text{CH4 Weight \% of Total (\%)} / 100)$$

Separators & Storage Tanks (Flash Emissions)

Unit Number	Description	Emission Rates		Operating Time, hr/yr	Emission Rates	
		CO2, pph	CH4, pph		CO2, tpy	CH4, tpy
T1 to T3, L1, 18	Separator, Condensate Tanks, Loading	--	--	--	3.72	27.51
	Total				3.7196	27.5114

Emission rates (tpy) are extrapolated from 2018 Emission Inventory ProMax output for actual VOC versus PTE VOC.

The operating times are provided by Harvest

$$\text{Emission Rate (tpy)} = \text{Emission Rate (pph)} \times \text{Operating Time (hr/yr)} / 2,000 \text{ lb/ton}$$

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	1.6800	44.01	0.74	3.6293	0.0019
Hydrogen Sulfide	0.0000	34.07	0.00	0.0000	0.0000
Nitrogen	0.6988	28.01	0.20	0.9608	0.0005
Methane	82.3344	16.04	13.21	64.8256	0.0348
Ethane	8.3012	30.07	2.50	12.2528	0.0066
Propane	4.0246	44.09	1.77	8.7101	0.0047
IsoButane	0.6927	58.12	0.40	1.9762	0.0011
Normal Butane	1.1559	58.12	0.67	3.2977	0.0018
IsoPentane	0.3638	72.15	0.26	1.2884	0.0007
Normal Pentane	0.2712	72.15	0.20	0.9605	0.0005
Cyclopentane	0.0127	70.14	0.01	0.0437	0.0000
n-Hexane	0.0862	86.17	0.07	0.3646	0.0002
Cyclohexane	0.0306	84.16	0.03	0.1264	0.0001
Other Hexanes	0.1985	86.18	0.17	0.8397	0.0005
Heptanes	0.0545	100.20	0.05	0.2681	0.0001
Methylcyclohexane	0.0444	98.19	0.04	0.2140	0.0001
2,2,4-Trimethylpentane	0.0021	100.21	0.00	0.0103	0.0000
Benzene	0.0109	78.11	0.01	0.0418	0.0000
Toluene	0.0159	92.14	0.01	0.0719	0.0000
Ethylbenzene	0.0003	106.17	0.00	0.0016	0.0000
Xylenes	0.0031	106.17	0.00	0.0162	0.0000
C8+ heavies	0.0186	110.00	0.02	0.1004	0.0001
Total	100.0004		20.37	100.0000	0.0537
VOC			3.73	--	0.0098

Gas stream composition obtained from the Inlet - La Jara extended gas analysis dated June 25, 2018.

$$\text{Component Weights (lb/lb-mole)} = [\text{Mole Percents (\%)} / 100] \times \text{Molecular Weights (lb/lb-mole)}$$

$$\text{Weight Percent of Total (\%)} = 100 \times \text{Component Weights (lb/lb-mole)} / \text{Total Component Weight (lb/lb-mole)}$$

$$\text{Emission Factors (lb/scf)} = [\text{Mole Percents (\%)} / 100] \times \text{Molecular Weights (lb/lb-mole)} / 379.4 \text{ scf/lb-mole}$$

Green House Gas Emissions Data and Calculations

Flash Gas Stream Composition - **FOR GHG COMPOSITION ONLY**

(based on the ProMax flash emissions model for 2018 Emission Inventory (actual emissions), scaled from 28.3 tpy VOC up to PTE 188.0 tpy VOC)

Process Streams	Combined FG	Combined FG	Combined FG
Composition Phase: Total	Status: Solved From Block: MIX-100 To Block: --	Referenced to 28.3 tpy VOC	Referenced to 188.0 tpy VOC
Mass Fraction		(Not applicable)	(Not applicable)
Mass Flow	lb/h	Composition (tpy) @ 28.3 tpy VOC	Composition (tpy) @ 188.0 tpy VOC
Nitrogen	0	0.000	0.000
Methane	0.945512	4.141	27.511
Carbon Dioxide	0.127835	0.560	3.720
Ethane	1.03797	4.546	30.202
Propane	2.28910	10.026	66.606
Isobutane	0.830767	3.639	24.173
n-Butane	1.69880	7.441	49.430
Isopentane	0.656346	2.875	19.098
n-Pentane	0.509720	2.233	14.831
Isohexane	0.199839	0.875	5.815
n-Hexane	0.0998786	0.437	2.906
2,2,4-Trimethylpentane	0.000669813	0.003	0.019
Benzene	0.0167855	0.074	0.488
Heptane	0.121730	0.533	3.542
Toluene	0	0.000	0.000
Octane	0.0321267	0.141	0.935
Ethylbenzene	0.000250997	0.001	0.007
o-Xylene	0.000254195	0.001	0.007
Nonane	0.00220536	0.010	0.064
Decane	0.00204724	0.009	0.060
		28.30	188.0
Mole Fraction		(Not applicable)	(Not applicable)

¹ 28.3 tpy VOC = actual emissions reported for 2018
Composition (tpy) @ 28.3 tpy VOC = lb/hr x (8760 hr/yr) x (1 ton/2000 lbs)

² **188.0 tpy VOC** = permitted PTE
Composition (tpy) @ 188.0 tpy VOC = (188 tpy VOC / 28.3 tpy VOC) x Composition (tpy) @ 28.3 tpy VOC

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.
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Please see the following pages.

SOLAR TURBINES INCORPORATED
 ENGINE PERFORMANCE DATA
 EXHAUST GAS AND EMISSION DATA
 TEXT CHANGES
 JOB ID : 0

DATE RUN: -APR-92

REV. 5.5
 REV. 5.9
 REV. 5.4

--- 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
2.00	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
93.35	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)

H2	= 0.0000	CH4	= 92.7900	C2H4	= 0.0000	C2H6	= 4.1500
3H6	= 0.0000	C3H8	= 0.8400	C4	= 0.1800	C5	= 0.0400
5	= 0.0400	C7	= 0.0000	C8	= 0.0000	CO	= 0.0000
CO2	= 0.4400	H2	= 0.0000	H2O	= 0.0000	H2S	= 0.0001
1	= 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	<u>797</u>	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 Customer: WILLIAMS FIELD SERVICES
Water Injection: NO Inquiry Number: LAJARA STATION
Number of Engines Tested: 15
Model: CENTAUR 40-T4700 CS/MD 59F MATCH GAS
Emissions Data: REV. 1.2

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

PREDICTED EMISSION PERFORMANCE

A Caterpillar Company

Customer Wm Brothers	
Job ID	
Inquiry Number	
Run By NAPIERALA, GP	Date Run 18-AUG-97

Engine Model CENTAUR 40-T4700S CS/MD 59F MATCH SHIPMENTS AFTER 1/95	
Fuel Type SO NATURAL GAS	Water Injection NO
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 70.0 Deg. F	
PPMvd at 15% O2	*	25.00	*	50.00	*	25.000
ton/yr	*	15.93	*	19.40	*	5.555
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

PREDICTED ENGINE PERFORMANCE

A Caterpillar Company

Customer Wm Brothers	
Job ID	
Run By NAPIERALA, GP	Date Run 18-AUG-97
Engine Performance Code REV. 2.82	Engine Performance Data REV. 2.2

Model CENTAUR 40-T4700S
Package Type CS/MD
Match 59F MATCH
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

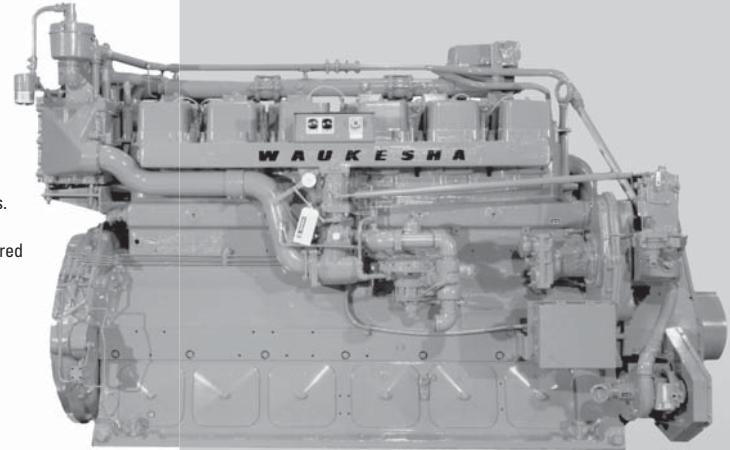
		1	2	3	4
Engine Inlet Temperature	Deg. F	10.0	30.0	60.0	85.0
Relative Humidity	%	60.0	60.0	60.0	60.0
Driven Equipment Speed	RPM	15500	15500	15500	15500
Specified Load	Hp	FULL	FULL	FULL	FULL
Net Output Power	Hp	3816	3719	3485	2997
Heat Rate	Btu/Hp-hr	9516	9515	9573	10043
Minimal Net Output Power	Hp	3934	3834	3593	3089
Minimal 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

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 prelude. 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. $WR^2 = 155000 \text{ lb-in}^2$; with ring gear (208 teeth), machined to accept two drive adapters: 31.88" (810 mm) pilot bore, 30.25" (768 mm) bolt circle, (12) 0.75"-10 tapped holes; or 28.88" (734 mm) pilot bore, 27.25" (692 mm) bolt circle, (12) 0.625"-11 tapped holes and (12) 0.75"-10 tapped holes.
- FLYWHEEL HOUSING** – No. 00 SAE.
- FUEL SYSTEM** – 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	Lube Oil Capacity
Inline 6	72 gal. (273 L)
Piston	Starting System
Displacement	50 - 150 psi air/gas
3520 cu. in.	24 V DC electric
(58 L)	Dry Weight
Bore & Stroke	14,500 lb. (6577 kg)
9.375" x 8.5"	
(238 x 216 mm)	
Compression Ratio	
10:1	
Jacket Water	
System Capacity	
48.5 gal. (184 L)	



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 T_{cr} (clause 10.1) as specified above limited to ± 10° F (± 5° C). Ratings are also valid for SAE J1349, BS5514, DIN6271 and AP17B-11C standard atmospheric conditions.

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

All natural gas engine ratings are based on a fuel of 900 Btu/ft³ (35.3 MJ/nm³) SLHV, with a 91 WKI®. For conditions or fuels other than standard, contact the Dresser Waukesha Application Engineering Department.

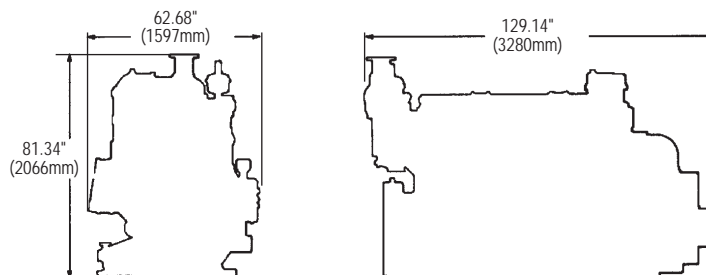
PERFORMANCE: F3521G VHP® SERIES GAS ENGINES

English				Metric			
3-Way Catalyst Settings	RPM	1200	1000	3-Way Catalyst Settings	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:

- Fuel consumption and exhaust emissions are based on ISO 3046/1-1995 standard reference conditions and commercial quality natural gas of 900 Btu/ft³ (35.38 MJ/m³ [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).
- S.I. exhaust emissions are corrected to 5% O₂ (0°C and 101.325 kPa).
- Data will vary due to variations in site conditions. For conditions and/or fuels other than standard, consult the Dresser Waukesha Application Engineering Department.
- Fuel consumption based on ISO 3046/1-1995 with a +5% tolerance for commercial quality natural gas having a 900 Btu/ft³ 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.



Bulletin 7008 1008

Dresser Waukesha
1101 West St. Paul Avenue · Waukesha, WI 53188-4999
Phone: (262) 547-3311 · Fax: (262) 549-2795

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Waukesha

www.dresser.com

HEAT REJECTION 3

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	DR: GERARD DATE: 1/76 APP'D: OFM	Ref. S <hr/> 6124-2
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HEAT REJECTION 3

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. $LB/MIN\ EXH. = CFM \times 0.0745 \times \frac{520}{EXH.TEMP. + 460}$


	HEAT BALANCE DATA MODEL F3521G NATURAL GAS 10:1 CR	DR: GERARD DATE: 1/76 APP'D: OFM	Ref. S <hr style="width: 50%; margin: 0 auto;"/> 6124-2
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Table 1.4-1. EMISSION FACTORS FOR NITROGEN OXIDES (NO_x) AND CARBON MONOXIDE (CO)
FROM NATURAL GAS COMBUSTION^a

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

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

^b Expressed as NO₂. For large and small wall fired boilers with SNCR control, apply a 24 percent reduction to the appropriate NO_x emission factor. For tangential-fired boilers with SNCR control, apply a 13 percent reduction to the appropriate NO_x emission factor.

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

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

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

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

VOC = Volatile Organic Compounds.

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

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

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

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

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) ^c (Fuel Input)	Emission Factor Rating
CO ₂ ^f	110	A	157	A
N ₂ O	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/10⁶ 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/10³ gallons. To convert from (lb/MMBtu) to (lb/10³ gallons), multiply by 139.

