October 1, 2019

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

Re: Title V Operating Permit Application
Harvest Four Corners, LLC - Chaco Compressor Station

Dear Ms. Bisbey-Kuehn,

On behalf of Harvest Four Corners, LLC (HFC), Cirrus Consulting, LLC submits the enclosed application to modify the Title V operating permit (P236-R2) for the Chaco Compressor Station.

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

Sincerely,

CIRRUS CONSULTING, LLC

James W. Newby

Enclosure
Chaco Compressor Station Title V Operating Permit Application

c: Monica Smith, HFC

Cirrus Consulting, LLC
979 Manchester Road
Kaysville, Utah 84037

Tel: (801) 544-5275
jnewby@cirrusllc.com

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NEW MEXICO 20.2.70 NMAC APPLICATION TO MODIFY PERMIT NUMBER P236-R2

CHACO 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

October 2019 / Rev. 1 Apr 2020

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Introduction

The Harvest Four Corners, LLC (HFC) Chaco Compressor Station currently operates under a construction permit issued by the New Mexico Air Quality Bureau (NMAQB), 0759-M6, dated October 12, 2018 and a Title V operating permit, P236-R2, dated August 19, 2016.

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

- Two Solar Saturn 10-1001 natural gas-fired turbines (Units 1 & 2);
- One Solar Saturn 10-1202 natural gas-fired turbine (Unit 3);
- One Solar Centaur 40-4002 natural gas-fired turbine (Unit 4);
- One Detroit Diesel standby generator (Unit 5), an exempt source;
- Truck loading emissions (Unit L1);
- Startup, shutdown and maintenance (SSM) emissions from the turbines, compressors and piping associated with the station (Units 1a-4a);
- Malfunction emissions (Unit M1);
- One 500 barrel (bbl) condensate storage tank (Unit T4);
- One 450 bbl condensate storage tank (Unit T5);
- One 45 bbl produced water storage tank (Unit T6); and
- One 70 bbl produced water storage tank (Unit T12).

The station is also equipped with two heaters (Units 6 & 7) and miscellaneous liquid storage tanks (Units T1-T3, T7, T8, T10 & T11). The heaters and miscellaneous storage tanks are exempt sources. The truck loading of produced water is also an exempt activity.

This application is being submitted to renew the Title V operating permit. The following changes, as approved in the most recent construction permit, are included:

- Increase the permitted annual throughput and emissions limits for the condensate storage tanks (Units T4 & T5);
- Increase the permitted annual throughput and emissions limits for condensate truck loading (Unit L1);
- Add one existing pig receiver (Unit PR), an exempt source;
- Identify SSM emissions as Unit “SSM”, rather than Unit “1a-4a”; and
- Increase SSM emissions (Unit SSM) to allow for a richer gas stream.

Note that though the standby generator (Unit 5) is an exempt source for the purpose of the construction permit (it operates less than 500 hours per year and only during the loss of commercial utility power), it is a significant source for the purpose of the Title V permit (there are applicable New Mexico Administrative Code (NMAC) and Subpart ZZZZ requirements). Therefore, in this Title V application, Unit 5 is included in Table 2-A, rather than Table 2-B. As there are no emission limits for the generator in the construction permit, Unit 5 is not included in any of the other tables, except Table 2-I. The generator is included in Table 2-I, because the instructions above that table specifically state all sources listed in Table 2-A must be included.

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

Universal Air Quality Permit Application

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

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

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

Acknowledgements:

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

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

☐ Check No.: XXXX in the amount of XXXX

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

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

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

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

Section 1 – Facility Information

Section 1-A: Company Information

		AI # if known (see 1st 3 to 5 #s of permit IDEA ID No.): **1189**	Updating Permit/NOI #: **P236-R2**
1	Facility Name: **Chaco Compressor Station**	Plant primary SIC Code (4 digits): **1389**	
		Plant NAIC code (6 digits): **213112**	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): **See directions in Section 1-D4**		
2	Plant Operator Company Name: **Harvest Four Corners, LLC**	Phone/Fax: **(505) 632-4600 / (505) 632-4782**	
a	Plant Operator Address: **1755 Arroyo Drive, Bloomfield, New Mexico 87413**		

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

Section 1-B: Current Facility Status

1.a	Has this facility already been constructed? ☑ Yes ☐ No	1.b If yes to question 1.a, is it currently operating in New Mexico? ☑ Yes ☐ No
2	If yes to question 1.a, was the existing facility subject to a Notice of Intent (NOI) (20.2.73 NMAC) before submittal of this application? ☐ Yes ☑ No	If yes to question 1.a, was the existing facility subject to a construction permit (20.2.72 NMAC) before submittal of this application? ☑ Yes ☐ No
3	Is the facility currently shut down? ☐ Yes ☑ No	If yes, give month and year of shut down (MM/YY): **N/A**
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? ☑ Yes ☐ No	
5	If Yes to question 3, has this facility been modified (see 20.2.72.7.P NMAC) or the capacity increased since 8/31/1972? ☑ Yes ☐ No ☐ N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☑ Yes ☐ No	If yes, the permit No. is: **P236-R2**
7	Has this facility been issued a No Permit Required (NPR)? ☐ Yes ☑ No	If yes, the NPR No. is: **N/A**
8	Has this facility been issued a Notice of Intent (NOI)? ☐ Yes ☑ No	If yes, the NOI No. is: **N/A**
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ☑ Yes ☐ No	If yes, the permit No. is: **0759-M6**
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes ☑ No	If yes, the register No. is: **N/A**

Section 1-C: Facility Input Capacity & Production Rate

1	What is the facility's maximum input capacity, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: **5.4 MMCF[(a)]**	Daily: **130 MMCF[(a)]**	Annually: **47,450 MMCF[(a)]**
b	Proposed	Hourly: **5.4 MMCF[(a)]**	Daily: **130 MMCF[(a)]**	Annually: **47,450 MMCF[(a)]**
2	What is the facility's maximum production rate, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: **N/A**	Daily: **N/A**	Annually: **N/A**
b	Proposed	Hourly: **N/A**	Daily: **N/A**	Annually: **N/A**

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

Section 1-D: Facility Location Information

1	Section: **27**	Range: **11W**	Township: **29N**	County: **San Juan**	Elevation (ft): **5,575**
2	UTM Zone: ☐ 12 or ☑ 13			Datum: ☐ NAD 27 ☐ NAD 83 ☑ WGS 84	
a	UTM E (in meters, to nearest 10 meters): **233,880**			UTM N (in meters, to nearest 10 meters): **4,064,690**	
b	**AND** Latitude (deg., min., sec.): **36° 41' 26"**			Longitude (deg., min., sec.): **-107° 58' 43"**	
3	Name and zip code of nearest New Mexico town: **Bloomfield, New Mexico 87413**				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): **From Bloomfield drive south on Hwy 550, turn left at Industrial Blvd and drive 0.5 miles to the white propane tank (Mid-American Pipeline System), turn left and drive 0.4 miles (0.2 miles past the La Cosa Station).**				
5	The facility is **approximately 1** (distance) mile **south** (direction) of **Bloomfield, New Mexico** (nearest town).				
6	Status of land at facility (check one): ☐ Private ☐ Indian/Pueblo ☑ Federal BLM ☐ Federal Forest Service ☐ Other (specify)				
7	List all municipalities, Indian tribes, and counties within a ten (10) mile radius (20.2.72.203.B.2 NMAC) of the property on which the facility is proposed to be constructed or operated: **Bloomfield, Navajo Indian Tribe, San Juan County**				
8	**20.2.72** NMAC applications **only**: Will the property on which the facility is proposed to be constructed or operated be closer than 50 km (31 miles) to other states, Bernalillo County, or a Class I area (see www.env.nm.gov/aqb/modeling/class1areas.html)? ☐ Yes ☐ No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers: **N/A**				
9	Name nearest Class I area: **Mesa Verde National Park**				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): **66.25 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: **≈3,220 m**				
12	Method(s) used to delineate the Restricted Area: **Fence** "**Restricted Area**" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area.				
13	Does the owner/operator intend to operate this source as a portable stationary source as defined in 20.2.72.7.X NMAC? ☐ Yes ☑ No A portable stationary source is not a mobile source, such as an automobile, but a source that can be installed permanently at one location or that can be re-installed at various locations, such as a hot mix asphalt plant that is moved to different job sites.				
14	Will this facility operate in conjunction with other air regulated parties on the same property? ☐ Yes ☑ No If yes, what is the name and permit number (if known) of the other facility? **N/A**				

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

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

Section 1-F: Other Facility Information

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

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

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

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

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

1	Responsible Official (R.O.) (20.2.70.300.D.2 NMAC): **Travis Jones**		Phone: **(713) 289-2630**
a	R.O. Title: **EH&S Manager**	R.O. e-mail: **trjones@harvestmidstream.com**	
b	R. O. Address: **1111 Travis Street, Houston, Texas 77002**		
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC): **TBD**		Phone: **TBD**
a	A. R.O. Title: **TBD**	A. R.O. e-mail: **TBD**	
b	A. R. O. Address: **TBD**		
3	Company's Corporate or Partnership Relationship to any other Air Quality Permittee (List the names of any companies that have operating (20.2.70 NMAC) permits and with whom the applicant for this permit has a corporate or partnership relationship): **N/A**		
4	Name of Parent Company ("Parent Company" means the primary name of the organization that owns the company to be permitted wholly or in part.): **Hilcorp Energy Company**		
a	Address of Parent Company: **1111 Travis Street, Houston, Texas 77002**		
5	Names of Subsidiary Companies ("Subsidiary Companies" means organizations, branches, divisions or subsidiaries, which are owned, wholly or in part, by the company to be permitted.): **N/A**		
6	Telephone numbers & names of the owners' agents and site contacts familiar with plant operations: **N/A**		
7	Affected Programs to include Other States, local air pollution control programs (i.e. Bernalillo) and Indian tribes: Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B)? If yes, state which ones and provide the distances in kilometers: **Yes, Colorado (33.8 km), Navajo Reservation (1.6 km), Southern Ute Reservation (33.8 km), Jicarilla Apache Reservation (57.9 km), Ute Mountain Reservation (19.3 km)**		

Section 1-I – Submittal Requirements

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

Hard Copy Submittal Requirements:

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

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

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

Electronic files sent by (check one):

☑ CD/DVD attached to paper application

☐ secure electronic transfer. Air Permit Contact Name:_____

Email:_____

Phone number:_____

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

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

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

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

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

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

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

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

i.e. brochures, maps, graphics, etc,), submit these items in hard copy format. We must be able to review the formulas and inputs that calculated the emissions.

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

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

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Table 2-A: Regulated Emission Sources

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

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
1	Turbine	Solar	Saturn 10-1001	OHA08-S0299 (Skid Package # S401983)	1,200 hp	976 hp	06/08/1971 06/08/1971	N/A 1	20200201	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
2	Turbine	Solar	Saturn 10-1001	OHA10-S1717 (Skid Package # S401984)	1,200 hp	976 hp	06/08/1971 06/08/1971	N/A 2	20200201	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
3	Turbine	Solar	Saturn 10-1202	OHA08-S0335 (Skid Package # S428315)	1,200 hp	976 hp	07/19/1973 07/19/1973	N/A 3	20200201	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
4	Turbine	Solar	Centaur 40-4002	OHG17-C7439 (Skid Package # S3020212)	3,961 hp	3,222 hp	1994 05/10/1974	N/A 4	20200201	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
5	Generator Engine	Detriot Diesel		4A0210278	200 hp	200 hp	11/1980 11/1980	N/A N/A	20200102	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	CI	N/A
SSM	SSM Blowdowns						1971 1971	N/A N/A	31000299	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	N/A	N/A
F1	Equipment Leaks						1971 1971	N/A N/A	31000299	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
M1	Malfunctions						1971 1971	N/A N/A	31000299	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
L1	Truck Loading (Condensate)						1995 1995	N/A N/A	31000299	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	N/A	N/A
T4	Condensate Storage Tank				21,000 gal	21,000 gal	05/19/1995 05/19/1995	N/A N/A	31000299	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	N/A	N/A
T5	Condensate Storage Tank				18,900 gal	18,900 gal	01/08/2001 01/08/2001	N/A N/A	31000299	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	N/A	N/A
T6	Produced Water Storage Tank				1,890 gal	1,890 gal		N/A N/A	31000299	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
T12	Produced Water Storage Tank				2,940 gal	2,940 gal		N/A N/A	31000299	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

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

[2] Specify dates required to determine regulatory applicability.

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

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

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

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

Unit Number	Source Description	Manufacturer	Model No. Serial No.	Max Capacity Capacity Units	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5) Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Manufacture /Reconstruction[2] Date of Installation /Construction[2]	For Each Piece of Equipment, Check Onc
6	EVRU Separator Heater		SB20-14 1110-67 A	0.51 MMBtu/hr	20.2.72.202.B.5 #1a & #1b		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
7	Fuel Gas Heater			0.005 MMBtu/hr	20.2.72.202.B.5 #1a & #1b		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
L2	Truck Loading (Produced Water)				20.2.72.202.B.5 #1a & #1b		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
PR	Pig Receiver				20.2.72.202.B.5 #1a & #1b		☐ Existing (unchanged) ☐ To be Removed ☑ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T1	Lubrication Oil Storage Tank			1000 gal	20.2.72.202.B.2 #1a, #1b & #5		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T2	Used Oil Storage Tank			840 gal	20.2.72.202.B.2 #1a, #1b & #5		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T3	Diesel Storage Tank			160 gal	20.2.72.202.B.2 #1a, #1b & #5		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T7	Methanol Storage Tank			500 gal	20.2.72.202.B.5 #1a & #1b		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T8	Methanol Storage Tank			300 gal	20.2.72.202.B.5 #1a, #1b & #5		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T10	Methanol Storage Tank			125 gal	20.2.72.202.B.5 #1a, #1b & #5		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T11	Methanol Storage Tank			65 gal	20.2.72.202.B.5 #1a, #1b & #5		☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

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

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

Table 2-C: Emissions Control Equipment

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

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
EVRU	3-Phase Separator & EVRU w/ 2-Stage Series Ejector System	2014	VOC & HAP	T-4 & T-5	25%	Design
VRU	Vapor Recovery System	TBD	VOC & HAP	T-4 & T-5	75%	Estimate

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

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	3.30	14.30	3.50	15.10	1.00E-01	4.00E-01	3.67E-02	1.61E-01	7.12E-02	3.12E-01	7.12E-02	3.12E-01	7.12E-02	3.12E-01	-	-	-	-
2	3.30	14.30	3.50	15.10	1.00E-01	4.00E-01	3.67E-02	1.61E-01	7.12E-02	3.12E-01	7.12E-02	3.12E-01	7.12E-02	3.12E-01	-	-	-	-
3	3.30	14.30	3.50	15.10	1.00E-01	4.00E-01	3.67E-02	1.61E-01	7.12E-02	3.12E-01	7.12E-02	3.12E-01	7.12E-02	3.12E-01	-	-	-	-
4	16.70	73.00	4.20	18.60	5.30E-01	2.30	1.75E-01	7.65E-01	3.39E-01	1.49	3.39E-01	1.49	3.39E-01	1.49	-	-	2.28E-05	1.00E-04
SSM	-	-	-	-	unspecified	24.48	-	-	-	-	-	-	-	-	-	-	-	-
F1	-	-	-	-	1.14	5.00	-	-	-	-	-	-	-	-	-	-	-	-
M1	-	-	-	-	unspecified	10.00	-	-	-	-	-	-	-	-	-	-	-	-
L1	-	-	-	-	37.12	3.90	-	-	-	-	-	-	-	-	-	-	-	-
T4	-	-	-	-	unspecified	258.11	-	-	-	-	-	-	-	-	-	-	-	-
T5	-	-	-	-	unspecified	w/T4	-	-	-	-	-	-	-	-	-	-	-	-
T6	-	-	-	-	unspecified	1.97	-	-	-	-	-	-	-	-	-	-	-	-
T12	-	-	-	-	unspecified	w/T6	-	-	-	-	-	-	-	-	-	-	-	-
L1 (AOS)	-	-	-	-	37.12	5.20	-	-	-	-	-	-	-	-	-	-	-	-
T4 (AOS)	-	-	-	-	unspecified	339.44	-	-	-	-	-	-	-	-	-	-	-	-
T5 (AOS)	-	-	-	-	unspecified	w/T4 (AOS	-	-	-	-	-	-	-	-	-	-	-	-
T6 (AOS)	-	-	-	-	unspecified	2.62	-	-	-	-	-	-	-	-	-	-	-	-
T12 (AOS)	-	-	-	-	unspecified	w/T6 (AOS	-	-	-	-	-	-	-	-	-	-	-	-
Totals #1	26.60	115.90	14.70	63.90	39.09	306.96	2.85E-01	1.25	5.53E-01	2.43	5.53E-01	2.43	5.53E-01	2.43	-	-	2.28E-05	1.00E-04
Totals #2	26.60	115.90	14.70	63.90	39.09	390.24	2.85E-01	1.25	5.53E-01	2.43	5.53E-01	2.43	5.53E-01	2.43	-	-	2.28E-05	1.00E-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 PM is a regulated air pollutant under PSD (20.2.74 NMAC) and Title V (20.2.70 NMAC).

Total #1 assumes operation with the existing EVRU (25% control efficiency) and a limit of 45,000 bbl of condensate per year.

Total #2 assumes operation with a new VRU (75% control efficiency) and a limit of 60,000 bbl of condensate per year (AOS).

Table 2-E: Requested Allowable Emissions

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	3.30	14.30	3.50	15.10	1.00E-01	4.00E-01	3.67E-02	1.61E-01	7.12E-02	3.12E-01	7.12E-02	3.12E-01	7.12E-02	3.12E-01	-	-	-	-
2	3.30	14.30	3.50	15.10	1.00E-01	4.00E-01	3.67E-02	1.61E-01	7.12E-02	3.12E-01	7.12E-02	3.12E-01	7.12E-02	3.12E-01	-	-	-	-
3	3.30	14.30	3.50	15.10	1.00E-01	4.00E-01	3.67E-02	1.61E-01	7.12E-02	3.12E-01	7.12E-02	3.12E-01	7.12E-02	3.12E-01	-	-	-	-
4	16.70	73.00	4.20	18.60	5.30E-01	2.30	1.75E-01	7.65E-01	3.39E-01	1.49	3.39E-01	1.49	3.39E-01	1.49	-	-	2.3E-05	1.0E-04
SSM	-	-	-	-	unspecified	24.48	-	-	-	-	-	-	-	-	-	-	-	-
F1	-	-	-	-	1.14	5.00	-	-	-	-	-	-	-	-	-	-	-	-
M1	-	-	-	-	unspecified	10.00	-	-	-	-	-	-	-	-	-	-	-	-
L1	-	-	-	-	37.12	3.90	-	-	-	-	-	-	-	-	-	-	-	-
T4	-	-	-	-	unspecified	193.60	-	-	-	-	-	-	-	-	-	-	-	-
T5	-	-	-	-	unspecified	w/T4	-	-	-	-	-	-	-	-	-	-	-	-
T6	-	-	-	-	unspecified	1.97	-	-	-	-	-	-	-	-	-	-	-	-
T12	-	-	-	-	unspecified	w/T6	-	-	-	-	-	-	-	-	-	-	-	-
L1 (AOS)	-	-	-	-	37.12	5.20	-	-	-	-	-	-	-	-	-	-	-	-
T4 (AOS)	-	-	-	-	unspecified	84.86	-	-	-	-	-	-	-	-	-	-	-	-
T5 (AOS)	-	-	-	-	unspecified	w/T4 (AOS	-	-	-	-	-	-	-	-	-	-	-	-
T6 (AOS)	-	-	-	-	unspecified	2.62	-	-	-	-	-	-	-	-	-	-	-	-
T12 (AOS)	-	-	-	-	unspecified	w/T6 (AOS	-	-	-	-	-	-	-	-	-	-	-	-
Totals #1	26.60	115.90	14.70	63.90	39.09	242.45	2.85E-01	1.25	5.53E-01	2.43	5.53E-01	2.43	5.53E-01	2.43	-	-	2.28E-05	1.00E-04
Totals #2	26.60	115.90	14.70	63.90	39.09	135.66	2.85E-01	1.25	5.53E-01	2.43	5.53E-01	2.43	5.53E-01	2.43	-	-	2.28E-05	1.00E-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).

Total #1 assumes operation with the existing EVRU (25% control efficiency) and a limit of 45,000 bbl of condensate per year.

Total #2 assumes operation with a new VRU (75% control efficiency) and a limit of 60,000 bbl of condensate per year (AOS).

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[2]		PM10[2]		PM2.5[2]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SSM	-	-	-	-	unspecified	24.48	-	-	-	-	-	-	-	-	-	-	-	-
F1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
M1	-	-	-	-	unspecified	10	-	-	-	-	-	-	-	-	-	-	-	-
L1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
L1 (AOS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T4 (AOS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T5 (AOS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T6 (AOS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T12 (AOS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	-	-	-	-	unspecified	34.48	-	-	-	-	-	-	-	-	-	-	-	-

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

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

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

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

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

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

Table 2-H: Stack Exit Conditions

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

Stack Number	Serving Unit Number(s) from Table 2-A	Orientation (H-Horizontal V=Vertical)	Rain Caps (Yes or No)	Height Above Ground (ft)	Temp. (F)	Flow Rate		Moisture by Volume (%)	Velocity (ft/sec)	Inside Diameter (ft)
						(acfs)	(dscfs)			
1	1	V	No	22	819	486			275	1.50
2	2	V	No	22	819	486			275	1.50
3	3	V	No	22	794	474			268	1.50
4	4	V	No	22	824	1379			281	2.50

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

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

Stack No.	Unit No.(s)	Total HAPs		Acetaldehyde ☑ HAP or ☐ TAP		Benzene ☑ HAP or ☐ TAP		Formaldehyde ☑ HAP or ☐ TAP		n-Hexane ☑ HAP or ☐ TAP		Toluene ☑ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	1	0.1	0.4	-	0.2	-	-	-	0.2	-	-	-	-						
2	2	0.1	0.4	-	0.2	-	-	-	0.2	-	-	-	-						
3	3	0.1	0.4	-	0.2	-	-	-	0.2	-	-	-	-						
4	4	0.3	1.3	0.1	0.5	-	-	0.1	0.5	-	-	-	-						
SSM	SSM	-	0.6	-	-	-	0.1	-	-	-	0.4	-	0.1						
F1	F1	-	0.1	-	-	-	-	-	-	-	0.1	-	-						
M1	M1	-	0.2	-	-	-	-	-	-	-	0.2	-	-						
L1	L1	3.6	0.4	-	-	0.2	-	-	-	3.1	0.3	0.3	-						
T4	T4	-	8.1	-	-	-	0.6	-	-	-	6.5	-	0.8						
T5	T5	-	7.3	-	-	-	0.6	-	-	-	5.8	-	0.7						
T6	T6	-	0.1	-	-	-	-	-	-	-	0.1	-	-						
T12	T12	-	0.2	-	-	-	-	-	-	-	0.1	-	-						
L1 (AOS)	L1 (AOS)	3.6	0.5	-	-	0.2	-	-	-	3.1	0.4	0.3	-						
T4 (AOS)	T4 (AOS)	-	3.5	-	-	-	0.3	-	-	-	2.8	-	0.3						
T5 (AOS)	T5 (AOS)	-	3.2	-	-	-	0.3	-	-	-	2.6	-	0.3						
T6 (AOS)	T6 (AOS)	-	0.2	-	-	-	-	-	-	-	0.1	-	-						
T12 (AOS)	T12 (AOS)	-	0.3	-	-	-	-	-	-	-	0.1	-	0.1						
Total #1		4.2	19.5	0.2	1.0	0.2	1.4	0.2	1.0	3.1	13.6	0.3	1.7						
Total #2		4.2	11.1	0.2	1.0	0.2	0.8	0.2	1.0	3.1	6.8	0.3	0.9						

Total #1 assumes operation with the existing EVRU (25% control efficiency) and a limit of 45,000 bbl of condensate per year.

Total #2 assumes operation with a new VRU (75% control efficiency) and a limit of 60,000 bbl of condensate per year (AOS).

Table 2-J: Fuel

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

Unit No.	Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, …)	Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other	Specify Units				
			Lower Heating Value	Hourly Usage	Annual Usage	% Sulfur	% Ash
1	Natural Gas	Pipeline Quality Natural Gas	900 Btu/cf	11.99 Mscf	105.00 MMscf	Negligible	Negligible
2	Natural Gas	Pipeline Quality Natural Gas	900 Btu/cf	11.99 Mscf	105.00 MMscf	Negligible	Negligible
3	Natural Gas	Pipeline Quality Natural Gas	900 Btu/cf	11.99 Mscf	105.00 MMscf	Negligible	Negligible
4	Natural Gas	Pipeline Quality Natural Gas	900 Btu/cf	57.08 Mscf	500.00 MMscf	Negligible	Negligible
5	Low Sulfur Diesel	Purchased Commercial	137,000 Btu/gal	10.29 gal	5,146 gal	Negligible	Negligible

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

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

Tank No.	SCC Code	Material Name	Composition	Liquid Density (lb/gal)	Vapor Molecular Weight (lb/lb*mol)	Average Storage Conditions		Max Storage Conditions	
						Temperature (°F)	True Vapor Pressure (psia)	Temperature (°F)	True Vapor Pressure (psia)
T1	31000299	Lubrication Oil	Lubrication Oil	Exempt Source					
T2	31000299	Used Lubrication Oil	Used Lubrication Oil	Exempt Source					
T3	31000299	Diesel	Diesel	Exempt Source					
T4	31000299	Condensate	Condensate	5.82	65.64	64.94	4.41	76.64	5.52
T5	31000299	Condensate	Condensate	5.82	65.64	64.94	4.41	76.64	5.52
T6	31000299	Produced Water	H2O & Trace Hydrocarbons	8.3	18.02	70	0.3619	*	*
T7	31000299	Methanol	Methanol	Exempt Source					
T8	31000299	Methanol	Methanol	Exempt Source					
T10	31000299	Methanol	Methanol	Exempt Source					
T11	31000299	Methanol	Methanol	Exempt Source					
T12	31000299	Produced Water	H2O & Trace Hydrocarbons	8.3	18.02	70	0.3619	*	*
T4 (AOS)	31000299	Condensate	Condensate	5.82	66.36	64.94	4.03	76.64	5.08
T5 (AOS)	31000299	Condensate	Condensate	5.82	66.36	64.94	4.03	76.64	5.08
T6 (AOS)	31000299	Produced Water	H2O & Trace Hydrocarbons	8.3	18.02	70	0.3619	*	*
T12 (AOS)	31000299	Produced Water	H2O & Trace Hydrocarbons	8.3	18.02	70	0.3619	*	*
								* Information is not available.	

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		Lubrication Oil		FX	24		Exempt Source						
T2		Used Lubrication Oil		FX	20		Exempt Source						
T3		Diesel		FX	4		Exempt Source						
T4	05/19/95	Condensate		FX	500		4.57	9.53	LG	LG	Good	994,737	50.17
T5	01/08/01	Condensate		FX	450		4.57	9.53	LG	LG	Good	895,263	48.37
T6		Produced Water		Open top	45		*	*	*	*	*	246,540	130.45
T7		Methanol		FX	12		Exempt Source						
T8		Methanol		FX	7		Exempt Source						
T10		Methanol		FX	3		Exempt Source						
T11		Methanol		FX	2		Exempt Source						
T12		Produced Water		Open top	70		*	*	*	*	*	383,460	130.43
T4 (AOS)	05/19/95	Condensate		FX	500		4.57	9.03	LG	LG	Good	1,326,316	66.89
T5 (AOS)	01/08/01	Condensate		FX	450		4.57	9.03	LG	LG	Good	1,193,684	64.50
T6 (AOS)		Produced Water		Open top	45		*	*	*	*	*	328,734	174.00
T12 (AOS)		Produced Water		Open top	70		*	*	*	*	*	511,266	174.00
							* Information is not applicable or is not available from the calculations.						

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

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

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

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

Material Processed				Material Produced			
Description	**Chemical Composition**	**Phase (Gas, Liquid, or Solid)**	**Quantity (specify units)**	**Description**	**Chemical Composition**	**Phase**	**Quantity (specify units)**
Low pressure natural gas	C1-C6+	Gas	47,450 MMcf/yr	High pressure natural gas	C1-C6+	Gas	47,450 MMcf/yr
The station capacity is a direct function of available horsepower. The throughput is therefore dependent on atmospheric temperature and pressure, gas temperature and pressure, relative humidity and gas quality, was well as other factors. The "throughput" expressed above is a nominal quantity (with a 15 percent safety factor), neither an absolute maximum, nor an average. Actual throughput will vary from the nominal amount.							

Table 2-N: CEM Equipment

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

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

Table 2-O: Parametric Emissions Measurement Equipment

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

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

Table 2-P: Greenhouse Gas Emissions

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

		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]									**Total GHG** Mass Basis ton/yr[4]	**Total CO_2e** ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**22,800**	**footnote 3**										
1	**mass GHG**	7,555.67	1.42E-02	1.42E-01											7,555.83	-
	CO_2e	7,555.67	4.24	3.56											-	7,563.48
2	**mass GHG**	7,555.67	1.42E-02	1.42E-01											7,555.83	-
	CO_2e	7,555.67	4.24	3.56											-	7,563.48
3	**mass GHG**	7,555.67	1.42E-02	1.42E-01											7,555.83	-
	CO_2e	7,555.67	4.24	3.56											-	7,563.48
4	**mass GHG**	20,508.26	3.87E-02	3.87E-01											20,508.68	-
	CO_2e	20,508.26	11.52	9.66											-	20,529.44
5	**mass GHG**	63.73	5.17E-04	2.59E-03											63.73	-
	CO_2e	63.73	1.54E-01	6.46E-02											-	63.95
6	**mass GHG**	289.73	5.46E-04	5.46E-03											289.73	-
	CO_2e	289.73	1.63E-01	1.37E-01											-	290.03
7	**mass GHG**	2.84	5.35E-06	5.35E-05											2.84	-
	CO_2e	2.84	1.60E-03	1.34E-03											-	2.84
SSM	**mass GHG**	44.27	-	703.55											747.82	-
	CO_2e	44.27	-	17,588.75											-	17,633.02
PR	**mass GHG**	1.39E-01	-	2.21											2.35	-
	CO_2e	1.39E-01	-	55.26											-	55.40
F1	**mass GHG**	1.38	-	21.84											23.21	-
	CO_2e	1.38	-	545.95											-	547.32
M1	**mass GHG**	3.14	-	49.81											52.95	-
	CO_2e	3.14	-	1,245.29											-	1,248.42
L1	**mass GHG**	-	-	-											-	-
	CO_2e	-	-	-											-	-
T4	**mass GHG**	2.65	-	10.26											12.91	-
	CO_2e	2.65	-	256.52											-	259.16
T5	**mass GHG**	2.38	-	9.23											11.62	-
	CO_2e	2.38	-	230.87											-	233.25
T6	**mass GHG**	-	-	-											-	-
	CO_2e	-	-	-											-	-

Table 2-P: Greenhouse Gas Emissions

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

		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]									Total GHG Mass Basis ton/yr[4]	Total CO_2e ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**22,800**	**footnote 3**										
T12	**mass GHG**	-	-	-											-	-
	CO_2e	-	-	-											-	-
	mass GHG															
	CO_2e															
L1 (AOS)	**mass GHG**	-	-	-											-	-
	CO_2e	-	-	-											-	-
T4 (AOS)	**mass GHG**	1.17	-	4.54											5.71	-
	CO_2e	1.17	-	113.49											-	114.66
T5 (AOS)	**mass GHG**	1.05	-	4.09											5.14	-
	CO_2e	1.05	-	102.14											-	103.19
T6 (AOS)	**mass GHG**	-	-	-											-	-
	CO_2e	-	-	-											-	-
T12 (AOS)	**mass GHG**	-	-	-											-	-
	CO_2e	-	-	-											-	-
	mass GHG															
	CO_2e															
Total #1	**mass GHG**	43,585.52	8.24E-02	797.73											44,383.33	-
	CO_2e	43,585.52	24.57	19,943.17											-	63,553.26
Total #2	**mass GHG**	43,582.72	8.24E-02	786.86											44,369.66	-
	CO_2e	43,582.72	24.57	19,671.41											-	63,278.70

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

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

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

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

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

Total #1 assumes operation with the existing EVRU (25% control efficiency) and a limit of 45,000 bbl of condensate per year.

Total #2 assumes operation with a new VRU (75% control efficiency) and a limit of 60,000 bbl of condensate per year (AOS).

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Section 3

Application Summary

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

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

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

The HFC Chaco Compressor Station currently operates under a construction permit issued by the NMAQB, 0759-M6, dated October 12, 2018 and a Title V operating permit, P236-R2, dated August 19, 2016.

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

- Two Solar Saturn 10-1001 natural gas-fired turbines (Units 1 & 2);
- One Solar Saturn 10-1202 natural gas-fired turbine (Unit 3);
- One Solar Centaur 40-4002 natural gas-fired turbine (Unit 4);
- One Detroit Diesel standby generator (Unit 5), an exempt source;
- Truck loading emissions (Unit L1);
- SSM emissions from the turbines, compressors and piping associated with the station (Units 1a-4a);
- Malfunction emissions (Unit M1);
- One 500 bbl condensate storage tank (Unit T4);
- One 450 bbl condensate storage tank (Unit T5);
- One 45 bbl produced water storage tank (Unit T6); and
- One 70 bbl produced water storage tank (Unit T12).

The station is also equipped with two heaters (Units 6 & 7) and miscellaneous liquid storage tanks (Units T1-T3, T7, T8, T10 & T11). The heaters and miscellaneous storage tanks are exempt sources. The truck loading of produced water is also an exempt activity.

This application is being submitted to renew the Title V operating permit. The following changes, as approved in the most recent construction permit, are included:

- Increase the permitted annual throughput and emissions limits for the condensate storage tanks (Units T4 & T5);
- Increase the permitted annual throughput and emissions limits for condensate truck loading (Unit L1);
- Add one existing pig receiver (Unit PR), an exempt source;
- Identify SSM emissions as Unit "SSM", rather than Unit "1a-4a"; and
- Increase SSM emissions (Unit SSM) to allow for a richer gas stream.

Note that though the standby generator (Unit 5) is an exempt source for the purpose of the construction permit (it operates less than 500 hours per year and only during the loss of commercial utility power), it is a significant source for the purpose of the Title V permit (there are applicable NMAC and Subpart ZZZZ requirements). Therefore, in this Title V application, Unit 5 is included in Table 2-A, rather than Table 2-B. As there are no emission limits for the generator in the construction permit, Unit 5 is not included in any of the other tables, except Table 2-I. The generator is included in Table 2-I, because the instructions above that table specifically state all sources listed in Table 2-A must be included.