^f Based on 99.5% conversion of fuel carbon to CO₂ for natural gas and 99% conversion of fuel carbon to CO₂ for distillate oil. CO₂ (Natural Gas) [lb/MMBtu] = (0.0036 scf/Btu)(%CON)(C)(D), where %CON = weight percent conversion of fuel carbon to CO₂, 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/10⁶scf. For distillate oil, CO₂ (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 SO₂. 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



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

Analysis No: WF180093
 Cust No: 85000-13340

Well/Lease Information

Customer Name: WILLIAMS
 Well Name: LAJARA STATION INLET
 County/State: NM
 Location:
 Field:
 Formation:
 Cust. Stn. No.:

Source: MILAGRO WILLIAMS
 Well Flowing: Y
 Pressure: 230 PSIA
 Flow Temp: 70 DEG. F
 Ambient Temp: 90 DEG. F
 Flow Rate: 260 MCF/D
 Sample Method: Purge & Fill
 Sample Date: 06/25/2018
 Sample Time: 2.30 PM
 Sampled By: RYAN A.
 Sampled by (CO):

Heat Trace: N
 Remarks: CALCULATED MOLECULAR WEIGHT = 20.4075

Analysis

Component:	Mole%:	Unnormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.6988	0.7016	0.0770	0.00	0.0068
CO2	1.6800	1.6867	0.2880	0.00	0.0255
Methane	82.3344	82.6647	14.0010	831.58	0.4561
Ethane	8.3012	8.3345	2.2270	146.91	0.0862
Propane	4.0246	4.0407	1.1120	101.26	0.0613
Iso-Butane	0.6927	0.6955	0.2270	22.53	0.0139
N-Butane	1.1514	1.1560	0.3640	37.56	0.0231
Neopentane 2,2 dmc3	0.0045	0.0045	0.0020	0.18	0.0001
I-Pentane	0.3638	0.3653	0.1330	14.56	0.0091
N-Pentane	0.2712	0.2723	0.0990	10.87	0.0068
Neohexane	0.0094	N/R	0.0040	0.45	0.0003
2-3-Dimethylbutane	0.0122	N/R	0.0050	0.58	0.0004
Cyclopentane	0.0127	N/R	0.0040	0.48	0.0003
2-Methylpentane	0.0819	N/R	0.0340	3.89	0.0024
3-Methylpentane	0.0345	N/R	0.0140	1.64	0.0010
C6	0.0862	0.4794	0.0360	4.10	0.0026
Methylcyclopentane	0.0605	N/R	0.0210	2.72	0.0018
Benzene	0.0109	N/R	0.0030	0.41	0.0003
Cyclohexane	0.0306	N/R	0.0100	1.37	0.0009
2-Methylhexane	0.0113	N/R	0.0050	0.62	0.0004
3-Methylhexane	0.0108	N/R	0.0050	0.59	0.0004
2-2-4-Trimethylpentane	0.0021	N/R	0.0010	0.13	0.0001
i-heptanes	0.0070	N/R	0.0030	0.37	0.0002
Heptane	0.0254	N/R	0.0120	1.40	0.0009

Methylcyclohexane	0.0444	N/R	0.0180	2.32	0.0015
Toluene	0.0159	N/R	0.0050	0.71	0.0005
2-Methylheptane	0.0061	N/R	0.0030	0.38	0.0002
4-Methylheptane	0.0030	N/R	0.0020	0.19	0.0001
i-Octanes	0.0017	N/R	0.0010	0.10	0.0001
Octane	0.0060	N/R	0.0030	0.37	0.0002
Ethylbenzene	0.0003	N/R	0.0000	0.02	0.0000
m, p Xylene	0.0028	N/R	0.0010	0.14	0.0001
o Xylene (& 2,2,4 tmc7)	0.0003	N/R	0.0000	0.02	0.0000
i-C9	0.0005	N/R	0.0000	0.03	0.0000
C9	0.0005	N/R	0.0000	0.03	0.0000
i-C10	0.0004	N/R	0.0000	0.03	0.0000
C10	0.0004	N/R	0.0000	0.03	0.0000
i-C11	0.0000	N/R	0.0000	0.00	0.0000
C11	0.0000	N/R	0.0000	0.00	0.0000
C12P	0.0000	N/R	0.0000	0.00	0.0000
Total	100.00	100.401	18.720	1188.55	0.7035

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

**@ 14.730 PSIA & 60 DEG. F.

COMPRESSIBILITY FACTOR (1/Z): 1.0033
 BTU/CU.FT IDEAL: 1191.3
 BTU/CU.FT (DRY) CORRECTED FOR (1/Z): 1195.2
 BTU/CU.FT (WET) CORRECTED FOR (1/Z): 1174.4
 DRY BTU @ 15.025: 1219.1
 REAL SPECIFIC GRAVITY: 0.7055

CYLINDER #: 5
 CYLINDER PRESSURE: 236 PSIG
 ANALYSIS DATE: 06/26/2018
 ANALYSIS TIME: 11:16:56 AM
 ANALYSIS RUN BY: DAWN BLASSINGAME

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: 06/26/2018

GC Method: C12+BTEX Gas



WILLIAMS
WELL ANALYSIS COMPARISON

Lease: LAJARA STATION INLET

MILAGRO WILLIAMS

06/26/2018

Stn. No.:

85000-13340

Mtr. No.:

Smpl Date:	06/25/2018	04/30/2018	04/25/2017
Test Date:	06/26/2018	05/04/2018	04/25/2017
Run No:	WF180093	WF180062	WF170029
Nitrogen:	0.6988	0.9279	1.4606
CO2:	1.6800	1.7801	1.6643
Methane:	82.3344	81.1151	82.1250
Ethane:	8.3012	8.1419	8.2116
Propane:	4.0246	3.6522	4.0082
I-Butane:	0.6927	0.9438	0.6394
N-Butane:	1.1514	2.2097	1.0566
2,2 dmc3:	0.0045	0.0034	0.0089
I-Pentane:	0.3638	0.4662	0.3095
N-Pentane:	0.2712	0.3899	0.2148
Neohexane:	0.0094	0.0100	0.0080
2-3-	0.0122	0.0111	0.0255
Cyclopentane:	0.0127	0.0116	0.0220
2-Methylpentane:	0.0819	0.0751	0.0255
3-Methylpentane:	0.0345	0.0303	0.0232
C6:	0.0862	0.0700	0.0575
Methylcyclopentane:	0.0605	0.0515	0.0358
Benzene:	0.0109	0.0090	0.0078
Cyclohexane:	0.0306	0.0203	0.0177
2-Methylhexane:	0.0113	0.0058	0.0064
3-Methylhexane:	0.0000	0.0000	0.0000
2-2-4-	0.0021	0.0015	0.0013
i-heptanes:	0.0070	0.0034	0.0042
Heptane:	0.0254	0.0155	0.0137
Methylcyclohexane:	0.0444	0.0232	0.0257
Toluene:	0.0159	0.0079	0.0103
2-Methylheptane:	0.0061	0.0035	0.0031
4-Methylheptane:	0.0030	0.0019	0.0015
i-Octanes:	0.0017	0.0013	0.0012
Octane:	0.0060	0.0040	0.0026
Ethylbenzene:	0.0003	0.0017	0.0001
m, p Xylene:	0.0028	0.0001	0.0015
o Xylene (& 2,2,4	0.0003	0.0003	0.0001
i-C9:	0.0005	0.0009	0.0001
C9:	0.0005	0.0005	0.0001
i-C10:	0.0004	0.0006	0.0000
C10:	0.0004	0.0007	0.0001
i-C11:	0.0000	0.0000	0.0000
C11:	0.0000	0.0000	0.0000
C12P:	0.0000	0.0000	0.0000
BTU:	1195.2	1217.1	1172.9
GPM:	18.7420	18.8820	18.5880
SPG:	0.7055	0.7236	0.6990



**** 10 PSIG Precharge ****

C6+ C9+ C12+ C12+ BTEX Helium

Other _____ Date 5/25/18

Sampled By: (Co.) Williams Time 2:30 AM PM

Sampled by: (Person) Ryan Antonson Well Flowing: Yes No

Company: Williams Heat Trace: Yes No

Well Name: La Jara Station inlet Flow Pressure (PSIG): 230 ps

Location: La Jara Station Flow Temp (°F): 70

County/State: Rio Arriba, NM Ambient Temp (°F): 90

Formation: _____ Flow Rate (MCF/D): 260

Source: Meter Run Tubing Casing Bradenhead Other Inlet Piping

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

Meter Number: _____ Cylinder Number: 5

Contact: 505-787-0889

Remarks: WF 180093
88800-12915 Rec 6/25 after 1:00
24 hr
not any rush

1995 Protocol for Equipment Leak Emission Estimates

Emission Standards Division

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

November 1995

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

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

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

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

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



Certificate of Analysis
 Number: 2030-16060197-001A

Carencro Laboratory
 4790 NE Evangeline Thruway
 Carencro, LA 70520
 Phone 337-896-3055

Williams Field Services
 Williams Field Services
 c/o Alpha Bioscience Company
 2030 Afton Place
 Farmington, NM 87401

June 22, 2016

Field: Williams/LaJara Compressor Station
 Station Name: 17 30N 6W
 Station Location: RIO Arriba Co, NM
 Sample Point:
 Analyzed: 06/22/2016 12:10:07 by GR

Sampled By: BD-GAS
 Sample Of: Liquid Spot
 Sample Date: 06/16/2016 11:26
 Sample Conditions: 246 psig, @ 56 °F
 Method: GPA-2186M/GPA-2103
 Cylinder No: AZT014

Analytical Data

Components	Mol. %	MW	Wt. %	Sp. Gravity	L.V. %
Nitrogen	NIL	28.013	NIL	0.807	NIL
Methane	6.718	16.043	1.401	0.300	3.062
Carbon Dioxide	0.337	44.010	0.193	0.817	0.155
Ethane	4.249	30.069	1.661	0.356	3.058
Propane	8.792	44.096	5.040	0.507	6.516
Iso-Butane	4.104	58.122	3.101	0.563	3.613
n-Butane	11.051	58.122	8.351	0.584	9.374
Iso-Pentane	7.789	72.149	7.306	0.625	7.664
n-Pentane	8.050	72.149	7.550	0.631	7.850
i-Hexanes	6.578	84.577	7.232	0.669	7.087
n-Hexane	4.634	86.175	5.192	0.664	5.127
2,2,4-Trimethylpentane	0.067	114.231	0.099	0.697	0.093
Benzene	0.824	78.114	0.837	0.885	0.620
Heptanes	15.414	93.533	18.740	0.724	16.972
Toluene	NIL	NIL	NIL	NIL	NIL
Octanes	12.054	108.173	16.954	0.738	15.071
Ethylbenzene	0.116	106.167	0.160	0.872	0.120
Xylenes	0.159	106.167	0.219	0.885	0.162
Nonanes	2.460	124.315	3.978	0.750	3.479
Decanes Plus	6.604	139.655	11.986	0.788	9.977
	100.000		100.000		100.000

Calculated Physical Properties

	Total	C10+
Specific Gravity at 60°F	0.6558	0.7878
API Gravity at 60°F	84.283	48.114
Molecular Weight	76.922	139.655
Pounds per Gallon (in Vacuum)	5.467	6.568
Pounds per Gallon (in Air)	5.461	6.561
Cu. Ft. Vapor per Gallon @ 14.73 psia	26.909	17.806

Patti L. Petro

Hydrocarbon Laboratory Manager

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



Certificate of Analysis
 Number: 2030-16060197-001A

Carencro Laboratory
 4790 NE Evangeline Thruway
 Carencro, LA 70520
 Phone 337-896-3055

Williams Field Services
 Williams Field Services
 c/o Alpha Bioscience Company
 2030 Afton Place
 Farmington, NM 87401

June 22, 2016

Field: Williams/LaJara Compressor Station
 Station Name: 17 30N 6W
 Station Location: RIO Arriba Co, NM
 Sample Point:
 Analyzed: 06/22/2016 12:10:07 by GR

Sampled By: BD-GAS
 Sample Of: Liquid Spot
 Sample Date: 06/16/2016 11:26
 Sample Conditions: 246 psig, @ 56 °F
 Method: GPA-2186M/GPA-2103
 Cylinder No: AZT014

Analytical Data

Components	Mol. %	MW	Wt. %	Sp. Gravity	L.V. %
Nitrogen	NIL	28.013	NIL	0.807	NIL
Carbon Dioxide	0.337	44.010	0.193	0.817	0.155
Methane	6.718	16.043	1.401	0.300	3.062
Ethane	4.249	30.069	1.661	0.356	3.058
Propane	8.792	44.096	5.040	0.507	6.516
Iso-butane	4.104	58.122	3.101	0.563	3.613
n-Butane	11.051	58.122	8.351	0.584	9.374
Iso-pentane	7.789	72.149	7.306	0.625	7.664
n-Pentane	8.050	72.149	7.550	0.631	7.850
Hexanes	11.212	85.237	12.424	0.667	12.214
Heptanes Plus	37.698	108.095	52.973	0.747	46.494
	100.000		100.000		100.000

Calculated Physical Properties	Total	C7+
Specific Gravity at 60°F	0.6558	0.7473
API Gravity at 60°F	84.283	57.860
Molecular Weight	76.922	108.095
Pounds per Gallon (in Vacuum)	5.467	6.230
Pounds per Gallon (in Air)	5.461	6.223
Cu. Ft. Vapor per Gallon @ 14.73 psia	26.909	21.821

Patti L. Petro

Hydrocarbon Laboratory Manager

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



Certificate of Analysis
Number: 2030-16060197-001A

Carencro Laboratory
4790 NE Evangeline Thruway
Carencro, LA 70520
Phone 337-896-3055

Williams Field Services
Williams Field Services
c/o Alpha Bioscience Company
2030 Afton Place
Farmington, NM 87401

June 22, 2016

Field: Williams/LaJara Compressor Station
Station Name: 17 30N 6W
Station Location: RIO Arriba Co, NM
Sample Point:

Sampled By: BD-GAS
Sample Of: Liquid Spot
Sample Date: 06/16/2016 11:26
Sample Conditions: 246 psig, @ 56 °F
Cylinder No: AZT014

Analytical Data

Table with 7 columns: Test, Method, Result, Units, Detection Limit, Lab Tech., Analysis Date. Rows include Color Visual, API Gravity @ 60° F, Specific Gravity @ 60/60° F, Density @ 60° F, Shrinkage Factor, and Flash Factor.