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

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

Startup, Shutdown and Maintenance Emissions

For the turbine combustion emissions, equipment leaks (valves, connectors, seals, etc.), truck loading, malfunctions, and storage tanks, it is concluded there are no SSM emissions in excess of those identified for steady-state operation as seen in Section 2, Table 2-E. Discussions justifying this conclusion are provided in Section 6.

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

REVISION 1 (April 2020)

HFC is amending this application to add an alternative operating scenario (AOS) included in the most recent NSR permit, but inadvertently left out of this Title V application.

The base scenario in this application includes the request above for an increase in the allowable condensate throughput to Tanks T4 and T5 (to 45,000 bbl per year [bbl/yr]). Under this scenario, the hydrocarbon vapors from the condensate system will continue to be controlled by the existing 3-phase separator and Ejector Vapor Recovery Unit (EVRU).

Because of the regional increase in natural gas development, HFC is also permitting an AOS that would further allow for the throughput of an additional 15,000 barrels of condensate per year (for a total of 60,000 barrels per year). To offset the additional increase in flash and working & breathing emissions, HFC would replace the existing EVRU with a more efficient Vapor Recovery Unit (VRU). Note that the existing EVRU is currently permitted for a vapor recovery efficiency of only 25%. Contemporary VRU systems can typically recover 95% or more of the flash and working & breathing vapors from a condensate system.

If HFC makes the decision to increase condensate throughput to above 45,000 bbl per year, they will replace the EVRU with a more efficient VRU. This application is being prepared using data for a Twin Stars 10 HP 7D/8D VRUE, documentation is attached. It is important to note, however, that the replacement VRU system has not yet been selected. HFC may opt for a different system.

To allow for flexibility in the selection process, at the same time ensuring facility PTE emissions remain below the PSD threshold, emissions in this application are conservatively calculated assuming the new VRU will have a vapor recovery efficiency of 75%. As noted above, this is well below the efficiency available from contemporary units. HFC will ensure the new VRU meets this efficiency. Note that even with a recovery rate as low as 75%, implementation of the AOS will decrease both potential and actual VOC and HAP emissions.

With the increase in condensate throughput, there will be additional produced water. Emissions from the following sources will be impacted by the AOS:

- Truck Loading (Condensate);
- Truck Loading (Produced Water);
- Condensate Storage Tanks (flash and working/breathing losses); and
- Produced Water Storage Tanks (working/breathing losses).

The truck loading of produced water will continue to be an exempt and insignificant source. HFC does not anticipate an increase in the pigging frequency as a result of the increase in condensate throughput. Although the volume of liquids will increase per event, the fixed vapor volume in the receiver trap will remain unchanged, meaning there will be no change in the volume of vapors released per event.

HFC has requested the proposed VRU system be treated as an emission control system rather than a product recovery system. In the future, an economic analysis might be prepared to determine the cost-effectiveness of this alternative operation.

The pages affected by this revision are as follows:

Cover Page – Modified to indicate the application has been revised.

Section1 (page 1) – Modified page to indicate this is an update to an application currently under NMED review;

Table 2-A – Switched the position of the malfunction and truck loading sources so they were consistent with the order used in the emission tables.

Table 2-C – Identified the EVRU and VRU as control equipment.

Table 2-D – Added uncontrolled emissions for the alternative operating scenario. Also identified facility emission totals for each operating scenario.

Table 2-E – Added controlled emissions for the alternative operating scenario. Also identified facility emission totals for each operating scenario.

Table 2-F – Added alternative operating scenario to the table.

Table 2-I – Added HAP emissions for the alternative operating scenario. Also identified facility emission totals for each operating scenario.

Table 2-K – Added tank data for the alternative operating scenario.

Table 2-L – Added tank data for the alternative operating scenario.

Table 2-P – Added GHG emissions for the alternative operating scenario. Also identified facility emission totals for each operating scenario.

Section 3 (pages 2-4) – Added a description of the revision to the application.

Section 6 (pages 3, 4 & 6) – Modified the truck loading and storage tank writeups to include the AOS.

Section 6 – Added a second set of calculation pages for the sources affected by the alternative operating scenario. The sources include condensate truck loading (Unit L1 (AOS)), produced water truck loading (L2 (AOS)), two condensate storage tanks (Units T4 (AOS) & T5 (AOS)), two produced water storage tanks (Units T6 (AOS) & T12 (AOS)). Working/breathing losses from the condensate tanks were calculated using TANKS 4. Flash emissions from the condensate tanks were calculated using ProMax 4.

Section 6 – GHG spreadsheet has been updated to identify AOS emissions.

Section 7 – Added documentation for the Twin Stars VRU.

Section 10 – The Written Description of Routine Operations of the Facility has been updated to include the AOS.

Section 15 – Modified the section to include a reference to the AOS.

Change pages are provided.

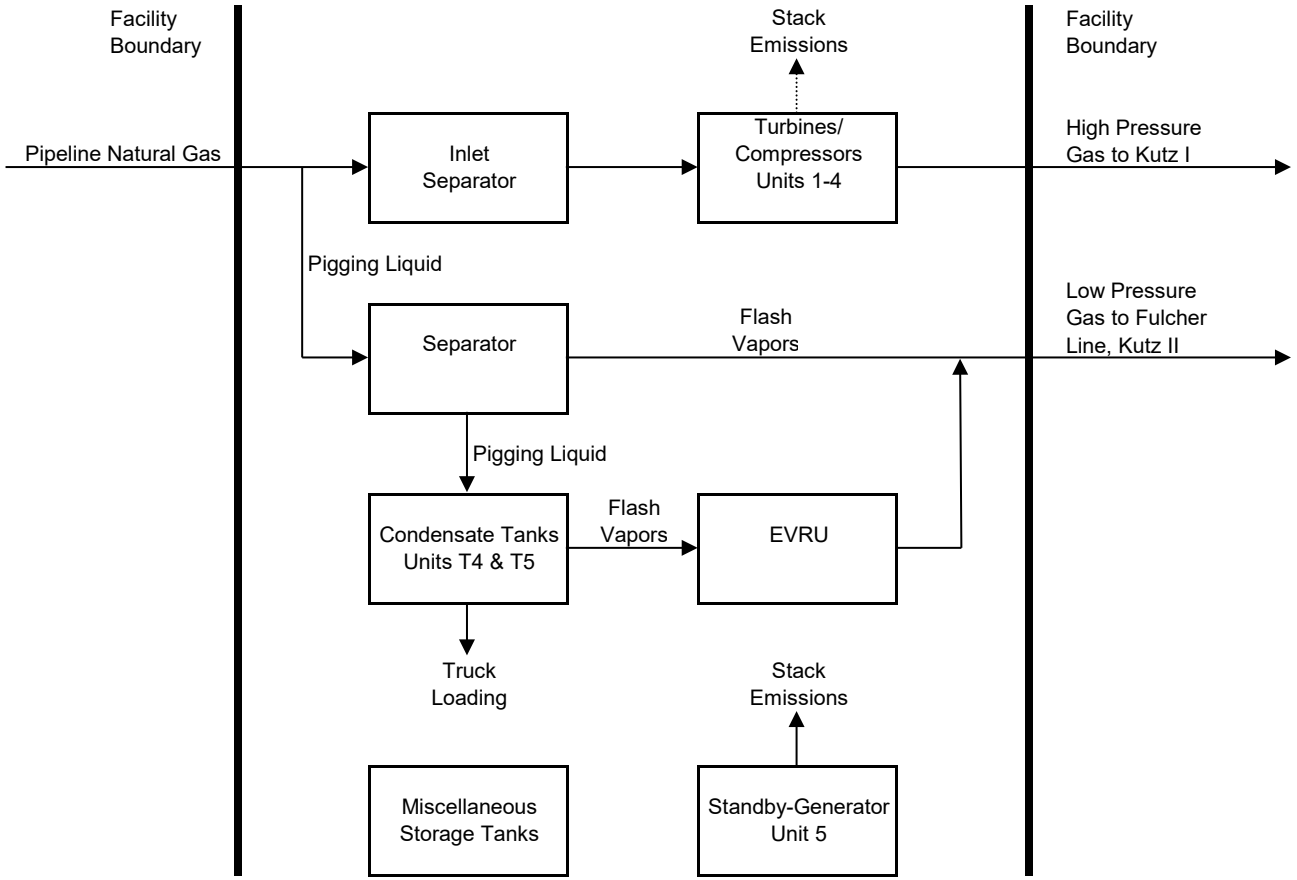
Section 4

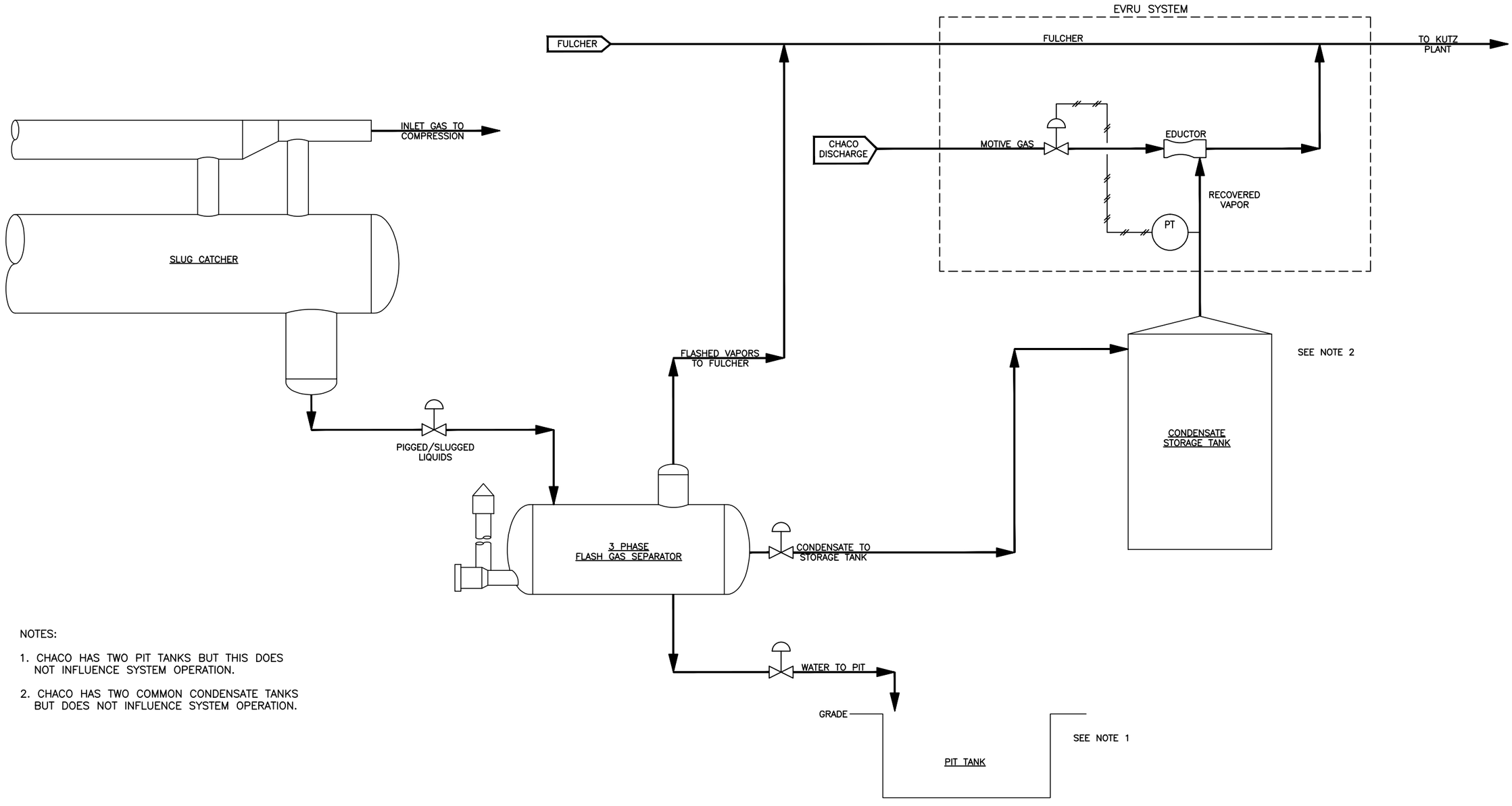
Process Flow Sheet

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

A process flow diagram is provided in this section. A detailed flow diagram showing operation of the EVRU is also included. Please see the following pages.

Flow Diagram





NOTES:

1. CHACO HAS TWO PIT TANKS BUT THIS DOES NOT INFLUENCE SYSTEM OPERATION.
2. CHACO HAS TWO COMMON CONDENSATE TANKS BUT DOES NOT INFLUENCE SYSTEM OPERATION.

NOTES:

DRAWING NO.	TITLE
..	..
..	..
..	..
..	..
..	..
..	..
..	..
..	..
..	..
..	..

REFERENCE DRAWINGS

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

REVISIONS

WILLIAMS MIDSTREAM GAS & LIQUIDS

CHACO AND BLANCO/HARE
EVRU SYSTEMS
PROCESS FLOW DIAGRAM

DRAWN BY	T. GOOSSEN	SCALE:	A.F.E.:
CHECKED BY			
PROJECT ENG.	J.E.		
APPROVED BY			
DATE ISSUED	11/20/2013		

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Section 5

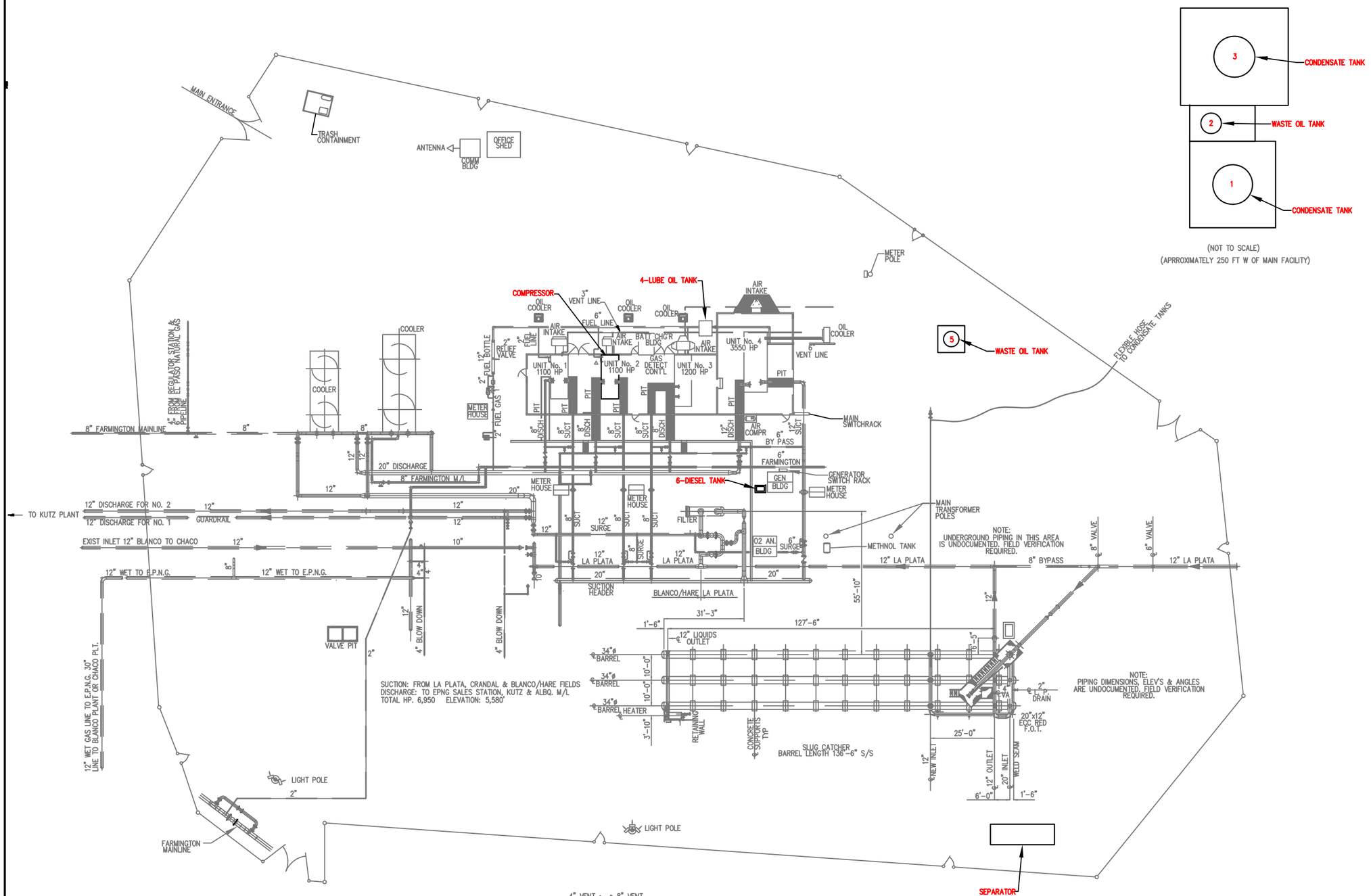
Plot Plan Drawn To Scale

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

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

FIGURE 2

FACILITY LAYOUT MAP
WILLIAMS FOUR CORNERS LLC
CHACO FACILITY
SW¼ SE¼, SECTION 27, T29N, R11W
SAN JUAN COUNTY, NEW MEXICO
N36.69021, W107.97843



Animas Environmental Services, LLC

DRAWN BY: C. Lameman	**DATE DRAWN:** August 29, 2013
REVISIONS BY: C. Lameman	**DATE REVISED:** August 29, 2013
CHECKED BY: R. Kennemer	**DATE CHECKED:** August 29, 2013
APPROVED BY: E. McNally	**DATE APPROVED:** August 29, 2013

NOTE: SITE DIAGRAM OBTAINED FROM WILLIAMS.

SCALE
40 20 0 40
10
(1 INCH = 40 FEET)

Section 6

All Calculations

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

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

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

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

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

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

Significant Figures:

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

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

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

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

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

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

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

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

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

Turbines

The nitrogen oxide (NO_X), carbon monoxide (CO), and volatile organic compound (VOC) combustion emissions from the turbines (Units 1-4) are taken from previous applications and permits. SO_2 and particulate combustion emissions are calculated using the AP-42 emission factors from Table 3.1-2a. Hazardous air pollutant (HAP) combustion emissions are calculated using GRI-HAPCalc 3.0. Emissions are calculated assuming each turbine operates at full site capacity for 8,760 hours per year.

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

The criteria pollutant emissions are carried forward and not revised. No modifications are being made to the turbines or their operation.

Reciprocating Engine

Criteria pollutant and HAP emissions from the Detroit Diesel standby generator engine (Unit 5) are calculated using AP-42 emission factors from Tables 3.3-1 and 3.3-2. Since the unit will operate less than 500 hours per year and only during the loss of commercial utility power, it is an exempt source in accordance with 20.2.72.202.B.3 NMAC.

Heaters

Combustion emissions from the heaters (Units 6 & 7) are calculated using the AP-42 emission factors from Tables 1.4-1 and 1.4-2. It is assumed each heater will operate at full capacity for 8,760 hours per year. As criteria pollutant emissions are all less than 0.5 tpy, the heaters are exempt under 20.2.72.202.B.5 NMAC.

SSM (Turbines, Compressors and Piping)

SSM emissions from the turbines (Unit SSM) result from the blowdown of motive gas used to drive turbine components during startup and shutdown. SSM emissions from the compressors and piping associated with the station occur during startup and shutdown of the compressors. High pressure gas is used to purge air from the compressors and associated piping at startup and this gas is then vented to atmosphere. After shutdown, high pressure gas in the compressors and associated piping is released to atmosphere as a safety precaution.

VOC and HAP emissions from blowdowns of the turbines, compressors and associated piping at the station are calculated from the quantity of gas vented during each event, the composition of the gas, and the number of events. The quantity of gas vented during each event is determined by HFC engineering. The composition of the gas is determined from an extended gas analysis. For each turbine and compressor, the annual number of blowdown events is estimated based on historical operations. 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. The use of the safety factor is also designed to ensure an adequate emissions limit, which includes any emissions from other non-blowdown miscellaneous startup, shutdown and maintenance activities.

Consistent with other facilities, it is requested SSM emissions from the turbines, compressors and associated piping continue to be permitted under a single facility-wide emissions limit.

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

The SSM emissions identified in this application are being increased to allow for a richer gas stream.

Equipment Leaks

Equipment leaks (Unit F1) emissions are calculated using emission factors from Table 2.4 of the 1995 Protocol for Equipment Leak Emission Estimates published by the EPA. The component count is determined from the number of compressors and dehydrators permitted to operate at the station, using an equation derived by HFC that is representative of their facilities. Emissions are calculated assuming the equipment operates 8,760 hours per year. To allow for variability in the composition of the inlet gas stream, the emission rates identified on the application forms are higher than the calculated emissions.

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

The equipment leaks emissions in this application are carried forward and not revised.

Truck Loading

VOC emissions from the truck loading of condensate (Unit L1 & L1 (AOS)) are calculated using the AP-42 emissions factor identified in Section 5.2-1. Data used to calculate the emission factor are obtained from the TANKS 4 (condensate) output file. Condensate throughput is obtained from the ProMax results used to calculate the condensate storage tank flash emissions. HAP emissions are identified as percentages of the VOC emission rate, based on percentages calculated from the TANKS 4 results produced to estimate the condensate storage tank working/breathing losses.

VOC emissions from the truck loading of produced water (Unit L2 & L2 (AOS)) are also calculated using the AP-42 emissions factor identified in Section 5.2-1. Since produced water is water with trace amounts of hydrocarbons, the emission factor was calculated using the true vapor pressure and vapor molecular weight for pure water. The tank water temperature was estimated. The produced water throughput is provided by HFC. The HAP emission rates are percentages of the VOC emission rate, estimated from the ratio of the HAP produced water tank emission factors divided by the VOC produced water tank emission factor.

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

Unit L1 & L1 (AOS) emissions in this application are being increased to allow more annual throughput. Unit L2 & L2 (AOS) is exempt under 20.2.72.202.B.5 NMAC.

Pig Receiver

VOC and HAP emissions from the pig receiver (Unit PR) are calculated from the quantity of gas vented during each event, the composition of the gas, and the number of events. The quantity of gas vented during each event is determined by HFC engineering. The composition of the gas is determined from an extended gas analysis. The annual number of blowdown events is estimated based on historical operations. A safety factor is added because VOC and HAP emissions from each blowdown event are dependent on the composition of the gas in the pipeline and because the number of blowdowns in a year may vary.

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

As VOC emissions are less than 0.5 tpy, Unit PR is exempt under 20.2.72.202.B.5 NMAC.

Malfunctions

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

Criteria pollutant emissions from malfunctions are carried forward and not revised.

Storage Tanks

Emissions from the condensate storage tanks (T4 & T5) are calculated using TANKS 4.0.9d for working/breathing losses and ProMax for flash emissions. Emissions are calculated using the condensate (post-flash) throughput of 45,000 barrels per year. It is estimated the separator and EVRU combined will reduce flash emissions by approximately 48 percent. It is estimated the EVRU will reduce working/breathing losses by approximately 25 percent.

AOS

Again, emissions from the condensate storage tanks (T4 (AOS) & T5 (AOS)) are calculated using TANKS 4.0.9d for working/breathing losses and ProMax for flash emissions. Emissions are calculated using the condensate (post-flash) throughput of 60,000 barrels per year. It is estimated the VRU will reduce flash emissions and working/breathing losses by 75 percent.

VOC and HAP emissions from the produced water storage tanks (Units T6 T6 (AOS), T12 & T12(AOS)) are calculated using produced water tank emission factors prepared by the Colorado Department of Public Health and Environment (CDPHE) and the Texas Commission on Environmental Quality (TCEQ). Emissions from these tanks are carried forward and not revised.

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

- Residual oil #6 is used to estimate lubrication oil and used lubrication oil emissions. As the vapor pressure of residual oil is less than 10 mm Hg, the tanks containing lubrication oil (Unit T1) and used lubrication oil (Unit T2) are exempt in accordance with 20.2.72.202.B.2 NMAC; and

- Distillate fuel oil #2 is used to estimate diesel fuel emissions. As the vapor pressure of distillate fuel oil #2 is less than 10 mm Hg, the tank containing diesel fuel (Unit T3) is exempt in accordance with 20.2.72.202.B.2 NMAC.

Methanol emissions from Unit T7 (the largest of the methanol storage tanks with a capacity of 500 gallons) are calculated at 36.3 pounds per year. Assuming emissions from each of the three remaining methanol tanks are equal to those of Unit T7, combined emissions from the four tanks are less than 0.5 tpy. As such, the methanol storage tanks are exempt sources in accordance with 20.2.72.202.B.5 NMAC.

Due to the nature of operations, startup and shutdown emissions (working/breathing losses) from the storage tanks are assumed to be accounted for in the TANKS 4 and ProMax programs. Emissions due to maintenance are negligible as the units are not in operation.

Turbine Exhaust Emissions Calculations

Unit Number: 1 & 2
Description: Solar Saturn 10-1001

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

Horsepower Calculations

5,575	ft above MSL	Elevation	
1,200	hp	Nameplate hp	Mfg. data
976	hp	NMAQB Site-rated hp	NMAQB Procedure # 02.002-00 (Nameplate hp x [29.9 - (ft above MSL / 1000)] / 29.9)
894	hp	Mfg. Site-rated hp	Mfg. data

Fuel Consumption

105.00	MMscf/yr	Annual fuel consumption	2004 Title V permit application
900.00	Btu/scf	Field gas heating value	Nominal heat content
94,500.00	MMBtu/yr	Annual fuel consumption	MMscf/yr x (1,000,000 scf/MMscf) x Btu/scf / (1,000,000 Btu/MMBtu)
8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC
11,986.30	scf/hr	Hourly fuel consumption	MMscf/yr x (1,000,000 scf/MMscf) / hr/yr
10.79	MMBtu/hr	Hourly fuel consumption	MMBtu/yr / hr/yr

Steady-State Emission Rates

Pollutants	Uncontrolled Emission Rates, pph	tpy
NOX	3.30	14.30
CO	3.50	15.10
VOC	1.00E-01	4.00E-01

Emission rates taken from the current construction permit

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates, pph	tpy
SO2	3.40E-03	3.67E-02	1.61E-01
PM	6.60E-03	7.12E-02	3.12E-01
PM10	6.60E-03	7.12E-02	3.12E-01
PM2.5	6.60E-03	7.12E-02	3.12E-01

Emission factors taken from AP-42, Table 3.1-2a
Uncontrolled Emission Rates (pph) = lb/MMBtu x MMBtu/hr
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Exhaust Parameters

819	°F	Exhaust temperature	2004 Title V permit application
29,160	cfm	Stack flowrate	2004 Title V permit application
1.50	ft	Stack exit diameter	Harvest Four Corners, LLC
1.77	ft^2	Stack exit area	3.1416 x ((ft / 2) ^2)
275.02	fps	Stack exit velocity	acfm / ft^2 / 60 sec/min
22.00	ft	Stack height	Harvest Four Corners, LLC

Turbine Exhaust Emissions Calculations

Unit Number: 3
Description: Solar Saturn 10-1202

Horsepower Calculations

5,575	ft above MSL	Elevation	
1,200	hp	Nameplate hp	Mfg. data
976	hp	NMAQB Site-rated hp	NMAQB Procedure # 02.002-00 (Nameplate hp x [29.9 - (ft above MSL / 1000)] / 29.9)
976	hp	Mfg. Site-rated hp	Mfg. data

Fuel Consumption

105.00	MMscf/yr	Annual fuel consumption	2004 Title V permit application
900.00	Btu/scf	Field gas heating value	Nominal heat content
94,500.00	MMBtu/yr	Annual fuel consumption	MMscf/yr x (1,000,000 scf/MMscf) x Btu/scf / (1,000,000 Btu/MMBtu)
8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC
11,986.30	scf/hr	Hourly fuel consumption	MMscf/yr x (1,000,000 scf/MMscf) / hr/yr
10.79	MMBtu/hr	Hourly fuel consumption	MMBtu/yr / hr/yr

Steady-State Emission Rates

Pollutants	Uncontrolled Emission Rates, pph	tpy
NOX	3.30	14.30
CO	3.50	15.10
VOC	1.00E-01	4.00E-01

Emission rates taken from the current construction permit

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates, pph	tpy
SO2	3.40E-03	3.67E-02	1.61E-01
PM	6.60E-03	7.12E-02	3.12E-01
PM10	6.60E-03	7.12E-02	3.12E-01
PM2.5	6.60E-03	7.12E-02	3.12E-01

Emission factors taken from AP-42, Table 3.1-2a
Uncontrolled Emission Rates (pph) = lb/MMBtu x MMBtu/hr
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Exhaust Parameters

794	°F	Exhaust temperature	2004 Title V permit application
28,416	cfm	Stack flowrate	2004 Title V permit application
1.50	ft	Stack exit diameter	Harvest Four Corners, LLC
1.77	ft^2	Stack exit area	3.1416 x ((ft / 2) ^2)
268.00	fps	Stack exit velocity	acfm / ft^2 / 60 sec/min
22.00	ft	Stack height	Harvest Four Corners, LLC

Turbine Exhaust Emissions Calculations

Unit Number: 4
Description: Solar Centaur 40-4002

Horsepower Calculations

5,575	ft above MSL	Elevation	
3,961	hp	Nameplate hp	Mfg. data
3,222	hp	NMAQB Site-rated hp	NMAQB Procedure # 02.002-00 (Nameplate hp x [29.9 - (ft above MSL / 1000)] / 29.9)
3,115	hp	Mfg. Site-rated hp	Mfg. data

Fuel Consumption

500.00	MMscf/yr	Annual fuel consumption	2004 Title V permit application
900.00	Btu/scf	Field gas heating value	Nominal heat content
450,000.00	MMBtu/yr	Annual fuel consumption	MMscf/yr x (1,000,000 scf/MMscf) x Btu/scf / (1,000,000 Btu/MMBtu)
8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC
57,077.63	scf/hr	Hourly fuel consumption	MMscf/yr x (1,000,000 scf/MMscf) / hr/yr
51.37	MMBtu/hr	Hourly fuel consumption	MMBtu/yr / hr/yr

Steady-State Emission Rates

Pollutants	Uncontrolled Emission Rates, pph	tpy
NOX	16.70	73.00
CO	4.20	18.60
VOC	5.30E-01	2.30

Emission rates taken from the current construction permit

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates, pph	tpy
SO2	3.40E-03	1.75E-01	7.65E-01
PM	6.60E-03	3.39E-01	1.49
PM10	6.60E-03	3.39E-01	1.49
PM2.5	6.60E-03	3.39E-01	1.49

Emission factors taken from AP-42, Table 3.1-2a
Uncontrolled Emission Rates (pph) = lb/MMBtu x MMBtu/hr
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Exhaust Parameters

824	°F	Exhaust temperature	2004 Title V permit application
82,758	cfm	Stack flowrate	2004 Title V permit application
2.50	ft	Stack exit diameter	Harvest Four Corners, LLC
4.91	ft^2	Stack exit area	3.1416 x ((ft / 2) ^2)
280.99	fps	Stack exit velocity	acfm / ft^2 / 60 sec/min
22.00	ft	Stack height	Harvest Four Corners, LLC

GRI-HAPCalc® 3.0
Turbine Report

Facility ID:	**CHACO**	**Notes:**
Operation Type:	**COMPRESSOR STATION**	
Facility Name:	**CHACO COMPRESSOR STATION**	
User Name:		
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: 10-1001

Hours of Operation:	8,760 Yearly
Rate Power:	976 hp
Fuel Type:	NATURAL GAS
Emission Factor Set:	FIELD > EPA > LITERATURE
Additional EF Set:	-NONE-

Calculated Emissions (ton/yr)

Chemical Name	Emissions	Emission Factor	Emission Factor Set
HAPs			
Formaldehyde	0.1595	0.01693680 g/bhp-hr	GRI Field
Acetaldehyde	0.1632	0.01733570 g/bhp-hr	GRI Field
1,3-Butadiene	0.0006	0.00006160 g/bhp-hr	GRI Field
Acrolein	0.0024	0.00026000 g/bhp-hr	GRI Field
Propional	0.0081	0.00086500 g/bhp-hr	GRI Field
Propylene Oxide	0.0012	0.00012480 g/bhp-hr	EPA
n-Nitrosodimethylamine	0.0000	0.00000100 g/bhp-hr	EPA
Benzene	0.0051	0.00053840 g/bhp-hr	GRI Field
Toluene	0.0039	0.00041100 g/bhp-hr	GRI Field
Ethylbenzene	0.0010	0.00010330 g/bhp-hr	EPA
Xylenes(m,p,o)	0.0117	0.00124410 g/bhp-hr	GRI Field
2,2,4-Trimethylpentane	0.0151	0.00160530 g/bhp-hr	GRI Field
n-Hexane	0.0142	0.00150580 g/bhp-hr	GRI Field
Phenol	0.0010	0.00011010 g/bhp-hr	GRI Field
n-Nitrosomorpholine	0.0000	0.00000100 g/bhp-hr	EPA
Naphthalene	0.0001	0.00000760 g/bhp-hr	GRI Field
2-Methylnaphthalene	0.0000	0.00000130 g/bhp-hr	GRI Field
Biphenyl	0.0031	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	0.0006	0.00006520 g/bhp-hr	GRI Field
Chromium	0.0001	0.00000820 g/bhp-hr	GRI Field
Chromium	0.0001	0.00000560 g/bhp-hr	EPA
Manganese	0.0002	0.00001750 g/bhp-hr	GRI Field
Nickel	0.0001	0.00000610 g/bhp-hr	GRI Field
Cobalt	0.0000	0.00000160 g/bhp-hr	GRI Field

Arsenic	0.0000	0.00000060 g/bhp-hr	GRI Field
Selenium	0.0000	0.00000030 g/bhp-hr	GRI Field
Cadmium	0.0000	0.00000020 g/bhp-hr	GRI Field
Mercury	0.0000	0.00000270 g/bhp-hr	GRI Field
Lead	0.0000	0.00000340 g/bhp-hr	GRI Field
Total	0.3913		

Criteria Pollutants

PM	0.2999	0.03184680 g/bhp-hr	EPA
CO	19.8517	2.10828420 g/bhp-hr	GRI Field
NMHC	1.8256	0.19387800 g/bhp-hr	GRI Field
NMEHC	0.1135	0.01205010 g/bhp-hr	EPA
NOx	11.7904	1.25216290 g/bhp-hr	GRI Field
SO2	0.0097	0.00102720 g/bhp-hr	GRI Field

Other Pollutants

Methane	9.2954	0.98719230 g/bhp-hr	GRI Field
Acetylene	0.0675	0.00716540 g/bhp-hr	GRI Field
Ethylene	0.1314	0.01395450 g/bhp-hr	GRI Field
Ethane	1.4132	0.15008370 g/bhp-hr	GRI Field
Propane	0.1507	0.01600000 g/bhp-hr	GRI Field
Isobutane	0.0452	0.00480000 g/bhp-hr	GRI Field
Butane	0.0490	0.00520000 g/bhp-hr	GRI Field
Trimethylamine	0.0000	0.00000070 g/bhp-hr	EPA
Cyclopentane	0.0155	0.00165110 g/bhp-hr	GRI Field
Butyrald/Isobutyraldehyde	0.0126	0.00134000 g/bhp-hr	GRI Field
n-Pentane	0.7641	0.08115000 g/bhp-hr	GRI Field
Cyclohexane	0.0577	0.00612400 g/bhp-hr	GRI Field
Methylcyclohexane	0.0832	0.00883120 g/bhp-hr	GRI Field
n-Octane	0.0300	0.00318890 g/bhp-hr	GRI Field
1,3,5-Trimethylbenzene	0.0282	0.00300000 g/bhp-hr	GRI Field
n-Nonane	0.0050	0.00053260 g/bhp-hr	GRI Field
CO2	4,457.5333	473.39811550 g/bhp-hr	EPA
Vanadium	0.0000	0.00000070 g/bhp-hr	GRI Field
Copper	0.0002	0.00002050 g/bhp-hr	GRI Field
Molybdenum	0.0002	0.00002030 g/bhp-hr	GRI Field
Barium	0.0002	0.00002290 g/bhp-hr	GRI Field

Unit Name: 10-1202

Hours of Operation: 8,760 Yearly

Rate Power: 976 hp

Fuel Type: NATURAL GAS

Emission Factor Set: FIELD > EPA > LITERATURE

Additional EF Set: -NONE-

Calculated Emissions (ton/yr)

Chemical Name	Emissions	Emission Factor	Emission Factor Set
HAPs			
Formaldehyde	0.1595	0.01693680 g/bhp-hr	GRI Field
Acetaldehyde	0.1632	0.01733570 g/bhp-hr	GRI Field
1,3-Butadiene	0.0006	0.00006160 g/bhp-hr	GRI Field
Acrolein	0.0024	0.00026000 g/bhp-hr	GRI Field
Propional	0.0081	0.00086500 g/bhp-hr	GRI Field

Propylene Oxide	0.0012	0.00012480	g/bhp-hr	EPA
n-Nitrosodimethylamine	0.0000	0.00000100	g/bhp-hr	EPA
Benzene	0.0051	0.00053840	g/bhp-hr	GRI Field
Toluene	0.0039	0.00041100	g/bhp-hr	GRI Field
Ethylbenzene	0.0010	0.00010330	g/bhp-hr	EPA
Xylenes(m,p,o)	0.0117	0.00124410	g/bhp-hr	GRI Field
2,2,4-Trimethylpentane	0.0151	0.00160530	g/bhp-hr	GRI Field
n-Hexane	0.0142	0.00150580	g/bhp-hr	GRI Field
Phenol	0.0010	0.00011010	g/bhp-hr	GRI Field
n-Nitrosomorpholine	0.0000	0.00000100	g/bhp-hr	EPA
Naphthalene	0.0001	0.00000760	g/bhp-hr	GRI Field
2-Methylnaphthalene	0.0000	0.00000130	g/bhp-hr	GRI Field
Biphenyl	0.0031	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	0.0006	0.00006520	g/bhp-hr	GRI Field
Chromium	0.0001	0.00000820	g/bhp-hr	GRI Field
Chromium	0.0001	0.00000560	g/bhp-hr	EPA
Manganese	0.0002	0.00001750	g/bhp-hr	GRI Field
Nickel	0.0001	0.00000610	g/bhp-hr	GRI Field
Cobalt	0.0000	0.00000160	g/bhp-hr	GRI Field
Arsenic	0.0000	0.00000060	g/bhp-hr	GRI Field
Selenium	0.0000	0.00000030	g/bhp-hr	GRI Field
Cadmium	0.0000	0.00000020	g/bhp-hr	GRI Field
Mercury	0.0000	0.00000270	g/bhp-hr	GRI Field
Lead	0.0000	0.00000340	g/bhp-hr	GRI Field
Total	0.3913			

Criteria Pollutants

PM	0.2999	0.03184680	g/bhp-hr	EPA
CO	19.8517	2.10828420	g/bhp-hr	GRI Field
NMHC	1.8256	0.19387800	g/bhp-hr	GRI Field
NMEHC	0.1135	0.01205010	g/bhp-hr	EPA
NOx	11.7904	1.25216290	g/bhp-hr	GRI Field
SO2	0.0097	0.00102720	g/bhp-hr	GRI Field

Other Pollutants

Methane	9.2954	0.98719230	g/bhp-hr	GRI Field
Acetylene	0.0675	0.00716540	g/bhp-hr	GRI Field
Ethylene	0.1314	0.01395450	g/bhp-hr	GRI Field
Ethane	1.4132	0.15008370	g/bhp-hr	GRI Field
Propane	0.1507	0.01600000	g/bhp-hr	GRI Field
Isobutane	0.0452	0.00480000	g/bhp-hr	GRI Field
Butane	0.0490	0.00520000	g/bhp-hr	GRI Field
Trimethylamine	0.0000	0.00000070	g/bhp-hr	EPA
Cyclopentane	0.0155	0.00165110	g/bhp-hr	GRI Field
Butyrald/Isobutyraldehyde	0.0126	0.00134000	g/bhp-hr	GRI Field
n-Pentane	0.7641	0.08115000	g/bhp-hr	GRI Field
Cyclohexane	0.0577	0.00612400	g/bhp-hr	GRI Field
Methylcyclohexane	0.0832	0.00883120	g/bhp-hr	GRI Field
n-Octane	0.0300	0.00318890	g/bhp-hr	GRI Field
1,3,5-Trimethylbenzene	0.0282	0.00300000	g/bhp-hr	GRI Field
n-Nonane	0.0050	0.00053260	g/bhp-hr	GRI Field
CO2	4,457.5333	473.39811550	g/bhp-hr	EPA

Vanadium	0.0000	0.00000070 g/bhp-hr	GRI Field
Copper	0.0002	0.00002050 g/bhp-hr	GRI Field
Molybdenum	0.0002	0.00002030 g/bhp-hr	GRI Field
Barium	0.0002	0.00002290 g/bhp-hr	GRI Field

Unit Name: 40-4002

Hours of Operation: 8,760 Yearly

Rate Power: 3222 hp

Fuel Type: NATURAL GAS

Emission Factor Set: FIELD > EPA > LITERATURE

Additional EF Set: -NONE-

Calculated Emissions (ton/yr)

Chemical Name	Emissions	Emission Factor	Emission Factor Set
HAPs			
Formaldehyde	0.5265	0.01693680 g/bhp-hr	GRI Field
Acetaldehyde	0.5389	0.01733570 g/bhp-hr	GRI Field
1,3-Butadiene	0.0019	0.00006160 g/bhp-hr	GRI Field
Acrolein	0.0081	0.00026000 g/bhp-hr	GRI Field
Propional	0.0269	0.00086500 g/bhp-hr	GRI Field
Propylene Oxide	0.0039	0.00012480 g/bhp-hr	EPA
n-Nitrosodimethylamine	0.0000	0.00000100 g/bhp-hr	EPA
Benzene	0.0167	0.00053840 g/bhp-hr	GRI Field
Toluene	0.0128	0.00041100 g/bhp-hr	GRI Field
Ethylbenzene	0.0032	0.00010330 g/bhp-hr	EPA
Xylenes(m,p,o)	0.0387	0.00124410 g/bhp-hr	GRI Field
2,2,4-Trimethylpentane	0.0499	0.00160530 g/bhp-hr	GRI Field
n-Hexane	0.0468	0.00150580 g/bhp-hr	GRI Field
Phenol	0.0034	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	0.0103	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	0.0003	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	1.2916		
Criteria Pollutants			
PM	0.9899	0.03184680 g/bhp-hr	EPA
CO	65.5349	2.10828420 g/bhp-hr	GRI Field
NMHC	6.0266	0.19387800 g/bhp-hr	GRI Field

NMEHC	0.3746	0.01205010 g/bhp-hr	EPA
NOx	38.9228	1.25216290 g/bhp-hr	GRI Field
SO2	0.0319	0.00102720 g/bhp-hr	GRI Field

Other Pollutants

Methane	30.6864	0.98719230 g/bhp-hr	GRI Field
Acetylene	0.2227	0.00716540 g/bhp-hr	GRI Field
Ethylene	0.4338	0.01395450 g/bhp-hr	GRI Field
Ethane	4.6653	0.15008370 g/bhp-hr	GRI Field
Propane	0.4974	0.01600000 g/bhp-hr	GRI Field
Isobutane	0.1492	0.00480000 g/bhp-hr	GRI Field
Butane	0.1616	0.00520000 g/bhp-hr	GRI Field
Trimethylamine	0.0000	0.00000070 g/bhp-hr	EPA
Cyclopentane	0.0513	0.00165110 g/bhp-hr	GRI Field
Butyrald/Isobutyraldehyde	0.0417	0.00134000 g/bhp-hr	GRI Field
n-Pentane	2.5225	0.08115000 g/bhp-hr	GRI Field
Cyclohexane	0.1904	0.00612400 g/bhp-hr	GRI Field
Methylcyclohexane	0.2745	0.00883120 g/bhp-hr	GRI Field
n-Octane	0.0991	0.00318890 g/bhp-hr	GRI Field
1,3,5-Trimethylbenzene	0.0933	0.00300000 g/bhp-hr	GRI Field
n-Nonane	0.0166	0.00053260 g/bhp-hr	GRI Field
CO2	14,715.3406	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: 5
Description: Detroit Diesel Standby Generator *(Exempt Source)*

Horsepower Calculations

5,575	ft above MSL	Elevation	
200	hp	Nameplate hp	Mfg. data

Fuel Consumption

1.41	MMBtu/hr	Hourly fuel consumption	Mfg. data
137,000	Btu/gal	Field gas heating value	Nominal heat content
10.29	gal/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/gal
500	hr/yr	Annual operating time	Harvest Four Corners, LLC
5,145.99	gal/yr	Hourly fuel consumption	gal/hr x hr/yr
705.00	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr

Steady-State Emission Rates

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates, pph	tpy
NO2	4.41	6.22	1.55
CO	9.50E-01	1.34	3.35E-01
VOC	3.60E-01	5.08E-01	1.27E-01
SO2	2.90E-01	4.09E-01	1.02E-01
PM	3.10E-01	4.37E-01	1.09E-01
PM10	3.10E-01	4.37E-01	1.09E-01
PM2.5	3.10E-01	4.37E-01	1.09E-01
Acetaldehyde	7.67E-04	1.08E-03	2.70E-04
Benzene	9.33E-04	1.32E-03	3.29E-04
Formaldehyde	1.18E-03	1.66E-03	4.16E-04
Naphthalene	8.48E-05	1.20E-04	2.99E-05
Toluene	4.09E-04	5.77E-04	1.44E-04
Xylene	2.85E-04	4.02E-04	1.00E-04

Emission factors taken from AP-42, Tables 3.3-1 & 3.3-2
Uncontrolled Emission Rates (pph) = lb/MMBtu x MMBtu/hr
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Heater Exhaust Emissions Calculations

Unit Number: 6
Description: Ejector Vapory Recovery Unit (EVRU) Heater *(Exempt Source)*

Fuel Consumption

0.51	MMBtu/hr	Capacity	Mfg. data
900	Btu/scf	Field gas heating value	Nominal heat content
566.67	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC
4,467.60	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
4.96	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000

Steady-State Emission Rates

Pollutants	Emission Factors, lb/MMscf	Uncontrolled Emission Rates, pph	tpy
NOX	100	5.67E-02	2.48E-01
CO	84	4.76E-02	2.08E-01
VOC	5.5	3.12E-03	1.37E-02
SO2	0.6	3.40E-04	1.49E-03
TSP	7.60	4.31E-03	1.89E-02
PM10	7.60	4.31E-03	1.89E-02
PM2.5	7.60	4.31E-03	1.89E-02
Lead	5.00E-04	2.83E-07	1.24E-06

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

Heater Exhaust Emissions Calculations

Unit Number: 7
Description: Heater *(Exempt Source)*

Fuel Consumption

0.005	MMBtu/hr	Capacity	Mfg. data
900.00	Btu/scf	Field gas heating value	Nominal heat content
5.56	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC
43.80	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
0.049	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000

Steady-State Emission Rates

Pollutants	Emission Factors, lb/MMscf	Uncontrolled Emission Rates, pph	tpy
NOX	100	5.56E-04	2.43E-03
CO	84	4.67E-04	2.04E-03
VOC	5.5	3.06E-05	1.34E-04
SO2	0.6	3.33E-06	1.46E-05
TSP	7.60	4.22E-05	1.85E-04
PM10	7.60	4.22E-05	1.85E-04
PM2.5	7.60	4.22E-05	1.85E-04
Lead	5.00E-04	2.78E-09	1.22E-08

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

Turbine & Compressor Blowdown Emissions Calculations

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

Throughput

4	# of units	Number of units	Harvest Four Corners, LLC
105	events/yr/unit	Blowdowns per year per unit	Harvest Four Corners, LLC
3,602	scf/event	Gas loss per blowdown (compressor)	Harvest Four Corners, LLC
12,400	scf/event	Gas loss per blowdown (turbine)	Harvest Four Corners, LLC
6,720,840	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	7.085E-03	23.81
Benzene	1.853E-05	6.23E-02
Ethylbenzene	2.798E-07	9.40E-04
n-Hexane	1.279E-04	4.30E-01
Isooctane	2.641E-06	8.88E-03
Toluene	1.846E-05	6.20E-02
Xylene	2.798E-06	9.40E-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	1.9364	44.01	2.246E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.3306	28.01	2.441E-04
Methane	85.6254	16.04	3.620E-02
Ethane	7.0286	30.07	5.571E-03
Propane	2.9810	44.09	3.464E-03
Isobutane	0.5417	58.12	8.298E-04
n-Butane	0.7958	58.12	1.219E-03
Isopentane	0.2733	72.15	5.197E-04
n-Pentane	0.1943	72.15	3.695E-04
Cyclopentane	0.0080	70.14	1.479E-05
n-Hexane	0.0563	86.17	1.279E-04
Cyclohexane	0.0193	84.16	4.281E-05
Other hexanes	0.1341	86.18	3.046E-04
Heptanes	0.0275	100.20	7.263E-05
Methylcyclohexane	0.0228	98.19	5.901E-05
2,2,4-Trimethylpentane	0.0010	100.21	2.641E-06
Benzene	0.0090	78.11	1.853E-05
Toluene	0.0076	92.14	1.846E-05
Ethylbenzene	0.0001	106.17	2.798E-07
Xylenes	0.0010	106.17	2.798E-06
C8+ Heavies	0.0064	110.00	1.856E-05
Total	100.0002		
Total VOC			7.085E-03

Gas stream composition obtained from Chaco Compressor Station extended gas analysis dated 11/29/2018
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	441	0.0045	0.0099	4.37	19.12
Connectors	415	0.0002	0.0004	0.18	0.80
Pump Seals	0	0.0024	0.0053	0.00	0.00
Compressor Seals	40	0.0088	0.0194	0.77	3.39
Pressure Relief Valves	31	0.0088	0.0194	0.60	2.63
Open-Ended Lines	118	0.0020	0.0044	0.52	2.27
Total				**6.44**	**28.22**

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	1.9364	44.010				
Hydrogen sulfide	0.0000	34.070				
Nitrogen	0.3306	28.013				
Methane	85.6254	16.043	1373.688	74.096		
Ethane	7.0286	30.070	211.350	11.400		
Propane	2.9810	44.097	131.453	7.091	4.57E-01	2.00E+00
Isobutane	0.5417	58.123	31.485	1.698	1.09E-01	4.79E-01
n-Butane	0.7958	58.123	46.254	2.495	1.61E-01	7.04E-01
Isopentane	0.2733	72.150	19.719	1.064	6.85E-02	3.00E-01
n-Pentane	0.1943	72.150	14.019	0.756	4.87E-02	2.13E-01
Cyclopentane	0.0080	70.134	0.561	0.030	1.95E-03	8.54E-03
n-Hexane	0.0563	86.177	4.852	0.262	1.69E-02	7.38E-02
Cyclohexane	0.0193	84.161	1.624	0.088	5.64E-03	2.47E-02
Other hexanes	0.1341	86.177	11.556	0.623	4.02E-02	1.76E-01
Heptanes	0.0275	100.204	2.756	0.149	9.58E-03	4.19E-02
Methylcyclohexane	0.0228	98.188	2.239	0.121	7.78E-03	3.41E-02
Isooctane	0.0010	114.231	0.114	0.006	3.97E-04	1.74E-03
Benzene	0.0090	78.114	0.703	0.038	2.44E-03	1.07E-02
Toluene	0.0076	92.141	0.700	0.038	2.43E-03	1.07E-02
Ethylbenzene	0.0001	106.167	0.011	0.001	3.69E-05	1.62E-04
Xylenes	0.0010	106.167	0.106	0.006	3.69E-04	1.62E-03
C8+ Heavies	0.0064	114.231	0.731	0.039	2.54E-03	1.11E-02
Total	100.0002		1853.921			
Total VOC				14.503	9.34E-01	4.09

Gas stream composition obtained from Chaco Compressor Station extended gas analysis dated 11/29/2018
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: 4
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	176	236	0	16	24	44	0	16	36
Components from dehydrators	0	0	0	0	0	0	0	0	0
Total	297	309	0	40	31	92	3	26	48
Adjusted Total	441	415	0	40	31	118			

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)

Truck Loading (Condensate) Emissions Calculations

Unit Number: L1
Description: Truck Loading

Emission Factor

0.6	Saturation factor, S	AP-42, Table 5.2-1 (submerged loading & dedicated service)
4.409 psia	True vapor pressure of liquid, P	TANKS 4.0 output file
65.6443 lb/lb-mole	Molecular weight of vapors, M	TANKS 4.0 output file
64.94 °F	Temperature of liquid	TANKS 4.0 output file
524.61 °R	Temperature of liquid, T	°F + 459.67
4.12 lb/10^3 gal	Emission factor, L	AP-42, Section 5.2, Equation 1

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

Production Rate

9.00 10^3 gal/hr	Maximum hourly production rate	Harvest Four Corners, LLC
1,890.00 10^3 gal/yr	Maximum annual production rate	Harvest Four Corners, LLC

Steady-State Emission Rates

Pollutant	Uncontrolled Emission Rates, pph	tpy
VOC	37.12	3.90

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

Pollutants	Percent of VOC, %	Uncontrolled Emission Rates, pph	tpy
Benzene	0.5560	2.06E-01	2.17E-02
Ethylbenzene	0.0172	6.38E-03	6.70E-04
n-Hexane	8.2937	3.08	3.23E-01
Isooctane	0.0302	1.12E-02	1.18E-03
Toluene	0.6893	2.56E-01	2.69E-02
m-Xylene	0.1283	4.76E-02	5.00E-03

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

Truck Loading (Condensate) Emissions Calculations AOS

Unit Number: L1 (AOS)
Description: Truck Loading

Emission Factor

0.6		Saturation factor, S	AP-42, Table 5.2-1 (submerged loading & dedicated service)
4.409	psia	True vapor pressure of liquid, P	TANKS 4.0 output file
65.6443	lb/lb-mole	Molecular weight of vapors, M	TANKS 4.0 output file
64.94	°F	Temperature of liquid	TANKS 4.0 output file
524.61	°R	Temperature of liquid, T	°F + 459.67
4.12	lb/10^3 gal	Emission factor, L	AP-42, Section 5.2, Equation 1

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

Production Rate

9.00	10^3 gal/hr	Maximum hourly production rate	Harvest Four Corners, LLC
2,520.00	10^3 gal/yr	Maximum annual production rate	Harvest Four Corners, LLC

Steady-State Emission Rates

Pollutant	Uncontrolled Emission Rates, pph	tpy
VOC	37.12	5.20

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

Pollutants	Percent of VOC, %	Uncontrolled Emission Rates, pph	tpy
Benzene	0.5560	2.06E-01	2.89E-02
Ethylbenzene	0.0172	6.38E-03	8.93E-04
n-Hexane	8.2937	3.08	4.31E-01
Isooctane	0.0302	1.12E-02	1.57E-03
Toluene	0.6893	2.56E-01	3.58E-02
m-Xylene	0.1283	4.76E-02	6.67E-03

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

Truck Loading (Produced Water) Emissions Calculations

Unit Number: L2
Description: Truck Loading *(Exempt Source)*

Emission Factor

0.6	Saturation factor, S	AP-42, Table 5.2-1 (submerged loading & dedicated service)
0.3619 psia	True vapor pressure of liquid, P	Estimated using Antoine's Equation
18.02 lb/lb-mole	Molecular weight of vapors, M	TANKS 4.0 Database
70 °F	Temperature of liquid	Estimated
529.67 °R	Temperature of liquid, T	°F + 459.67
0.09 lb/10^3 gal	Emission factor, L	AP-42, Section 5.2, Equation 1

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

Production Rate

9.00 10^3 gal/hr	Maximum hourly production rate	Harvest Four Corners, LLC
630.00 10^3 gal/yr	Maximum annual production rate	Harvest Four Corners, LLC

Steady-State Emission Rates

Pollutant	Uncontrolled Emission Rates, pph	tpy
VOC	8.28E-01	2.90E-02

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

Pollutants	Mass Fraction	Uncontrolled Emission Rates, pph	tpy
Benzene	0.0267	2.21E-04	7.75E-06
Ethylbenzene	0.0027	2.21E-05	7.75E-07
n-Hexane	0.0840	6.96E-04	2.43E-05
Toluene	0.0344	2.85E-04	9.96E-06
m-Xylene	0.0229	1.90E-04	6.64E-06

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

Truck Loading (Produced Water) Emissions Calculations AOS

Unit Number: L2 (AOS)
Description: Truck Loading *(Exempt Source)*

Emission Factor

0.6	Saturation factor, S	AP-42, Table 5.2-1 (submerged loading & dedicated service)
0.3619 psia	True vapor pressure of liquid, P	Estimated using Antoine's Equation
18.02 lb/lb-mole	Molecular weight of vapors, M	TANKS 4.0 Database
70 °F	Temperature of liquid	Estimated
529.67 °R	Temperature of liquid, T	°F + 459.67
0.09 lb/10^3 gal	Emission factor, L	AP-42, Section 5.2, Equation 1

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

Production Rate

9.00 10^3 gal/hr	Maximum hourly production rate	Harvest Four Corners, LLC
840.00 10^3 gal/yr	Maximum annual production rate	Harvest Four Corners, LLC

Steady-State Emission Rates

Pollutant	Uncontrolled Emission Rates, pph	tpy
VOC	8.28E-01	3.87E-02

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

Pollutants	Mass Fraction	Uncontrolled Emission Rates, pph	tpy
Benzene	0.0267	2.21E-04	1.03E-05
Ethylbenzene	0.0027	2.21E-05	1.03E-06
n-Hexane	0.0840	6.96E-04	3.25E-05
Toluene	0.0344	2.85E-04	1.33E-05
m-Xylene	0.0229	1.90E-04	8.85E-06

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

Pig Receiver Emissions Calculations

Unit Number: PR
Description: Pig Receiver *(Exempt Source)*

Throughput

130	events/yr	Blowdowns per year	Harvest Four Corners, LLC
937	scf/event	Gas loss per blowdown	Harvest Four Corners, LLC
121,810	scf/yr	Annual gas loss	events/yr x scf/event

Emission Rates

Pollutants	Emission Factors, lb/scf	Uncontrolled, Emission Rates, tpy
VOC	7.085E-03	4.32E-01
Benzene	1.853E-05	1.13E-03
Ethylbenzene	2.798E-07	1.70E-05
n-Hexane	1.279E-04	7.79E-03
Isooctane	2.641E-06	1.61E-04
Toluene	1.846E-05	1.12E-03
Xylene	2.798E-06	1.70E-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	1.9364	44.01	2.246E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.3306	28.01	2.441E-04
Methane	85.6254	16.04	3.620E-02
Ethane	7.0286	30.07	5.571E-03
Propane	2.9810	44.09	3.464E-03
Isobutane	0.5417	58.12	8.298E-04
n-Butane	0.7958	58.12	1.219E-03
Isopentane	0.2733	72.15	5.197E-04
n-Pentane	0.1943	72.15	3.695E-04
Cyclopentane	0.0080	70.14	1.479E-05
n-Hexane	0.0563	86.17	1.279E-04
Cyclohexane	0.0193	84.16	4.281E-05
Other hexanes	0.1341	86.18	3.046E-04
Heptanes	0.0275	100.20	7.263E-05
Methylcyclohexane	0.0228	98.19	5.901E-05
Isooctane	0.0010	100.21	2.641E-06
Benzene	0.0090	78.11	1.853E-05
Toluene	0.0076	92.14	1.846E-05
Ethylbenzene	0.0001	106.17	2.798E-07
Xylenes	0.0010	106.17	2.798E-06
C8+ Heavies	0.0064	110.00	1.856E-05
Total	100.0002		
Total VOC			7.085E-03

Gas stream composition obtained from Chaco Compressor Station extended gas analysis dated 11/29/2018
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

Malfunction Emissions Data and Calculations

Unit Number: M1
Description: Malfunctions

Emission Rates

Pollutants	Weight Percents, %	Uncontrolled Emission Rates, tpy
VOC		10.00
Benzene	2.615E-01	2.62E-02
Ethylbenzene	3.950E-03	3.95E-04
n-Hexane	1.805E+00	1.80E-01
Isooctane	3.728E-02	3.73E-03
Toluene	2.605E-01	2.60E-02
Xylene	3.950E-02	3.95E-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	1.9364	44.01		
Hydrogen sulfide	0.0000	34.07		
Nitrogen	0.3306	28.01		
Methane	85.6254	16.04		
Ethane	7.0286	30.07		
Propane	2.9810	44.09	1.3143	4.889E+01
Isobutane	0.5417	58.12	0.3148	1.171E+01
n-Butane	0.7958	58.12	0.4625	1.721E+01
Isopentane	0.2733	72.15	0.1972	7.335E+00
n-Pentane	0.1943	72.15	0.1402	5.215E+00
Cyclopentane	0.0080	70.14	0.0056	2.087E-01
n-Hexane	0.0563	86.17	0.0485	1.805E+00
Cyclohexane	0.0193	84.16	0.0162	6.042E-01
Other hexanes	0.1341	86.18	0.1156	4.299E+00
Heptanes	0.0275	100.20	0.0276	1.025E+00
Methylcyclohexane	0.0228	98.19	0.0224	8.328E-01
Isooctane	0.0010	100.21	0.0010	3.728E-02
Benzene	0.0090	78.11	0.0070	2.615E-01
Toluene	0.0076	92.14	0.0070	2.605E-01
Ethylbenzene	0.0001	106.17	0.0001	3.950E-03
Xylenes	0.0010	106.17	0.0011	3.950E-02
C8+ Heavies	0.0064	110.00	0.0070	2.619E-01
Total	100.0002			
Total VOC			2.6882	

Gas stream composition obtained from Chaco Compressor Station extended gas analysis dated 11/29/2018
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)

Controlled Condensate Storage Tank Emissions Data and Calculations

Unit Number: T4 & T5
Description: Condensate Storage Tanks (with flash emissions)

Emission Rates

Source/Pollutants	Working/Breathing Losses, ppy	Working/Breathing Losses, tpy	Flash Losses, tpy	Uncontrolled Emission Rates, tpy
T4				
VOC	6,470.86	3.24	98.58	101.81
Benzene	35.98	1.80E-02	6.32E-01	6.50E-01
Ethylbenzene	1.11	5.55E-04	1.76E-02	1.81E-02
n-Hexane	536.67	2.68E-01	6.20	6.47
Isooctane	1.96	9.79E-04	2.30E-02	2.40E-02
Toluene	44.60	2.23E-02	7.48E-01	7.70E-01
Xylene	8.30	4.15E-03	1.50E-01	1.54E-01
T5				
VOC	6,137.86	3.07	88.72	91.79
Benzene	34.13	1.71E-02	5.69E-01	5.86E-01
Ethylbenzene	1.06	5.29E-04	1.58E-02	1.64E-02
n-Hexane	509.06	2.55E-01	5.58	5.84
Isooctane	1.85	9.26E-04	2.07E-02	2.16E-02
Toluene	42.31	2.12E-02	6.73E-01	6.94E-01
Xylene	7.88	3.94E-03	1.35E-01	1.39E-01
Combined Total				
VOC	12,608.72	6.30	187.30	193.60
Benzene	70.10	3.51E-02	1.20	1.24
Ethylbenzene	2.17	1.08E-03	3.34E-02	3.45E-02
n-Hexane	1,045.73	5.23E-01	11.78	12.31
Isooctane	3.81	1.91E-03	4.37E-02	4.56E-02
Toluene	86.91	4.35E-02	1.42	1.46
Xylene	16.18	8.09E-03	2.84E-01	2.92E-01

Working/breathing losses are taken from TANKS 4.0 results
Flash emissions are taken from ProMax 4 results
It is assumed the condensate throughput to each tank will be proportional to its capacity. Unit T4 will receive 52.6% of the condensate and Unit T5 will receive the remainder. This distribution is used for the TANKS 4 input. The flash emissions (from ProMax 4) are assigned to the tanks using the same percentages
It is assumed the EVRU captures 25% of the working/breathing losses as well as 25% of the flash emissions

Controlled Condensate Storage Tank Emissions Data and Calculations

Unit Number: T4 & T5
Description: Condensate Tanks (flash emissions)

Calculation of Emission Rates from ProMax Results

Pollutant	Emission Rate, pph	Emission Rate, tpy
VOC	--	187.30
Benzene	2.74E-01	1.20
Ethylbenzene	7.63E-03	3.34E-02
n-Hexane	2.69	11.78
Isooctane	9.99E-03	4.37E-02
Toluene	3.25E-01	1.42
Xylenes	6.49E-02	2.84E-01

VOC tpy and HAP pph emission rates are obtained from the ProMax output
HAP Emission Rate (tpy) = HAP Emission Rate (pph) x 8,760 hr/yr / 2,000 lb/ton

Composition of Post Flash Condensate (for use in TANKS 4)

Component	Speciated Mass Fraction	Mass Percent, Of VOC, %
Carbon dioxide	1.127E-04	--
Nitrogen	1.690E-07	--
Methane	1.462E-04	--
Ethane	1.834E-03	--
Propane	1.202E-02	--
Isobutane	1.165E-02	1.7699
n-Butane	2.822E-02	3.4305
Isopentane	3.824E-02	3.8319
n-Pentane	3.954E-02	3.9625
n-Hexane	1.136E-01	11.3795
Cyclohexane	0.000E+00	0.0000
n-Heptane	2.594E-01	25.9911
Octane	2.877E-01	28.8337
Nonane	6.620E-02	6.6341
Decane	3.479E-02	3.4862
Isooctane	1.310E-03	0.1313
Benzene	1.237E-02	1.2395
Ethylbenzene	3.971E-03	0.3979
Toluene	5.335E-02	5.3460
Xylenes	3.558E-02	3.5659
Total	1.000E+00	
VOC Total	9.979E-01	100.0000

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Speciated Mass Fractions are obtained from the ProMax output
VOC Total = Sum (Propane - C8+ Heavies Mass Fractions)
Mass Percent of VOC (%) = 100 x Component Mass Fraction / VOC Total Mass Fraction
Propane Mass Percent of VOC is included with the n-butane and isobutane percentages (even distribution)

Uncontrolled Condensate Storage Tank Emissions Data and Calculations

Unit Number: T4 & T5
Description: Condensate Storage Tanks (with flash emissions)

Emission Rates

Source/Pollutants	Working/Breathing Losses, ppy	Working/Breathing Losses, tpy	Flash Losses, tpy	Uncontrolled Emission Rates, tpy
T4				
VOC	8,627.81	4.31	131.42	135.73
Benzene	47.97	2.40E-02	8.42E-01	8.66E-01
Ethylbenzene	1.48	7.40E-04	2.35E-02	2.42E-02
n-Hexane	715.56	3.58E-01	8.27	8.63
Isooctane	2.61	1.31E-03	3.07E-02	3.20E-02
Toluene	59.47	2.97E-02	9.97E-01	1.03E+00
Xylene	11.07	5.54E-03	2.00E-01	2.05E-01
T5				
VOC	8,183.81	4.09	118.28	122.37
Benzene	45.50	2.28E-02	7.58E-01	7.81E-01
Ethylbenzene	1.41	7.05E-04	2.11E-02	2.18E-02
n-Hexane	678.74	3.39E-01	7.44	7.78
Isooctane	2.47	1.24E-03	2.76E-02	2.89E-02
Toluene	56.41	2.82E-02	8.98E-01	9.26E-01
Xylene	10.50	5.25E-03	1.80E-01	1.85E-01
Combined Total				
VOC	16,811.62	8.41	249.70	258.11
Benzene	93.47	4.67E-02	1.60	1.65
Ethylbenzene	2.89	1.45E-03	4.46E-02	4.60E-02
n-Hexane	1,394.30	6.97E-01	15.71	16.41
Isooctane	5.08	2.54E-03	5.83E-02	6.09E-02
Toluene	115.88	5.79E-02	1.90	1.95
Xylene	21.57	1.08E-02	3.79E-01	3.90E-01

Working/breathing losses are taken from TANKS 4.0 results
Flash emissions are taken from ProMax 4 results
It is assumed the condensate throughput to each tank will be proportional to its capacity. Unit T4 will receive 52.6% of the condensate and Unit T5 will receive the remainder. This distribution is used for the TANKS 4 input. The flash emissions (from ProMax 4) are assigned to the tanks using the same percentages

Uncontrolled Condensate Storage Tank Emissions Data and Calculations

Unit Number: T4 & T5
Description: Condensate Tanks (flash emissions)