Handwritten signature of Patti L. Petro

Hydrocarbon Laboratory Manager

Quality Assurance:

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

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



C6+ C9+ Other Extended liquid

Date 6-16-16 Time 11:26 AM PM

Sampled By Bob Durbin

Company: Williams

Well Flowing: Yes No

Well Name: LaTara Compressor station

Flow Pressure (PSIG): 246

Location: 17 30w lw

Flow Temp (°F): 56'

County/State: Rio Arriba, New Mexico

Ambient Temp (°F): 73'

Formation: _____

Flow Rate (MCF/D): —

Source: Meter Run Tubing Casing Bradenhead Other Pig reciever

Sample Type: Spot Composite Sample Method Purge & Fill Other displaced water

Meter Number: _____

Cylinder Number: A2T 014

Contact: _____

Remarks: _____

~~16060197-001A~~



Bryan Research & Engineering, Inc.

ProMax[®] 3.2

with
TSWEET[®] & PROSIM[®]

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Simulation Report

Project: La Jara Tank Flash.pmx

Licensed to Williams Midstream Natural Gas Liquids, Inc. and Customer's Org.

Client Name: Williams
Location: La Jara
Job: Liquids Flash Emissions

ProMax Filename: C:\Users\khong\Desktop\Active\Flash Models\La Jara\2016-06-27 La Jara Application\La Jara Tank Flash.pmx
ProMax Version: 3.2.13330.0
Simulation Initiated: 7/5/2016 11:34:24 AM

Bryan Research & Engineering, Inc.

Chemical Engineering Consultants
P.O. Box 4747 Bryan, Texas 77805
Office: (979) 776-5220
FAX: (979) 776-4818
<mailto:sales@bre.com>
<http://www.bre.com/>

Report Navigator can be activated via the ProMax Navigator Toolbar.

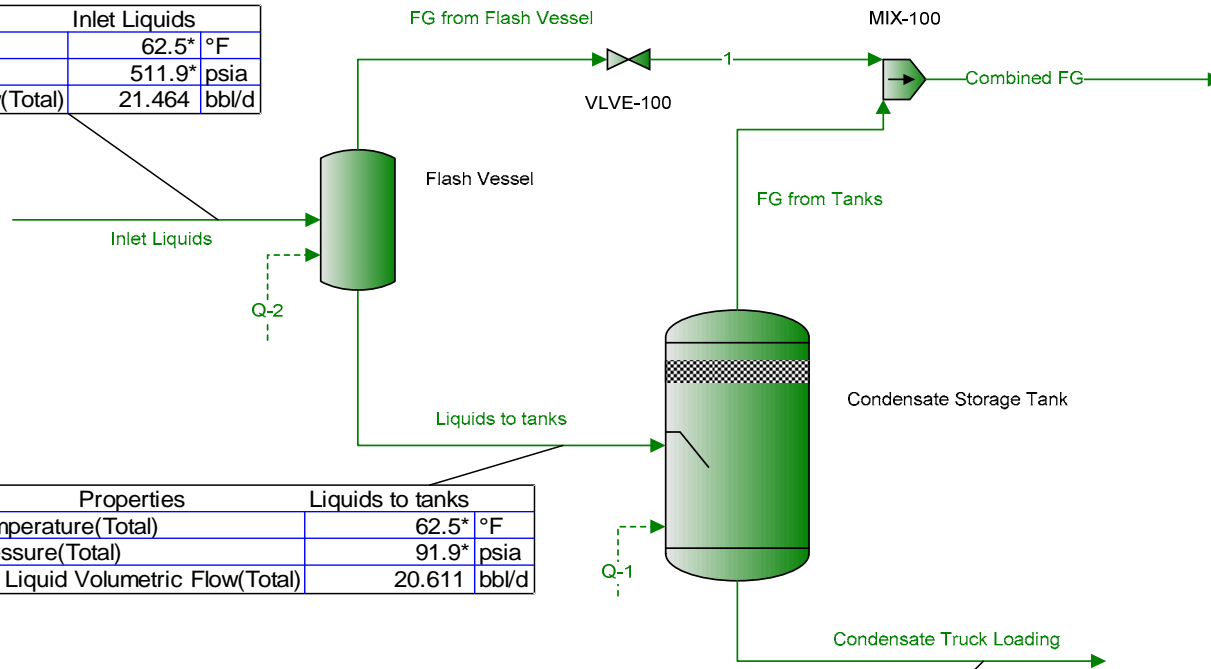
An asterisk (*), throughout the report, denotes a user specified value.

A question mark (?) after a value, throughout the report, denotes an extrapolated or approximate value.

La Jara Station Condensate Flash Emissions

Stream Combined FG C3+ Mass Flow =95.6 ton/yr

Properties	Inlet Liquids
Temperature(Total)	62.5* °F
Pressure(Total)	511.9* psia
Std Liquid Volumetric Flow(Total)	21.464 bbl/d



Properties	Liquids to tanks
Temperature(Total)	62.5* °F
Pressure(Total)	91.9* psia
Std Liquid Volumetric Flow(Total)	20.611 bbl/d

Properties	Condensate Truck Loading
Std Liquid Volumetric Flow(Total)	17.603* bbl/d

Process Streams	Combined FG	Condensate Truck Loading	FG from Flash Vessel	FG from Tanks	Inlet Liquids	Liquids to tanks
Composition	Status: Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block: MIX-100	Condensate Storage Tank	Flash Vessel	Condensate Storage Tank	--	Flash Vessel
	To Block: --	--	VLVE-100	MIX-100	Flash Vessel	Condensate Storage Tank
Mass Fraction						
Nitrogen	0	0	0	0	0*	0
Carbon Dioxide	0.0131414	5.90002E-05	0.0353684	0.00846820	0.00187603*	0.00104792
Methane	0.0976259	8.49302E-05	0.393271	0.0354660	0.0136325*	0.00424572
Ethane	0.106952	0.00151708	0.177700	0.0920774	0.0161611*	0.0121869
Propane	0.251074	0.0164528	0.186526	0.264646	0.0490396*	0.0456401
Isobutane	0.100363	0.0188515	0.0468574	0.111612	0.0301726*	0.0297601
n-Butane	0.213187	0.0599659	0.0875292	0.239607	0.0812469*	0.0810916
Isopentane	0.0884855	0.0682777	0.0302572	0.100728	0.0710844*	0.0720938
n-Pentane	0.0697081	0.0740725	0.0232241	0.0794814	0.0734663*	0.0747086
Hexane	0.0342959	0.136397	0.0108877	0.0392175	0.122216*	0.124969
Heptane	0.0173999	0.224074	0.00574436	0.0198505	0.195369*	0.200057
Octane	0.00462433	0.201514	0.00159757	0.00526071	0.174168*	0.178435
Nonane	0.000320164	0.0462946	0.000113266	0.000363664	0.0399092*	0.0408932
Decane	0.000296821	0.137978	0.000113073	0.000335454	0.118856*	0.121791
Benzene	0.00235738	0.00907450	0.000753836	0.00269453	0.00814156*	0.00832422
Ethylbenzene	3.59614E-05	0.00180322	1.24061E-05	4.09139E-05	0.00155777*	0.00159598
Toluene	0	0	0	0	0*	0
o-Xylene	3.64322E-05	0.00247373	1.27064E-05	4.14206E-05	0.00213522*	0.00218770
2,2,4-Trimethylpentane	9.59562E-05	0.00110875	3.12993E-05	0.000109550	0.000968083*	0.000991246
Mass Flow	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Nitrogen	0	0	0	0	0*	0
Carbon Dioxide	0.366659	0.0102061	0.171434	0.195225	0.376865*	0.205431
Methane	2.72386	0.0146915	1.90623	0.817627	2.73855*	0.832319
Ethane	2.98407	0.262429	0.861334	2.12274	3.24650*	2.38517
Propane	7.00521	2.84607	0.904110	6.10110	9.85128*	8.94717
Isobutane	2.80021	3.26099	0.227123	2.57309	6.06120*	5.83408
n-Butane	5.94813	10.3731	0.424264	5.52386	16.3212*	15.8970
Isopentane	2.46883	11.8109	0.146660	2.32217	14.2797*	14.1331
n-Pentane	1.94492	12.8133	0.112570	1.83235	14.7582*	14.6457
Hexane	0.956889	23.5945	0.0527738	0.904116	24.5514*	24.4986
Heptane	0.485473	38.7610	0.0278436	0.457630	39.2465*	39.2187
Octane	0.129023	34.8587	0.00774358	0.121280	34.9877*	34.9799
Nonane	0.00893288	8.00820	0.000549014	0.00838386	8.01714*	8.01659
Decane	0.00828158	23.8679	0.000548077	0.00773350	23.8762*	23.8757
Benzene	0.0657733	1.56974	0.00365393	0.0621194	1.63551*	1.63186
Ethylbenzene	0.00100336	0.311928	6.01336E-05	0.000943223	0.312931*	0.312871
Toluene	0	0	0	0	0*	0
o-Xylene	0.00101649	0.427915	6.15892E-05	0.000954903	0.428932*	0.428870
2,2,4-Trimethylpentane	0.00267727	0.191796	0.000151711	0.00252556	0.194473*	0.194321
Mole Fraction						
Nitrogen	0	0	0	0	0*	0
Carbon Dioxide	0.0125094	0.000123682	0.0207551	0.00927394	0.00337*	0.00198350
Methane	0.254937	0.00488416	0.633108	0.106552	0.06718*	0.0220462
Ethane	0.149008	0.00465465	0.152625	0.147589	0.04249*	0.0337065
Propane	0.238531	0.0344227	0.109244	0.289260	0.08792*	0.0862193
Isobutane	0.0723384	0.0299228	0.0208206	0.0925528	0.04104*	0.0426525
n-Butane	0.153659	0.0951834	0.0388926	0.198690	0.11051*	0.112622
Isopentane	0.0513785	0.0873069	0.0108307	0.0672885	0.07789*	0.0832381
n-Pentane	0.0404756	0.0947167	0.00831318	0.0530953	0.0805*	0.0862570
Hexane	0.0166724	0.146023	0.00326294	0.0219340	0.11212*	0.120802
Heptane	0.00727459	0.206307	0.00148055	0.00954804	0.15414*	0.166315
Octane	0.00169595	0.162754	0.000361194	0.00221968	0.12054*	0.130124
Nonane	0.000104577	0.0333008	2.28078E-05	0.000136661	0.0246*	0.0265601
Decane	8.73944E-05	0.0894665	2.05242E-05	0.000113633	0.06604*	0.0713052
Benzene	0.00126431	0.0107178	0.000249239	0.00166259	0.00824*	0.00887728
Ethylbenzene	1.41904E-05	0.00156699	3.01793E-06	1.85742E-05	0.00116*	0.00125227
Toluene	0	0	0	0	0*	0
o-Xylene	1.43761E-05	0.00214966	3.09098E-06	1.88042E-05	0.00159*	0.00171656
2,2,4-Trimethylpentane	3.51914E-05	0.000895485	7.07647E-06	4.62231E-05	0.00067*	0.000722869

Process Streams	Combined FG	Condensate Truck Loading	FG from Flash Vessel	FG from Tanks	Inlet Liquids	Liquids to tanks	
Properties	Status: Solved	Solved	Solved	Solved	Solved	Solved	
Phase: Total	From Block: MIX-100	Condensate Storage Tank	Flash Vessel	Condensate Storage Tank	--	Flash Vessel	
	To Block: --	--	VLVE-100	MIX-100	Flash Vessel	Condensate Storage Tank	
Property	Units						
Temperature	°F	57*	57	62.5	57*	62.5*	62.5*
Pressure	psia	15.8062	11.9	91.9	11.9*	511.9*	91.9*
Molecular Weight	lb/lbmol	41.8927	92.2569	25.8260	48.1970	79.0563	83.3016
Mass Density	lb/ft³	0.121525	42.4675	0.440081	0.105239	40.9985	41.3124
Molar Flow	lbmol/h	0.666009	1.87502	0.187684	0.478326	2.54103	2.35334
Mass Flow	lb/h	27.9010	172.983	4.84711	23.0539	200.884	196.037
Liquid Volumetric Flow	gpm	28.6242	0.507842	1.37319	27.3116	0.610883	0.591614
Std Liquid Volumetric Flow	sgpm	0.112633	0.513413*	0.0248819	0.0877513	0.626046	0.601165
Vapor Volumetric Flow	ft³/h	229.590	4.07332	11.0441	219.062	4.89979	4.74524
Std Vapor Volumetric Flow	MMSCFD	0.00606577	0.0107070	0.00170935	0.00435641	0.0231427	0.0214334

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.

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Document source:

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

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

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

Executive Summary

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

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

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

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

Table ES-1. Recommended Emission Factors and Comparative Data

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

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 ($\text{lb}/10^3 \text{ gal}$) of liquid loaded

S = a saturation factor (see Table 5.2-1)

P = true vapor pressure of liquid loaded, pounds per square inch absolute (psia)
(see Figure 7.1-5, Figure 7.1-6, and Table 7.1-2)

M = molecular weight of vapors, pounds per pound-mole ($\text{lb}/\text{lb-mole}$) (see Table 7.1-2)

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

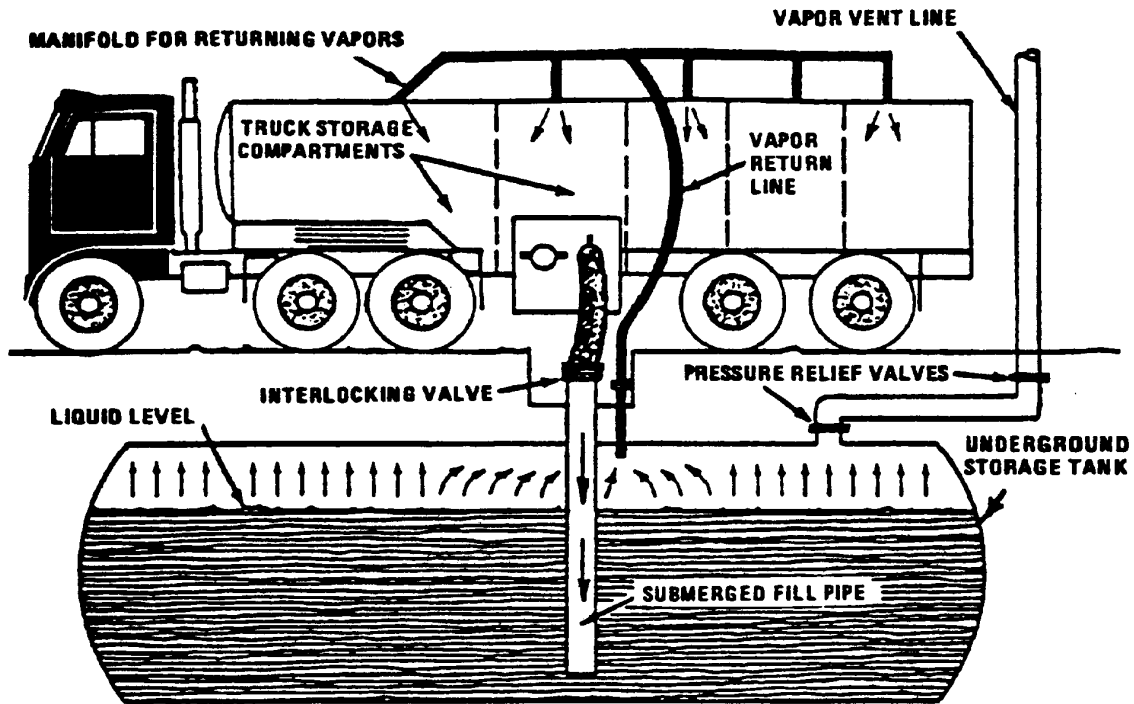


Figure 5.2-5. Tank truck unloading into a service station underground storage tank and practicing "vapor balance" form of emission control.

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

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



Baker Petrolite

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						
<p>National Fire Protection Association (U.S.A.)</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 10px;">Health</div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <table border="1" style="border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px; text-align: center;">3</td> <td style="width: 20px; height: 20px;"></td> </tr> <tr> <td style="width: 20px; height: 20px; text-align: center;">2</td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px; text-align: center;">0</td> </tr> </table> </div> <div style="margin-left: 10px;">Flammability</div> </div> <p style="text-align: center;">Reactivity</p> <p style="text-align: center;">Specific Hazard</p>					3		2		0
	3								
2		0							

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/m³ 8 hour(s).
 STEL: 325 mg/m³ 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.

Continued on Next Page

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, CO ₂) nitrogen oxides (NO, NO ₂ ...) Sulfur oxides (SO ₂ , SO ₃ ...).
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 CO ₂ 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.

Continued on Next Page

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	-40°C (-40°F)		
Solubility (Water)	Dispersible		
Boiling Point	Not available.		
Physical Chemical Comments	Not available.		

Continued on Next Page

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.

Continued on Next Page

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 (Mesitylene) 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)

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.

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	<p>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.</p>	
Threshold Planning Quantity (TPQ)	Not applicable.	
TSCA Inventory Status	<p>All components are included or are exempted from listing on the US Toxic Substances Control Act Inventory.</p> <p>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.</p>	
State Regulations	State specific information is available upon request from Baker Petrolite.	
International Regulations	<p>Canada Not all components are included on the Canadian Domestic Substances List.</p> <p>WHMIS (Canada) B-2, D-1B, D-2A, D-2B</p> <p>European Union Not all components are included on the European Inventory of Existing Commercial Chemical Substances or the European List of Notified Chemical Substances.</p>	

Continued on Next Page

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
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16. OTHER INFORMATION

NFPA RATING

HEALTH	2
FLAMMABILITY	2
INSTABILITY	0

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

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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 phosphltes	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), KECl (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.

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

[100-Year Time Horizon]

Name	CAS No.	Chemical formula	Global warming potential (100 yr.)
Carbon dioxide	124-38-9	CO ₂	1
Methane	74-82-8	CH ₄	^a 25
Nitrous oxide	10024-97-2	N ₂ O	^a 298
HFC-23	75-46-7	CHF ₃	^a 14,800
HFC-32	75-10-5	CH ₂ F ₂	^a 675
HFC-41	593-53-3	CH ₃ F	^a 92
HFC-125	354-33-6	C ₂ HF ₅	^a 3,500
HFC-134	359-35-3	C ₂ H ₂ F ₄	^a 1,100
HFC-134a	811-97-2	CH ₂ FCF ₃	^a 1,430
HFC-143	430-66-0	C ₂ H ₃ F ₃	^a 353
HFC-143a	420-46-2	C ₂ H ₃ F ₃	^a 4,470
HFC-152	624-72-6	CH ₂ FCH ₂ F	53
HFC-152a	75-37-6	CH ₃ CHF ₂	^a 124
HFC-161	353-36-6	CH ₃ CH ₂ F	12
HFC-227ea	431-89-0	C ₃ HF ₇	^a 3,220
HFC-236cb	677-56-5	CH ₂ FCF ₂ CF ₃	1,340
HFC-236ea	431-63-0	CHF ₂ CHFCF ₃	1,370
HFC-236fa	690-39-1	C ₃ H ₂ F ₆	^a 9,810
HFC-245ca	679-86-7	C ₃ H ₃ F ₅	^a 693
HFC-245fa	460-73-1	CHF ₂ CH ₂ CF ₃	1,030
HFC-365mfc	406-58-6	CH ₃ CF ₂ CH ₂ CF ₃	794
HFC-43-10mee	138495-42-8	CF ₃ CFHCFHCF ₂ CF ₃	^a 1,640
Sulfur hexafluoride	2551-62-4	SF ₆	^a 22,800
Trifluoromethyl sulphur pentafluoride	373-80-8	SF ₅ CF ₃	17,700
Nitrogen trifluoride	7783-54-2	NF ₃	17,200
PFC-14 (Perfluoromethane)	75-73-0	CF ₄	7,390
PFC-116 (Perfluoroethane)	76-16-4	C ₂ F ₆	^a 12,200
PFC-218 (Perfluoropropane)	76-19-7	C ₃ F ₈	^a 8,830

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

Name	CAS No.	Chemical formula	Global warming potential (100 yr.)
HFE-365mcf3	378-16-5	CF ₃ CF ₂ CH ₂ OCH ₃	11
HFE-374pc2	512-51-6	CH ₃ CH ₂ OCF ₂ CHF ₂	557
HFE-449sl (HFE-7100) Chemical blend	163702-07-6 163702-08-7	C ₄ F ₉ OCH ₃ (CF ₃) ₂ CFCF ₂ OCH ₃	297
HFE-569sf2 (HFE-7200) Chemical blend	163702-05-4 163702-06-5	C ₄ F ₉ OC ₂ H ₅ (CF ₃) ₂ CFCF ₂ OC ₂ H ₅	59
Sevoflurane	28523-86-6	CH ₂ FOCH(CF ₃) ₂	345
HFE-356mm1	13171-18-1	(CF ₃) ₂ CHOCH ₃	27
HFE-338mmz1	26103-08-2	CHF ₂ OCH(CF ₃) ₂	380
(Octafluorotetramethylene)hydroxymethyl group	NA	X-(CF ₂) ₄ CH(OH)-X	73
HFE-347mmy1	22052-84-2	CH ₃ OCF(CF ₃) ₂	343
Bis(trifluoromethyl)-methanol	920-66-1	(CF ₃) ₂ CHOH	195
2,2,3,3,3-pentafluoropropanol	422-05-9	CF ₃ CF ₂ CH ₂ OH	42
PFPMIE	NA	CF ₃ OCF(CF ₃)CF ₂ OCF ₂ O CF 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 CO₂ Emission Factors and High Heat Values for Various Types of Fuel

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

Fuel type	Default high heat value	Default CO₂ emission factor
Coal and coke	mmBtu/short ton	kg CO₂/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 CO₂/mmBtu
(Weighted U.S. Average)	1.026×10^{-3}	53.06
Petroleum products	mmBtu/gallon	kg CO₂/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	66.83

Fuel type	Default high heat value	Default CO ₂ emission factor
Other Oil (>401 deg F)	0.139	76.22
Pentanes Plus	0.110	70.02
Petrochemical Feedstocks	0.125	71.02
Petroleum Coke	0.143	102.41
Special Naphtha	0.125	72.34
Unfinished Oils	0.139	74.54
Heavy Gas Oils	0.148	74.92
Lubricants	0.144	74.27
Motor Gasoline	0.125	70.22
Aviation Gasoline	0.120	69.25
Kerosene-Type Jet Fuel	0.135	72.22
Asphalt and Road Oil	0.158	75.36
Crude Oil	0.138	74.54
Other fuels-solid	mmBtu/short ton	kg CO₂/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 CO₂/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 CO₂/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 CO₂/mmBtu
Landfill Gas	0.485 × 10 ⁻³	52.07
Other Biomass Gases	0.655 × 10 ⁻³	52.07
Biomass Fuels—Liquid	mmBtu/gallon	kg CO₂/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 CO₂ emission factor for fuel gas combustion under the conditions prescribed in § 98.243(d)(2)(i) and (d)(2)(ii) and § 98.252(a)(1) and (a)(2), respectively. Otherwise, reporters subject to subpart X or subpart Y shall use either Tier 3 (Equation C-5) or Tier 4.

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.

[74 FR 56374, Oct. 30, 2009, as amended at 75 FR 79153, Dec. 17, 2010; 78 FR 71950, Nov. 29, 2013]

Section 8

Map(s)

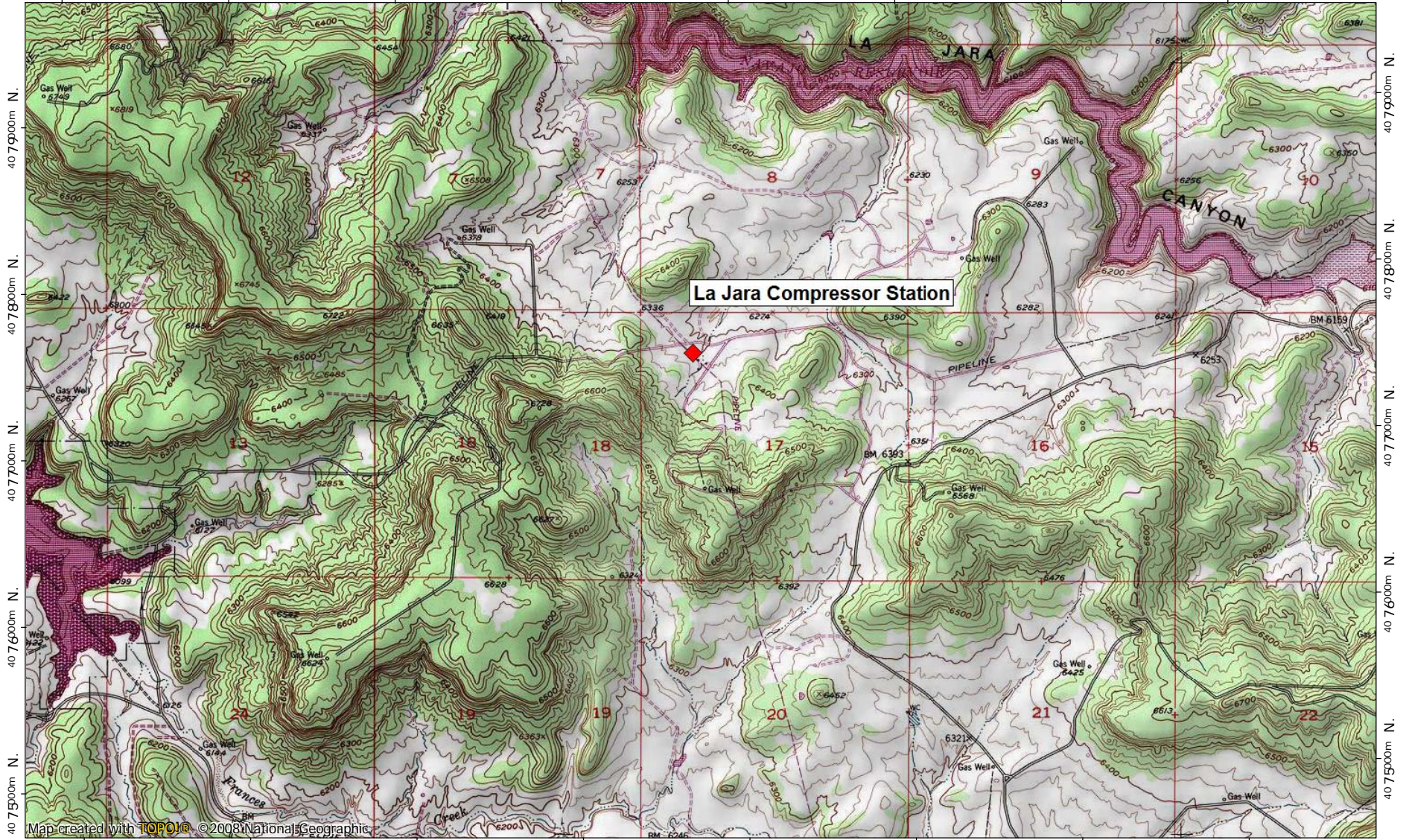
A map such as a 7.5 minute topographic quadrangle showing the exact location of the source. The map shall also include the following:

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

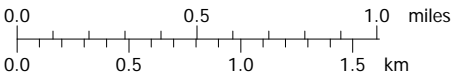
Please see the following page(s).

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

274000m E. 275000m E. 276000m E. 277000m E. 278000m E. 279000m E. 280000m E. WGS84 Zone 13S 281000m E.



274000m E. 275000m E. 276000m E. 277000m E. 278000m E. 279000m E. 280000m E. WGS84 Zone 13S 281000m E.



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 for this Title V Operating Permit renewal application submitted under 20.2.70 NMAC.

Section 10

Written Description of the Routine Operations of the Facility

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

The La Jara Compressor Station compresses natural gas for pipeline transmission.

Natural gas is received from independent producers and metered at the facility. Entrained condensate and produced water in the gas pipeline is separated from the stream via an inlet separator. The gas is compressed for pipeline transmission using compressors driven by natural gas-fired turbines.