Calculation of Emission Rates from ProMax Results

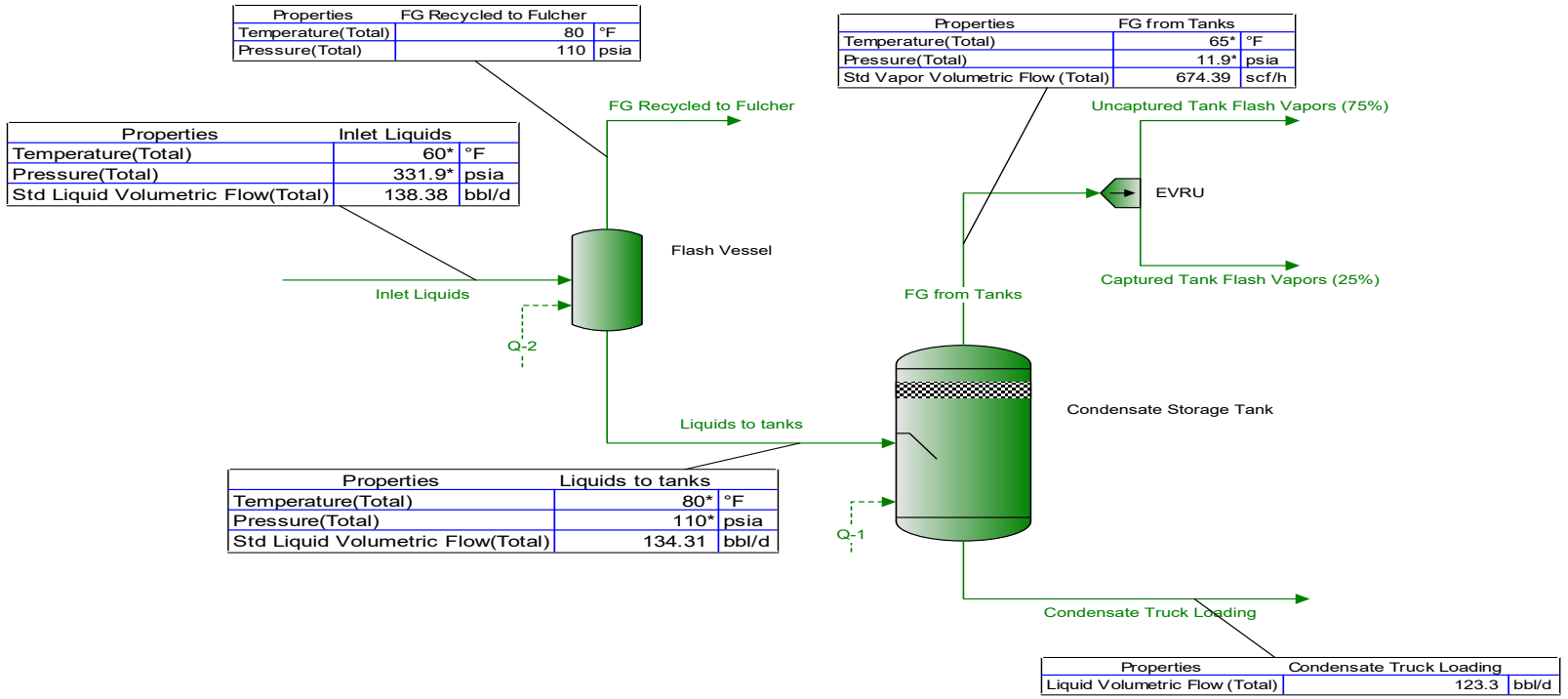
Pollutant	Emission Rate,	
	pph	tpy
VOC	--	249.70
Benzene	3.65E-01	1.60
Ethylbenzene	1.02E-02	4.46E-02
n-Hexane	3.59	15.71
Isooctane	1.33E-02	5.83E-02
Toluene	4.33E-01	1.90
Xylenes	8.65E-02	3.79E-01

VOC tpy and HAP pph emission rates are obtained from the ProMax output
HAP Emission Rate (tpy) = HAP Emission Rate (pph) x 8,760 hr/yr / 2,000 lb/ton

Actual Chaco Condensate Flash Emissions
Updated 6.20.2018

Stream Uncaptured Tank Flash Vapors (75%) C3+ Mass Flow =187.3 ton/yr

Stream FG from Tanks C3+ Mass Flow =249.7 ton/yr



12 Month Rolling Sum = 45,000 bbls

Process Streams		Captured Tank Flash Vapors (25%)	Condensate Truck Loading	FG from Tanks
Composition	**Status:**	Solved	Solved	Solved
Phase: **Total**	**From Block:**	EVRU	Condensate Storage Tank	Condensate Storage Tank
	To Block:	--	--	EVRU
Mole Fraction				
Nitrogen		0.000496614	5.79014E-07	0.000496614
Carbon Dioxide		0.0195727	0.000245753	0.0195727
Methane		0.208166	0.000874726	0.208166
Ethane		0.206726	0.00585617	0.206726
Propane		0.253693	0.0261633	0.253693
Isobutane		0.0692628	0.0192473	0.0692628
n-Butane		0.112481	0.0466189	0.112481
Isopentane		0.0469359	0.0508805	0.0469359
n-Pentane		0.0354017	0.0526141	0.0354017
Hexane		0.0234232	0.126504	0.0234232
Benzene		0.00263250	0.0152018	0.00263250
Cyclohexane		0	0	0
Heptane		0.0138252	0.248493	0.0138252
Toluene		0.00264260	0.0555843	0.00264260
Octane		0.00389027	0.241819	0.00389027
m-Xylene		0.000458718	0.0321776	0.000458718
Nonane		0.000236961	0.0495536	0.000236961
2,2,4-Trimethylpentane		6.55946E-05	0.00110134	6.55946E-05
C10		3.55535E-05	0.0234729	3.55535E-05
Ethylbenzene		5.39256E-05	0.00359094	5.39256E-05
Molar Flow		lbmol/h	lbmol/h	lbmol/h
Nitrogen		0.000220635	7.57350E-06	0.000882541
Carbon Dioxide		0.00869574	0.00321445	0.0347829
Methane		0.0924841	0.0114414	0.369936
Ethane		0.0918440	0.0765987	0.367376
Propane		0.112711	0.342216	0.450842
Isobutane		0.0307720	0.251754	0.123088
n-Butane		0.0499728	0.609775	0.199891
Isopentane		0.0208527	0.665516	0.0834106
n-Pentane		0.0157282	0.688193	0.0629129
Hexane		0.0104065	1.65467	0.0416259
Benzene		0.00116957	0.198839	0.00467827
Cyclohexane		0	0	0
Heptane		0.00614223	3.25029	0.0245689
Toluene		0.00117405	0.727043	0.00469622
Octane		0.00172837	3.16299	0.00691346
m-Xylene		0.000203799	0.420883	0.000815195
Nonane		0.000105277	0.648161	0.000421107
2,2,4-Trimethylpentane		2.91423E-05	0.0144055	0.000116569
C10		1.57957E-05	0.307026	6.31827E-05
Ethylbenzene		2.39580E-05	0.0469695	9.58321E-05

Process Streams	FG Recycled to Fulcher Inlet Liquids		Liquids to tanks	Uncaptured Tank Flash Vapors (75%)
Composition Status:	Solved	Solved	Solved	Solved
Phase: **Total** From Block:	Flash Vessel	--	Flash Vessel	EVRU
To Block:	--	Flash Vessel	Condensate Storage Tank	--
Mole Fraction				
Nitrogen	0.00543886	0.00038*	5.99117E-05	0.000496614
Carbon Dioxide	0.0254534	0.00392*	0.00255752	0.0195727
Methane	0.700715	0.06584*	0.0256697	0.208166
Ethane	0.137383	0.03628*	0.0298830	0.206726
Propane	0.0738966	0.0546*	0.0533790	0.253693
Isobutane	0.0139736	0.02456*	0.0252298	0.0692628
n-Butane	0.0207721	0.05249*	0.0544969	0.112481
Isopentane	0.00791586	0.04788*	0.0504086	0.0469359
n-Pentane	0.00593451	0.0479*	0.0505553	0.0354017
Hexane	0.00403655	0.10762*	0.114174	0.0234232
Benzene	0.000451105	0.01291*	0.0136983	0.00263250
Cyclohexane	0	0*	0	0
Heptane	0.00257418	0.20746*	0.220424	0.0138252
Toluene	0.000489120	0.04635*	0.0492517	0.00264260
Octane	0.000790585	0.20071*	0.213359	0.00389027
m-Xylene	9.21087E-05	0.0267*	0.0283836	0.000458718
Nonane	5.21947E-05	0.04106*	0.0436547	0.000236961
2,2,4-Trimethylpentane	1.20274E-05	0.00092*	0.000977450	6.55946E-05
C10	8.60600E-06	0.01944*	0.0206695	3.55535E-05
Ethylbenzene	1.08341E-05	0.00298*	0.00316787	5.39256E-05
Molar Flow	lbmol/h	lbmol/h	lbmol/h	lbmol/h
Nitrogen	0.00511281	0.00600292*	0.000890115	0.000661906
Carbon Dioxide	0.0239275	0.0619249*	0.0379974	0.0260872
Methane	0.658708	1.04009*	0.381378	0.277452
Ethane	0.129147	0.573121*	0.443975	0.275532
Propane	0.0694666	0.862525*	0.793059	0.338132
Isobutane	0.0131358	0.387978*	0.374843	0.0923161
n-Butane	0.0195268	0.829193*	0.809666	0.149918
Isopentane	0.00744131	0.756368*	0.748927	0.0625580
n-Pentane	0.00557874	0.756684*	0.751106	0.0471847
Hexane	0.00379456	1.70009*	1.69630	0.0312194
Benzene	0.000424061	0.203941*	0.203517	0.00350870
Cyclohexane	0	0*	0	0
Heptane	0.00241986	3.27728*	3.27486	0.0184267
Toluene	0.000459798	0.732199*	0.731739	0.00352216
Octane	0.000743190	3.17065*	3.16991	0.00518510
m-Xylene	8.65869E-05	0.421784*	0.421698	0.000611396
Nonane	4.90657E-05	0.648632*	0.648583	0.000315830
2,2,4-Trimethylpentane	1.13063E-05	0.0145334*	0.0145221	8.74270E-05
C10	8.09008E-06	0.307097*	0.307089	4.73870E-05
Ethylbenzene	1.01846E-05	0.0470756*	0.0470654	7.18740E-05

Process Streams	Captured Tank Flash Vapors (25%)	Condensate Truck Loading	FG from Tanks
Composition Status:	Solved	Solved	Solved
Phase: Total From Block:	EVRU	Condensate Storage Tank	Condensate Storage Tank
To Block:	--	--	EVRU
Mass Fraction			
Nitrogen	0.000327213	1.68958E-07	0.000327213
Carbon Dioxide	0.0202602	0.000112660	0.0202602
Methane	0.0785467	0.000146173	0.0785467
Ethane	0.146204	0.00183425	0.146204
Propane	0.263118	0.0120175	0.263118
Isobutane	0.0946866	0.0116530	0.0946866
n-Butane	0.153768	0.0282247	0.153768
Isopentane	0.0796490	0.0382388	0.0796490
n-Pentane	0.0600757	0.0395418	0.0600757
Hexane	0.0474762	0.113556	0.0474762
Benzene	0.00483651	0.0123690	0.00483651
Cyclohexane	0	0	0
Heptane	0.0325831	0.259367	0.0325831
Toluene	0.00572689	0.0533479	0.00572689
Octane	0.0104520	0.287733	0.0104520
m-Xylene	0.00114544	0.0355844	0.00114544
Nonane	0.000714820	0.0662026	0.000714820
2,2,4-Trimethylpentane	0.000176234	0.00131045	0.000176234
C10	0.000118981	0.0347889	0.000118981
Ethylbenzene	0.000134655	0.00397113	0.000134655
Mass Flow	lb/h	lb/h	lb/h
Nitrogen	0.00618075	0.000212159	0.0247230
Carbon Dioxide	0.382695	0.141467	1.53078
Methane	1.48367	0.183548	5.93469
Ethane	2.76166	2.30325	11.0466
Propane	4.97004	15.0902	19.8802
Isobutane	1.78854	14.6325	7.15416
n-Butane	2.90453	35.4415	11.6181
Isopentane	1.50449	48.0162	6.01797
n-Pentane	1.13477	49.6523	4.53909
Hexane	0.896781	142.592	3.58712
Benzene	0.0913570	15.5317	0.365428
Cyclohexane	0	0	0
Heptane	0.615464	325.685	2.46185
Toluene	0.108176	66.9886	0.432702
Octane	0.197429	361.304	0.789715
m-Xylene	0.0216363	44.6830	0.0865452
Nonane	0.0135023	83.1300	0.0540091
2,2,4-Trimethylpentane	0.00332888	1.64552	0.0133155
C10	0.00224743	43.6841	0.00898974
Ethylbenzene	0.00254350	4.98652	0.0101740

Process Streams	FG Recycled to Fulcher Inlet Liquids		Liquids to tanks	Uncaptured Tank Flash Vapors (75%)
Composition Status:	Solved	Solved	Solved	Solved
Phase: **Total** From Block:	Flash Vessel	--	Flash Vessel	EVRU
To Block:	--	Flash Vessel	Condensate Storage Tank	--
Mass Fraction				
Nitrogen	0.00642369	0.000124238*	1.87306E-05	0.000327213
Carbon Dioxide	0.0472283	0.00201344*	0.00125615	0.0202602
Methane	0.473939	0.0123273*	0.00459586	0.0785467
Ethane	0.174165	0.0127319*	0.0100281	0.146204
Propane	0.137382	0.0280992*	0.0262689	0.263118
Isobutane	0.0342420	0.0166601*	0.0163656	0.0946866
n-Butane	0.0509017	0.0356062*	0.0353500	0.153768
Isopentane	0.0240789	0.0403171*	0.0405891	0.0796490
n-Pentane	0.0180520	0.0403340*	0.0407072	0.0600757
Hexane	0.0146657	0.108239*	0.109806	0.0474762
Benzene	0.00148561	0.0117693*	0.0119415	0.00483651
Cyclohexane	0	0*	0	0
Heptane	0.0108749	0.242615*	0.246496	0.0325831
Toluene	0.00190006	0.0498422*	0.0506452	0.00572689
Octane	0.00380744	0.267578*	0.271996	0.0104520
m-Xylene	0.000412280	0.0330826*	0.0336298	0.00114544
Nonane	0.000282235	0.0614611*	0.0624857	0.000714820
2,2,4-Trimethylpentane	5.79235E-05	0.00122650*	0.00124608	0.000176234
C10	5.16251E-05	0.0322814*	0.0328212	0.000118981
Ethylbenzene	4.84936E-05	0.00369236*	0.00375339	0.000134655
Mass Flow	lb/h	lb/h	lb/h	lb/h
Nitrogen	0.143227	0.168162*	0.0249351	0.0185422
Carbon Dioxide	1.05304	2.72528*	1.67225	1.14809
Methane	10.5673	16.6855*	6.11824	4.45102
Ethane	3.88332	17.2332*	13.3499	8.28498
Propane	3.06317	38.0336*	34.9704	14.9101
Isobutane	0.763484	22.5502*	21.7867	5.36562
n-Butane	1.13494	48.1945*	47.0596	8.71359
Isopentane	0.536881	54.5711*	54.0342	4.51348
n-Pentane	0.402499	54.5938*	54.1913	3.40432
Hexane	0.326997	146.506*	146.179	2.69034
Benzene	0.0331242	15.9302*	15.8971	0.274071
Cyclohexane	0	0*	0	0
Heptane	0.242475	328.390*	328.147	1.84639
Toluene	0.0423650	67.4636*	67.4213	0.324527
Octane	0.0848935	362.179*	362.094	0.592286
m-Xylene	0.00919250	44.7787*	44.7695	0.0649089
Nonane	0.00629292	83.1903*	83.1840	0.0405068
2,2,4-Trimethylpentane	0.00129150	1.66013*	1.65884	0.00998665
C10	0.00115107	43.6943*	43.6931	0.00674230
Ethylbenzene	0.00108125	4.99778*	4.99670	0.00763051

Process Streams		Captured Tank Flash Vapors (25%)	Condensate Truck Loading	FG from Tanks
Properties	**Status:**	Solved	Solved	Solved
Phase: **Total**	**From Block:**	EVRU	Condensate Storage Tank	Condensate Storage Tank
	To Block:	--	--	EVRU
Property	**Units**			
Temperature	°F	65	65	65*
Pressure	psia	11.9	11.9	11.9*
Mole Fraction Vapor		1	0	1
Mole Fraction Light Liquid		0	1	0
Mole Fraction Heavy Liquid		0	0	0
Molecular Weight	lb/lbmol	42.5162	96.0009	42.5162
Mass Density	lb/ft^3	0.0910137	43.5334	0.0910137
Molar Flow	lbmol/h	0.444279	13.0800	1.77712
Mass Flow	lb/h	18.8890	1255.69	75.5562
Vapor Volumetric Flow	ft^3/h	207.541	28.8444	830.163
Liquid Volumetric Flow	gpm	25.8752	3.59618	103.501
Std Vapor Volumetric Flow	MMSCFD	0.00404633	0.119128	0.0161853
Std Liquid Volumetric Flow	sgpm	0.0762358	3.61229*	0.304943
Compressibility		0.987290	0.00466069	0.987290
Specific Gravity		1.46797	0.697997	1.46797
API Gravity			70.5105	
Enthalpy	Btu/h	-21136.4	-1.09709E+06	-84545.5
Mass Enthalpy	Btu/lb	-1118.98	-873.691	-1118.98
Mass Cp	Btu/(lb*°F)	0.401948	0.504728	0.401948
Ideal Gas CpCv Ratio		1.13240	1.05850	1.13240
Dynamic Viscosity	cP	0.00844620	0.410362	0.00844620
Kinematic Viscosity	cSt	5.79340	0.588470	5.79340
Thermal Conductivity	Btu/(h*ft*°F)	0.0110781	0.0723474	0.0110781
Surface Tension	lbf/ft		0.00141778?	
Net Ideal Gas Heating Value	Btu/ft^3	2184.29	4844.58	2184.29
Net Liquid Heating Value	Btu/lb	19352.1	18989.2	19352.1
Gross Ideal Gas Heating Value	Btu/ft^3	2374.76	5213.61	2374.76
Gross Liquid Heating Value	Btu/lb	21052.2	20447.9	21052.2

Process Streams		FG Recycled to Fulcher	Inlet Liquids	Liquids to tanks	Uncaptured Tank Flash Vapors (75%)
Properties	**Status:**	Solved	Solved	Solved	Solved
Phase: **Total**	**From Block:**	Flash Vessel	--	Flash Vessel	EVRU
	To Block:	--	Flash Vessel	Condensate Storage Tank	--
Property	**Units**				
Temperature	°F	80	60*	80*	65
Pressure	psia	110	331.9*	110*	11.9
Mole Fraction Vapor		1	0	0	1
Mole Fraction Light Liquid		0	1	1	0
Mole Fraction Heavy Liquid		0	0	0	0
Molecular Weight	lb/lbmol	23.7186	85.6828	89.6034	42.5162
Mass Density	lb/ft^3	0.466021	42.7432	42.4268	0.0910137
Molar Flow	lbmol/h	0.940051	15.7972	14.8571	1.33284
Mass Flow	lb/h	22.2967	1353.54	1331.25	56.6671
Vapor Volumetric Flow	ft^3/h	47.8449	31.6669	31.3775	622.622
Liquid Volumetric Flow	gpm	5.96508	3.94808	3.91200	77.6256
Std Vapor Volumetric Flow	MMSCFD	0.00856162	0.143875	0.135313	0.0121390
Std Liquid Volumetric Flow	sgpm	0.118979	4.03621	3.91724	0.228708
Compressibility		0.966686	0.119301	0.0401130	0.987290
Specific Gravity		0.818940	0.685327	0.680255	1.46797
API Gravity			74.9708	73.4031	
Enthalpy	Btu/h	-36218.2	-1.23508E+06	-1.18278E+06	-63409.2
Mass Enthalpy	Btu/lb	-1624.37	-912.477	-888.474	-1118.98
Mass Cp	Btu/(lb*°F)	0.469460	0.510195	0.519980	0.401948
Ideal Gas CpCv Ratio		1.22547	1.06605	1.06119	1.13240
Dynamic Viscosity	cP	0.0106496	0.349775	0.332812	0.00844620
Kinematic Viscosity	cSt	1.42661	0.510860	0.489708	5.79340
Thermal Conductivity	Btu/(h*ft*°F)	0.0168813	0.0712908	0.0697053	0.0110781
Surface Tension	lbf/ft		0.00116573	0.00123630	
Net Ideal Gas Heating Value	Btu/ft^3	1226.65	4330.01	4526.37	2184.29
Net Liquid Heating Value	Btu/lb	19548.3	19018.6	19009.8	19352.1
Gross Ideal Gas Heating Value	Btu/ft^3	1348.67	4664.26	4874.05	2374.76
Gross Liquid Heating Value	Btu/lb	21500.5	20499.0	20482.2	21052.2

Process Streams		Captured Tank Flash Vapors (25%)	Condensate Truck Loading	FG from Tanks
Composition	**Status:**	Solved	Solved	Solved
Phase: **Vapor**	**From Block:**	EVRU	Condensate Storage Tank	Condensate Storage Tank
	To Block:	--	--	EVRU
Mole Fraction				
Nitrogen		0.000496614		0.000496614
Carbon Dioxide		0.0195727		0.0195727
Methane		0.208166		0.208166
Ethane		0.206726		0.206726
Propane		0.253693		0.253693
Isobutane		0.0692628		0.0692628
n-Butane		0.112481		0.112481
Isopentane		0.0469359		0.0469359
n-Pentane		0.0354017		0.0354017
Hexane		0.0234232		0.0234232
Benzene		0.00263250		0.00263250
Cyclohexane		0		0
Heptane		0.0138252		0.0138252
Toluene		0.00264260		0.00264260
Octane		0.00389027		0.00389027
m-Xylene		0.000458718		0.000458718
Nonane		0.000236961		0.000236961
2,2,4-Trimethylpentane		6.55946E-05		6.55946E-05
C10		3.55535E-05		3.55535E-05
Ethylbenzene		5.39256E-05		5.39256E-05
Molar Flow		lbmol/h	lbmol/h	lbmol/h
Nitrogen		0.000220635		0.000882541
Carbon Dioxide		0.00869574		0.0347829
Methane		0.0924841		0.369936
Ethane		0.0918440		0.367376
Propane		0.112711		0.450842
Isobutane		0.0307720		0.123088
n-Butane		0.0499728		0.199891
Isopentane		0.0208527		0.0834106
n-Pentane		0.0157282		0.0629129
Hexane		0.0104065		0.0416259
Benzene		0.00116957		0.00467827
Cyclohexane		0		0
Heptane		0.00614223		0.0245689
Toluene		0.00117405		0.00469622
Octane		0.00172837		0.00691346
m-Xylene		0.000203799		0.000815195
Nonane		0.000105277		0.000421107
2,2,4-Trimethylpentane		2.91423E-05		0.000116569
C10		1.57957E-05		6.31827E-05
Ethylbenzene		2.39580E-05		9.58321E-05

Process Streams		FG Recycled to Fulcher Inlet Liquids		Liquids to tanks	Uncaptured Tank Flash Vapors (75%)
Composition	**Status:**	Solved	Solved	Solved	Solved
Phase: **Vapor**	**From Block:**	Flash Vessel	--	Flash Vessel	EVRU
	To Block:	--	Flash Vessel	Condensate Storage Tank	--
Mole Fraction					
Nitrogen		0.00543886			0.000496614
Carbon Dioxide		0.0254534			0.0195727
Methane		0.700715			0.208166
Ethane		0.137383			0.206726
Propane		0.0738966			0.253693
Isobutane		0.0139736			0.0692628
n-Butane		0.0207721			0.112481
Isopentane		0.00791586			0.0469359
n-Pentane		0.00593451			0.0354017
Hexane		0.00403655			0.0234232
Benzene		0.000451105			0.00263250
Cyclohexane		0			0
Heptane		0.00257418			0.0138252
Toluene		0.000489120			0.00264260
Octane		0.000790585			0.00389027
m-Xylene		9.21087E-05			0.000458718
Nonane		5.21947E-05			0.000236961
2,2,4-Trimethylpentane		1.20274E-05			6.55946E-05
C10		8.60600E-06			3.55535E-05
Ethylbenzene		1.08341E-05			5.39256E-05
Molar Flow		lbmol/h	lbmol/h	lbmol/h	lbmol/h
Nitrogen		0.00511281			0.000661906
Carbon Dioxide		0.0239275			0.0260872
Methane		0.658708			0.277452
Ethane		0.129147			0.275532
Propane		0.0694666			0.338132
Isobutane		0.0131358			0.0923161
n-Butane		0.0195268			0.149918
Isopentane		0.00744131			0.0625580
n-Pentane		0.00557874			0.0471847
Hexane		0.00379456			0.0312194
Benzene		0.000424061			0.00350870
Cyclohexane		0			0
Heptane		0.00241986			0.0184267
Toluene		0.000459798			0.00352216
Octane		0.000743190			0.00518510
m-Xylene		8.65869E-05			0.000611396
Nonane		4.90657E-05			0.000315830
2,2,4-Trimethylpentane		1.13063E-05			8.74270E-05
C10		8.09008E-06			4.73870E-05
Ethylbenzene		1.01846E-05			7.18740E-05

Process Streams		Captured Tank Flash Vapors (25%)	Condensate Truck Loading	FG from Tanks
Composition	**Status:**	Solved	Solved	Solved
Phase: **Vapor**	**From Block:**	EVRU	Condensate Storage Tank	Condensate Storage Tank
	To Block:	--	--	EVRU
Mass Fraction				
Nitrogen		0.000327213		0.000327213
Carbon Dioxide		0.0202602		0.0202602
Methane		0.0785467		0.0785467
Ethane		0.146204		0.146204
Propane		0.263118		0.263118
Isobutane		0.0946866		0.0946866
n-Butane		0.153768		0.153768
Isopentane		0.0796490		0.0796490
n-Pentane		0.0600757		0.0600757
Hexane		0.0474762		0.0474762
Benzene		0.00483651		0.00483651
Cyclohexane		0		0
Heptane		0.0325831		0.0325831
Toluene		0.00572689		0.00572689
Octane		0.0104520		0.0104520
m-Xylene		0.00114544		0.00114544
Nonane		0.000714820		0.000714820
2,2,4-Trimethylpentane		0.000176234		0.000176234
C10		0.000118981		0.000118981
Ethylbenzene		0.000134655		0.000134655
Mass Flow		lb/h	lb/h	lb/h
Nitrogen		0.00618075		0.0247230
Carbon Dioxide		0.382695		1.53078
Methane		1.48367		5.93469
Ethane		2.76166		11.0466
Propane		4.97004		19.8802
Isobutane		1.78854		7.15416
n-Butane		2.90453		11.6181
Isopentane		1.50449		6.01797
n-Pentane		1.13477		4.53909
Hexane		0.896781		3.58712
Benzene		0.0913570		0.365428
Cyclohexane		0		0
Heptane		0.615464		2.46185
Toluene		0.108176		0.432702
Octane		0.197429		0.789715
m-Xylene		0.0216363		0.0865452
Nonane		0.0135023		0.0540091
2,2,4-Trimethylpentane		0.00332888		0.0133155
C10		0.00224743		0.00898974
Ethylbenzene		0.00254350		0.0101740

Process Streams	FG Recycled to Fulcher Inlet Liquids		Liquids to tanks	Uncaptured Tank Flash Vapors (75%)
Composition Status:	Solved	Solved	Solved	Solved
Phase: **Vapor** From Block:	Flash Vessel	--	Flash Vessel	EVRU
To Block:	--	Flash Vessel	Condensate Storage Tank	--
Mass Fraction				
Nitrogen	0.00642369			0.000327213
Carbon Dioxide	0.0472283			0.0202602
Methane	0.473939			0.0785467
Ethane	0.174165			0.146204
Propane	0.137382			0.263118
Isobutane	0.0342420			0.0946866
n-Butane	0.0509017			0.153768
Isopentane	0.0240789			0.0796490
n-Pentane	0.0180520			0.0600757
Hexane	0.0146657			0.0474762
Benzene	0.00148561			0.00483651
Cyclohexane	0			0
Heptane	0.0108749			0.0325831
Toluene	0.00190006			0.00572689
Octane	0.00380744			0.0104520
m-Xylene	0.000412280			0.00114544
Nonane	0.000282235			0.000714820
2,2,4-Trimethylpentane	5.79235E-05			0.000176234
C10	5.16251E-05			0.000118981
Ethylbenzene	4.84936E-05			0.000134655
Mass Flow	lb/h	lb/h	lb/h	lb/h
Nitrogen	0.143227			0.0185422
Carbon Dioxide	1.05304			1.14809
Methane	10.5673			4.45102
Ethane	3.88332			8.28498
Propane	3.06317			14.9101
Isobutane	0.763484			5.36562
n-Butane	1.13494			8.71359
Isopentane	0.536881			4.51348
n-Pentane	0.402499			3.40432
Hexane	0.326997			2.69034
Benzene	0.0331242			0.274071
Cyclohexane	0			0
Heptane	0.242475			1.84639
Toluene	0.0423650			0.324527
Octane	0.0848935			0.592286
m-Xylene	0.00919250			0.0649089
Nonane	0.00629292			0.0405068
2,2,4-Trimethylpentane	0.00129150			0.00998665
C10	0.00115107			0.00674230
Ethylbenzene	0.00108125			0.00763051

Process Streams		Captured Tank Flash Vapors (25%)	Condensate Truck Loading	FG from Tanks
Properties	**Status:**	Solved	Solved	Solved
Phase: **Vapor**	**From Block:**	EVRU	Condensate Storage Tank	Condensate Storage Tank
	To Block:	--	--	EVRU
Property	**Units**			
Temperature	°F	65		65
Pressure	psia	11.9		11.9
Mole Fraction Vapor		1		1
Mole Fraction Light Liquid		0		0
Mole Fraction Heavy Liquid		0		0
Molecular Weight	lb/lbmol	42.5162		42.5162
Mass Density	lb/ft^3	0.0910137		0.0910137
Molar Flow	lbmol/h	0.444279		1.77712
Mass Flow	lb/h	18.8890		75.5562
Vapor Volumetric Flow	ft^3/h	207.541		830.163
Liquid Volumetric Flow	gpm	25.8752		103.501
Std Vapor Volumetric Flow	MMSCFD	0.00404633		0.0161853
Std Liquid Volumetric Flow	sgpm	0.0762358		0.304943
Compressibility		0.987290		0.987290
Specific Gravity		1.46797		1.46797
API Gravity				
Enthalpy	Btu/h	-21136.4		-84545.5
Mass Enthalpy	Btu/lb	-1118.98		-1118.98
Mass Cp	Btu/(lb*°F)	0.401948		0.401948
Ideal Gas CpCv Ratio		1.13240		1.13240
Dynamic Viscosity	cP	0.00844620		0.00844620
Kinematic Viscosity	cSt	5.79340		5.79340
Thermal Conductivity	Btu/(h*ft*°F)	0.0110781		0.0110781
Surface Tension	lbf/ft			
Net Ideal Gas Heating Value	Btu/ft^3	2184.29		2184.29
Net Liquid Heating Value	Btu/lb	19352.1		19352.1
Gross Ideal Gas Heating Value	Btu/ft^3	2374.76		2374.76
Gross Liquid Heating Value	Btu/lb	21052.2		21052.2

Process Streams		FG Recycled to Fulcher Inlet Liquids		Liquids to tanks	Uncaptured Tank Flash Vapors (75%)
Properties	**Status:**	Solved	Solved	Solved	Solved
Phase: **Vapor**	**From Block:**	**Flash Vessel**	**--**	**Flash Vessel**	**EVRU**
	To Block:	**--**	**Flash Vessel**	**Condensate Storage Tank**	**--**
Property	**Units**				
Temperature	°F	80			65
Pressure	psia	110			11.9
Mole Fraction Vapor		1			1
Mole Fraction Light Liquid		0			0
Mole Fraction Heavy Liquid		0			0
Molecular Weight	lb/lbmol	23.7186			42.5162
Mass Density	lb/ft^3	0.466021			0.0910137
Molar Flow	lbmol/h	0.940051			1.33284
Mass Flow	lb/h	22.2967			56.6671
Vapor Volumetric Flow	ft^3/h	47.8449			622.622
Liquid Volumetric Flow	gpm	5.96508			77.6256
Std Vapor Volumetric Flow	MMSCFD	0.00856162			0.0121390
Std Liquid Volumetric Flow	sgpm	0.118979			0.228708
Compressibility		0.966686			0.987290
Specific Gravity		0.818940			1.46797
API Gravity					
Enthalpy	Btu/h	-36218.2			-63409.2
Mass Enthalpy	Btu/lb	-1624.37			-1118.98
Mass Cp	Btu/(lb*°F)	0.469460			0.401948
Ideal Gas CpCv Ratio		1.22547			1.13240
Dynamic Viscosity	cP	0.0106496			0.00844620
Kinematic Viscosity	cSt	1.42661			5.79340
Thermal Conductivity	Btu/(h*ft*°F)	0.0168813			0.0110781
Surface Tension	lbf/ft				
Net Ideal Gas Heating Value	Btu/ft^3	1226.65			2184.29
Net Liquid Heating Value	Btu/lb	19548.3			19352.1
Gross Ideal Gas Heating Value	Btu/ft^3	1348.67			2374.76
Gross Liquid Heating Value	Btu/lb	21500.5			21052.2

Process Streams		Captured Tank Flash Vapors (25%)	Condensate Truck Loading	FG from Tanks
Composition	**Status:**	Solved	Solved	Solved
Phase: **Light Liquid**	**From Block:**	EVRU	Condensate Storage Tank	Condensate Storage Tank
	To Block:	--	--	EVRU
Mole Fraction				
Nitrogen			5.79014E-07	
Carbon Dioxide			0.000245753	
Methane			0.000874726	
Ethane			0.00585617	
Propane			0.0261633	
Isobutane			0.0192473	
n-Butane			0.0466189	
Isopentane			0.0508805	
n-Pentane			0.0526141	
Hexane			0.126504	
Benzene			0.0152018	
Cyclohexane			0	
Heptane			0.248493	
Toluene			0.0555843	
Octane			0.241819	
m-Xylene			0.0321776	
Nonane			0.0495536	
2,2,4-Trimethylpentane			0.00110134	
C10			0.0234729	
Ethylbenzene			0.00359094	
Molar Flow		lbmol/h	lbmol/h	lbmol/h
Nitrogen			7.57350E-06	
Carbon Dioxide			0.00321445	
Methane			0.0114414	
Ethane			0.0765987	
Propane			0.342216	
Isobutane			0.251754	
n-Butane			0.609775	
Isopentane			0.665516	
n-Pentane			0.688193	
Hexane			1.65467	
Benzene			0.198839	
Cyclohexane			0	
Heptane			3.25029	
Toluene			0.727043	
Octane			3.16299	
m-Xylene			0.420883	
Nonane			0.648161	
2,2,4-Trimethylpentane			0.0144055	
C10			0.307026	
Ethylbenzene			0.0469695	