The facility is permitted for the operation of five turbines. Other emission sources at the facility include startups, shutdowns and routine maintenance (SSM) from the compressors and piping (including a pig launcher and receiver), an emergency generator, a fuel gas heater, fugitive emissions from process piping (valves, flanges, seals, etc.), storage tanks, and truck loading of liquids.

The facility is authorized to operate continuously, 24 hours per day, seven days per week, 52 weeks per year, 8,760 hours per year.

Section 11

Source Determination

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

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

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

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

La Jara Compressor Station

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

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

Yes **No**

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

Yes **No**

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

Yes **No**

C. Make a determination:

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

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

Section 12

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.

Not applicable for applications submitted under 20.2.70 NMAC.

Section 13

Determination of State & Federal Air Quality Regulations

This section lists each state and federal air quality regulation that may apply to your facility and/or equipment that are stationary sources of regulated air pollutants.

Not all state and federal air quality regulations are included in this list. Go to the Code of Federal Regulations (CFR) or to the Air Quality Bureau's regulation page to see the full set of air quality regulations.

Required Information for Specific Equipment:

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

Required Information for Regulations that Apply to the Entire Facility:

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

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

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

Regulatory Citations for Emission Standards:

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

Federally Enforceable Conditions:

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

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

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

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. The applicability of those parts of the CFR that are consistent with the limited list of standards and requirements defined as applicable requirements are identified in the following pages.

FEDERAL REGULATIONS APPLICABILITY CHECKLIST

FEDERAL REGULATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 50	National Ambient Air Quality Standards (NAAQS)	Yes	Facility	The requirement to comply with the National Ambient Air Quality Standards applies to all sources operating within the State of New Mexico, including the station.
40 CFR 51	Requirements for Preparation, Adoption, and Submittal of Implementation Plans	No		The responsibility to prepare, adopt and submit for EPA approval Implementation Plans applies to local and state/tribal governmental agencies. The facility is not a local, state or tribal governmental agency and therefore, the regulation does not apply.
40 CFR 52	Approval and Promulgation of Implementation Plans	No		40 CFR 52.21, <i>Prevention of Significant Deterioration of Air Quality</i> is not applicable to the facility, as it is a Prevention of Significant Deterioration (PSD) minor source. The remainder of the subpart is also not applicable as it addresses approval of local, state and/or tribal agency Implementation Plans for administering the Prevention of Deterioration (PSD) program.
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	Turbines 3, 6 and 7; Potentially applicable to new centrifugal compressors, pneumatic controllers, and the collection of fugitive emissions components	Applies if any other NSPS subpart applies. . NSPS subpart GG is applicable to combustion turbine units 3, 6, and 7. NSPS subpart OOOOa is not currently applicable to the equipment currently onsite, but is potentially applicable to new affected sources if they are installed onsite. The applicability of the subpart will be evaluated for any new compressors, pneumatic controllers, and the collection of fugitive emissions components installed at the facility at a future time.
NSPS 40 CFR60, Subpart Da	Performance Standards for Electric Utility Steam Generating Units	No		The subpart applies to each electric utility steam generating unit that is capable of combusting more than 73 megawatts (MW) (250 million British thermal units per hour (MMBtu/hr)) heat input of fossil fuel (either alone or in combination with any other fuel); and that commences construction, modification, or reconstruction after September 18, 1978. The compressor station is not an affected facility as defined under the regulation; therefore, the subpart does not apply.

FEDERAL REGULATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
NSPS 40 CFR 60, Subpart Db	Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units	No		<p>The subpart applies to each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 MW (100 million Btu/hour).</p> <p>The compressor station is not an affected facility as defined in the regulation; therefore, the subpart does not apply.</p>
NSPS 40 CFR 60, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	No		<p>The subpart applies to each steam generating unit that commences construction, modification, or reconstruction after June 9, 1989, and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/hr)) or less, but greater than or equal to 2.9 MW (10 MMBtu/hr).</p> <p>The facility does not have any affected sources under the regulation; therefore, the subpart does not apply.</p>
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		<p>The affected facility to which this subpart applies are storage tanks with capacity greater than 151,416 liters (40,000 gallons) that are used to store petroleum liquids for which construction is commenced after May 18, 1978.</p> <p>The facility does not have equipment defined as an affected facility as defined in the regulation; therefore, the subpart does not apply.</p>
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		<p>The affected facility to which this subpart applies is any storage vessel with a capacity greater than or equal to 75 cubic meters (m³) used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984.</p> <p>Except for the unit T-40 produced water storage tank, all of the storage tanks at the facility are below 75 m³ capacity. Therefore, the regulation does not apply to these tanks.</p> <p>The unit T-40 produced water storage tank is a 500-barrel (21,000 gallon /79.5 m³) tank constructed in 2015. The produced water contains trace amounts of condensate. The tank stores produced water at the facility prior to custody transfer. Therefore, under § 60.110b(b) the subpart does not apply.</p>
NSPS 40 CFR 60 Subpart GG	Standards of Performance for Stationary Gas Turbines	Yes	Turbine units 3, 6, & 7	<p>Affected facilities under the subpart are stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules (10 MMBtu) per hour and for which construction commenced after October 3, 1977</p> <p>Turbine units 3, 6 & 7 at the facility were each constructed after the applicability date of October 3, 1977, and have a peak input load greater than the applicability threshold of 10.15 MMBtu/hr. The units must comply with the NO_x emission limitation of 150 ppmv at 15% O₂ on a dry basis; and with the SO₂ emissions limitation of 0.015% by volume at 15% O₂ on a dry basis or use a fuel that does not contain sulfur in excess of 0.8 percent by weight (8,000 ppmw).</p> <p>Turbine units 1 and 2 were each constructed in 1972, prior to the regulatory applicability date. Therefore, the regulation does not apply to turbine units 1 and 2.</p>

FEDERAL REGULATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
NSPS 40 CFR 60, Subpart KKK	Standards of Performance for Leaks of VOC from Onshore Gas Plants	No		An affected facility under the subpart is an onshore gas plant that commences construction, reconstruction, or modification after January 20, 1984, and includes the group of all equipment (each pump, pressure relief device, open-ended valve or line, valve, compressor, and flange or other connector that is in VOC service or in wet gas service, and any device or system required by this subpart) except compressors (defined in § 60.631) within a process unit. A compressor station, dehydration unit, sweetening unit, underground storage tank, field gas gathering system, or liquefied natural gas unit is covered by this subpart if it is located at an onshore natural gas processing plant. If the unit is not located at the plant site, then it is exempt from the provisions of the subpart. The facility is not an onshore gas plant and the subpart does not apply.
NSPS 40 CFR 60, Subpart LLL	Standards of Performance for Onshore Natural Gas Processing: SO₂ Emissions	No		An affected facility is each sweetening unit, and each sweetening unit followed by a sulfur recovery unit, for which construction or modification commenced after January 20, 1984 at a natural gas processing plant. The facility is not a natural gas processing plant and does not include any affected units as defined by the subpart; therefore the subpart does not apply.
NSPS 40 CFR 60, Subpart JJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	No		Under § 60.4230, the requirements of the subpart apply to spark-ignition (SI), reciprocating internal combustion engines (RICE) constructed, modified or reconstructed after June 12, 2006. The unit 4 backup emergency generator engine was constructed in 1981, prior to the regulatory applicability date. Therefore, the regulation is not applicable to the unit 4 generator RICE. The engine has not undergone either “modification” or “reconstruction” under NSPS.
NSPS 40 CFR 60, Subpart KKKK	Standards of Performance for Stationary Combustion Turbines	No		This subpart establishes emission standards and compliance schedules for the control of emissions from stationary combustion turbines that commenced construction, modification or reconstruction after February 18, 2005. None of the stationary gas turbines at the facility were constructed, modified or reconstructed after the regulatory applicability date. Therefore, the subpart is not 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		Subpart OOOO establishes natural gas production, processing, transmission and distribution emission and equipment standards, including well completions; single continuous bleed, natural gas driven pneumatic controllers operating at bleed rates greater than 6 scfh and located between a wellhead and point of custody transfer; equipment leaks and sweetening units at natural gas processing plants; reciprocating compressors; centrifugal compressors; and storage vessels at well sites. The regulation includes provisions for initial and continuous compliance demonstrations, and recordkeeping and reporting requirements. As it applies to the natural gas production segment, “affected sources” include the following sources constructed, modified or reconstructed after August 23, 2011: <ul style="list-style-type: none"> - Each affected single natural gas well, as described in the regulation; - Each centrifugal compressor, unless it is located at a well site or adjacent well site; - Each reciprocating compressor, unless it is located at a well site or adjacent well site; - Each single continuous bleed, natural gas driven pneumatic controller operating at a bleed rate of greater than 6 scfh and located between a wellhead and point of custody transfer; - Each single storage vessel affected facility with VOC emissions of six (6) tpy or greater.

FEDERAL REGULATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
				The equipment at the facility were constructed prior to the applicability date; therefore, the regulation is not applicable to the existing equipment. Should a new affected source under the regulation be installed at the facility at a future time, the applicability of the subpart to that source shall be evaluated. As applicable, Harvest will comply with the requirements of the regulation.
NSPS 40 CFR 60, Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015	Potentially applicable	New centrifugal compressors , pneumatic controllers, and the collection of fugitive emissions components	<p>Subpart OOOOa establishes emission standards and compliance schedules for the control of GHG methane emission limits as well as emission standards and compliance schedules for the control of VOC and SO2 emissions from crude oil and natural gas facilities that commence construction, modification, or reconstruction after September 18, 2015.</p> <p>As it applies to equipment at a compressor station in the natural gas production segment, “affected sources” include the following emission sources constructed, modified or reconstructed after September 18, 2015 (§60.5365a):</p> <ul style="list-style-type: none"> - Each single centrifugal compressor using wet seals, unless it is located at a well site or adjacent well site servicing more than one well site (§60.5365a(b)); - Each single reciprocating compressor, unless it is located at a well site or adjacent well site servicing more than one well site (§60.5365a(c)); - Each pneumatic controller that is a single continuous bleed natural gas-driven pneumatic controller operating at a natural gas bleed rate greater than 6 scfh (§60.5365a(d)(1)); - Each single storage vessel with the potential for VOC emissions equal to or greater than 6 tpy (§60.5365a(e)); and - The collection of fugitive emissions components at a compressor station, as defined in §60.5430a (§60.5365a(j)). <p>The potential affected source equipment including the centrifugal compressors, pneumatic controllers, storage tanks and the collection of fugitive emissions components equipment at the facility, were each constructed prior to the applicability date or do not otherwise trigger the applicability of the regulation.</p> <p>Should a new affected source be installed at the facility, the applicability of the subpart to that source shall be evaluated upon installation. As applicable, Harvest will comply with the applicable requirements in the subpart for any future devices installed.</p>
NESHAP 40 CFR 61, Subpart A	General Provisions	No		<p>40 CFR 61 National Emission Standards for Hazardous Air Pollutants (NESHAP) provides standards for equipment that emits hazardous air pollutants by specific source types.</p> <p>Subpart A, General Provisions, applies if any other 40 CFR 61 NESHAP subpart applies. Subpart A is not applicable because there are no stationary sources at this facility for which a standard is prescribed under this part.</p>
NESHAP 40 CFR 61, Subpart V	National Emission Standard for Equipment Leaks (Fugitive Emission Sources)	No		<p>40 CFR 61, subpart V provides equipment standards, and monitoring, recordkeeping and reporting standards for specified equipment in VHAP service, including fugitive emissions from pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, and required control devices or systems.</p> <p>Subpart V is not applicable because none of the potentially affected sources are in VHAP service.</p>

FEDERAL REGULATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
MACT 40 CFR 63, Subpart A	General Provisions	Yes	Emergency generator RICE unit 4	Applies if any other 40 CFR 63 (NESHAP/MACT) subpart applies. 40 CFR 63 (NESHAP/MACT) subpart ZZZZ applies to the unit 4 emergency generator RICE.
MACT 40 CFR 63, Subpart M	National Emission Standard for Asbestos	No		The subpart includes standards for minimizing asbestos emissions from several operations, including demolition and renovation activities. No existing or planned operation or activity at this facility triggers the applicability of this requirement. Therefore, the regulation does not apply.
MACT 40 CFR 63, Subpart HH	National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities	No		Under § 63.760, the subpart applies to owners and operators of affected sources located at oil and natural gas production facilities, including facilities that are major and area sources of hazardous air pollutants (HAP). Under the definitions provided in §63.761, the facility is a natural gas production field facility. As such, the definition of “major source” in §63.762 provides that only HAP emissions from glycol dehydration units and storage vessels are aggregated for a major source determination. The aggregated HAP emissions from the storage vessels are below the major HAP source threshold for a single HAP; therefore, the facility is an area source of HAP under subpart HH. (There are no glycol dehydration units at the facility.) Under §63.760(b)(2) “affected source” at an area source of HAP includes each TEG dehydrator unit. As there are no TEG dehydrator units at the facility, the regulation is not applicable.
MACT 40 CFR 63 Subpart HHH	National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities	No		Under §63.1270, applies to owners and operators of natural gas transmission and storage facilities that transport or store natural gas prior to entering the pipeline to a local distribution company or to a final end user (if there is no local distribution company), and that are major sources of hazardous air pollutants (HAP) emissions as defined in §63.1271. A production segment natural gas compressor station is not in the natural gas transmission and storage source category covered by the subpart. Therefore, the regulation does not apply.
MACT 40 CFR 63 Subpart YYYY	National Emission Standards for Hazardous Air Pollutants From Stationary Combustion Turbines	No		Under § 63.6080, subpart YYYY establishes emission and operating limitations for stationary combustion turbines located at a major source of HAP emissions. Under § 63.6175, “Major source, as used in this subpart, has the same meaning as in §63.2, except that . . . (3) For production field facilities, only HAP emissions from glycol dehydration units, storage vessel with the potential for flash emissions, combustion turbines and reciprocating internal combustion engines shall be aggregated for a major source determination . . . “ The facility is not a major source of HAP, and does not have any affected units as defined in the regulation. Therefore, the subpart does not apply.
MACT 40 CFR 63, Subpart ZZZZ	National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines	Yes	Emergency generator RICE unit 4	40 CFR 63, Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from existing, new, modified and reconstructed stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP. The regulation contains provisions for initial and continuous compliance demonstration. As defined at §63.6585(c), the station is an area source of HAP. Under §63.6590(a)(1)(iii), a stationary RICE greater than 500 horsepower (hp) located at an area source of HAP is considered an “existing” unit if construction or reconstruction commenced before June 12, 2006. (“Construction” does not include the reinstallation of an existing engine at another location.)

FEDERAL REGULATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
				<p>The unit 4 generator engine is a 4-stroke, rich burn (4SRB) SI-RICE with a site-rating of less than 500 hp. The engine was constructed in 1981; therefore it is an existing RICE under the subpart. The engine is an <i>Emergency Stationary RICE</i> as defined under §63.6675, and must comply with the requirements of §63.6640(f) as they apply to the engine, including (f)(1), (f)(2) and (f)(4). Under §63.6603(a) the requirements of Table 2d, row 5 apply to the engine, including required inspection of all hoses and belts, oil change and oil filter change every 500 hours of operation or annually, and spark plug inspection every 1,000 operating hours or annually. The engine must be operated and maintained according to manufacturer emission-related instructions or under operator's maintenance plan, including operation consistent with good air pollution control practices for minimizing emissions (§63.6625(c)(3)), and must be equipped with a non-resettable hour meter (§63.6625(f)).</p>
MACT 40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters	No		<p>40 CFR 63, Subpart DDDDD establishes emission limits and work practice standards for industrial, commercial, or institutional boiler or process heaters, as defined in § 63.7575, that are located at or are part of a major source of HAP, as defined under § 63.2 except as specified under § 63.7491.</p> <p>As defined under the regulation, the facility is an area source of HAP. Further, under § 63.7506(c)(3), existing small gaseous fuel boilers and process heaters are not subject to any requirements under the subpart or of subpart A, including notification provisions. Therefore, the regulation is not applicable.</p>
MACT 40 CFR 63, Subpart CCCCC	National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities	No		<p>40 CFR 63, Subpart CCCCC establishes emission limitations and management practices for HAP emitted from the loading of gasoline storage tanks at gasoline dispensing facilities (GDF) at area sources of HAP, including requirements for compliance demonstration. Affected sources include each GDF, each gasoline cargo tank during the delivery of product to a GDF, and each gasoline storage tank.</p> <p>There are no gasoline dispensing facilities, gasoline cargo tanks or gasoline storage tanks at the facility; therefore the regulation does not apply.</p>
MACT 40 CFR 63 Subpart JJJJJ	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources	No		<p>40 CFR 63, Subpart JJJJJ establishes emission limits, work practice standards, emission reduction measures, and management practices for new, reconstructed, or existing affected sources that are industrial, commercial, or institutional boilers within a subcategory listed in §63.11200 and defined in §63.11237, and that are located at an area source of HAP.</p> <p>The facility does not have industrial, commercial or institutional boilers of one of the listed subcategories in §63.11200. Also, under § 63.11195(e), the regulation does not apply to gas-fired units. Therefore, the regulation does not apply.</p>
40 CFR 64	Compliance Assurance Monitoring	No		<p>40 CFR 64, <i>Compliance Assurance Monitoring</i> (CAM) monitoring requirements are applicable to sources that are located at a major source, that are required to obtain a part 70 or 71 permit, and with uncontrolled criteria pollutant emission rates equal to or exceeding the major source threshold (100 tons per year), that use a control device to achieve compliance with an emission limit or standard, and which the resulting controlled emissions are less than the major source threshold. Passive control devices such as lean-burn technology are not considered a control device as defined in 40 CFR 64 definitions and as clarified in discussions with EPA.</p> <p>There are no emission units at the facility with uncontrolled emissions that are a major source. Therefore, the regulation is not applicable under §64.2(a).</p>
40 CFR 68	Chemical Accident Prevention Provisions	No		<p>40 CFR 68, <i>Chemical Accident Prevention Provisions</i>, is not applicable because the facility does not store any of the identified toxic and flammable substances in quantities exceeding the applicability thresholds.</p>

FEDERAL REGULATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 70	State Operating Permit Programs	No		<p>40 CFR 70, <i>State Operating Permit Programs</i>, is not applicable: The regulation provides for the establishment of comprehensive State air quality permitting programs consistent with the requirements of title V of the Clean Air Act (Act). New Mexico Environment Department (NMED) was delegated authority by the EPA to administer the State operating permit program through regulations adopted into the State Implementation Plan (SIP) and 20.2.70 NMAC.</p> <p>Although Harvest is subject to the Operating Permit Program for facilities within NMED jurisdiction as implemented by the State, there are no specific requirements of the regulation that are applicable directly to applicants. Therefore, the regulation does not apply.</p>
40 CFR 71	Federal Operating Permit Programs	No		<p>40 CFR 71, <i>Federal Operating Permit Programs</i> sets forth requirements and the corresponding standards and procedures by which the EPA Administrator issues operating permits in the absence of an approved State operating permit program.</p> <p>The New Mexico Environment Department (NMED) has received delegated authority to administer Title V permits under the State operating permit program approved under 40 CFR Part 70. There are no specific requirements applicable directly to applicants with facilities in NMED jurisdiction. Therefore, 40 CFR 71 does not apply.</p>
40 CFR 72	Permits Regulation	No		40 CFR 72, <i>Permits Regulation</i> , is not applicable because the facility does not operate a source subject to Title IV of the Clean Air Act (CAA).
40 CFR 73	Sulfur Dioxide Allowance System	No		40 CFR 73, <i>Sulfur Dioxide Allowance System</i> , is not applicable to the facility because it does not operate a source subject to Title IV of the Clean Air Act (CAA).
40 CFR 75	Continuous Emission Monitoring	No		40 CFR 75, <i>Continuous Emission Monitoring</i> , is not applicable to the facility because it does not operate a source subject to Title IV of the Clean Air Act (CAA) and does not measure emissions with Continuous Emission Monitoring Systems (CEMS).
40 CFR 76	Acid Rain Nitrogen Dioxide Emission Reduction Program	No		40 CFR 76, <i>Acid Rain Nitrogen Dioxide Emission Reduction Program</i> , is not applicable to the facility because it does not operate a source subject to Title IV of the Clean Air Act (CAA).
40 CFR 77	Excess Emissions	No		40 CFR 77, <i>Excess Emissions</i> , is not applicable to the facility because it does not operate a source subject to Title IV of the Clean Air Act (CAA).
40 CFR 78	Appeal Procedures for Acid Rain Program	No		40 CFR 78, <i>Appeal Procedures for Acid Rain Program</i> , is not applicable to the facility because it does not operate a source subject to Title IV of the Clean Air Act (CAA).
40 CFR 82	Protection of Stratospheric Ozone	No		<p>The purpose of 40 CFR 82, <i>Protection of Stratospheric Ozone</i> is to implement the <i>Montreal Protocol on Substances that Deplete the Ozone Layer</i>. Under §82.1(b), the subpart applies to anyone that produces, transforms, destroys, imports or exports a controlled substance or imports or exports a controlled product.</p> <p>The facility does not carry out any of the listed activities, nor does it maintain or service motor vehicle air conditioning units or refrigeration equipment. The facility does not sell, distribute, or offer for sale or distribution any product that contains ozone-depleting substances. Therefore, the subpart does not have direct applicability to the facility.</p>

FEDERAL REGULATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 98	Mandatory Greenhouse Gas Reporting	Yes		40 CFR 98, <i>Mandatory Greenhouse Gas Reporting</i> , is a federal requirement that is applicable to facilities that include source categories listed in Subpart A, Table A-3, or to facilities with annual emissions of 25,000 metric tons of CO ₂ equivalent (CO ₂ e) or more in combined emissions from stationary fuel combustion units, miscellaneous uses of carbonate, and all applicable source categories listed in Table A-3 and Table A-4 of Subpart A. The regulation applies to the facility as its actual annual CO ₂ e emissions have previously exceeded the reporting threshold as defined in Subpart A, <i>General Provision</i> , Subpart C, <i>General Stationary Fuel Combustion Sources</i> , and, as applicable, Subpart W, <i>Petroleum Oil and Natural Gas Systems</i> . The GHG emissions inventory is reported annually.
CAA Section 112(r)	Chemical Accident Prevention Provisions	No		CAA Section 112(r), <i>Chemical Accident Prevention Provisions</i> . The station does not store designated toxic and flammable chemicals in quantities exceeding the applicable thresholds.

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. A summary of the applicability of the NMACs is presented on the following pages.

STATE REGULATIONS APPLICABILITY CHECKLIST

<u>STATE REGULATIONS</u> CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
20.2.1 NMAC	General Provisions *	Yes	Facility	20.2.1 NMAC, <i>General Provisions</i> , establishes procedures for protecting confidential information, procedures for seeking a variance, NMAQB's authority to require sampling equipment, severability, the effective date for conformance with the NMACs, and prohibits the violation of other requirements in attempting to comply with NMACs. Although this regulation may apply to the facility, it does not impose any specific requirements.
20.2.2 NMAC	Definitions *	No		20.2.2 NMAC, <i>Definitions</i> , establishes definitions used throughout the remaining regulations. Although this regulation may apply to the facility, it does not impose any specific requirements on the operation of the facility as described in the permit. Therefore, the regulation is considered not applicable.
20.2.3 NMAC	Ambient Air Quality Standards	Yes	Facility	20.2.3 NMAC, <i>Ambient Air Quality Standards</i> , is a SIP approved regulation that limits the maximum allowable concentration of total suspended particulates (TSP), sulfur compounds, carbon monoxide (CO) and nitrogen dioxide (NO ₂) in the areas of New Mexico under the jurisdiction of the Environmental Improvement Board. Under subsection 20.2.3.9, the requirements of the part are not considered applicable requirements under 20.2.70 NMAC (i.e., federally enforceable requirements), as defined by that part. However, the

<u>STATE REGU- LATIONS CITATION</u>	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
				regulation applies to sources required to obtain a permit under 20.2.72 NMAC, and it does not limit which terms and conditions of permits issued pursuant to 20.2.72 NMAC are applicable requirements for permits issued pursuant to 20.2.70 NMAC.
20.2.5 NMAC	Source Surveillance	No		20.2.5 NMAC, <i>Source Surveillance</i> , establishes the NMAQB's authority to require recordkeeping/ surveillance upon request. Although this regulation may apply to the facility, it does not impose any specific requirements on the operation of the facility as described in the permit. Therefore, the regulation is considered not applicable.
20.2.7 NMAC	Excess Emissions	Yes	Facility	20.2.7 NMAC, <i>Excess Emissions</i> , is applicable because it prohibits excess emissions and proscribes notification procedures in the event of excess emissions.
20.2.8 NMAC	Emissions Leaving New Mexico *	No		20.2.8 NMAC, <i>Emissions Leaving New Mexico</i> , establishes prohibitions on the release of pollutants that cross New Mexico State boundaries. Although this regulation may apply to the facility, it does not impose any specific requirements on the operation of the facility as described in the permit. Therefore, the regulation is considered not applicable.
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No		20.2.33 NMAC, <i>Gas Burning Equipment - Nitrogen Dioxide</i> , does not apply to the station because the compressor station does not include new or existing gas burning equipment (external combustion emission sources, such as gas fired boilers and heaters) having a heat input of greater than 1,000,000 million British Thermal Units per year per unit.
20.2.34 NMAC	Oil Burning Equipment: NO₂	No		20.2.34 NMAC, <i>Oil Burning Equipment: NO₂</i> , does not apply to the station because the compressor station does not have oil burning equipment.
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	No		20.2.35 NMAC, <i>Natural Gas Processing Plant – Sulfur</i> , applies to new natural gas processing plants for which a modification commenced on or after July 1, 1974. The regulation is not applicable to the station because the facility is not a natural gas processing plant.
20.2.38 NMAC	Hydrocarbon Storage	No		20.2.38 NMAC, <i>Hydrocarbon Storage Facilities</i> , is not applicable because the facility does not store hydrocarbons containing hydrogen sulfide; does not have a hydrocarbon liquid throughput of 50,000 barrels or greater located within a municipality or within five miles of a municipality with population of 20,000 or more; nor is there a new hydrocarbon tank battery with storage capacity of 65,000 gallons or greater.
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	Turbine units 1, 2, 3, 6 & 7; Emergency generator RICE unit 4; Fuel gas heater unit 5	20.2.61 NMAC, <i>Smoke and Visible Emissions</i> , limits visible emissions from stationary combustion equipment to less than 20 percent opacity. The station combustion turbines, emergency generator engine and fuel gas heater are subject to the regulation as they are each stationary combustion sources.