Process Streams		FG Recycled to Fulcher Inlet Liquids	Liquids to tanks	Uncaptured Tank Flash Vapors (75%)
Composition	**Status:**	Solved	Solved	Solved	Solved
Phase: **Light Liquid**	**From Block:**	Flash Vessel	--	Flash Vessel	EVRU
	To Block:	--	Flash Vessel	Condensate Storage Tank	--
Mole Fraction					
Nitrogen			0.00038	5.99117E-05	
Carbon Dioxide			0.00392	0.00255752	
Methane			0.06584	0.0256697	
Ethane			0.03628	0.0298830	
Propane			0.0546	0.0533790	
Isobutane			0.02456	0.0252298	
n-Butane			0.05249	0.0544969	
Isopentane			0.04788	0.0504086	
n-Pentane			0.0479	0.0505553	
Hexane			0.10762	0.114174	
Benzene			0.01291	0.0136983	
Cyclohexane			0	0	
Heptane			0.20746	0.220424	
Toluene			0.04635	0.0492517	
Octane			0.20071	0.213359	
m-Xylene			0.0267	0.0283836	
Nonane			0.04106	0.0436547	
2,2,4-Trimethylpentane			0.00092	0.000977450	
C10			0.01944	0.0206695	
Ethylbenzene			0.00298	0.00316787	
Molar Flow		lbmol/h	lbmol/h	lbmol/h	lbmol/h
Nitrogen			0.00600292	0.000890115	
Carbon Dioxide			0.0619249	0.0379974	
Methane			1.04009	0.381378	
Ethane			0.573121	0.443975	
Propane			0.862525	0.793059	
Isobutane			0.387978	0.374843	
n-Butane			0.829193	0.809666	
Isopentane			0.756368	0.748927	
n-Pentane			0.756684	0.751106	
Hexane			1.70009	1.69630	
Benzene			0.203941	0.203517	
Cyclohexane			0	0	
Heptane			3.27728	3.27486	
Toluene			0.732199	0.731739	
Octane			3.17065	3.16991	
m-Xylene			0.421784	0.421698	
Nonane			0.648632	0.648583	
2,2,4-Trimethylpentane			0.0145334	0.0145221	
C10			0.307097	0.307089	
Ethylbenzene			0.0470756	0.0470654	

Process Streams		Captured Tank Flash Vapors (25%)	Condensate Truck Loading	FG from Tanks
Composition	**Status:**	Solved	Solved	Solved
Phase: Light Liquid	**From Block:**	EVRU	Condensate Storage Tank	Condensate Storage Tank
	To Block:	--	--	EVRU
Mass Fraction				
Nitrogen			1.68958E-07	
Carbon Dioxide			0.000112660	
Methane			0.000146173	
Ethane			0.00183425	
Propane			0.0120175	
Isobutane			0.0116530	
n-Butane			0.0282247	
Isopentane			0.0382388	
n-Pentane			0.0395418	
Hexane			0.113556	
Benzene			0.0123690	
Cyclohexane			0	
Heptane			0.259367	
Toluene			0.0533479	
Octane			0.287733	
m-Xylene			0.0355844	
Nonane			0.0662026	
2,2,4-Trimethylpentane			0.00131045	
C10			0.0347889	
Ethylbenzene			0.00397113	
Mass Flow		lb/h	lb/h	lb/h
Nitrogen			0.000212159	
Carbon Dioxide			0.141467	
Methane			0.183548	
Ethane			2.30325	
Propane			15.0902	
Isobutane			14.6325	
n-Butane			35.4415	
Isopentane			48.0162	
n-Pentane			49.6523	
Hexane			142.592	
Benzene			15.5317	
Cyclohexane			0	
Heptane			325.685	
Toluene			66.9886	
Octane			361.304	
m-Xylene			44.6830	
Nonane			83.1300	
2,2,4-Trimethylpentane			1.64552	
C10			43.6841	
Ethylbenzene			4.98652	

Process Streams		FG Recycled to Fulcher Inlet Liquids		Liquids to tanks	Uncaptured Tank Flash Vapors (75%)
Composition	Status:	Solved	Solved	Solved	Solved
Phase: Light Liquid	From Block:	Flash Vessel	--	Flash Vessel	EVRU
	To Block:	--	Flash Vessel	Condensate Storage Tank	--
Mass Fraction					
Nitrogen			0.000124238	1.87306E-05	
Carbon Dioxide			0.00201344	0.00125615	
Methane			0.0123273	0.00459586	
Ethane			0.0127319	0.0100281	
Propane			0.0280992	0.0262689	
Isobutane			0.0166601	0.0163656	
n-Butane			0.0356062	0.0353500	
Isopentane			0.0403171	0.0405891	
n-Pentane			0.0403340	0.0407072	
Hexane			0.108239	0.109806	
Benzene			0.0117693	0.0119415	
Cyclohexane			0	0	
Heptane			0.242615	0.246496	
Toluene			0.0498422	0.0506452	
Octane			0.267578	0.271996	
m-Xylene			0.0330826	0.0336298	
Nonane			0.0614611	0.0624857	
2,2,4-Trimethylpentane			0.00122650	0.00124608	
C10			0.0322814	0.0328212	
Ethylbenzene			0.00369236	0.00375339	
Mass Flow		lb/h	lb/h	lb/h	lb/h
Nitrogen			0.168162	0.0249351	
Carbon Dioxide			2.72528	1.67225	
Methane			16.6855	6.11824	
Ethane			17.2332	13.3499	
Propane			38.0336	34.9704	
Isobutane			22.5502	21.7867	
n-Butane			48.1945	47.0596	
Isopentane			54.5711	54.0342	
n-Pentane			54.5938	54.1913	
Hexane			146.506	146.179	
Benzene			15.9302	15.8971	
Cyclohexane			0	0	
Heptane			328.390	328.147	
Toluene			67.4636	67.4213	
Octane			362.179	362.094	
m-Xylene			44.7787	44.7695	
Nonane			83.1903	83.1840	
2,2,4-Trimethylpentane			1.66013	1.65884	
C10			43.6943	43.6931	
Ethylbenzene			4.99778	4.99670	

Process Streams		Captured Tank Flash Vapors (25%)	Condensate Truck Loading	FG from Tanks
Properties	**Status:**	Solved	Solved	Solved
Phase: **Light Liquid**	**From Block:**	EVRU	Condensate Storage Tank	Condensate Storage Tank
	To Block:	--	--	EVRU
Property	**Units**			
Temperature	°F		65	
Pressure	psia		11.9	
Mole Fraction Vapor			0	
Mole Fraction Light Liquid			1	
Mole Fraction Heavy Liquid			0	
Molecular Weight	lb/lbmol		96.0009	
Mass Density	lb/ft^3		43.5334	
Molar Flow	lbmol/h		13.0800	
Mass Flow	lb/h		1255.69	
Vapor Volumetric Flow	ft^3/h		28.8444	
Liquid Volumetric Flow	gpm		3.59618	
Std Vapor Volumetric Flow	MMSCFD		0.119128	
Std Liquid Volumetric Flow	sgpm		3.61229	
Compressibility			0.00466069	
Specific Gravity			0.697997	
API Gravity			70.5105	
Enthalpy	Btu/h		-1.09709E+06	
Mass Enthalpy	Btu/lb		-873.691	
Mass Cp	Btu/(lb*°F)		0.504728	
Ideal Gas CpCv Ratio			1.05850	
Dynamic Viscosity	cP		0.410362	
Kinematic Viscosity	cSt		0.588470	
Thermal Conductivity	Btu/(h*ft*°F)		0.0723474	
Surface Tension	lbf/ft		0.00141778?	
Net Ideal Gas Heating Value	Btu/ft^3		4844.58	
Net Liquid Heating Value	Btu/lb		18989.2	
Gross Ideal Gas Heating Value	Btu/ft^3		5213.61	
Gross Liquid Heating Value	Btu/lb		20447.9	

Process Streams		FG Recycled to Fulcher Inlet Liquids		Liquids to tanks	Uncaptured Tank Flash Vapors (75%)
Properties	**Status:**	Solved	Solved	Solved	Solved
Phase: **Light Liquid**	**From Block:**	**Flash Vessel**	**--**	**Flash Vessel**	**EVRU**
	To Block:	**--**	**Flash Vessel**	**Condensate Storage Tank**	**--**
Property	**Units**				
Temperature	°F		60	80	
Pressure	psia		331.9	110	
Mole Fraction Vapor			0	0	
Mole Fraction Light Liquid			1	1	
Mole Fraction Heavy Liquid			0	0	
Molecular Weight	lb/lbmol		85.6828	89.6034	
Mass Density	lb/ft^3		42.7432	42.4268	
Molar Flow	lbmol/h		15.7972	14.8571	
Mass Flow	lb/h		1353.54	1331.25	
Vapor Volumetric Flow	ft^3/h		31.6669	31.3775	
Liquid Volumetric Flow	gpm		3.94808	3.91200	
Std Vapor Volumetric Flow	MMSCFD		0.143875	0.135313	
Std Liquid Volumetric Flow	sgpm		4.03621	3.91724	
Compressibility			0.119301	0.0401130	
Specific Gravity			0.685327	0.680255	
API Gravity			74.9708	73.4031	
Enthalpy	Btu/h		-1.23508E+06	-1.18278E+06	
Mass Enthalpy	Btu/lb		-912.477	-888.474	
Mass Cp	Btu/(lb*°F)		0.510195	0.519980	
Ideal Gas CpCv Ratio			1.06605	1.06119	
Dynamic Viscosity	cP		0.349775	0.332812	
Kinematic Viscosity	cSt		0.510860	0.489708	
Thermal Conductivity	Btu/(h*ft*°F)		0.0712908	0.0697053	
Surface Tension	lbf/ft		0.00116573	0.00123630	
Net Ideal Gas Heating Value	Btu/ft^3		4330.01	4526.37	
Net Liquid Heating Value	Btu/lb		19018.6	19009.8	
Gross Ideal Gas Heating Value	Btu/ft^3		4664.26	4874.05	
Gross Liquid Heating Value	Btu/lb		20499.0	20482.2	

Uncontrolled Condensate Storage Tank Emissions Data and Calculations AOS

Unit Number: T4 (AOS) & T5 (AOS)
Description: Condensate Storage Tanks (with flash emissions)

Emission Rates

Source/Pollutants	Working/Breathing Losses, ppy	Working/Breathing Losses, tpy	Flash Losses, tpy	Uncontrolled Emission Rates, tpy
T4 (AOS)				
VOC	8,251.17	4.13	174.46	178.59
Benzene	49.70	2.49E-02	1.12	1.14
Ethylbenzene	1.53	7.65E-04	3.11E-02	3.19E-02
n-Hexane	741.29	3.71E-01	10.98	11.35
Isooctane	2.70	1.35E-03	4.07E-02	4.21E-02
Toluene	61.61	3.08E-02	1.32	1.35
Xylene	11.47	5.74E-03	2.65E-01	2.71E-01
T5 (AOS)				
VOC	7,676.90	3.84	157.01	160.85
Benzene	46.24	2.31E-02	1.01	1.03
Ethylbenzene	1.43	7.15E-04	2.80E-02	2.87E-02
n-Hexane	689.70	3.45E-01	9.88	10.22
Isooctane	2.51	1.26E-03	3.67E-02	3.79E-02
Toluene	57.32	2.87E-02	1.19	1.22
Xylene	10.67	5.34E-03	2.38E-01	2.44E-01
Combined Total				
VOC	15,928.07	7.96	331.47	339.44
Benzene	95.94	4.80E-02	2.12	2.17
Ethylbenzene	2.96	1.48E-03	5.91E-02	6.06E-02
n-Hexane	1,430.99	7.15E-01	20.85	21.57
Isooctane	5.21	2.61E-03	7.74E-02	8.00E-02
Toluene	118.93	5.95E-02	2.52	2.57
Xylene	22.14	1.11E-02	5.03E-01	5.14E-01

Working/breathing losses are taken from TANKS 4.0 results
Flash emissions are taken from ProMax 4 results (FG from Tanks)
It is assumed the condensate throughput to each tank will be proportional to its capacity. Unit T4 will receive 52.6% of the condensate and Unit T5 will receive the remainder. This distribution is used for the TANKS 4 input. The flash emissions (from ProMax 4) are assigned to the tanks using the same percentages

Controlled Condensate Storage Tank Emissions Data and Calculations AOS

Unit Number: T4 (AOS) & T5 (AOS)
Description: Condensate Storage Tanks (with flash emissions)

Emission Rates

Source/Pollutants	Working/Breathing Losses, ppy	Working/Breathing Losses, tpy	Flash Losses, tpy	Uncontrolled Emission Rates, tpy
T4 (AOS)				
VOC	2,062.79	1.03	43.61	44.65
Benzene	12.43	6.21E-03	2.80E-01	2.86E-01
Ethylbenzene	0.38	1.91E-04	7.78E-03	7.97E-03
n-Hexane	185.32	9.27E-02	2.74	2.84
Isooctane	0.68	3.38E-04	1.02E-02	1.05E-02
Toluene	15.40	7.70E-03	3.31E-01	3.39E-01
Xylene	2.87	1.43E-03	6.62E-02	6.76E-02
T5 (AOS)				
VOC	1,919.23	0.96	39.25	40.21
Benzene	11.56	5.78E-03	2.52E-01	2.57E-01
Ethylbenzene	0.36	1.79E-04	7.00E-03	7.18E-03
n-Hexane	172.43	8.62E-02	2.47	2.56
Isooctane	0.63	3.14E-04	9.17E-03	9.48E-03
Toluene	14.33	7.17E-03	2.98E-01	3.05E-01
Xylene	2.67	1.33E-03	5.96E-02	6.09E-02
Combined Total				
VOC	3,982.02	1.99	82.87	84.86
Benzene	23.99	1.20E-02	5.31E-01	5.43E-01
Ethylbenzene	0.74	3.70E-04	1.48E-02	1.52E-02
n-Hexane	357.75	1.79E-01	5.21	5.39
Isooctane	1.30	6.51E-04	1.94E-02	2.00E-02
Toluene	29.73	1.49E-02	6.29E-01	6.44E-01
Xylene	5.54	2.77E-03	1.26E-01	1.29E-01

Working/breathing losses are taken from TANKS 4.0 results
Flash emissions are taken from ProMax 4
It is assumed the condensate throughput to each tank will be proportional to its capacity. Unit T4 will receive 52.6% of the condensate and Unit T5 will receive the remainder. This distribution is used for the TANKS 4 input. The flash emissions (from ProMax 4) are assigned to the tanks using the same percentages
It is assumed the replacement VRU captures 75% of the working/breathing losses as well as 75% of the flash emissions

Uncontrolled Condensate Storage Tank Emissions Data and Calculations

Unit Number: T4 (AOS) & T5 (AOS)
Description: Condensate Tanks (flash emissions)

Calculation of Emission Rates from ProMax Results

Pollutant	Emission Rate, pph	Emission Rate, tpy
VOC	75.68	331.47
Benzene	4.85E-01	2.12
Ethylbenzene	1.35E-02	5.91E-02
n-Hexane	4.76	20.85
Isooctane	1.77E-02	7.74E-02
Toluene	5.74E-01	2.52
Xylenes	1.15E-01	5.03E-01

VOC tpy and HAP pph emission rates are obtained from the ProMax output:
Mass Flow of Flash Gas from Tanks (FG from Tanks)
HAP Emission Rate (tpy) = HAP Emission Rate (pph) x 8,760 hr/yr / 2,000 lb/ton

Composition of Post Flash Condensate for use in TANKS 4

Component	Speciated Mass Fraction	Mass Percent, Of VOC, %
Carbon dioxide	1.127E-04	--
Nitrogen	1.690E-07	--
Methane	1.462E-04	--
Ethane	1.834E-03	--
Propane	1.202E-02	--
Isobutane	1.165E-02	1.7699
n-Butane	2.822E-02	3.4305
Isopentane	3.824E-02	3.8319
n-Pentane	3.954E-02	3.9625
n-Hexane	1.136E-01	11.3795
Cyclohexane	0.000E+00	0.0000
n-Heptane	2.594E-01	25.9911
Octane	2.877E-01	28.8337
Nonane	6.620E-02	6.6341
Decane	3.479E-02	3.4862
Benzene	1.237E-02	1.2395
Ethylbenzene	3.971E-03	0.3979
Isooctane	1.310E-03	0.1313
Toluene	5.335E-02	5.3460
Xylenes	3.558E-02	3.5659
Total	1.0000	
VOC Total	0.9979	100.0000

`
Speciated Mass Fractions are obtained from the ProMax output - Condensate Truck Loading
VOC Total = Sum (Propane - C8+ Heavies Mass Fractions)
Mass Percent of VOC (%) = 100 x Component Mass Fraction / VOC Total Mass Fraction
Propane Mass Percent of VOC is included with the n-butane and isobutane percentages (even distribution)

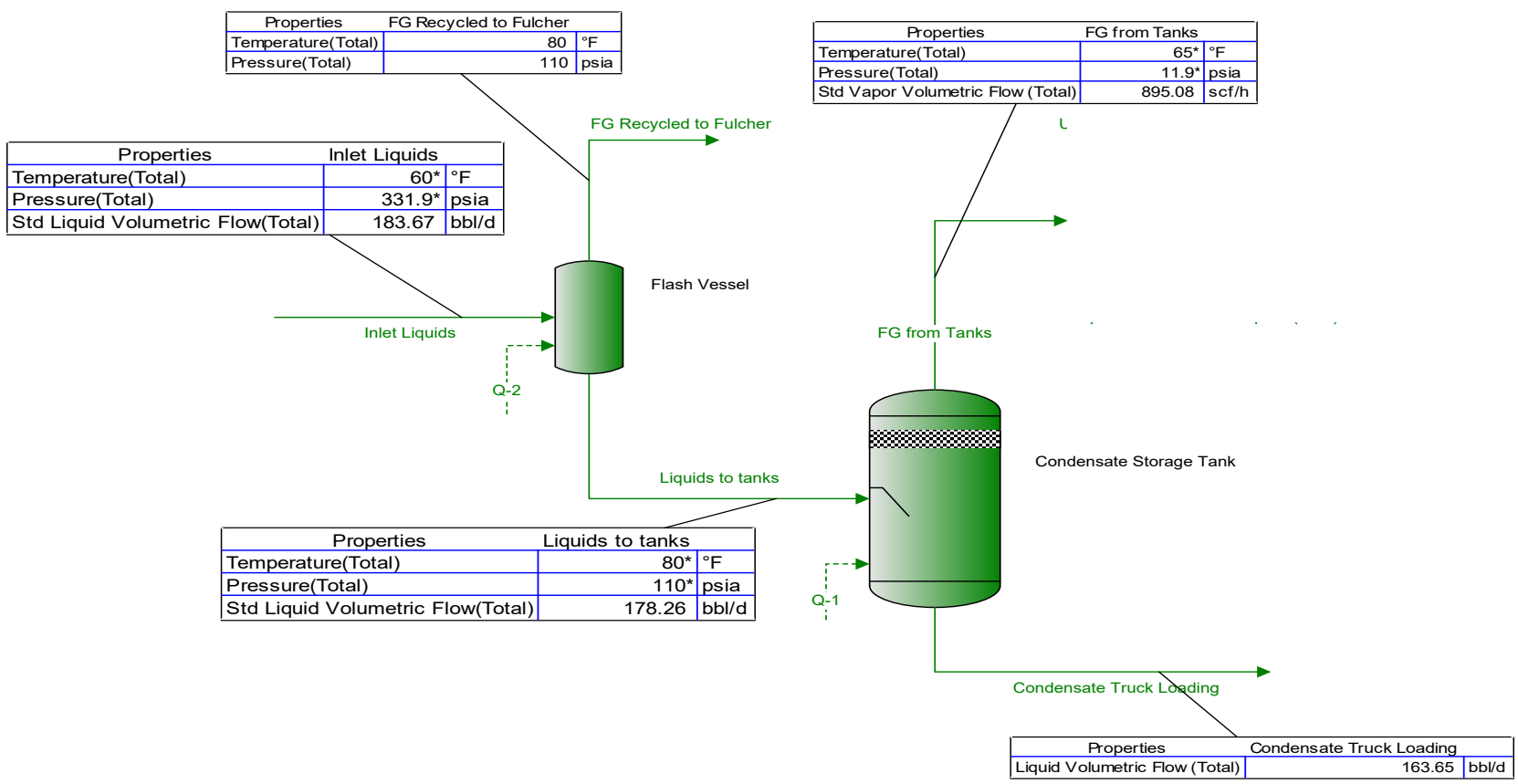
Proposed Chaco Condensate Flash Emissions
60k bbls per year - Updated 9.21.2018

Stream FG from Tanks C3+ Mass Flow =331.5 ton/yr

Properties	FG Recycled to Fulcher	
Temperature(Total)	80	°F
Pressure(Total)	110	psia

Properties	FG from Tanks	
Temperature(Total)	65*	°F
Pressure(Total)	11.9*	psia
Std Vapor Volumetric Flow (Total)	895.08	scf/h

Properties	Inlet Liquids	
Temperature(Total)	60*	°F
Pressure(Total)	331.9*	psia
Std Liquid Volumetric Flow(Total)	183.67	bbl/d



Properties	Liquids to tanks	
Temperature(Total)	80*	°F
Pressure(Total)	110*	psia
Std Liquid Volumetric Flow(Total)	178.26	bbl/d

Properties	Condensate Truck Loading	
Liquid Volumetric Flow (Total)	163.65	bbl/d

12 Month Rolling Sum = 60,000 bbls

Process Streams		Captured Tank Flash Vapors (25%)	Condensate Truck Loading	FG from Tanks	FG Recycled to Fulcher
Composition	**Status:**	**Solved**	**Solved**	**Solved**	**Solved**
Phase: **Total**	**From Block:**	**EVRU**	**Condensate Storage Tank**	**Condensate Storage Tank**	**Flash Vessel**
	To Block:	**--**	**--**	**EVRU**	**--**
Mole Fraction					
Nitrogen		0.000496614	5.79014E-07	0.000496614	0.00543886
Carbon Dioxide		0.0195727	0.000245753	0.0195727	0.0254534
Methane		0.208166	0.000874726	0.208166	0.700715
Ethane		0.206726	0.00585617	0.206726	0.137383
Propane		0.253693	0.0261633	0.253693	0.0738966
Isobutane		0.0692628	0.0192473	0.0692628	0.0139736
n-Butane		0.112481	0.0466189	0.112481	0.0207721
Isopentane		0.0469359	0.0508805	0.0469359	0.00791586
n-Pentane		0.0354017	0.0526141	0.0354017	0.00593451
Hexane		0.0234232	0.126504	0.0234232	0.00403655
Benzene		0.00263250	0.0152018	0.00263250	0.000451105
Cyclohexane		0	0	0	0
Heptane		0.0138252	0.248493	0.0138252	0.00257418
Toluene		0.00264260	0.0555843	0.00264260	0.000489120
Octane		0.00389027	0.241819	0.00389027	0.000790585
m-Xylene		0.000458718	0.0321776	0.000458718	9.21087E-05
Nonane		0.000236961	0.0495536	0.000236961	5.21947E-05
2,2,4-Trimethylpentane		6.55946E-05	0.00110134	6.55946E-05	1.20274E-05
C10		3.55535E-05	0.0234729	3.55535E-05	8.60600E-06
Ethylbenzene		5.39256E-05	0.00359094	5.39256E-05	1.08341E-05
Molar Flow		**lbmol/h**	**lbmol/h**	**lbmol/h**	**lbmol/h**
Nitrogen		0.000292838	1.00519E-05	0.00117135	0.00678598
Carbon Dioxide		0.0115414	0.00426639	0.0461657	0.0317578
Methane		0.122750	0.0151856	0.490998	0.874270
Ethane		0.121900	0.101666	0.487600	0.171410
Propane		0.149595	0.454207	0.598381	0.0921996
Isobutane		0.0408422	0.334141	0.163369	0.0174346
n-Butane		0.0663264	0.809325	0.265306	0.0259170
Isopentane		0.0276767	0.883307	0.110707	0.00987648
n-Pentane		0.0208753	0.913404	0.0835012	0.00740439
Hexane		0.0138120	2.19616	0.0552480	0.00503633
Benzene		0.00155231	0.263909	0.00620923	0.000562836
Cyclohexane		0	0	0	0
Heptane		0.00815228	4.31395	0.0326091	0.00321176
Toluene		0.00155826	0.964968	0.00623306	0.000610267
Octane		0.00229397	4.19808	0.00917590	0.000986399
m-Xylene		0.000270492	0.558617	0.00108197	0.000114922
Nonane		0.000139729	0.860273	0.000558914	6.51224E-05
2,2,4-Trimethylpentane		3.86792E-05	0.0191197	0.000154717	1.50063E-05
C10		2.09648E-05	0.407500	8.38593E-05	1.07376E-05
Ethylbenzene		3.17983E-05	0.0623404	0.000127193	1.35175E-05

Process Streams		Inlet Liquids	Liquids to tanks	Uncaptured Tank Flash Vapors (75%)
Composition	**Status:**	**Solved**	**Solved**	**Solved**
Phase: **Total**	**From Block:**	**--**	**Flash Vessel**	**EVRU**
	To Block:	**Flash Vessel**	**Condensate Storage Tank**	**--**
Mole Fraction				
Nitrogen		0.00038*	5.99117E-05	0.000496614
Carbon Dioxide		0.00392*	0.00255752	0.0195727
Methane		0.06584*	0.0256697	0.208166
Ethane		0.03628*	0.0298830	0.206726
Propane		0.0546*	0.0533790	0.253693
Isobutane		0.02456*	0.0252298	0.0692628
n-Butane		0.05249*	0.0544969	0.112481
Isopentane		0.04788*	0.0504086	0.0469359
n-Pentane		0.0479*	0.0505553	0.0354017
Hexane		0.10762*	0.114174	0.0234232
Benzene		0.01291*	0.0136983	0.00263250
Cyclohexane		0*	0	0
Heptane		0.20746*	0.220424	0.0138252
Toluene		0.04635*	0.0492517	0.00264260
Octane		0.20071*	0.213359	0.00389027
m-Xylene		0.0267*	0.0283836	0.000458718
Nonane		0.04106*	0.0436547	0.000236961
2,2,4-Trimethylpentane		0.00092*	0.000977450	6.55946E-05
C10		0.01944*	0.0206695	3.55535E-05
Ethylbenzene		0.00298*	0.00316787	5.39256E-05
Molar Flow		**lbmol/h**	**lbmol/h**	**lbmol/h**
Nitrogen		0.00796738*	0.00118141	0.000878515
Carbon Dioxide		0.0821899*	0.0504321	0.0346243
Methane		1.38045*	0.506184	0.368249
Ethane		0.760676*	0.589266	0.365700
Propane		1.14479*	1.05259	0.448786
Isobutane		0.514945*	0.497510	0.122527
n-Butane		1.10055*	1.07463	0.198979
Isopentane		1.00389*	0.994014	0.0830301
n-Pentane		1.00431*	0.996905	0.0626259
Hexane		2.25645*	2.25141	0.0414360
Benzene		0.270681*	0.270119	0.00465693
Cyclohexane		0*	0	0
Heptane		4.34977*	4.34656	0.0244569
Toluene		0.971811*	0.971201	0.00467479
Octane		4.20825*	4.20726	0.00688192
m-Xylene		0.559814*	0.559699	0.000811476
Nonane		0.860897*	0.860832	0.000419186
2,2,4-Trimethylpentane		0.0192895*	0.0192744	0.000116037
C10		0.407595*	0.407584	6.28945E-05
Ethylbenzene		0.0624811*	0.0624675	9.53949E-05

Mass Fraction				
Nitrogen	0.000327213	1.68958E-07	0.000327213	0.00642369
Carbon Dioxide	0.0202602	0.000112660	0.0202602	0.0472283
Methane	0.0785467	0.000146173	0.0785467	0.473939
Ethane	0.146204	0.00183425	0.146204	0.174165
Propane	0.263118	0.0120175	0.263118	0.137382
Isobutane	0.0946866	0.0116530	0.0946866	0.0342420
n-Butane	0.153768	0.0282247	0.153768	0.0509017
Isopentane	0.0796490	0.0382388	0.0796490	0.0240789
n-Pentane	0.0600757	0.0395418	0.0600757	0.0180520
Hexane	0.0474762	0.113556	0.0474762	0.0146657
Benzene	0.00483651	0.0123690	0.00483651	0.00148561
Cyclohexane	0	0	0	0
Heptane	0.0325831	0.259367	0.0325831	0.0108749
Toluene	0.00572689	0.0533479	0.00572689	0.00190006
Octane	0.0104520	0.287733	0.0104520	0.00380744
m-Xylene	0.00114544	0.0355844	0.00114544	0.000412280
Nonane	0.000714820	0.0662026	0.000714820	0.000282235
2,2,4-Trimethylpentane	0.000176234	0.00131045	0.000176234	5.79235E-05
C10	0.000118981	0.0347889	0.000118981	5.16251E-05
Ethylbenzene	0.000134655	0.00397113	0.000134655	4.84936E-05
Mass Flow	**lb/h**	**lb/h**	**lb/h**	**lb/h**
Nitrogen	0.00820340	0.000281589	0.0328136	0.190098
Carbon Dioxide	0.507932	0.187762	2.03173	1.39764
Methane	1.96920	0.243615	7.87682	14.0254
Ethane	3.66542	3.05699	14.6617	5.15413
Propane	6.59649	20.0285	26.3860	4.06560
Isobutane	2.37384	19.4210	9.49536	1.01334
n-Butane	3.85504	47.0397	15.4202	1.50635
Isopentane	1.99684	63.7295	7.98736	0.712576
n-Pentane	1.50613	65.9010	6.02451	0.534218
Hexane	1.19025	189.255	4.76101	0.434008
Benzene	0.121254	20.6144	0.485015	0.0439641
Cyclohexane	0	0	0	0
Heptane	0.816875	432.266	3.26750	0.321825
Toluene	0.143576	88.9106	0.574304	0.0562290
Octane	0.262037	479.541	1.04815	0.112675
m-Xylene	0.0287168	59.3055	0.114867	0.0122007
Nonane	0.0179209	110.334	0.0716836	0.00835229
2,2,4-Trimethylpentane	0.00441826	2.18402	0.0176731	0.00171415
C10	0.00298291	57.9798	0.0119316	0.00152776
Ethylbenzene	0.00337587	6.61836	0.0135035	0.00143509

Mass Fraction			
Nitrogen	0.000124238*	1.87306E-05	0.000327213
Carbon Dioxide	0.00201344*	0.00125615	0.0202602
Methane	0.0123273*	0.00459586	0.0785467
Ethane	0.0127319*	0.0100281	0.146204
Propane	0.0280992*	0.0262689	0.263118
Isobutane	0.0166601*	0.0163656	0.0946866
n-Butane	0.0356062*	0.0353500	0.153768
Isopentane	0.0403171*	0.0405891	0.0796490
n-Pentane	0.0403340*	0.0407072	0.0600757
Hexane	0.108239*	0.109806	0.0474762
Benzene	0.0117693*	0.0119415	0.00483651
Cyclohexane	0*	0	0
Heptane	0.242615*	0.246496	0.0325831
Toluene	0.0498422*	0.0506452	0.00572689
Octane	0.267578*	0.271996	0.0104520
m-Xylene	0.0330826*	0.0336298	0.00114544
Nonane	0.0614611*	0.0624857	0.000714820
2,2,4-Trimethylpentane	0.00122650*	0.00124608	0.000176234
C10	0.0322814*	0.0328212	0.000118981
Ethylbenzene	0.00369236*	0.00375339	0.000134655
Mass Flow	**lb/h**	**lb/h**	**lb/h**
Nitrogen	0.223194*	0.0330952	0.0246102
Carbon Dioxide	3.61713*	2.21949	1.52380
Methane	22.1459*	8.12043	5.90761
Ethane	22.8728*	17.7186	10.9962
Propane	50.4801*	46.4145	19.7895
Isobutane	29.9297*	28.9164	7.12152
n-Butane	63.9662*	62.4599	11.5651
Isopentane	72.4295*	71.7169	5.99052
n-Pentane	72.4597*	71.9255	4.51838
Hexane	194.450*	194.016	3.57076
Benzene	21.1434*	21.0995	0.363761
Cyclohexane	0*	0	0
Heptane	435.856*	435.534	2.45062
Toluene	89.5411*	89.4849	0.430728
Octane	480.702*	480.589	0.786112
m-Xylene	59.4326*	59.4204	0.0861504
Nonane	110.414*	110.406	0.0537627
2,2,4-Trimethylpentane	2.20341*	2.20169	0.0132548
C10	57.9932*	57.9917	0.00894873
Ethylbenzene	6.63330*	6.63187	0.0101276