<u>STATE REGULATIONS CITATION</u>	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
20.2.70 NMAC	Operating Permits	Yes		<p>20.2.70 NMAC, <i>Operating Permits</i>, contains permitting requirements for major sources of criteria and hazardous air pollutants subject to Part 70 (Title V) permitting requirements.</p> <p>The facility Potential To Emit for criteria pollutants and greenhouse gases exceeds the major source Title V permitting thresholds. Therefore, the regulation is applicable. The facility is currently permitted under Title V Operating Permit No. P023-R3-M1.</p>
20.2.71 NMAC	Operating Permit Fees	Yes		<p>20.2.71 NMAC, <i>Operating Permit Emission Fees</i>, specifies fees for emissions from facilities subject to Part 70 (Title V) permitting requirements under 20.2.70 NMAC.</p> <p>The regulation is applicable as the facility is subject to permitting requirements under 20.2.70 NMAC.</p>
20.2.72 NMAC	Construction Permits	Yes		<p>20.2.72 NMAC, <i>Construction Permits</i>, requires a construction [NSR] permit for stationary source with emissions greater than 10 pounds per hour or 25 tons per year of criteria pollutants.</p> <p>The station emissions exceed the permit requirement thresholds; therefore, the station is required to apply for and obtain an NSR permit. The construction (NSR) permit issued under 20.2.72 for this facility is permit No. 0339-M8, as revised in -R1 (removed gasoline storage tank T9).</p>
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes		<p>20.2.73 NMAC requires that owners/operators intending to construct a new stationary source that has a potential emission rate (uncontrolled emissions) greater than 10 tons per year of any regulated air contaminant, or 1 ton per year of lead, must file a notice of intent (NOI) with the department.</p> <p>The station emits regulated air pollutants in amounts greater than 10 tons per year. Therefore, the facility is subject to the regulation. The requirement to file an NOI with the Department is fulfilled with the application for a construction permit under 20.2.72 NMAC.</p>
20.2.74 NMAC	Permits – PSD	Yes	Facility	<p>20.2.74 NMAC, <i>Permits, Prevention of Significant Deterioration (PSD)</i>, provides requirements for sources subject to permit requirements for PSD facilities.</p> <p>The facility emissions exceed the PSD permit threshold levels. Therefore, the regulation is applicable.</p>
20.2.75 NMAC	Construction Permit Fees	Yes		<p>20.2.75 NMAC, <i>Construction Permit Fees</i>, establishes the fee schedule associated with the filing of permits and permit revisions.</p> <p>The regulation is applicable to the facility for its construction permit submitted under 20.2.72 NMAC.</p>
20.2.77 NMAC	New Source Performance Standards	Yes	<p>Turbine units 3, 6 & 7;</p> <p>Potentially applicable to new centrifugal compressors, pneumatic controllers, and the collection of fugitive emissions components</p>	<p>20.2.77 NMAC, <i>New Source Performance Standards</i>, incorporates by reference specific Standards of Performance for New Stationary Sources (NSPS) codified under 40 CFR 60, as amended through January 15, 2017.</p> <p>The facility includes equipment that are subject or potentially subject to NSPS subparts A, GG and OOOOa.</p>

STATE REGU- LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
20.2.78 NMAC	Emission Standards for HAPS	No		20.2.78 NMAC, <i>Emission Standards for Hazardous Air Pollutants</i> , incorporates by reference specific National Emission Standards for Hazardous Air Pollutants (NESHAPs) codified under 40 CFR 61, as amended through January 15, 2017. The regulation is not applicable as none of the emission units at the facility are subject to any NESHAP under 40 CFR 61.
20.2.79 NMAC	Permits – Nonattainment Areas	No		20.2.79 NMAC, <i>Permits - Nonattainment Areas</i> , is not applicable to the station because the compressor station is not located within a non-attainment area.
20.2.80 NMAC	Stack Heights	No		20.2.80 NMAC, <i>Stack Heights</i> , establishes guidelines for the selection of an appropriate stack height for the purposes of atmospheric dispersion modeling. Atmospheric dispersion modeling was previously provided in support of the facility’s construction permit. Based on the NMAQB dispersion modeling guidance document, air quality dispersion modeling is not required for this Title V Operating Permit renewal application.
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	Emergency generator RICE unit 4	20.2.82 NMAC, <i>Maximum Achievable Control Technology Standards for Source Categories of Hazardous Air Pollutants</i> , incorporates by reference specified federal Maximum Available Control Technology (MACT) Standards codified in 40 CFR 63, as amended through January 15, 2017. The facility includes equipment that are subject to MACT subparts A and ZZZZ.
20.2.84 NMAC	Acid Rain Permits	No		20.2.84 NMAC, <i>Acid Rain Permits</i> , is not applicable to the station because the compressor station does not operate an affected unit under the regulation.

* = These NMACs are administrative in nature and do not establish prohibitions, standards, or requirements.

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.
-

Section 15

Alternative Operating Scenarios

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

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

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

Not applicable.

Section 16

Air Dispersion Modeling

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

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

Check each box that applies:

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

An ambient air quality impact analysis including dispersion modeling was previously submitted in the permit application for NSR permit 0338-M6. The dispersion modeling demonstrated compliance with the National Ambient Air Quality Standards and applicable PSD increments.

Dispersion modeling was not required for NSR revisions 0338-M7 and -M8.

Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

Compliance Test History Table

Unit No.	Test Description	Test Date
1	Compliance test for NO _x and CO, in accordance with Operating Permit P023-R3, Condition A205.A	May 21, 2019
2	Compliance test for NO _x and CO, in accordance with Operating Permit P023-R3, Condition A205.A	May 21, 2019
3	Compliance test for NO _x and CO, in accordance with Operating Permit P023-R3, Condition A205.A	May 21, 2019
6	Compliance test for NO _x and CO, in accordance with Operating Permit P023-R3, Condition A205.A	May 20, 2019
7	Compliance test for NO _x and CO, in accordance with Operating Permit P023-R3, Conditions A205.A	May 20, 2019

Section 18

Addendum for Streamline Applications

Do not print this section unless this is a streamline application.

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.

Section 19

Requirements for Title V Program

Do not print this section unless this is a Title V application.

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 of Part 1 (Permit Requirements Certification Table) of the 2019 Annual Compliance Certification (ACC) is provided in Section 20, Other Relevant Information. It identifies the requirements of the current Title V operating permit and the methods and data used to determine compliance with that permit. 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.)

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.

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

19.6 - Compliance Plan and Schedule

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

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

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

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

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

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

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

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

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

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

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

NOTE: The Acid Rain program has additional forms. See <http://www.env.nm.gov/aqb/index.html>. Sources that are subject to both the Title V and Acid Rain regulations are **encouraged** to submit both applications **simultaneously**.

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.)

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

Neighboring States, Class I Areas, and Indian Lands

	Approximate Distance to Facility (kilometers)
Neighboring States	
Colorado	20.2
Indian Lands	
Southern Ute Tribe	20.2
Jicarilla Apache Tribe	26.3
Navajo Nation	52
Ute Mountain Ute Tribe	68

19.9 - Responsible Official

The responsible official for the La Jara Compressor Station is Travis Jones, EH&S Manager.

Section 20

Other Relevant Information

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

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

As discussed in Section 19.2, this section contains the Part 1 (Permit Requirements Certification Table) of the 2019 Annual Compliance Certification (ACC).

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 <i>continuously</i> in compliance with <i>all conditions</i> of this <i>permit</i> during the reporting period? (Did you check either “Yes” or “N/A” for every condition in response to question 3?)			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1. Provide <i>Method(s) or other information or other facts used to determine the compliance status</i> in the “Methods:” row beneath each permit condition. 2. If you answered <i>No</i> to question 3, list <i>all</i> deviations in the <i>Deviations</i> section. For all Deviations that <i>produced</i> excess emissions, provide <i>only a)</i> the AQBCR EER Tracking Number. For all Deviations that <i>did not produce</i> excess emissions, provide <i>a)</i> The Unit ID, <i>b)</i> The Cause of and a Description of the Deviation, and <i>c)</i> the Start & End Dates of the deviation. Please indicate in <i>b)</i> , your <i>Description</i> , whether each deviation has been previously reported to NMED.			3. Was this facility <i>continuously</i> in compliance with <i>all</i> requirements of this condition during the reporting period?
FACILITY SPECIFIC REQUIREMENTS			
<u>A101 Permit Duration (expiration)</u>			
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)			
Methods: Submittal of a renewal application 12 months prior to expiration of this permit (November 6, 2020) will demonstrate compliance with this condition.			
Deviations: Unit ID	Cause & Description of Deviation or Tracking number	Start Date	End Date
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
<u>A101 Permit Duration (expiration)</u>			
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)			
Methods: Submittal of a renewal application 12 months prior to expiration of this permit (November 6, 2020) will demonstrate compliance with this condition.			
Deviations: Unit ID	Cause & Description of Deviation or Tracking number	Start Date	End Date
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
<u>A102 Facility: Description</u>			
B. This facility is located approximately 25 miles northeast of Bloomfield, New Mexico in Rio Arriba County. (20.2.70.302.A(7) NMAC)			
Methods: Semi-annual reports and this ACC are used to determine that the source continues to comply with this condition.			
Deviations: Unit ID	Cause & Description of Deviation or Tracking number	Start Date	End Date
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
<u>A103 Facility: Applicable Regulations</u>			
A. The permittee shall comply with all applicable sections of the requirements listed in Table 103.A.			
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			

<p>1. Provide <i>Method(s) or other information or other facts used to determine the compliance status</i> in the “Methods:” row beneath each permit condition.</p> <p>2. If you answered <i>No</i> to question 3, list <i>all</i> deviations in the <i>Deviations</i> section. For all Deviations that <i>produced</i> excess emissions, provide <i>only a)</i> the AQBCR EER Tracking Number. For all Deviations that <i>did not produce</i> excess emissions, provide <i>a)</i> The Unit ID, <i>b)</i> The Cause of and a Description of the Deviation, and <i>c)</i> the Start & End Dates of the deviation. Please indicate in <i>b)</i>, your <i>Description</i>, whether each deviation has been previously reported to NMED.</p>			<p>3. Was this facility <i>continuously</i> in compliance with <i>all</i> requirements of this condition during the reporting period?</p>
<p>Methods: Semi-annual reports and the annual emissions inventory are used to demonstrate compliance with the identified applicable requirements of Table 103.A.</p>			
Deviations: Unit ID	Cause & Description of Deviation or Tracking number	Start Date	End Date
<p><u>A103 Facility: Applicable Regulations</u></p> <p>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.</p>			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
<p>Methods: Semi-annual reports and the annual emissions inventory are used to demonstrate compliance with the identified applicable requirements of Table 103.A.</p>			
Deviations: Unit ID	Cause & Description of Deviation or Tracking number	Start Date	End Date
<p><u>A104 Facility: Regulated Sources</u></p> <p>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.</p>			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
<p>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.</p>			
Deviations: Unit ID	Cause & Description of Deviation or Tracking number	Start Date	End Date
<p><u>A106 Facility: Allowable Emissions</u></p> <p>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).</p>			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
<p>Methods: Semi-annual reports and this ACC are used to determine that the source continues to comply with applicable requirements.</p>			
Deviations: Unit ID	Cause & Description of Deviation or Tracking number	Start Date	End Date
<p><u>A106 Facility: Allowable Emissions</u></p> <p>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)</p>			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

<p>1. Provide <i>Method(s) or other information or other facts used to determine the compliance status</i> in the “Methods:” row beneath each permit condition.</p> <p>2. If you answered <i>No</i> to question 3, list <i>all</i> deviations in the <i>Deviations</i> section. For all Deviations that <i>produced</i> excess emissions, provide <i>only a)</i> the AQBCR EER Tracking Number. For all Deviations that <i>did not produce</i> excess emissions, provide <i>a)</i> The Unit ID, <i>b)</i> The Cause of and a Description of the Deviation, and <i>c)</i> the Start & End Dates of the deviation. Please indicate in <i>b)</i>, your <i>Description</i>, whether each deviation has been previously reported to NMED.</p>			<p>3. Was this facility <i>continuously</i> in compliance with <i>all</i> requirements of this condition during the reporting period?</p>
<p>Methods: Periodic compliance tests and fuel sulfur monitoring records are included in the applicable semi-annual reports.</p>			
Deviations: Unit ID	Cause & Description of Deviation or Tracking number	Start Date	End Date
<p><u>A107 Facility: Allowable Startup, Shutdown, & Maintenance (SSM) and Malfunction Emissions</u></p> <p>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)</p>			<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> N/A</p>
<p>Methods: Compliance with these limits is demonstrated through compliance with the requirements of A107.C and A107.D, below.</p>			
Deviations: Unit ID	Cause & Description of Deviation or Tracking number	Start Date	End Date
<p><u>A107 Facility: Allowable Startup, Shutdown, & Maintenance (SSM) and Malfunction Emissions</u></p> <p>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.</p>			<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> N/A</p>
<p>Methods: Harvest has developed and follows its SSM/M Plan.</p>			
Deviations: Unit ID	Cause & Description of Deviation or Tracking number	Start Date	End Date
<p><u>A107 Facility: Allowable Startup, Shutdown, & Maintenance (SSM) and Malfunction Emissions</u></p> <p>C. SSM VOC Emissions for Venting of Gas</p> <p>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)</p> <p>Monitoring: The permittee shall monitor the permitted routine and predictable startups and shutdowns and scheduled maintenance events.</p> <p>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.</p> <p>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.</p> <p>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.</p>			<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> N/A</p>

1. Provide <i>Method(s) or other information or other facts used to determine the compliance status</i> in the “Methods:” row beneath each permit condition. 2. If you answered <i>No</i> to question 3, list <i>all</i> deviations in the <i>Deviations</i> section. For all Deviations that <i>produced</i> excess emissions, provide <i>only a)</i> the AQBCR EER Tracking Number. For all Deviations that <i>did not produce</i> excess emissions, provide <i>a)</i> The Unit ID, <i>b)</i> The Cause of and a Description of the Deviation, and <i>c)</i> the Start & End Dates of the deviation. Please indicate in <i>b)</i> , your <i>Description</i> , whether each deviation has been previously reported to NMED.			3. Was this facility <i>continuously</i> in compliance with <i>all</i> 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
<u>A107 Facility: Allowable Startup, Shutdown, & Maintenance (SSM) and Malfunction Emissions</u> 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.			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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
<u>A107 Facility: Allowable Startup, Shutdown, & Maintenance (SSM) and Malfunction Emissions</u> 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			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