Process Streams		Captured Tank Flash Vapors (25%)	Condensate Truck Loading	FG from Tanks	FG Recycled to Fulcher
Properties	**Status:**	Solved	Solved	Solved	Solved
Phase: **Total**	**From Block:**	EVRU	Condensate Storage Tank	Condensate Storage Tank	Flash Vessel
	To Block:	--	--	EVRU	--
Property	**Units**				
Temperature	°F	65	65	65*	80
Pressure	psia	11.9	11.9	11.9*	110
Mole Fraction Vapor		1	0	1	1
Mole Fraction Light Liquid		0	1	0	0
Mole Fraction Heavy Liquid		0	0	0	0
Molecular Weight	lb/lbmol	42.5162	96.0009	42.5162	23.7186
Mass Density	lb/ft^3	0.0910137	43.5334	0.0910137	0.466021
Molar Flow	lbmol/h	0.589670	17.3604	2.35868	1.24768
Mass Flow	lb/h	25.0705	1666.62	100.282	29.5933
Vapor Volumetric Flow	ft^3/h	275.459	38.2837	1101.83	63.5022
Liquid Volumetric Flow	gpm	34.3429	4.77303	137.372	7.91716
Std Vapor Volumetric Flow	MMSCFD	0.00537049	0.158112	0.0214820	0.0113634
Std Liquid Volumetric Flow	sgpm	0.101184	4.79442*	0.404736	0.157915
Compressibility		0.987290	0.00466069	0.987290	0.966686
Specific Gravity		1.46797	0.697997	1.46797	0.818940
API Gravity			70.5105		
Enthalpy	Btu/h	-28053.3	-1.45611E+06	-112213	-48070.7
Mass Enthalpy	Btu/lb	-1118.98	-873.691	-1118.98	-1624.37
Mass Cp	Btu/(lb*°F)	0.401948	0.504728	0.401948	0.469460
Ideal Gas CpCv Ratio		1.13240	1.05850	1.13240	1.22547
Dynamic Viscosity	cP	0.00844620	0.410362	0.00844620	0.0106496
Kinematic Viscosity	cSt	5.79340	0.588470	5.79340	1.42661
Thermal Conductivity	Btu/(h*ft*°F)	0.0110781	0.0723474	0.0110781	0.0168813
Surface Tension	lbf/ft		0.00141778?		
Net Ideal Gas Heating Value	Btu/ft^3	2184.29	4844.58	2184.29	1226.65
Net Liquid Heating Value	Btu/lb	19352.1	18989.2	19352.1	19548.3
Gross Ideal Gas Heating Value	Btu/ft^3	2374.76	5213.61	2374.76	1348.67
Gross Liquid Heating Value	Btu/lb	21052.2	20447.9	21052.2	21500.5

Process Streams		Inlet Liquids	Liquids to tanks	Uncaptured Tank Flash Vapors (75%)
Properties	**Status:**	**Solved**	**Solved**	**Solved**
Phase: **Total**	**From Block:**	**--**	**Flash Vessel**	**EVRU**
	To Block:	**Flash Vessel**	**Condensate Storage Tank**	**--**
Property	**Units**			
Temperature	°F	60*	80*	65
Pressure	psia	331.9*	110*	11.9
Mole Fraction Vapor		0	0	1
Mole Fraction Light Liquid		1	1	0
Mole Fraction Heavy Liquid		0	0	0
Molecular Weight	lb/lbmol	85.6828	89.6034	42.5162
Mass Density	lb/ft^3	42.7432	42.4268	0.0910137
Molar Flow	lbmol/h	20.9668	19.7191	1.76901
Mass Flow	lb/h	1796.49	1766.90	75.2115
Vapor Volumetric Flow	ft^3/h	42.0300	41.6458	826.376
Liquid Volumetric Flow	gpm	5.24010	5.19221	103.029
Std Vapor Volumetric Flow	MMSCFD	0.190958	0.179594	0.0161115
Std Liquid Volumetric Flow	sgpm	5.35707	5.19915	0.303552
Compressibility		0.119301	0.0401130	0.987290
Specific Gravity		0.685327	0.680255	1.46797
API Gravity		74.9708	73.4031	
Enthalpy	Btu/h	-1.63926E+06	-1.56984E+06	-84159.9
Mass Enthalpy	Btu/lb	-912.477	-888.474	-1118.98
Mass Cp	Btu/(lb*°F)	0.510195	0.519980	0.401948
Ideal Gas CpCv Ratio		1.06605	1.06119	1.13240
Dynamic Viscosity	cP	0.349775	0.332812	0.00844620
Kinematic Viscosity	cSt	0.510860	0.489708	5.79340
Thermal Conductivity	Btu/(h*ft*°F)	0.0712908	0.0697053	0.0110781
Surface Tension	lbf/ft	0.00116573	0.00123630	
Net Ideal Gas Heating Value	Btu/ft^3	4330.01	4526.37	2184.29
Net Liquid Heating Value	Btu/lb	19018.6	19009.8	19352.1
Gross Ideal Gas Heating Value	Btu/ft^3	4664.26	4874.05	2374.76
Gross Liquid Heating Value	Btu/lb	20499.0	20482.2	21052.2

Process Streams		Captured Tank Flash Vapors (25%)	Condensate Truck Loading	FG from Tanks	FG Recycled to Fulcher
Composition	**Status:**	**Solved**	**Solved**	**Solved**	**Solved**
Phase: **Vapor**	**From Block:**	**EVRU**	**Condensate Storage Tank**	**Condensate Storage Tank**	**Flash Vessel**
	To Block:	**--**	**--**	**EVRU**	**--**
Mole Fraction					
Nitrogen		0.000496614		0.000496614	0.00543886
Carbon Dioxide		0.0195727		0.0195727	0.0254534
Methane		0.208166		0.208166	0.700715
Ethane		0.206726		0.206726	0.137383
Propane		0.253693		0.253693	0.0738966
Isobutane		0.0692628		0.0692628	0.0139736
n-Butane		0.112481		0.112481	0.0207721
Isopentane		0.0469359		0.0469359	0.00791586
n-Pentane		0.0354017		0.0354017	0.00593451
Hexane		0.0234232		0.0234232	0.00403655
Benzene		0.00263250		0.00263250	0.000451105
Cyclohexane		0		0	0
Heptane		0.0138252		0.0138252	0.00257418
Toluene		0.00264260		0.00264260	0.000489120
Octane		0.00389027		0.00389027	0.000790585
m-Xylene		0.000458718		0.000458718	9.21087E-05
Nonane		0.000236961		0.000236961	5.21947E-05
2,2,4-Trimethylpentane		6.55946E-05		6.55946E-05	1.20274E-05
C10		3.55535E-05		3.55535E-05	8.60600E-06
Ethylbenzene		5.39256E-05		5.39256E-05	1.08341E-05
Molar Flow		**lbmol/h**	**lbmol/h**	**lbmol/h**	**lbmol/h**
Nitrogen		0.000292838		0.00117135	0.00678598
Carbon Dioxide		0.0115414		0.0461657	0.0317578
Methane		0.122750		0.490998	0.874270
Ethane		0.121900		0.487600	0.171410
Propane		0.149595		0.598381	0.0921996
Isobutane		0.0408422		0.163369	0.0174346
n-Butane		0.0663264		0.265306	0.0259170
Isopentane		0.0276767		0.110707	0.00987648
n-Pentane		0.0208753		0.0835012	0.00740439
Hexane		0.0138120		0.0552480	0.00503633
Benzene		0.00155231		0.00620923	0.000562836
Cyclohexane		0		0	0
Heptane		0.00815228		0.0326091	0.00321176
Toluene		0.00155826		0.00623306	0.000610267
Octane		0.00229397		0.00917590	0.000986399
m-Xylene		0.000270492		0.00108197	0.000114922
Nonane		0.000139729		0.000558914	6.51224E-05
2,2,4-Trimethylpentane		3.86792E-05		0.000154717	1.50063E-05
C10		2.09648E-05		8.38593E-05	1.07376E-05
Ethylbenzene		3.17983E-05		0.000127193	1.35175E-05

Process Streams		Inlet Liquids	Liquids to tanks	Uncaptured Tank Flash Vapors (75%)
Composition	**Status:**	**Solved**	**Solved**	**Solved**
Phase: **Vapor**	**From Block:**	**--**	**Flash Vessel**	**EVRU**
	To Block:	**Flash Vessel**	**Condensate Storage Tank**	**--**
Mole Fraction				
Nitrogen				0.000496614
Carbon Dioxide				0.0195727
Methane				0.208166
Ethane				0.206726
Propane				0.253693
Isobutane				0.0692628
n-Butane				0.112481
Isopentane				0.0469359
n-Pentane				0.0354017
Hexane				0.0234232
Benzene				0.00263250
Cyclohexane				0
Heptane				0.0138252
Toluene				0.00264260
Octane				0.00389027
m-Xylene				0.000458718
Nonane				0.000236961
2,2,4-Trimethylpentane				6.55946E-05
C10				3.55535E-05
Ethylbenzene				5.39256E-05
Molar Flow		**lbmol/h**	**lbmol/h**	**lbmol/h**
Nitrogen				0.000878515
Carbon Dioxide				0.0346243
Methane				0.368249
Ethane				0.365700
Propane				0.448786
Isobutane				0.122527
n-Butane				0.198979
Isopentane				0.0830301
n-Pentane				0.0626259
Hexane				0.0414360
Benzene				0.00465693
Cyclohexane				0
Heptane				0.0244569
Toluene				0.00467479
Octane				0.00688192
m-Xylene				0.000811476
Nonane				0.000419186
2,2,4-Trimethylpentane				0.000116037
C10				6.28945E-05
Ethylbenzene				9.53949E-05

Mass Fraction				
Nitrogen	0.000327213		0.000327213	0.00642369
Carbon Dioxide	0.0202602		0.0202602	0.0472283
Methane	0.0785467		0.0785467	0.473939
Ethane	0.146204		0.146204	0.174165
Propane	0.263118		0.263118	0.137382
Isobutane	0.0946866		0.0946866	0.0342420
n-Butane	0.153768		0.153768	0.0509017
Isopentane	0.0796490		0.0796490	0.0240789
n-Pentane	0.0600757		0.0600757	0.0180520
Hexane	0.0474762		0.0474762	0.0146657
Benzene	0.00483651		0.00483651	0.00148561
Cyclohexane	0		0	0
Heptane	0.0325831		0.0325831	0.0108749
Toluene	0.00572689		0.00572689	0.00190006
Octane	0.0104520		0.0104520	0.00380744
m-Xylene	0.00114544		0.00114544	0.000412280
Nonane	0.000714820		0.000714820	0.000282235
2,2,4-Trimethylpentane	0.000176234		0.000176234	5.79235E-05
C10	0.000118981		0.000118981	5.16251E-05
Ethylbenzene	0.000134655		0.000134655	4.84936E-05
Mass Flow	**lb/h**	**lb/h**	**lb/h**	**lb/h**
Nitrogen	0.00820340		0.0328136	0.190098
Carbon Dioxide	0.507932		2.03173	1.39764
Methane	1.96920		7.87682	14.0254
Ethane	3.66542		14.6617	5.15413
Propane	6.59649		26.3860	4.06560
Isobutane	2.37384		9.49536	1.01334
n-Butane	3.85504		15.4202	1.50635
Isopentane	1.99684		7.98736	0.712576
n-Pentane	1.50613		6.02451	0.534218
Hexane	1.19025		4.76101	0.434008
Benzene	0.121254		0.485015	0.0439641
Cyclohexane	0		0	0
Heptane	0.816875		3.26750	0.321825
Toluene	0.143576		0.574304	0.0562290
Octane	0.262037		1.04815	0.112675
m-Xylene	0.0287168		0.114867	0.0122007
Nonane	0.0179209		0.0716836	0.00835229
2,2,4-Trimethylpentane	0.00441826		0.0176731	0.00171415
C10	0.00298291		0.0119316	0.00152776
Ethylbenzene	0.00337587		0.0135035	0.00143509

Mass Fraction				
Nitrogen				0.000327213
Carbon Dioxide				0.0202602
Methane				0.0785467
Ethane				0.146204
Propane				0.263118
Isobutane				0.0946866
n-Butane				0.153768
Isopentane				0.0796490
n-Pentane				0.0600757
Hexane				0.0474762
Benzene				0.00483651
Cyclohexane				0
Heptane				0.0325831
Toluene				0.00572689
Octane				0.0104520
m-Xylene				0.00114544
Nonane				0.000714820
2,2,4-Trimethylpentane				0.000176234
C10				0.000118981
Ethylbenzene				0.000134655
Mass Flow	**lb/h**	**lb/h**	**lb/h**	
Nitrogen				0.0246102
Carbon Dioxide				1.52380
Methane				5.90761
Ethane				10.9962
Propane				19.7895
Isobutane				7.12152
n-Butane				11.5651
Isopentane				5.99052
n-Pentane				4.51838
Hexane				3.57076
Benzene				0.363761
Cyclohexane				0
Heptane				2.45062
Toluene				0.430728
Octane				0.786112
m-Xylene				0.0861504
Nonane				0.0537627
2,2,4-Trimethylpentane				0.0132548
C10				0.00894873
Ethylbenzene				0.0101276

Process Streams		Captured Tank Flash Vapors (25%)	Condensate Truck Loading	FG from Tanks	FG Recycled to Fulcher
Properties	**Status:**	Solved	Solved	Solved	Solved
Phase: **Vapor**	**From Block:**	EVRU	Condensate Storage Tank	Condensate Storage Tank	Flash Vessel
	To Block:	--	--	EVRU	--
Property	**Units**				
Temperature	°F	65		65	80
Pressure	psia	11.9		11.9	110
Mole Fraction Vapor		1		1	1
Mole Fraction Light Liquid		0		0	0
Mole Fraction Heavy Liquid		0		0	0
Molecular Weight	lb/lbmol	42.5162		42.5162	23.7186
Mass Density	lb/ft^3	0.0910137		0.0910137	0.466021
Molar Flow	lbmol/h	0.589670		2.35868	1.24768
Mass Flow	lb/h	25.0705		100.282	29.5933
Vapor Volumetric Flow	ft^3/h	275.459		1101.83	63.5022
Liquid Volumetric Flow	gpm	34.3429		137.372	7.91716
Std Vapor Volumetric Flow	MMSCFD	0.00537049		0.0214820	0.0113634
Std Liquid Volumetric Flow	sgpm	0.101184		0.404736	0.157915
Compressibility		0.987290		0.987290	0.966686
Specific Gravity		1.46797		1.46797	0.818940
API Gravity					
Enthalpy	Btu/h	-28053.3		-112213	-48070.7
Mass Enthalpy	Btu/lb	-1118.98		-1118.98	-1624.37
Mass Cp	Btu/(lb*°F)	0.401948		0.401948	0.469460
Ideal Gas CpCv Ratio		1.13240		1.13240	1.22547
Dynamic Viscosity	cP	0.00844620		0.00844620	0.0106496
Kinematic Viscosity	cSt	5.79340		5.79340	1.42661
Thermal Conductivity	Btu/(h*ft*°F)	0.0110781		0.0110781	0.0168813
Surface Tension	lbf/ft				
Net Ideal Gas Heating Value	Btu/ft^3	2184.29		2184.29	1226.65
Net Liquid Heating Value	Btu/lb	19352.1		19352.1	19548.3
Gross Ideal Gas Heating Value	Btu/ft^3	2374.76		2374.76	1348.67
Gross Liquid Heating Value	Btu/lb	21052.2		21052.2	21500.5

Process Streams		Inlet Liquids	Liquids to tanks	Uncaptured Tank Flash Vapors (75%)
Properties	**Status:**	**Solved**	**Solved**	**Solved**
Phase: **Vapor**	**From Block:**	**--**	**Flash Vessel**	**EVRU**
	To Block:	**Flash Vessel**	**Condensate Storage Tank**	**--**
Property	**Units**			
Temperature	°F			65
Pressure	psia			11.9
Mole Fraction Vapor				1
Mole Fraction Light Liquid				0
Mole Fraction Heavy Liquid				0
Molecular Weight	lb/lbmol			42.5162
Mass Density	lb/ft^3			0.0910137
Molar Flow	lbmol/h			1.76901
Mass Flow	lb/h			75.2115
Vapor Volumetric Flow	ft^3/h			826.376
Liquid Volumetric Flow	gpm			103.029
Std Vapor Volumetric Flow	MMSCFD			0.0161115
Std Liquid Volumetric Flow	sgpm			0.303552
Compressibility				0.987290
Specific Gravity				1.46797
API Gravity				
Enthalpy	Btu/h			-84159.9
Mass Enthalpy	Btu/lb			-1118.98
Mass Cp	Btu/(lb*°F)			0.401948
Ideal Gas CpCv Ratio				1.13240
Dynamic Viscosity	cP			0.00844620
Kinematic Viscosity	cSt			5.79340
Thermal Conductivity	Btu/(h*ft*°F)			0.0110781
Surface Tension	lbf/ft			
Net Ideal Gas Heating Value	Btu/ft^3			2184.29
Net Liquid Heating Value	Btu/lb			19352.1
Gross Ideal Gas Heating Value	Btu/ft^3			2374.76
Gross Liquid Heating Value	Btu/lb			21052.2

Process Streams		Captured Tank Flash Vapors (25%)	Condensate Truck Loading	FG from Tanks	FG Recycled to Fulcher
Composition	**Status:**	**Solved**	**Solved**	**Solved**	**Solved**
Phase: **Light Liquid**	**From Block:**	**EVRU**	**Condensate Storage Tank**	**Condensate Storage Tank**	**Flash Vessel**
	To Block:	**--**	**--**	**EVRU**	**--**
Mole Fraction					
Nitrogen			5.79014E-07		
Carbon Dioxide			0.000245753		
Methane			0.000874726		
Ethane			0.00585617		
Propane			0.0261633		
Isobutane			0.0192473		
n-Butane			0.0466189		
Isopentane			0.0508805		
n-Pentane			0.0526141		
Hexane			0.126504		
Benzene			0.0152018		
Cyclohexane			0		
Heptane			0.248493		
Toluene			0.0555843		
Octane			0.241819		
m-Xylene			0.0321776		
Nonane			0.0495536		
2,2,4-Trimethylpentane			0.00110134		
C10			0.0234729		
Ethylbenzene			0.00359094		
Molar Flow		**lbmol/h**	**lbmol/h**	**lbmol/h**	**lbmol/h**
Nitrogen			1.00519E-05		
Carbon Dioxide			0.00426639		
Methane			0.0151856		
Ethane			0.101666		
Propane			0.454207		
Isobutane			0.334141		
n-Butane			0.809325		
Isopentane			0.883307		
n-Pentane			0.913404		
Hexane			2.19616		
Benzene			0.263909		
Cyclohexane			0		
Heptane			4.31395		
Toluene			0.964968		
Octane			4.19808		
m-Xylene			0.558617		
Nonane			0.860273		
2,2,4-Trimethylpentane			0.0191197		
C10			0.407500		
Ethylbenzene			0.0623404		

Process Streams		Inlet Liquids	Liquids to tanks	Uncaptured Tank Flash Vapors (75%)
Composition	**Status:**	**Solved**	**Solved**	**Solved**
Phase: **Light Liquid**	**From Block:**	**--**	**Flash Vessel**	**EVRU**
	To Block:	**Flash Vessel**	**Condensate Storage Tank**	**--**
Mole Fraction				
Nitrogen		0.00038	5.99117E-05	
Carbon Dioxide		0.00392	0.00255752	
Methane		0.06584	0.0256697	
Ethane		0.03628	0.0298830	
Propane		0.0546	0.0533790	
Isobutane		0.02456	0.0252298	
n-Butane		0.05249	0.0544969	
Isopentane		0.04788	0.0504086	
n-Pentane		0.0479	0.0505553	
Hexane		0.10762	0.114174	
Benzene		0.01291	0.0136983	
Cyclohexane		0	0	
Heptane		0.20746	0.220424	
Toluene		0.04635	0.0492517	
Octane		0.20071	0.213359	
m-Xylene		0.0267	0.0283836	
Nonane		0.04106	0.0436547	
2,2,4-Trimethylpentane		0.00092	0.000977450	
C10		0.01944	0.0206695	
Ethylbenzene		0.00298	0.00316787	
Molar Flow		**lbmol/h**	**lbmol/h**	**lbmol/h**
Nitrogen		0.00796738	0.00118141	
Carbon Dioxide		0.0821899	0.0504321	
Methane		1.38045	0.506184	
Ethane		0.760676	0.589266	
Propane		1.14479	1.05259	
Isobutane		0.514945	0.497510	
n-Butane		1.10055	1.07463	
Isopentane		1.00389	0.994014	
n-Pentane		1.00431	0.996905	
Hexane		2.25645	2.25141	
Benzene		0.270681	0.270119	
Cyclohexane		0	0	
Heptane		4.34977	4.34656	
Toluene		0.971811	0.971201	
Octane		4.20825	4.20726	
m-Xylene		0.559814	0.559699	
Nonane		0.860897	0.860832	
2,2,4-Trimethylpentane		0.0192895	0.0192744	
C10		0.407595	0.407584	
Ethylbenzene		0.0624811	0.0624675	

Mass Fraction				
Nitrogen		1.68958E-07		
Carbon Dioxide		0.000112660		
Methane		0.000146173		
Ethane		0.00183425		
Propane		0.0120175		
Isobutane		0.0116530		
n-Butane		0.0282247		
Isopentane		0.0382388		
n-Pentane		0.0395418		
Hexane		0.113556		
Benzene		0.0123690		
Cyclohexane		0		
Heptane		0.259367		
Toluene		0.0533479		
Octane		0.287733		
m-Xylene		0.0355844		
Nonane		0.0662026		
2,2,4-Trimethylpentane		0.00131045		
C10		0.0347889		
Ethylbenzene		0.00397113		
Mass Flow	**lb/h**	**lb/h**	**lb/h**	**lb/h**
Nitrogen		0.000281589		
Carbon Dioxide		0.187762		
Methane		0.243615		
Ethane		3.05699		
Propane		20.0285		
Isobutane		19.4210		
n-Butane		47.0397		
Isopentane		63.7295		
n-Pentane		65.9010		
Hexane		189.255		
Benzene		20.6144		
Cyclohexane		0		
Heptane		432.266		
Toluene		88.9106		
Octane		479.541		
m-Xylene		59.3055		
Nonane		110.334		
2,2,4-Trimethylpentane		2.18402		
C10		57.9798		
Ethylbenzene		6.61836		

Mass Fraction			
Nitrogen	0.000124238	1.87306E-05	
Carbon Dioxide	0.00201344	0.00125615	
Methane	0.0123273	0.00459586	
Ethane	0.0127319	0.0100281	
Propane	0.0280992	0.0262689	
Isobutane	0.0166601	0.0163656	
n-Butane	0.0356062	0.0353500	
Isopentane	0.0403171	0.0405891	
n-Pentane	0.0403340	0.0407072	
Hexane	0.108239	0.109806	
Benzene	0.0117693	0.0119415	
Cyclohexane	0	0	
Heptane	0.242615	0.246496	
Toluene	0.0498422	0.0506452	
Octane	0.267578	0.271996	
m-Xylene	0.0330826	0.0336298	
Nonane	0.0614611	0.0624857	
2,2,4-Trimethylpentane	0.00122650	0.00124608	
C10	0.0322814	0.0328212	
Ethylbenzene	0.00369236	0.00375339	
Mass Flow	**lb/h**	**lb/h**	**lb/h**
Nitrogen	0.223194	0.0330952	
Carbon Dioxide	3.61713	2.21949	
Methane	22.1459	8.12043	
Ethane	22.8728	17.7186	
Propane	50.4801	46.4145	
Isobutane	29.9297	28.9164	
n-Butane	63.9662	62.4599	
Isopentane	72.4295	71.7169	
n-Pentane	72.4597	71.9255	
Hexane	194.450	194.016	
Benzene	21.1434	21.0995	
Cyclohexane	0	0	
Heptane	435.856	435.534	
Toluene	89.5411	89.4849	
Octane	480.702	480.589	
m-Xylene	59.4326	59.4204	
Nonane	110.414	110.406	
2,2,4-Trimethylpentane	2.20341	2.20169	
C10	57.9932	57.9917	
Ethylbenzene	6.63330	6.63187	

Process Streams		Captured Tank Flash Vapors (25%)	Condensate Truck Loading	FG from Tanks	FG Recycled to Fulcher
Properties	**Status:**	Solved	Solved	Solved	Solved
Phase: Light Liquid	**From Block:**	EVRU	Condensate Storage Tank	Condensate Storage Tank	Flash Vessel
	To Block:	--	--	EVRU	--
Property	**Units**				
Temperature	°F		65		
Pressure	psia		11.9		
Mole Fraction Vapor			0		
Mole Fraction Light Liquid			1		
Mole Fraction Heavy Liquid			0		
Molecular Weight	lb/lbmol		96.0009		
Mass Density	lb/ft^3		43.5334		
Molar Flow	lbmol/h		17.3604		
Mass Flow	lb/h		1666.62		
Vapor Volumetric Flow	ft^3/h		38.2837		
Liquid Volumetric Flow	gpm		4.77303		
Std Vapor Volumetric Flow	MMSCFD		0.158112		
Std Liquid Volumetric Flow	sgpm		4.79442		
Compressibility			0.00466069		
Specific Gravity			0.697997		
API Gravity			70.5105		
Enthalpy	Btu/h		-1.45611E+06		
Mass Enthalpy	Btu/lb		-873.691		
Mass Cp	Btu/(lb*°F)		0.504728		
Ideal Gas CpCv Ratio			1.05850		
Dynamic Viscosity	cP		0.410362		
Kinematic Viscosity	cSt		0.588470		
Thermal Conductivity	Btu/(h*ft*°F)		0.0723474		
Surface Tension	lbf/ft		0.00141778?		
Net Ideal Gas Heating Value	Btu/ft^3		4844.58		
Net Liquid Heating Value	Btu/lb		18989.2		
Gross Ideal Gas Heating Value	Btu/ft^3		5213.61		
Gross Liquid Heating Value	Btu/lb		20447.9		

Process Streams		Inlet Liquids	Liquids to tanks	Uncaptured Tank Flash Vapors (75%)
Properties	**Status:**	**Solved**	**Solved**	**Solved**
Phase: **Light Liquid**	**From Block:**	**--**	**Flash Vessel**	**EVRU**
	To Block:	**Flash Vessel**	**Condensate Storage Tank**	**--**
Property	**Units**			
Temperature	°F	60	80	
Pressure	psia	331.9	110	
Mole Fraction Vapor		0	0	
Mole Fraction Light Liquid		1	1	
Mole Fraction Heavy Liquid		0	0	
Molecular Weight	lb/lbmol	85.6828	89.6034	
Mass Density	lb/ft^3	42.7432	42.4268	
Molar Flow	lbmol/h	20.9668	19.7191	
Mass Flow	lb/h	1796.49	1766.90	
Vapor Volumetric Flow	ft^3/h	42.0300	41.6458	
Liquid Volumetric Flow	gpm	5.24010	5.19221	
Std Vapor Volumetric Flow	MMSCFD	0.190958	0.179594	
Std Liquid Volumetric Flow	sgpm	5.35707	5.19915	
Compressibility		0.119301	0.0401130	
Specific Gravity		0.685327	0.680255	
API Gravity		74.9708	73.4031	
Enthalpy	Btu/h	-1.63926E+06	-1.56984E+06	
Mass Enthalpy	Btu/lb	-912.477	-888.474	
Mass Cp	Btu/(lb*°F)	0.510195	0.519980	
Ideal Gas CpCv Ratio		1.06605	1.06119	
Dynamic Viscosity	cP	0.349775	0.332812	
Kinematic Viscosity	cSt	0.510860	0.489708	
Thermal Conductivity	Btu/(h*ft*°F)	0.0712908	0.0697053	
Surface Tension	lbf/ft	0.00116573	0.00123630	
Net Ideal Gas Heating Value	Btu/ft^3	4330.01	4526.37	
Net Liquid Heating Value	Btu/lb	19018.6	19009.8	
Gross Ideal Gas Heating Value	Btu/ft^3	4664.26	4874.05	
Gross Liquid Heating Value	Btu/lb	20499.0	20482.2	

Storage Tank Emissions Calculations

Unit Number: T6
Description: Produced Water Tank

Throughput

45	bbl/turnover	Tank capacity	Harvest Four Corners, LLC
130	turnover/yr	Turnovers per year	Harvest Four Corners, LLC
5,870	bbl/yr	Annual liquid throughput	bbl/turnover x turnover/yr

Emission Rates

Pollutant	Emission Factor, lb/bbl	Uncontrolled, Emission Rate, tpy
VOC	0.262	7.69E-01
Benzene	0.007	2.05E-02
Ethylbenzene	0.0007	2.05E-03
n-Hexane	0.022	6.46E-02
Toluene	0.009	2.64E-02
Xylene	0.006	1.76E-02

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

Produced Water Storage Tank Emissions Calculations AOS

Unit Number: T6 (AOS)
Description: Produced Water Tank

Throughput

45	bbl/turnover	Tank capacity	Harvest Four Corners, LLC
174	turnover/yr	Turnovers per year	Harvest Four Corners, LLC
7,827	bbl/yr	Annual liquid throughput	bbl/turnover x turnover/yr

Emission Rates

Pollutant	Emission Factor, lb/bbl	Uncontrolled, Emission Rate, tpy
VOC	0.262	1.03
Benzene	0.007	2.74E-02
Ethylbenzene	0.0007	2.74E-03
n-Hexane	0.022	8.61E-02
Toluene	0.009	3.52E-02
Xylene	0.006	2.35E-02

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

Storage Tank Emissions Calculations

Unit Number: T12
Description: Produced Water Tank

Throughput

70	bbl/turnover	Tank capacity	Harvest Four Corners, LLC
130	turnover/yr	Turnovers per year	Harvest Four Corners, LLC
9,130	bbl/yr	Annual liquid throughput	bbl/turnover x turnover/yr

Emission Rates

Pollutant	Emission Factor, lb/bbl	Uncontrolled, Emission Rate, tpy
VOC	0.262	1.20
Benzene	0.007	3.20E-02
Ethylbenzene	0.0007	3.20E-03
n-Hexane	0.022	1.00E-01
Toluene	0.009	4.11E-02
Xylene	0.006	2.74E-02

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

Produced Water Storage Tank Emissions Calculations AOS

Unit Number: T12 (AOS)
Description: Produced Water Tank

Throughput

70	bbl/turnover	Tank capacity	Williams Four Corners LLC
174	turnover/yr	Turnovers per year	Williams Four Corners LLC
12,173	bbl/yr	Annual liquid throughput	bbl/turnover x turnover/yr

Emission Rates

Pollutant	Emission Factor, lb/bbl	Uncontrolled, Emission Rate, tpy
VOC	0.262	1.59
Benzene	0.007	4.26E-02
Ethylbenzene	0.0007	4.26E-03
n-Hexane	0.022	1.34E-01
Toluene	0.009	5.48E-02
Xylene	0.006	3.65E-02

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

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

Identification

User Identification:	Chaco T4 (Condensate)
City:	Bloomfield
State:	New Mexico
Company:	Williams Four Corners LLC
Type of Tank:	Vertical Fixed Roof Tank
Description:	21,000 Gallon Condensate Storage Tank

Tank Dimensions

Shell Height (ft):	16.00
Diameter (ft):	15.00
Liquid Height (ft) :	15.00
Avg. Liquid Height (ft):	7.50
Volume (gallons):	19,828.82
Turnovers:	50.17
Net Throughput(gal/yr):	994,737.00
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:	Dome
Height (ft)	0.00
Radius (ft) (Dome Roof)	15.00

Breather Vent Settings

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

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

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

Chaco T4 (Condensate) - Vertical Fixed Roof Tank
Bloomfield, New Mexico

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Condensate	All	64.94	53.24	76.64	58.39	4.4090	3.4776	5.5241	65.6443			97.09	
2,2,4-Trimethylpentane (isooctane)						0.6857	0.4887	0.9450	114.2300	0.0013	0.0003	114.23	Option 2: A=6.8118, B=1257.84, C=220.74
Benzene						1.3372	0.9653	1.8208	78.1100	0.0124	0.0056	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Butane (-n)						28.6734	23.0445	35.2667	58.1230	0.0343	0.3300	58.12	Option 1: VP60 = 26.1 VP70 = 31.31
Decane (-n)						0.0374	0.0286	0.0489	142.2900	0.0349	0.0004	142.29	Option 1: VP60 = .033211 VP70 = .041762
Ethylbenzene						0.1286	0.0854	0.1894	106.1700	0.0040	0.0002	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Heptane (-n)						0.7080	0.4981	0.9910	100.2000	0.2599	0.0617	100.20	Option 3: A=37358, B=8.2585
Hexane (-n)						2.1727	1.6003	2.9030	86.1700	0.1138	0.0829	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Isobutane						41.6075	33.9758	50.4378	58.1230	0.0177	0.2470	58.12	Option 1: VP60 = 38.14 VP70 = 45.16
Isopentane						11.2522	8.5746	14.3915	72.1500	0.0383	0.1446	72.15	Option 1: VP60 = 10.005 VP70 = 12.53
Nonane (-n)						0.0741	0.0558	0.0981	128.2600	0.0663	0.0016	128.26	Option 1: VP60 = .065278 VP70 = .08309
Octane (-n)						0.1666	0.1231	0.2250	114.2300	0.2883	0.0161	114.23	Option 1: VP60 = .145444 VP70 = .188224
Pentane (-n)						7.6199	5.8716	9.7769	72.1500	0.0396	0.1013	72.15	Option 3: A=27691, B=7.558
Toluene						0.3844	0.2666	0.5435	92.1300	0.0535	0.0069	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylenes (mixed isomers)						0.1073	0.0710	0.1586	106.1700	0.0357	0.0013	106.17	Option 2: A=7.009, B=1462.266, C=215.11

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

Chaco T4 (Condensate) - Vertical Fixed Roof Tank
Bloomfield, New Mexico

Annual Emission Calcaulations

Standing Losses (lb):	3,386.3521
Vapor Space Volume (cu ft):	1,683.8880
Vapor Density (lb/cu ft):	0.0514
Vapor Space Expansion Factor:	0.3458
Vented Vapor Saturation Factor:	0.3099
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,683.8880
Tank Diameter (ft):	15.0000
Vapor Space Outage (ft):	9.5289
Tank Shell Height (ft):	16.0000
Average Liquid Height (ft):	7.5000
Roof Outage (ft):	1.0289
Roof Outage (Dome Roof)	
Roof Outage (ft):	1.0289
Dome Radius (ft):	15.0000
Shell Radius (ft):	7.5000
Vapor Density	
Vapor Density (lb/cu ft):	0.0514
Vapor Molecular Weight (lb/lb-mole):	65.6443
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.4090
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:	0.3458
Daily Vapor Temperature Range (deg. R):	46.7976
Daily Vapor Pressure Range (psia):	2.0465
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.4090
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	3.4776
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	5.5241
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:	0.3099
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	4.4090
Vapor Space Outage (ft):	9.5289

Working Losses (lb):	5,241.4594
Vapor Molecular Weight (lb/lb-mole):	65.6443
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.4090
Annual Net Throughput (gal/yr.):	994,737.0000
Annual Turnovers:	50.1700
Turnover Factor:	0.7646
Maximum Liquid Volume (gal):	19,828.8200
Maximum Liquid Height (ft):	15.0000
Tank Diameter (ft):	15.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	8,627.8115