1. Provide <i>Method(s) or other information or other facts used to determine the compliance status</i> in the “Methods:” row beneath each permit condition. 2. If you answered <i>No</i> to question 3, list <i>all</i> deviations in the <i>Deviations</i> section. For <i>all</i> Deviations that <i>produced</i> excess emissions, provide <i>only a)</i> the AQBCR EER Tracking Number. For <i>all</i> Deviations that <i>did not produce</i> excess emissions, provide <i>a)</i> The Unit ID, <i>b)</i> The Cause of and a Description of the Deviation, and <i>c)</i> the Start & End Dates of the deviation. Please indicate in <i>b)</i> , your <i>Description</i> , whether each deviation has been previously reported to NMED.			3. Was this facility <i>continuously</i> in compliance with <i>all</i> 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
<u>A108 Facility: Hours of Operation</u> A. This facility is authorized for continuous operation. Monitoring, recordkeeping, and reporting are not required to demonstrate compliance with continuous hours of operation.			
<u>A109 Facility: Reporting Schedules</u> 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 1 st and December 1 st of each year.			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Methods: The first semiannual report associated with this ACC was submitted December 18, 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.			<input type="checkbox"/> N/A
Deviations: Unit ID	Cause & Description of Deviation or Tracking number	Start Date	End Date
<u>A109 Facility: Reporting Schedules</u> 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 1 st of each year.			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> N/A

1. Provide <i>Method(s) or other information or other facts used to determine the compliance status</i> in the “Methods:” row beneath each permit condition. 2. If you answered <i>No</i> to question 3, list <i>all</i> deviations in the <i>Deviations</i> section. For all Deviations that <i>produced</i> excess emissions, provide <i>only a)</i> the AQBCR EER Tracking Number. For all Deviations that <i>did not produce</i> excess emissions, provide <i>a)</i> The Unit ID, <i>b)</i> The Cause of and a Description of the Deviation, and <i>c)</i> the Start & End Dates of the deviation. Please indicate in <i>b)</i> , your <i>Description</i> , whether each deviation has been previously reported to NMED.			3. Was this facility <i>continuously</i> in compliance with <i>all</i> 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.			<input type="checkbox"/> Yes <input type="checkbox"/> No
Methods: No quarterly reports are required.			<input checked="" type="checkbox"/> N/A
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.			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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
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)			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

<p>1. Provide <i>Method(s) or other information or other facts used to determine the compliance status</i> in the “Methods:” row beneath each permit condition.</p> <p>2. If you answered <i>No</i> to question 3, list <i>all</i> deviations in the <i>Deviations</i> section. For all Deviations that <i>produced</i> excess emissions, provide <i>only a)</i> the AQBCR EER Tracking Number. For all Deviations that <i>did not produce</i> excess emissions, provide <i>a)</i> The Unit ID, <i>b)</i> The Cause of and a Description of the Deviation, and <i>c)</i> the Start & End Dates of the deviation. Please indicate in <i>b)</i>, your <i>Description</i>, whether each deviation has been previously reported to NMED.</p>	<p>3. Was this facility <i>continuously</i> in compliance with <i>all</i> requirements of this condition during the reporting period?</p>								
<p>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:</p> <ul style="list-style-type: none"> • 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. <p>For the purposes of this condition, <i>Startup mode</i> is defined as the startup period that is described in the facility’s startup plan.</p> <p>Recordkeeping: If no visible emissions were observed, none.</p> <p>If any visible emissions observations were conducted, the permittee shall keep records in accordance with the requirements of Section B109 and as follows:</p> <ul style="list-style-type: none"> • 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. <p>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.</p> <p>Reporting: The permittee shall report in accordance with Section B110.</p>									
<p>Methods: Natural gas is used for fuel. No visible emissions were observed during the applicable monitoring period.</p>									
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;">Deviations: Unit ID</th> <th style="width:55%;">Cause & Description of Deviation or Tracking number</th> <th style="width:15%;">Start Date</th> <th style="width:15%;">End Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Deviations: Unit ID	Cause & Description of Deviation or Tracking number	Start Date	End Date					
Deviations: Unit ID	Cause & Description of Deviation or Tracking number	Start Date	End Date						
<p>EQUIPMENT SPECIFIC REQUIREMENTS: OIL AND GAS INDUSTRY <u>A201 Engines</u> 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)</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> N/A</p>								

<p>1. Provide <i>Method(s) or other information or other facts used to determine the compliance status</i> in the “Methods:” row beneath each permit condition.</p> <p>2. If you answered <i>No</i> to question 3, list <i>all</i> deviations in the <i>Deviations</i> section. For all Deviations that <i>produced</i> excess emissions, provide <i>only a)</i> the AQBCR EER Tracking Number. For all Deviations that <i>did not produce</i> excess emissions, provide <i>a)</i> The Unit ID, <i>b)</i> The Cause of and a Description of the Deviation, and <i>c)</i> the Start & End Dates of the deviation. Please indicate in <i>b)</i>, your <i>Description</i>, whether each deviation has been previously reported to NMED.</p>			<p>3. Was this facility <i>continuously</i> in compliance with <i>all</i> requirements of this condition during the reporting period?</p>
<p>Monitoring: The permittee shall monitor the hours of operation monthly for the unit.</p> <p>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.</p> <p>Reporting: The permittee shall report in accordance with Section B110.</p>			
<p>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.</p>			
Deviations: Unit ID	Cause & Description of Deviation or Tracking number	Start Date	End Date
<p>A201 Engines</p> <p>B. 40 CFR 63, Subpart ZZZZ (Emergency generator engine, Unit 4)</p> <p>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.</p> <p>Monitoring: The permittee shall comply with all applicable monitoring requirements of 40 CFR 63, Subpart A and Subpart ZZZZ.</p> <p>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.</p> <p>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.</p> <p>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.</p>			<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> N/A</p>
Deviations: Unit ID	Cause & Description of Deviation or Tracking number	Start Date	End Date

<p>1. Provide <i>Method(s) or other information or other facts used to determine the compliance status</i> in the “Methods:” row beneath each permit condition.</p> <p>2. If you answered <i>No</i> to question 3, list <i>all</i> deviations in the <i>Deviations</i> section. For all Deviations that <i>produced</i> excess emissions, provide <i>only a)</i> the AQBCR EER Tracking Number. For all Deviations that <i>did not produce</i> excess emissions, provide <i>a)</i> The Unit ID, <i>b)</i> The Cause of and a Description of the Deviation, and <i>c)</i> the Start & End Dates of the deviation. Please indicate in <i>b)</i>, your <i>Description</i>, whether each deviation has been previously reported to NMED.</p>	<p>3. Was this facility <i>continuously</i> in compliance with <i>all</i> requirements of this condition during the reporting period?</p>								
<p>A203 Tanks</p> <p>A. Condensate Tanks, 3-Phase Separator, and Truck Loadout (Units T1, T2, T3, 18, and L1)</p> <p>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)</p> <p>Monitoring: The permittee shall monitor the monthly total throughput/truck loading and the upstream 3-phase separator inlet pressure once per month.</p> <p>Recordkeeping: Recordkeeping: The permittee shall record:</p> <p>(1) The monthly total throughput/truck loading of liquids, and</p> <p>(2) The monthly 3-phase separator inlet pressure.</p> <p>Each month the permittee shall use these values to calculate and record:</p> <p>(3) The monthly rolling 12-month total throughput/truck loading, and</p> <p>(4) The monthly rolling 12-month average 3-phase separator inlet pressure.</p> <p>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.</p> <p>Records shall be maintained in accordance with Section B109.</p> <p>Reporting: The permittee shall report in accordance with Section B110.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> N/A</p>								
<p>Methods: Records of tank throughput & separator pressure monitoring are maintained as required and are included in the applicable semi-annual reports.</p>									
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;">Deviations: Unit ID</th> <th style="width:55%;">Cause & Description of Deviation or Tracking number</th> <th style="width:15%;">Start Date</th> <th style="width:15%;">End Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Deviations: Unit ID	Cause & Description of Deviation or Tracking number	Start Date	End Date					
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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.

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

Yes **No**
 N/A

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.

- (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%

Yes **No**
 N/A

<p>1. Provide <i>Method(s) or other information or other facts used to determine the compliance status</i> in the “Methods:” row beneath each permit condition.</p> <p>2. If you answered <i>No</i> to question 3, list <i>all</i> deviations in the <i>Deviations</i> section. For <i>all</i> Deviations that <i>produced</i> excess emissions, provide <i>only a)</i> the AQBCR EER Tracking Number. For <i>all</i> Deviations that <i>did not produce</i> excess emissions, provide <i>a)</i> The Unit ID, <i>b)</i> The Cause of and a Description of the Deviation, and <i>c)</i> the Start & End Dates of the deviation. Please indicate in <i>b)</i>, your <i>Description</i>, whether each deviation has been previously reported to NMED.</p>	<p>3. Was this facility <i>continuously</i> in compliance with <i>all</i> requirements of this condition during the reporting period?</p>								
<p>of a monitoring period.</p> <p>(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)).</p> <p>(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.</p> <p>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.).</p> <p>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.</p> <p>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.</p> <p>Reporting: The permittee shall submit reports in accordance with Sections B109, B110 and B111.</p>									
<p>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.</p>									
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;">Deviations: Unit ID</th> <th style="width:55%;">Cause & Description of Deviation or Tracking number</th> <th style="width:15%;">Start Date</th> <th style="width:15%;">End Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Deviations: Unit ID	Cause & Description of Deviation or Tracking number	Start Date	End Date					
Deviations: Unit ID	Cause & Description of Deviation or Tracking number	Start Date	End Date						
<p>A205 Turbines</p> <p>B. Maintenance and Repair Monitoring (Units 1, 2, 3, 6, and 7)</p> <p>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)</p> <p>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:</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> N/A</p>								

<p>1. Provide <i>Method(s) or other information or other facts used to determine the compliance status</i> in the “Methods:” row beneath each permit condition.</p> <p>2. If you answered <i>No</i> to question 3, list <i>all</i> deviations in the <i>Deviations</i> section. For all Deviations that <i>produced</i> excess emissions, provide <i>only a)</i> the AQBCR EER Tracking Number. For all Deviations that <i>did not produce</i> excess emissions, provide <i>a)</i> The Unit ID, <i>b)</i> The Cause of and a Description of the Deviation, and <i>c)</i> the Start & End Dates of the deviation. Please indicate in <i>b)</i>, your <i>Description</i>, whether each deviation has been previously reported to NMED.</p>			<p>3. Was this facility <i>continuously</i> in compliance with <i>all</i> requirements of this condition during the reporting period?</p>	
<p>(1) Routine Maintenance that takes a unit out of service for more than two hours during any twenty-four-hour period.</p> <p>(2) Unscheduled repairs that require a unit to be taken out of service for more than two hours in any twenty-four-hour period.</p> <p>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.</p> <p>Reporting: The permittee shall report in accordance with Section B110.</p>				
<p>Methods: Maintenance and repair records are maintained as required and included with the applicable semi-annual monitoring reports.</p>				
Deviations: Unit ID	Cause & Description of Deviation or Tracking number		Start Date	End Date
<p>A205 Turbines</p> <p>C. 40 CFR 60, Subpart GG (Units 3, 6, and 7)</p> <p>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.</p> <p>Monitoring: The permittee shall comply with the monitoring and testing requirements of 40 CFR 60.334 and 60.335.</p> <p>Recordkeeping: The permittee shall comply with the recordkeeping requirements of 40 CFR 60.334 and 40 CFR 60.7.</p> <p>Reporting: The permittee shall comply with the reporting requirements of 40 CFR 60.7.</p>			<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> N/A</p>	
<p>Methods: Fuel sulfur monitoring records are maintained as required and included with the applicable semi-annual monitoring reports.</p>				
Deviations: Unit ID	Cause & Description of Deviation or Tracking number		Start Date	End Date

PART B General Conditions

1. Have these General Conditions been met during this reporting period? <u>Check only one box per subject heading.</u> <u>Explain answers in remarks row under subject heading.</u>	2. Was this facility <i>continuously</i> in compliance with this requirement during the reporting period?
<u>B101 Legal</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A – Explain Below
REMARKS: Facility was in compliance with applicable requirements during the applicable period.	
<u>B102 Authority</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A – Explain Below
REMARKS: Only the permitted owner operated the facility during the applicable period.	
<u>B103 Annual Fee</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A – Explain Below
REMARKS: The 2017 operating permit emission fees were received by the Department on May 7, 2018. The 2018 fee had not been paid as of the end of this compliance period.	
<u>B104 Appeal Procedures</u>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A – Explain Below
REMARKS: This is a Departmental action.	
<u>B105 Submittal of Reports and Certifications</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A – Explain Below
REMARKS: Reports and certifications are submitted to the appropriate regulatory personnel.	
<u>B106 NSPS and/or MACT Startup, Shutdown, and Malfunction Operations</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A – Explain Below
REMARKS: NSPS and/or NESHAP sources are operated in accordance with the permittee's SSM work practice plan.	
<u>B107 Startup, Shutdown, and Maintenance Operations</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A – Explain Below
REMARKS: The facility is operated in accordance with the permittee's SSM work practice plan.	
<u>B108 General Monitoring Requirements</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A – Explain Below
REMARKS: Periodic monitoring activities are included in the applicable semi-annual reports.	
<u>B109 General Recordkeeping Requirements</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A – Explain Below
REMARKS: Records are maintained in accordance with recordkeeping requirements.	
<u>B110 General Reporting Requirements</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A – Explain Below
REMARKS: Reports are submitted in accordance with reporting requirements.	
<u>B111 General Testing Requirements</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A – Explain Below
REMARKS: Testing that occurred during the applicable period was completed in accordance with the appropriate procedures.	
<u>B112 Compliance</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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

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

Section 21

Addendum for Landfill Applications

Do not print this section unless this is a landfill application.

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.

Section 22: Certification

Company Name: HARVEST MIDSTREAM

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 28 day of OCTOBER, 2019, upon my oath or affirmation, before a notary of the State of

[Handwritten Signature]
*Signature

10/28/2019
Date

TRAVIS JONES
Printed Name

EHS MANAGER
Title

Scribed and sworn before me on this 28 day of October, 2019.

My authorization as a notary of the State of New Mexico expires on the

30 day of October, 2019.

[Handwritten Signature]
Notary's Signature

10/28/2019
Date

Monica Sandoval
Notary's Printed Name



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