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

Emissions Report for: Annual

Chaco T4 (Condensate) - Vertical Fixed Roof Tank
Bloomfield, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Condensate	5,241.46	3,386.35	8,627.81
Isobutane	1,294.81	836.54	2,131.35
Butane (-n)	1,729.51	1,117.38	2,846.89
Isopentane	758.12	489.80	1,247.92
Pentane (-n)	530.89	342.99	873.88
Hexane (-n)	434.71	280.85	715.56
Heptane (-n)	323.56	209.04	532.61
Octane (-n)	84.45	54.56	139.01
Nonane (-n)	8.64	5.58	14.22
Decane (-n)	2.29	1.48	3.78
2,2,4-Trimethylpentane (isooctane)	1.58	1.02	2.61
Benzene	29.14	18.83	47.97
Ethylbenzene	0.90	0.58	1.48
Toluene	36.13	23.34	59.47
Xylenes (mixed isomers)	6.73	4.35	11.07

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

Identification

User Identification:	Chaco Tank T4
City:	
State:	New Mexico
Company:	
Type of Tank:	Vertical Fixed Roof Tank
Description:	Chaco condensate tank T4 500 bbl capacity 31,580 bbl/yr proportional throughput of 60,000 bpy

Tank Dimensions

Shell Height (ft):	16.00
Diameter (ft):	15.00
Liquid Height (ft) :	15.00
Avg. Liquid Height (ft):	7.50
Volume (gallons):	19,828.82
Turnovers:	66.89
Net Throughput(gal/yr):	1,326,360.00
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:	Dome
Height (ft)	0.00
Radius (ft) (Dome Roof)	15.00

Breather Vent Settings

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

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

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

Chaco Tank T4 - Vertical Fixed Roof Tank

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Chaco condensate 2018	All	64.94	53.24	76.64	58.39	4.0261	3.1543	5.0753	66.3641			97.09	
2,2,4-Trimethylpentane (isooctane)						0.6857	0.4887	0.9450	114.2300	0.0013	0.0003	114.23	Option 2: A=6.8118, B=1257.84, C=220.74
Benzene						1.3372	0.9653	1.8208	78.1100	0.0124	0.0060	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Decane (-n)						0.0374	0.0286	0.0489	142.2900	0.0349	0.0005	142.29	Option 1: VP60 = .033211 VP70 = .041762
Ethylbenzene						0.1286	0.0854	0.1894	106.1700	0.0040	0.0002	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Heptane (-n)						0.7080	0.4981	0.9910	100.2000	0.2599	0.0669	100.20	Option 3: A=37358, B=8.2585
Hexane (-n)						2.1727	1.6003	2.9030	86.1700	0.1138	0.0898	86.17	Option 2: A=6.876, B=1171.17, C=224.41
i-butane						28.6704	23.0459	35.2667	58.1300	0.0177	0.1844	58.13	Option 1: VP60 = 26.098 VP70 = 31.306
Isopentane						11.2522	8.5746	14.3915	72.1500	0.0383	0.1567	72.15	Option 1: VP60 = 10.005 VP70 = 12.53
n-butane						28.6704	23.0459	35.2667	58.1300	0.0343	0.3574	58.13	Option 1: VP60 = 26.098 VP70 = 31.306
Nonane (-n)						0.0741	0.0558	0.0981	128.2600	0.0663	0.0018	128.26	Option 1: VP60 = .065278 VP70 = .08309
Octane (-n)						0.1666	0.1231	0.2250	114.2300	0.2883	0.0175	114.23	Option 1: VP60 = .145444 VP70 = .188224
Pentane (-n)						7.6199	5.8716	9.7769	72.1500	0.0396	0.1097	72.15	Option 3: A=27691, B=7.558
Toluene						0.3844	0.2666	0.5435	92.1300	0.0535	0.0075	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylenes (mixed isomers)						0.1073	0.0710	0.1586	106.1700	0.0357	0.0014	106.17	Option 2: A=7.009, B=1462.266, C=215.11

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

Chaco Tank T4 - Vertical Fixed Roof Tank

Annual Emission Calcaulations	
Standing Losses (lb):	3,060.5348
Vapor Space Volume (cu ft):	1,683.8880
Vapor Density (lb/cu ft):	0.0475
Vapor Space Expansion Factor:	0.3182
Vented Vapor Saturation Factor:	0.3297
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,683.8880
Tank Diameter (ft):	15.0000
Vapor Space Outage (ft):	9.5289
Tank Shell Height (ft):	16.0000
Average Liquid Height (ft):	7.5000
Roof Outage (ft):	1.0289
Roof Outage (Dome Roof)	
Roof Outage (ft):	1.0289
Dome Radius (ft):	15.0000
Shell Radius (ft):	7.5000
Vapor Density	
Vapor Density (lb/cu ft):	0.0475
Vapor Molecular Weight (lb/lb-mole):	66.3641
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.0261
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:	0.3182
Daily Vapor Temperature Range (deg. R):	46.7976
Daily Vapor Pressure Range (psia):	1.9209
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.0261
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	3.1543
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	5.0753
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:	0.3297
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	4.0261
Vapor Space Outage (ft):	9.5289
Working Losses (lb):	5,190.6314
Vapor Molecular Weight (lb/lb-mole):	66.3641

Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.0261
Annual Net Throughput (gal/yr.):	1,326,360.0000
Annual Turnovers:	66.8905
Turnover Factor:	0.6152
Maximum Liquid Volume (gal):	19,828.8193
Maximum Liquid Height (ft):	15.0000
Tank Diameter (ft):	15.0000
Working Loss Product Factor:	1.0000

Total Losses (lb):	8,251.1662

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

Emissions Report for: Annual

Chaco Tank T4 - Vertical Fixed Roof Tank

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Chaco condensate 2018	5,190.63	3,060.53	8,251.17
i-butane	957.11	564.34	1,521.45
n-butane	1,855.11	1,093.82	2,948.94
Isopentane	813.26	479.52	1,292.78
Pentane (-n)	569.50	335.79	905.30
Hexane (-n)	466.33	274.96	741.29
Heptane (-n)	347.10	204.66	551.75
Octane (-n)	90.59	53.42	144.01
Nonane (-n)	9.27	5.47	14.73
Decane (-n)	2.46	1.45	3.91
2,2,4-Trimethylpentane (isooctane)	1.70	1.00	2.70
Benzene	31.26	18.43	49.70
Ethylbenzene	0.97	0.57	1.53
Toluene	38.76	22.85	61.61
Xylenes (mixed isomers)	7.22	4.26	11.47

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

Identification

User Identification:	Chaco T5 (Condensate)
City:	Bloomfield
State:	New Mexico
Company:	Williams Four Corners LLC
Type of Tank:	Vertical Fixed Roof Tank
Description:	18,900 Gallon Condensate Storage Tank

Tank Dimensions

Shell Height (ft):	15.00
Diameter (ft):	15.00
Liquid Height (ft) :	14.00
Avg. Liquid Height (ft):	7.00
Volume (gallons):	18,506.90
Turnovers:	48.37
Net Throughput(gal/yr):	895,263.00
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:	Dome
Height (ft)	0.00
Radius (ft) (Dome Roof)	15.00

Breather Vent Settings

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

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

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

Chaco T5 (Condensate) - Vertical Fixed Roof Tank
Bloomfield, New Mexico

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Condensate	All	64.94	53.24	76.64	58.39	4.4090	3.4776	5.5241	65.6443			97.09	
2,2,4-Trimethylpentane (isooctane)						0.6857	0.4887	0.9450	114.2300	0.0013	0.0003	114.23	Option 2: A=6.8118, B=1257.84, C=220.74
Benzene						1.3372	0.9653	1.8208	78.1100	0.0124	0.0056	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Butane (-n)						28.6734	23.0445	35.2667	58.1230	0.0343	0.3300	58.12	Option 1: VP60 = 26.1 VP70 = 31.31
Decane (-n)						0.0374	0.0286	0.0489	142.2900	0.0349	0.0004	142.29	Option 1: VP60 = .033211 VP70 = .041762
Ethylbenzene						0.1286	0.0854	0.1894	106.1700	0.0040	0.0002	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Heptane (-n)						0.7080	0.4981	0.9910	100.2000	0.2599	0.0617	100.20	Option 3: A=37358, B=8.2585
Hexane (-n)						2.1727	1.6003	2.9030	86.1700	0.1138	0.0829	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Isobutane						41.6075	33.9758	50.4378	58.1230	0.0177	0.2470	58.12	Option 1: VP60 = 38.14 VP70 = 45.16
Isopentane						11.2522	8.5746	14.3915	72.1500	0.0383	0.1446	72.15	Option 1: VP60 = 10.005 VP70 = 12.53
Nonane (-n)						0.0741	0.0558	0.0981	128.2600	0.0663	0.0016	128.26	Option 1: VP60 = .065278 VP70 = .08309
Octane (-n)						0.1666	0.1231	0.2250	114.2300	0.2883	0.0161	114.23	Option 1: VP60 = .145444 VP70 = .188224
Pentane (-n)						7.6199	5.8716	9.7769	72.1500	0.0396	0.1013	72.15	Option 3: A=27691, B=7.558
Toluene						0.3844	0.2666	0.5435	92.1300	0.0535	0.0069	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylenes (mixed isomers)						0.1073	0.0710	0.1586	106.1700	0.0357	0.0013	106.17	Option 2: A=7.009, B=1462.266, C=215.11

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

Chaco T5 (Condensate) - Vertical Fixed Roof Tank
Bloomfield, New Mexico

Annual Emission Calcaulations

Standing Losses (lb):	3,329.2145
Vapor Space Volume (cu ft):	1,595.5307
Vapor Density (lb/cu ft):	0.0514
Vapor Space Expansion Factor:	0.3458
Vented Vapor Saturation Factor:	0.3216
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,595.5307
Tank Diameter (ft):	15.0000
Vapor Space Outage (ft):	9.0289
Tank Shell Height (ft):	15.0000
Average Liquid Height (ft):	7.0000
Roof Outage (ft):	1.0289
Roof Outage (Dome Roof)	
Roof Outage (ft):	1.0289
Dome Radius (ft):	15.0000
Shell Radius (ft):	7.5000
Vapor Density	
Vapor Density (lb/cu ft):	0.0514
Vapor Molecular Weight (lb/lb-mole):	65.6443
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.4090
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:	0.3458
Daily Vapor Temperature Range (deg. R):	46.7976
Daily Vapor Pressure Range (psia):	2.0465
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.4090
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	3.4776
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	5.5241
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:	0.3216
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	4.4090
Vapor Space Outage (ft):	9.0289

Working Losses (lb):	4,854.5942
Vapor Molecular Weight (lb/lb-mole):	65.6443
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.4090
Annual Net Throughput (gal/yr.):	895,263.0000
Annual Turnovers:	48.3700
Turnover Factor:	0.7869
Maximum Liquid Volume (gal):	18,506.9000
Maximum Liquid Height (ft):	14.0000
Tank Diameter (ft):	15.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	8,183.8087

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

Emissions Report for: Annual

Chaco T5 (Condensate) - Vertical Fixed Roof Tank
Bloomfield, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Condensate	4,854.59	3,329.21	8,183.81
Isobutane	1,199.24	822.42	2,021.66
Butane (-n)	1,601.86	1,098.53	2,700.39
Isopentane	702.16	481.53	1,183.70
Pentane (-n)	491.70	337.20	828.91
Hexane (-n)	402.62	276.11	678.74
Heptane (-n)	299.68	205.52	505.20
Octane (-n)	78.22	53.64	131.86
Nonane (-n)	8.00	5.49	13.49
Decane (-n)	2.13	1.46	3.58
2,2,4-Trimethylpentane (isooctane)	1.47	1.01	2.47
Benzene	26.99	18.51	45.50
Ethylbenzene	0.83	0.57	1.41
Toluene	33.46	22.95	56.41
Xylenes (mixed isomers)	6.23	4.27	10.50

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

Identification

User Identification:	Chaco Tank T5
City:	
State:	New Mexico
Company:	
Type of Tank:	Vertical Fixed Roof Tank
Description:	Chaco condensate tank T5 450 bbl capacity 28,420 bbl/yr proportional throughput of 60,000 bpy

Tank Dimensions

Shell Height (ft):	15.00
Diameter (ft):	15.00
Liquid Height (ft) :	14.00
Avg. Liquid Height (ft):	7.00
Volume (gallons):	18,506.90
Turnovers:	66.89
Net Throughput(gal/yr):	1,193,640.00
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:	Dome
Height (ft)	0.00
Radius (ft) (Dome Roof)	15.00

Breather Vent Settings

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

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

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

Chaco Tank T5 - Vertical Fixed Roof Tank

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Chaco condensate 2018	All	64.94	53.24	76.64	58.39	4.0261	3.1543	5.0753	66.3641			97.09	
2,2,4-Trimethylpentane (isooctane)						0.6857	0.4887	0.9450	114.2300	0.0013	0.0003	114.23	Option 2: A=6.8118, B=1257.84, C=220.74
Benzene						1.3372	0.9653	1.8208	78.1100	0.0124	0.0060	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Decane (-n)						0.0374	0.0286	0.0489	142.2900	0.0349	0.0005	142.29	Option 1: VP60 = .033211 VP70 = .041762
Ethylbenzene						0.1286	0.0854	0.1894	106.1700	0.0040	0.0002	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Heptane (-n)						0.7080	0.4981	0.9910	100.2000	0.2599	0.0669	100.20	Option 3: A=37358, B=8.2585
Hexane (-n)						2.1727	1.6003	2.9030	86.1700	0.1138	0.0898	86.17	Option 2: A=6.876, B=1171.17, C=224.41
i-butane						28.6704	23.0459	35.2667	58.1300	0.0177	0.1844	58.13	Option 1: VP60 = 26.098 VP70 = 31.306
Isopentane						11.2522	8.5746	14.3915	72.1500	0.0383	0.1567	72.15	Option 1: VP60 = 10.005 VP70 = 12.53
n-butane						28.6704	23.0459	35.2667	58.1300	0.0343	0.3574	58.13	Option 1: VP60 = 26.098 VP70 = 31.306
Nonane (-n)						0.0741	0.0558	0.0981	128.2600	0.0663	0.0018	128.26	Option 1: VP60 = .065278 VP70 = .08309
Octane (-n)						0.1666	0.1231	0.2250	114.2300	0.2883	0.0175	114.23	Option 1: VP60 = .145444 VP70 = .188224
Pentane (-n)						7.6199	5.8716	9.7769	72.1500	0.0396	0.1097	72.15	Option 3: A=27691, B=7.558
Toluene						0.3844	0.2666	0.5435	92.1300	0.0535	0.0075	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Xylenes (mixed isomers)						0.1073	0.0710	0.1586	106.1700	0.0357	0.0014	106.17	Option 2: A=7.009, B=1462.266, C=215.11

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

Chaco Tank T5 - Vertical Fixed Roof Tank

Annual Emission Calcaulations	
Standing Losses (lb):	3,005.6616
Vapor Space Volume (cu ft):	1,595.5307
Vapor Density (lb/cu ft):	0.0475
Vapor Space Expansion Factor:	0.3182
Vented Vapor Saturation Factor:	0.3417
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,595.5307
Tank Diameter (ft):	15.0000
Vapor Space Outage (ft):	9.0289
Tank Shell Height (ft):	15.0000
Average Liquid Height (ft):	7.0000
Roof Outage (ft):	1.0289
Roof Outage (Dome Roof)	
Roof Outage (ft):	1.0289
Dome Radius (ft):	15.0000
Shell Radius (ft):	7.5000
Vapor Density	
Vapor Density (lb/cu ft):	0.0475
Vapor Molecular Weight (lb/lb-mole):	66.3641
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.0261
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:	0.3182
Daily Vapor Temperature Range (deg. R):	46.7976
Daily Vapor Pressure Range (psia):	1.9209
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.0261
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	3.1543
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	5.0753
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:	0.3417
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	4.0261
Vapor Space Outage (ft):	9.0289
Working Losses (lb):	4,671.2395
Vapor Molecular Weight (lb/lb-mole):	66.3641

Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.0261
Annual Net Throughput (gal/yr.):	1,193,640.0000
Annual Turnovers:	66.8905
Turnover Factor:	0.6152
Maximum Liquid Volume (gal):	18,506.9000
Maximum Liquid Height (ft):	14.0000
Tank Diameter (ft):	15.0000
Working Loss Product Factor:	1.0000

Total Losses (lb):	7,676.9011

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

Emissions Report for: Annual

Chaco Tank T5 - Vertical Fixed Roof Tank

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Chaco condensate 2018	4,671.24	3,005.66	7,676.90
i-butane	861.34	554.22	1,415.56
n-butane	1,669.48	1,074.21	2,743.70
Isopentane	731.88	470.92	1,202.81
Pentane (-n)	512.52	329.77	842.29
Hexane (-n)	419.67	270.03	689.70
Heptane (-n)	312.37	200.99	513.35
Octane (-n)	81.53	52.46	133.98
Nonane (-n)	8.34	5.37	13.71
Decane (-n)	2.22	1.43	3.64
2,2,4-Trimethylpentane (isooctane)	1.53	0.98	2.51
Benzene	28.13	18.10	46.24
Ethylbenzene	0.87	0.56	1.43
Toluene	34.88	22.44	57.32
Xylenes (mixed isomers)	6.49	4.18	10.67

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

Identification

User Identification:	Chaco T7 (Methanol)
City:	Bloomfield
State:	New Mexico
Company:	Williams Four Corners LLC
Type of Tank:	Horizontal Tank
Description:	500 Gallon Methanol Tank

Tank Dimensions

Shell Length (ft):		6.00
Diameter (ft):		4.00
Volume (gallons):		500.00
Turnovers:		12.00
Net Throughput(gal/yr):		6,000.00
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	N	

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition	Good

Breather Vent Settings

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

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

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

Chaco T7 (Methanol) - Horizontal Tank
Bloomfield, New Mexico

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

Chaco T7 (Methanol) - Horizontal Tank
Bloomfield, New Mexico

Annual Emission Calcaulations

Standing Losses (lb):	28.5886
Vapor Space Volume (cu ft):	48.0243
Vapor Density (lb/cu ft):	0.0096
Vapor Space Expansion Factor:	0.2008
Vented Vapor Saturation Factor:	0.8487
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	48.0243
Tank Diameter (ft):	4.0000
Effective Diameter (ft):	5.5293
Vapor Space Outage (ft):	2.0000
Tank Shell Length (ft):	6.0000
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
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:	0.8487
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	1.6820
Vapor Space Outage (ft):	2.0000
Working Losses (lb):	7.6985
Vapor Molecular Weight (lb/lb-mole):	32.0400
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.6820
Annual Net Throughput (gal/yr.):	6,000.0000

Annual Turnovers:	12.0000
Turnover Factor:	1.0000
Tank Diameter (ft):	4.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	36.2872

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

Emissions Report for: Annual

Chaco T7 (Methanol) - Horizontal Tank
Bloomfield, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Methyl alcohol	7.70	28.59	36.29

Section 6.a

Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMAC)

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

Calculating GHG Emissions:

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

Sources for Calculating GHG Emissions:

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

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

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

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

Greenhouse Gas Emissions

Carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) combustion emissions (Units 1-7) are calculated using emission factors from the 40 Code of Federal Regulations (CFR), Part C, Tables C-1 & C-2 and the turbine, reciprocating engine and heater higher heating value (HHV) design heat rates.

The GHG emissions from SSM blowdowns of the turbines, compressors and piping (Unit SSM) and blowdowns from the pig receiver (Unit PR) are calculated from the quantity of gas vented during each event, the composition of the gas, and the number of events. The quantity of gas vented during each event is determined by HFC engineering. The composition of the gas is determined from an extended gas analysis. For each unit, the annual number of blowdown events is estimated based on historical operations. A safety factor is added because emissions from each blowdown event are dependent on the composition of the gas in the pipeline and because the number of blowdowns in a year may vary.

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

GHG emissions from valves, connectors, open-ended lines and pressure relief valves (Unit F1) are calculated using the Subpart W methodology applicable to these source types. The component count is determined from the number of compressors and dehydrators permitted to operate at the station using an equation derived by HFC that is representative of their facilities. Emission factors are obtained from Table W-1A of Subpart W (Western U.S. – Gas Service). The facility CO_2 and CH_4 contents are taken from an extended gas analysis. Emissions are calculated assuming the equipment operates 8,760 hours per year.

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

There are no GHG emissions associated with the truck loading operations (Units L1, L1 (AOS), L2 & L2 (AOS)).

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

GHG emissions from the condensate storage tanks (Unit T4, T4 (AOS), T5 & T5 (AOS)) are taken from the ProMax modeling results. There are no GHG emissions associated with the produced water tanks (Units T6 & T12).

Green House Gas Emissions Data and Calculations

Sources	Facility Total Emissions				
	CO2, tpy	CH4, tpy	N2O, tpy	GHG, tpy	CO2e, tpy
Engine & Turbine Exhaust Emissions	43,239.00	8.16E-01	8.19E-02	43,239.90	43283.81
SSM Emissions	7.68	121.96	--	129.64	3056.56
Centrifugal Compressor Venting Emissions	36.58	581.59	--	618.18	14576.46
Heater & Boiler Exhaust Emissions	292.57	5.51E-03	5.51E-04	292.58	292.87
Pig Launcher & Receiver Emissions	1.39E-01	2.21	--	2.35	55.40
Equipment Leak Emissions	7.01E-01	11.15	--	11.85	279.44
Natural Gas Pneumatic Device Venting Emissions	5.41E-01	8.58	--	9.12	214.94
Natural Gas Driven Pneumatic Pump Venting Emissions	1.33E-01	2.11	--	2.25	52.94
Malfunction Emissions	3.14	49.81	--	52.95	1248.42
Storage Tank Emissions	5.03	19.50	--	24.52	492.41
Storage Tank Emissions AOS	2.22	8.63	--	10.85	217.85
Total #1	43,585.52	797.73	8.24E-02	44,383.33	63,553.26
Total #2	43,582.72	786.86	8.24E-02	44,369.66	63,278.70

Total #1 assumes operation with the existing EVRU (25% control efficiency) and a limit of 45,000 bbl of condensate per year.
Total #2 assumes operation with a new VRU (75% control efficiency) and a limit of 60,000 bbl of condensate per year (AOS).

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 Saturn 10-1001	53.06	1.00E-03	1.00E-04	7,555.67	1.42E-01	1.42E-02
2	Solar Saturn 10-1001	53.06	1.00E-03	1.00E-04	7,555.67	1.42E-01	1.42E-02
3	Solar Saturn 10-1202	53.06	1.00E-03	1.00E-04	7,555.67	1.42E-01	1.42E-02
4	Solar Centaur 10-4002	53.06	1.00E-03	1.00E-04	20,508.26	3.87E-01	3.87E-02
5	Detroit Diesel Engine	73.96	3.00E-03	6.00E-04	63.73	2.59E-03	5.17E-04
	Total				43,239.00	8.16E-01	8.19E-02

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

Unit Numbers	Description	Fuel Types	Operating Times, hr/yr	LHV Design Heat Rates, MMBtu/hr	HHV	
					Design Heat Rates, MMBtu/hr	Fuel Usages, MMBtu/yr
1	Solar Saturn 10-1001	Nat. Gas	8,760	13.30	14.78	129,453
2	Solar Saturn 10-1001	Nat. Gas	8,760	13.30	14.78	129,453
3	Solar Saturn 10-1202	Nat. Gas	8,760	13.30	14.78	129,453
4	Solar Centaur 10-4002	Nat. Gas	8,760	36.10	40.11	351,373
5	Detroit Diesel Engine	Diesel	500	1.41	1.57	783

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 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	6,720,840	0.0023	0.0363	7.68	121.96

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	6.70	106.57
NA	Oil Degassing Vents	29.88	475.03
NA	Isolation Valve Leakage	0.00E+00	0.00E+00
	Total	36.58	581.59

Operating mode - includes blowdown valve leakage (wet and dry seal) and the oil degassing vents (wet seal)
Non-operating depressurized mode - includes isolation valve leakage (wet & dry seal) through open blowdown vents (without blind flanges)
A combination of equations W-22 & W-36 (Subpart W) is used to calculate centrifugal compressor emissions
As the NMED requires CO2 & CH4 emissions rather than CO2e emissions, it is not necessary to include the global warming potential from equation W-36
CO2 Emission Rates (tpy) = # x scf/hr x hr/yr x (CO2 Mole Percent (%) / 100) x CO2 Density (kg/scf) x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne
CH4 Emission Rates (tpy) = # x scf/hr x hr/yr x (CH4 Mole Percent (%) / 100) x CH4 Density (kg/scf) x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne

Unit Numbers	Description	Number of Compressors #	Gas Emissions, scf/hr	Operating Times, hr/yr	CO2 Mole Percents, %	CH4 Mole Percents, %	CO2 Density, kg/scf	CH4 Density, kg/scf
NA	Blowdown Valve Leakage	4	167.4	8,760	1.97	85.84	0.0526	0.0192
NA	Oil Degassing Vents	4	746.2	8,760	1.97	85.84	0.0526	0.0192
NA	Isolation Valve Leakage	4	10.8	0	1.97	85.84	0.0526	0.0192

The number of compressors are 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) is 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
6	EVRU Separator Heater	53.06	1.00E-03	1.00E-04	289.73	5.46E-03	5.46E-04
7	Heater	53.06	1.00E-03	1.00E-04	2.84	5.35E-05	5.35E-06
	Total				292.57	5.51E-03	5.51E-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
6	EVRU Separator Heater	Nat. Gas	8,760	0.510	0.567	4,964
7	Heater	Nat. Gas	8,760	0.005	0.006	49

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
PR	Pig Receiver	121,810	0.0023	0.0363	1.39E-01	2.21

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

Equipment Leaks Emissions

Unit Numbers	Description	Emission Rates	
		CO2, tpy	CH4, tpy
NA	Valves	5.34E-01	8.49
NA	Connectors	7.06E-02	1.12
NA	Open-Ended Lines	3.66E-02	5.82E-01
NA	Pressure Relief Valves	5.99E-02	9.52E-01
	Total	7.01E-01	11.15

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	441	0.121	1.97	85.84	8,760	0.0526	0.0192
NA	Connectors	415	0.017	1.97	85.84	8,760	0.0526	0.0192
NA	Open-Ended Lines	118	0.031	1.97	85.84	8,760	0.0526	0.0192
NA	Pressure Relief Valves	31	0.193	1.97	85.84	8,760	0.0526	0.0192

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

Green House Gas Emissions Data and Calculations

Natural Gas Pneumatic Device Venting Emissions

Unit Numbers	Description	Number of Devices, #	Emission Factors, scf/hr/device	Operating Times, hr/yr	Emission Rates	
					CO2, tpy	CH4, tpy
NA	Continuous High Bleed Pneumatic Devices	0	37.3	8,760	0.00E+00	0.00E+00
NA	Intermittent Bleed Pneumatic Devices	4	13.5	8,760	5.41E-01	8.58
NA	Continuous Low Bleed Pneumatic Devices	0	1.39	8,760	0.00E+00	0.00E+00
	Total				5.41E-01	8.58

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

Unit Numbers	Description	CO2 Contents, mole %	CH4 Contents, mole %	CO2 Conversion Factors, tonne CO2e /scf	CH4 Conversion Factors, tonne CO2e /scf	CO2 Global Warming Potentials, tonne CO2e /tonne CO2	CH4 Global Warming Potentials, tonne CO2e /tonne CH4
NA	Continuous High Bleed Pneumatic Devices	1.97	85.84	5.262E-05	4.790E-04	1	25
NA	Continuous Low Bleed Pneumatic Devices	1.97	85.84	5.262E-05	4.790E-04	1	25
NA	Intermittent Bleed Pneumatic Devices	1.97	85.84	5.262E-05	4.790E-04	1	25

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

Natural Gas Driven Pneumatic Pump Venting Emissions

Emission Rates

Unit Number	Description	Number of Pumps, #	Emission Factor, scf/hr/pump	Operating Time, hr/yr	Emission Rates	
					CO2, tpy	CH4, tpy
NA	Pneumatic Pump Venting	1	13.3	8,760	1.33E-01	2.11

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

Unit Number	Description	CO2 Content, mole %	CH4 Content, mole %	CO2 Conversion Factor, tonne CO2e /scf	CH4 Conversion Factor, tonne CO2e /scf	CO2 Global Warming Potential, tonne CO2e /tonne CO2	CH4 Global Warming Potential, tonne CO2e /tonne CH4
NA	Pneumatic Pump Venting	1.97	85.84	5.262E-05	4.790E-04	1	25

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

Green House Gas Emissions Data and Calculations

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	19.51	2.76	4.45	70.57	10.00	3.14	49.81

The VOC emission rate is estimated (see calculations workbook)

CO2 Emission Rate (tpy) = VOC Emission Rate (tpy) x (Total Component Weight (lb/lb-mole) / VOC Component Weight (lb-lb-mole))
x (CO2 Weight % of Total (%) / 100)

CH4 Emission Rate (tpy) = VOC Emission Rate (tpy) x (Total Component Weight (lb/lb-mole) / VOC Component Weight (lb-lb-mole))
x (CH4 Weight % of Total (%) / 100)

The total & VOC component weights and CO2 & CH4 weight % of totals are calculated from the facility extended gas analysis

Storage Tank Emissions

Unit Number	Description	Emission Rates		Operating Time, hr/yr	Emission Rates	
		CO2, pph	CH4, pph		CO2, tpy	CH4, tpy
T4	Condensate Tank	6.04E-01	2.34	8,760	2.65	10.26
T5	Condensate Tank	5.44E-01	2.11	8,760	2.38	9.23
T4 (AOS)	Condensate Tank (AOS)	2.67E-01	1.04	8,760	1.17	4.54
T5 (AOS)	Condensate Tank (AOS)	2.41E-01	9.33E-01	8,760	1.05	4.09
	Total #1				5.03	19.50
	Total #2				2.22	8.63

Short-term emission rates (pph) are taken from the ProMax output

The operating times are provided by Harvest

Emission Rate (tpy) = Emission Rate (pph) x Operating Time (hr/yr) / 2,000 lb/ton

Total #1 assumes operation with the existing EVRU (25% control efficiency) and a limit of 45,000 bbl of condensate per year

Total #2 assumes operation with a new VRU (75% control efficiency) and a limit of 60,000 bbl of condensate per year (AOS)

Green House Gas Emissions Data and Calculations

Gas Stream Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight Percent of Total, %	Emission Factors, lb/scf
Carbon Dioxide	1.9710	44.01	0.87	4.4460	0.0023
Hydrogen Sulfide	0.0000	34.07	0.00	0.0000	0.0000
Nitrogen	0.2867	28.01	0.08	0.4116	0.0002
Methane	85.8419	16.04	13.77	70.5717	0.0363
Ethane	6.7499	30.07	2.03	10.4030	0.0053
Propane	2.9232	44.09	1.29	6.6058	0.0034
IsoButane	0.5439	58.12	0.32	1.6202	0.0008
Normal Butane	0.8195	58.12	0.48	2.4412	0.0013
IsoPentane	0.2949	72.15	0.21	1.0905	0.0006
Normal Pentane	0.2178	72.15	0.16	0.8054	0.0004
Cyclopentane	0.0086	70.14	0.01	0.0309	0.0000
n-Hexane	0.0632	86.17	0.05	0.2791	0.0001
Cyclohexane	0.0236	84.16	0.02	0.1018	0.0001
Other Hexanes	0.1496	86.18	0.13	0.6608	0.0003
Heptanes	0.0389	100.20	0.04	0.1998	0.0001
Methylcyclohexane	0.0329	98.19	0.03	0.1656	0.0001
Isooctane	0.0018	100.21	0.00	0.0092	0.0000
Benzene	0.0101	78.11	0.01	0.0404	0.0000
Toluene	0.0105	92.14	0.01	0.0496	0.0000
Ethylbenzene	0.0012	106.17	0.00	0.0065	0.0000
Xylenes	0.0002	106.17	0.00	0.0011	0.0000
C8+ heavies	0.0106	110.00	0.01	0.0598	0.0000
Total	100.0000		19.51	100.0000	0.0514
VOC			2.76	--	0.0073

Gas stream composition obtained from Chaco extended gas analysis dated 11/29/2018

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

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

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

Section 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.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

where:

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

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

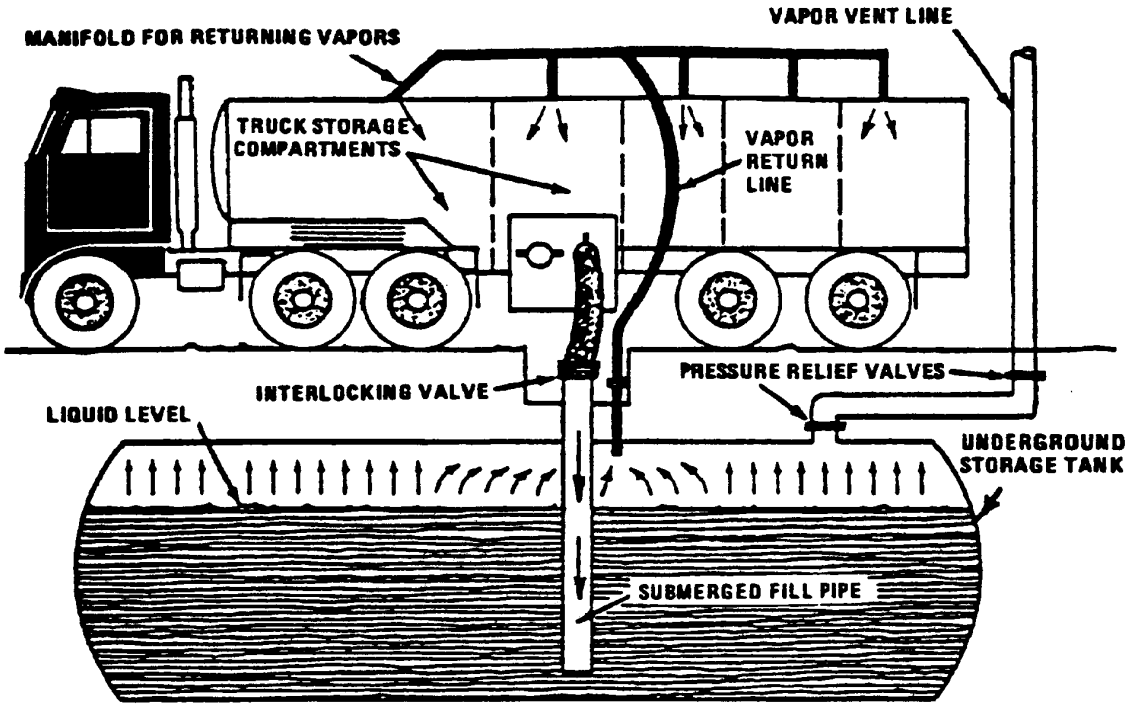


Figure 5.2-5. Tank truck unloading into a service station underground storage tank and practicing "vapor balance" form of emission control.

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

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

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

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

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

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

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

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

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

Analysis No: HM180006
Cust No: 33700-10025

Well/Lease Information

Customer Name:	HARVEST MIDSTREAM	Source:	SPOT
Well Name:	CHACO COMP INLET	Well Flowing:	
County/State:		Pressure:	253 PSIG
Location:		Flow Temp:	52 DEG. F
Field:		Ambient Temp:	DEG. F
Formation:		Flow Rate:	MCF/D
Cust. Stn. No.:	0247730	Sample Method:	
		Sample Date:	11/27/2018
		Sample Time:	11.34 AM
		Sampled By:	MARVIN WOOD
Heat Trace:		Sampled by (CO):	HARVEST

Remarks: CALCULATED MOLECULAR WEIGHT = 19.5051

Analysis

Component:	Mole%:	Unormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.3306	0.3218	0.0360	0.00	0.0032
CO2	1.9364	1.8846	0.3310	0.00	0.0294
Methane	85.6254	83.3344	14.5560	864.82	0.4743
Ethane	7.0286	6.8405	1.8850	124.38	0.0730
Propane	2.9810	2.9012	0.8240	75.00	0.0454
Iso-Butane	0.5417	0.5272	0.1780	17.62	0.0109
N-Butane	0.7937	0.7725	0.2510	25.89	0.0159
Neopentane 2,2 dmc3	0.0021	0.0020	0.0010	0.08	0.0001
I-Pentane	0.2733	0.2660	0.1000	10.93	0.0068
N-Pentane	0.1943	0.1891	0.0710	7.79	0.0048
Neohexane	0.0111	N/R	0.0050	0.53	0.0003
2-3-Dimethylbutane	0.0077	N/R	0.0030	0.37	0.0002
Cyclopentane	0.0080	N/R	0.0020	0.30	0.0002
2-Methylpentane	0.0518	N/R	0.0220	2.46	0.0015
3-Methylpentane	0.0246	N/R	0.0100	1.17	0.0007
C6	0.0563	0.2851	0.0230	2.68	0.0017
Methylcyclopentane	0.0389	N/R	0.0140	1.75	0.0011
Benzene	0.0090	N/R	0.0030	0.34	0.0002
Cyclohexane	0.0193	N/R	0.0070	0.86	0.0006
2-Methylhexane	0.0057	N/R	0.0030	0.31	0.0002
3-Methylhexane	0.0063	N/R	0.0030	0.34	0.0002
2-2-4-Trimethylpentane	0.0010	N/R	0.0010	0.06	0.0000
i-heptanes	0.0035	N/R	0.0020	0.19	0.0001
Heptane	0.0120	N/R	0.0060	0.66	0.0004

Methylcyclohexane	0.0228	N/R	0.0090	1.19	0.0008
Toluene	0.0076	N/R	0.0030	0.34	0.0002
2-Methylheptane	0.0019	N/R	0.0010	0.12	0.0001
4-Methylheptane	0.0009	N/R	0.0000	0.06	0.0000
i-Octanes	0.0005	N/R	0.0000	0.03	0.0000
Octane	0.0016	N/R	0.0010	0.10	0.0001
Ethylbenzene	0.0001	N/R	0.0000	0.01	0.0000
m, p Xylene	0.0008	N/R	0.0000	0.04	0.0000
o Xylene (& 2,2,4 tmc7)	0.0002	N/R	0.0000	0.01	0.0000
i-C9	0.0005	N/R	0.0000	0.03	0.0000
C9	0.0003	N/R	0.0000	0.02	0.0000
i-C10	0.0003	N/R	0.0000	0.02	0.0000
C10	0.0003	N/R	0.0000	0.02	0.0000
i-C11	0.0000	N/R	0.0000	0.00	0.0000
C11	0.0001	N/R	0.0000	0.01	0.0000
C12P	0.0000	N/R	0.0000	0.00	0.0000
Total	100.00	97.324	18.351	1140.53	0.6727

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

COMPRESSIBLITY FACTOR (1/Z):	1.003	CYLINDER #:	0623
BTU/CU.FT IDEAL:	1143.2	CYLINDER PRESSURE:	268 PSIG
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	1146.5	ANALYSIS DATE:	11/29/2018
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	1126.6	ANALYIS TIME:	11:31:53 AM
DRY BTU @ 15.025:	1169.5	ANALYSIS RUN BY:	PATRICIA KING
REAL SPECIFIC GRAVITY:	0.6744		

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: 11/29/2018**
GC Method: C12+BTEX Gas

HARVEST MIDSTREAM

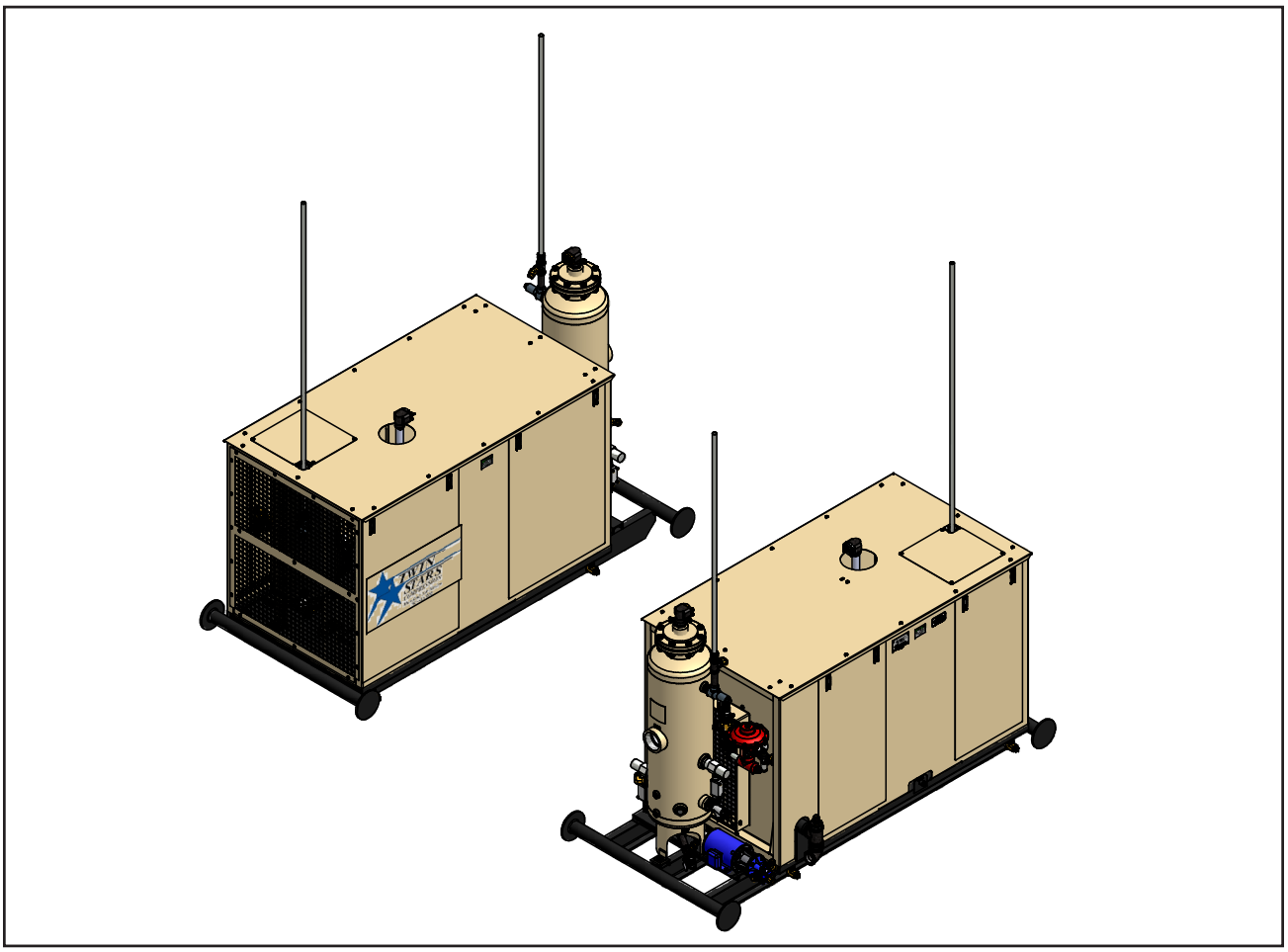
WELL ANALYSIS COMPARISON

Lease:	CHACO COMP INLET	SPOT	11/29/2018
Stn. No.:	0247730		33700-10025
Mtr. No.:			

Smpl Date:	11/27/2018
Test Date:	11/29/2018
Run No:	HM180006
Nitrogen:	0.3306
CO2:	1.9364
Methane:	85.6254
Ethane:	7.0286
Propane:	2.9810
I-Butane:	0.5417
N-Butane:	0.7937
2,2 dmc3:	0.0021
I-Pentane:	0.2733
N-Pentane:	0.1943
Neohexane:	0.0111
2-3-Cyclopentane:	0.0077
2-Methylpentane:	0.0080
3-Methylpentane:	0.0518
C6:	0.0246
Methylcyclopentane:	0.0563
Benzene:	0.0389
Cyclohexane:	0.0090
2-Methylhexane:	0.0193
3-Methylhexane:	0.0057
2-2-4-i-heptanes:	0.0000
Heptane:	0.0010
Methylcyclohexane:	0.0035
Toluene:	0.0120
2-Methylheptane:	0.0228
4-Methylheptane:	0.0076
i-Octanes:	0.0019
Octane:	0.0009
Ethylbenzene:	0.0005
m, p Xylene:	0.0016
o Xylene (& 2,2,4	0.0001
i-C9:	0.0008
C9:	0.0002
i-C10:	0.0005
C10:	0.0003
i-C11:	0.0003
C11:	0.0003
C12P:	0.0000
BTU:	0.0001
GPM:	0.0000
SPG:	1146.5
	18.3630
	0.6744

Service and Maintenance Manual

10 HP 7D/8D VRUE Skid Auto Bypass Gas Compressor



This manual must be read carefully before using your Twin Stars, Ltd. Gas Compressor. Store in a safe and convenient location for future reference.

For technical support:

Phone: (505) 632-9202 (Outside USA)
Fax: (505) 632-2723 (USA)
Website: http://www.twinstars.com

309696
2/4/2013

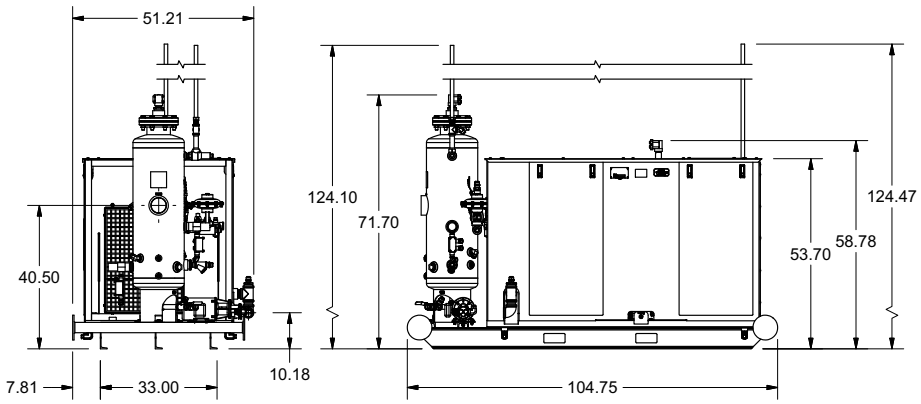
Specifications

4.1 Specification Sheet 7D

Gas Delivery @ 130 PSI with SG 1.20 & 0 PSI Inlet Pressure	MSCFD	17.5	18	20	21	22
Motor Speed	RPM	2900	3000	3200	3400	3600
Variable Frequency Drive (VFD) Electric Motor	Rating	10 HP				
	Volt	460				
	Phase	3				
	Frequency	60 Hz maximum				
	Frame	TEFC				
	Electrical Classification	Class 1, Division 2, Group D				
Compressor Gasend	SCA7D					
Compressor Oil Capacity	10 1/2 Gallons					
Machine Weight	2467 lbs (Wet)					
Overall Dimensions	104 3/4" L x 71 3/4" H x 51 1/4" W					
Duty Cycle	Continuous Duty					
Machine Operating Angle	15° maximum					
Ambient Conditions	-40°F to 125°F					

NOTICE Running the electric motor less then 2900 rpm will produce insufficient oil flow for the compressor.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE



Description of Components

5.14 Low Suction Bypass

The unit is equipped with a low suction bypass that allows a controlled amount of gas from the higher pressure discharge side to recirculate to the inlet scrubber vessel, this is to prevent a vacuum from being pulled on the tank(s). The bypass consists of a normally closed pneumatic motor valve and two normally open solenoid valves. One solenoid valve allows gas to vent from the pneumatic valve into the suction scrubber if the pressure in the tank(s) rises above the **"HiBypassSP"**, causing the motor valve to close. The other solenoid valve allows regulated gas pressure (40 psig) to open the motor valve if the pressure in the tank(s) falls below the **"LoBypassSP"**.

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

GLOBAL WARMING POTENTIALS

[100-Year Time Horizon]

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

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

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

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

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

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

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

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

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

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

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

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

[78 FR 71950, Nov. 29, 2013]

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

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

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

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

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

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

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

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

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

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

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

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

Section 8

Map(s)

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

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

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

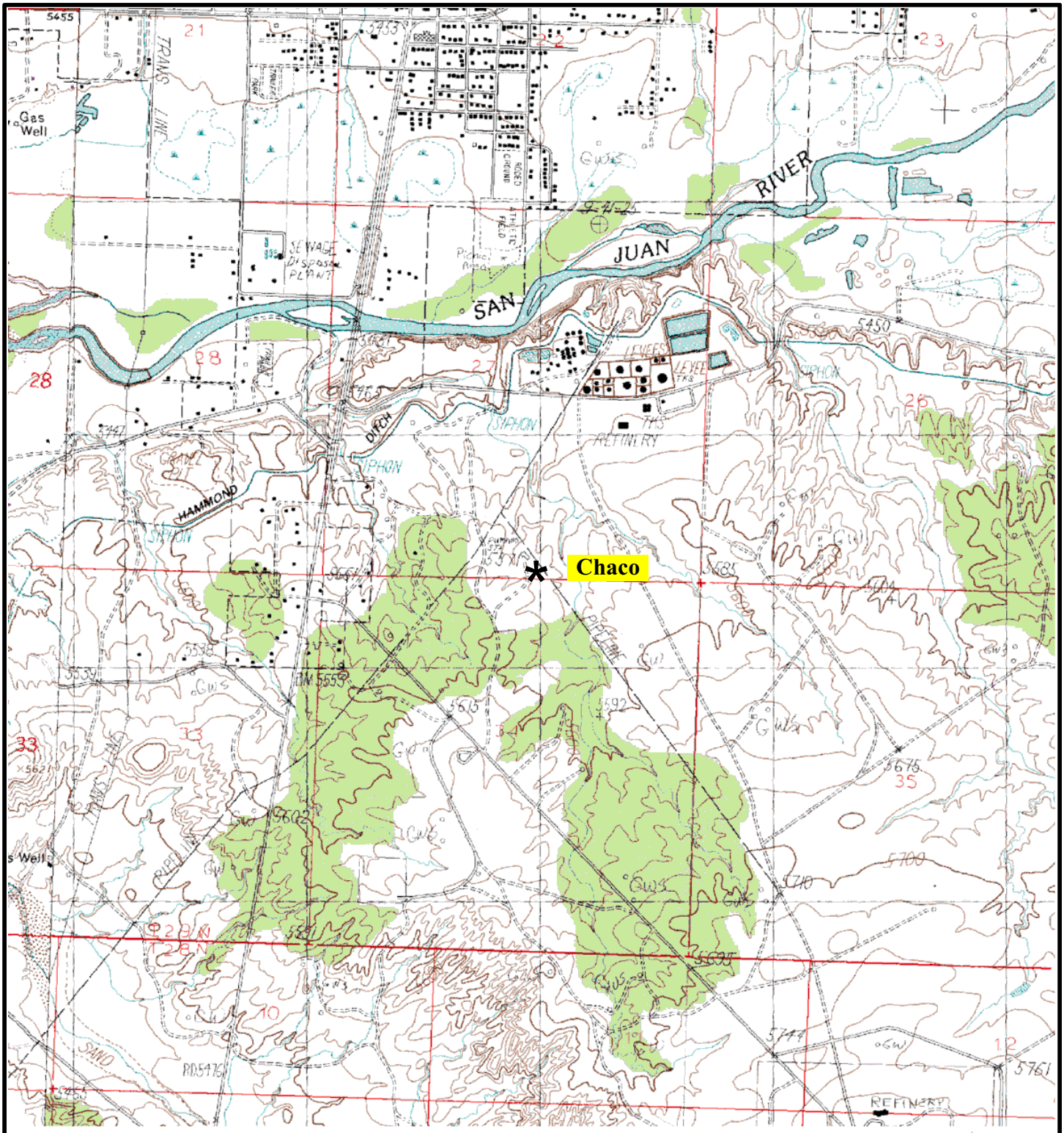

Figure 1 Site Vicinity / Topographic Map

Chaco Compressor Station

Section 27, Township 29N Range 11W

San Juan County, New Mexico

Section 9

Proof of Public Notice

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

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

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

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

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

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

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

Not applicable, as this is a Title V application.

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Section 10

Written Description of the Routine Operations of the Facility

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

The Chaco Compressor Station compresses pipeline natural gas for transmission. The facility will be permitted for the operation of four natural gas-fired turbines (all driving compressors), one standby generator, one pig receiver, truck loading, equipment leaks, two condensate storage tanks, and two produced water storage tanks. Other sources at the facility include heaters and miscellaneous storage tanks. The storage tanks are used to store oil, used oil, condensate, produced water, and methanol.

The facility typically operates 24 hours per day, 7 days per week, 52 weeks per year, 8,760 hours per year.

A separator and EVRU reduce emissions from the condensate storage tanks at the station. A flow diagram is provided in Section 4 and a description of the EVRU is provided below.

An EVRU system operates on the Venturi Principle to recover atmospheric vapors flashed off of volatile liquids that would otherwise be emitted to the atmosphere. The EVRU causes high pressure gas to flow across a nozzle and draw vapors from the atmospheric tanks. The high-pressure, high-velocity gas is referred to as the motive gas. The low-pressure gas on which a vacuum is imposed is referred to as the recovered vapor. The motive gas and recovered vapors combine and flow into a contained, low pressure process stream.

Pressure in the atmospheric tanks produces a signal that opens the control valve that allows motive gas across the nozzle (motive gas is taken from the discharge of Chaco Compressor Station). The combined vapors discharge into the Fulcher line which flows to the Kutz Plant for processing. As vapors are recovered from the tanks, pressure is reduced. Once pressure is near-atmospheric, the motive gas control valve closes.

In order to reduce the volume of vapor the EVRU must recover from the atmospheric tanks, the system includes a gas-fired three-phase separator. The separator warms the hydrocarbon liquids while simultaneously lowering their pressure. The flashed vapors are also vented into the Fulcher line.

The system utilizes very few moving parts so that very little maintenance is required and downtime is minimized (when compared to systems utilizing mechanical compression).

Harvest is permitting the option to replace the EVRU with a VRU.

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Section 11

Source Determination

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

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

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

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

Chaco Compressor Station – natural gas compressor station

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

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

☑ **Yes** ☐ **No**

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

☑ **Yes** ☐ **No**

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

☑ **Yes** ☐ **No**

C. Make a determination:

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

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

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Section 12.A

PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

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

A. This facility is:

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

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

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

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

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

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

Not applicable, as this is a Title V application.

Section 12.B

Special Requirements for a PSD Application

(Submitting under 20.2.74 NMAC)

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

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

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

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

Not applicable, as this is a Title V application.

Section 13

Determination of State & Federal Air Quality Regulations

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

Required Information for Specific Equipment:

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

Required Information for Regulations that Apply to the Entire Facility:

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

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

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

Regulatory Citations for Emission Standards:

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

Federally Enforceable Conditions:

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

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

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

State Regulations

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

STATE REGULATIONS APPLICABILITY CHECKLIST

STATE REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
20.2.1 NMAC	General Provisions	Yes	Facility	This regulation is applicable because it establishes procedures for protecting confidential information, procedures for seeking a variance, NMAQB's authority to require sampling equipment, severability, and the effective date for conformance with the NMACs, and prohibits the violation of other requirements in attempting to comply with the NMACs.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	Facility	This is a State Implementation Plan (SIP) approved regulation that limits the maximum allowable concentrations of Total Suspended Particulates, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide.
20.2.7 NMAC	Excess Emissions	Yes	Facility	This regulation is applicable because it prohibits excess emissions unless proper notification procedures are followed.
20.2.8 NMAC	Emissions Leaving New Mexico	Yes	Facility	This regulation is applicable because it establishes prohibitions on the release of pollutants that cross New Mexico State boundaries.
20.2.14 NMAC	Particulate Emissions from Coal Burning Equipment	No		This regulation is not applicable because the facility does not burn coal.
20.2.18 NMAC	Oil Burning Equipment - Particulate Matter	No		This regulation is not applicable because the facility does not burn oil.
20.2.31 NMAC	Coal Burning Equipment – Sulfur Dioxide	No		This regulation is not applicable because the facility does not burn coal.
20.2.32 NMAC	Coal Burning Equipment – Nitrogen Dioxide,	No		This regulation is not applicable because the facility does not burn coal.
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No		This regulation is not applicable because the facility is not equipped with external gas burning equipment which have heat input rates exceeding the trigger level (one million MMBtu/year) established by the regulation.
20.2.34 NMAC	Oil Burning Equipment: NO_2	No		This regulation is not applicable because the facility does not burn oil.
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	No		This regulation is not applicable because the facility is not a natural gas processing plant.
20.2.38 NMAC	Hydrocarbon Storage Facility	No		This regulation is not applicable because the station will not be equipped with a tank battery storing hydrocarbon liquids (condensate) that will have a capacity greater than or equal to 65,000 gallons.
20.2.39 NMAC	Sulfur Recovery Plant - Sulfur	No		This regulation is not applicable because the facility is not equipped with a sulfur recovery plant.
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	1-5	This regulation is applicable because the facility is equipped with stationary combustion sources. Emissions from these combustion sources are limited to less than 20% opacity (see 20.2.61.109 NMAC). The regulation is not applicable to the Title V insignificant heaters (see 20.2.61.111.D).
20.2.70 NMAC	Operating Permits	Yes	Facility	This regulation is applicable because the facility is a major source of NO_2,VOC & HAP emissions.
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	This regulation is applicable because the facility is subject to 20.2.70 NMAC.
20.2.72 NMAC	Construction Permits	Yes	Facility	This regulation is applicable because the facility has potential emission rates (PER) greater than 10 pph or 25 tpy for pollutants subject to a state or federal ambient air quality standards (does not include VOCs or HAPs).

STATE REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	The Notice of Intent portion of this regulation does not apply because the facility is subject to 20.2.72 NMAC. The emissions inventory portion of this regulation is applicable since the facility is a Title V major source (see 20.2.73.300.B(1) & (2)).
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No		This regulation is not applicable because the facility is not currently a PSD major source and the emissions increase associated with this modification is not significant.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	This regulation is applicable because the plant is subject to 20.2.72 NMAC and it establishes the fee schedule associated with the filing of construction permits.
20.2.77 NMAC	New Source Performance	Yes	4	This regulation is applicable because it adopts by reference the federal NSPS codified in 40 CFR 60. The facility is subject to 40 CFR 60, Subparts A & GG.
20.2.78 NMAC	Emission Standards for HAPS	No		This regulation is not applicable because it incorporates by reference the NESHAPs codified under 40 CFR 61. The facility is not subject to 40 CFR 61.
20.2.79 NMAC	Permits – Nonattainment Areas	No		This regulation is not applicable because the facility is neither located in nor has a significant impact on a non-attainment area.
20.2.80 NMAC	Stack Heights	Yes	1-4	This regulation is applicable because it establishes guidelines for the selection of an appropriate stack height for the purposes of atmospheric dispersion modeling.
20.2.82 NMAC	MACT Standards for Source Categories of HAPS	Yes	5	This regulation is applicable because it adopts by reference the federal MACT Standards for source categories codified in 40 CFR 63. The affected units at the facility are subject to 40 CFR 63, Subparts A & ZZZZ.

Federal Regulations

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

FEDERAL REGULATIONS APPLICABILITY CHECKLIST

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 50	NAAQS	Yes	Facility	This regulation applies because the facility is subject to 20.2.70, 20.2.72 and 20.2.74 NMAC.
40 CFR 52	Approval and Promulgation of Implementation Plans	No		40 CFR 52.21 *Prevention of Significant Deterioration of Air Quality* is not applicable because the station is not currently a major Prevention of Significant Deterioration source and the emissions increase associated with this modification is not significant. The remainder of 40 CFR 52 is not applicable because it addresses approval and promulgation of implementation plans.
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	4	This regulation applies because 40 CFR 60, Subpart GG applies (see §60.1(a)).

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
NSPS 40 CFR 60, Subpart K	Standards of Performance for Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978	No		This regulation is not applicable because the petroleum liquids storage tanks at the facility have capacities less than the minimum applicability threshold capacity of 40,000 gallons (see §60.110(a)).
NSPS 40 CFR 60, Subpart Ka	Standards of Performance for Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984	No		This regulation is not applicable because the storage tanks at the facility have capacities less than the minimum applicability threshold capacity of 40,000 gallons (see §60.110a(a)).
NSPS 40 CFR 60, Subpart Kb	Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984	No		This regulation is not applicable because all storage tanks at the plant have capacities less than the minimum applicability threshold capacity of 75 cubic meters (19,812 gallons), and/or were installed prior to the applicability date, and/or contain condensate prior to custody transfer (40 CFR 60.110b(a) & 60.110b(d)(4)).
NSPS 40 CFR 60 Subpart GG	Standards of Performance for Stationary Gas Turbines	Yes	4	This regulation is applicable because one the turbines at the facility, Unit 4, has a heat input at peak load equal to or greater than 10.7 gigajoules (10 MMBtu) per hour and commenced construction after October 3, 1977. This regulation is not applicable to Units 1-3, as they were constructed prior to the applicability date (they have not been modified or reconstructed). Unit 4 must comply with the NO_X emission limitation of 150 ppmv at 15% O2 on a dry basis (§60.332(c)). The units must comply with the SO_2 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) (40 CFR 60.333).
NSPS 40 CFR 60, Subpart KKK	Standards of Performance for Equipment Leaks of VOC from Onshore Gas Plants	No		This regulation is not applicable because the facility is not a natural gas processing plant as defined by the subpart.
NSPS 40 CFR 60, Subpart LLL	Standards of Performance for Onshore Natural Gas Processing: SO_2 Emissions	No		This regulation is not applicable because the facility is not a natural gas processing plant as defined by the subpart.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
NSPS 40 CFR 60, Subpart IIII	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	No		This regulation does not apply because the stationary CI ICE at the facility, Unit 5, commenced construction prior to July 12, 2005 and it was manufactured prior to April 2, 2006.
NSPS 40 CFR 60, Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	No		This regulation does not apply because there are no stationary SI ICE at the station.
NSPS 40 CFR 60, Subpart KKKK	Standards of Performance for Stationary Combustion Turbines	No		This regulation is not applicable because none of the turbines at the plant were constructed after the applicability date of February 18, 2005.
NSPS 40 CFR 60, Subpart OOOO	Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution for which Construction, Modification or Reconstruction Commenced After August 23, 2011 and On or Before September 18, 2015	No		This regulation does not apply because the facility will not be equipped with "affected" sources that are constructed, modified, or reconstructed after Aug 23, 2011 and on or before September 18, 2015: gas wells, centrifugal or reciprocating compressors, pneumatic controllers, and storage vessels (see §60.5365). Note that the facility is not a natural gas processing plant as defined by the subpart (see §60.5430). Note that the condensate storage tanks (Units T4 & T5) have not been modified or reconstructed.
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	No		This regulation does not apply because the facility will not be equipped with "affected" sources that are constructed, modified, or reconstructed after September 18, 2015: gas wells, centrifugal or reciprocating compressors, pneumatic controllers, storage vessels, pneumatic pumps, and equipment leaks (see §60.5365a). Note that the facility is not a natural gas processing plant as defined by the subpart (see §60.5430). Note that the condensate storage tanks (Units T4 & T5) have not been modified or reconstructed.
NESHAP 40 CFR 61, Subpart A	General Provisions	No		This regulation does not apply, because none of the other 40 CFR Part 61 subparts apply (see §61.1(c)).
NESHAP 40 CFR 61, Subpart V	National Emission Standards for Equipment Leaks (Fugitive Emission Sources)	No		The provisions of this subpart apply to each of the following sources that are intended to operate in volatile hazardous air pollutant (VHAP) service: pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, and control devices or systems required by this subpart (see §61.240(a)). VHAP service means a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 10 percent by weight of VHAP. VHAP means a substance regulated under this subpart for which a standard for equipment leaks of the substance has been promulgated (see §61.241). This subpart does not apply because none of the above listed equipment at the facility is in VHAP service.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
MACT 40 CFR 63, Subpart A	General Provisions	Yes	5	This regulation applies because 40 CFR 63, Subpart ZZZZ applies (see §63.1(b)).
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. This regulation is not applicable because there are no existing or planned activities at this facility that trigger applicability.
MACT 40 CFR 63, Subpart HH	National Emission Standards for Hazardous Air Pollutants For Oil and Natural Gas Production Facilities	No		This regulation is not applicable because the facility is not equipped with dehydrators, storage vessels with the potential for flashing losses or compressors or ancillary equipment in volatile HAP service as defined by the subpart (see §63.761). This subpart defines a production field facility as a facility "located prior to the point of custody transfer". The Chaco facility is a production field facility. Note: This subpart defines a natural gas processing plant as "any processing site engaged in the extraction of natural gas liquids from field gas, or the fractionation of mixed NGL to natural gas products, or a combination of both". The Chaco facility does not engage in either of these activities; therefore, it is not a processing plant as defined by the subpart. The subpart states, "For facilities that are production field facilities, only HAP emissions from glycol dehydration units and storage vessels shall be aggregated for a major source determination". By this definition the Chaco facility is a major HAP source. Storage vessel with the potential for flash emissions means any storage vessel that contains a hydrocarbon liquid with a stock tank gas-to-oil ratio equal to or greater than 0.31 cubic meters per liter and an American Petroleum Institute gravity equal to or greater than 40 degrees and an actual annual average hydrocarbon liquid throughput equal to or greater than 79,500 liters per day (500 barrels per day). Flash emissions occur when dissolved hydrocarbons in the fluid evolve from solution when the fluid pressure is reduced. At HFC facilities, condensate storage tanks are the only tanks in which the liquid has the properties identified by the definition and for which the fluid pressure is reduced so as to produce flash emissions. Since this facility is not equipped with dehydrators, condensate tanks with an actual annual average condensate throughput of 500 bbl/day, or compressors or ancillary equipment in VHAP service, Subpart HH does not apply.
MACT 40 CFR 63, Subpart HHH	National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities	No		This regulation is not applicable because the facility is not a natural gas transmission and storage facility as defined by the subpart.
MACT 40 CFR 63, Subpart YYYY	National Emission Standards for Hazardous Air Pollutants From Stationary Combustion Turbines	No		This regulation is not applicable because none of the turbines at the plant were constructed after the applicability date of January 14, 2003.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
MACT 40 CFR 63, Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT)	Yes	5	This regulation applies because the station is an area HAP source equipped with a stationary RICE (Unit 5). This facility is a production field facility; therefore, only HAP emissions from glycol dehydration units, storage vessels with the potential for flash emissions, combustion turbines and reciprocating internal combustion engines are aggregated for a major source determination (§63.6675). Storage vessel with the potential for flash emissions means any storage vessel that contains a hydrocarbon liquid with a stock tank gas-to-oil ratio equal to or greater than 0.31 cubic meters per liter and an American Petroleum Institute gravity equal to or greater than 40 degrees and an actual annual average hydrocarbon liquid throughput equal to or greater than 79,500 liters per day (500 barrels per day). Flash emissions occur when dissolved hydrocarbons in the fluid evolve from solution when the fluid pressure is reduced (see § 63.6675). At HFC facilities, condensate storage tanks are the only tanks in which the liquid has the properties identified by the definition and for which the fluid pressure is reduced so as to produce flash emissions. This facility is not equipped with dehydrators and the actual annual average condensate throughput will be much less than 500 bbl/day; therefore, it is an area HAP source. The engine is an existing (constructed or reconstructed before June 12, 2006) emergency stationary RICE as defined by the subpart. It must meet the following requirements (§63.6603 & Table 2d(5)): a. Change oil and filter every 500 hours of operation or annually, whichever comes first; b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.
MACT 40 CFR 63, Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	No		This regulation is not applicable because the facility is an area HAP source as defined by the subpart. Since the facility is a natural gas production field facility, only HAP emissions from glycol dehydration units and storage vessels with the potential for flash emissions are aggregated for a major source determination (see § 63.7575). Since Subpart DDDDD does not define "storage vessels with the potential for flash emissions", this evaluation uses the definitions from Subpart HH (see § 63.761), Subpart YYYY (see § 63.6175) and Subpart ZZZZ (see § 63.6675). Storage vessel with the potential for flash emissions means any storage vessel that contains a hydrocarbon liquid with a stock tank gas-to-oil ratio equal to or greater than 0.31 cubic meters per liter and an American Petroleum Institute gravity equal to or greater than 40 degrees and an actual annual average hydrocarbon liquid throughput equal to or greater than 79,500 liters per day (500 barrels per day). Flash emissions occur when dissolved hydrocarbons in the fluid evolve from solution when the fluid pressure is reduced. At HFC facilities, condensate storage tanks are the only tanks in which the liquid has the properties identified by the definition and for which the fluid pressure is reduced so as to produce flash emissions. This facility is not equipped with dehydrators and the actual annual average condensate throughput will be much less than 500 bbl/day; therefore, it is an area HAP source.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
MACT 40 CFR 63, Subpart JJJJJJ	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources	No		This regulation does not apply because the station is not equipped with boilers as defined by the subpart.
40 CFR 64	Compliance Assurance Monitoring	No		This regulation is not applicable because there are no sources at the station using control devices to achieve compliance with emission limits where pre control emissions equal or exceed the major source threshold (100 tons per year). Note that the EVRU is not control devices as defined by the part. Justification for this determination is provided at the end of this section.
40 CFR 68	Chemical Accident Prevention	No		This regulation is not applicable because the facility does not store any of the identified toxic and flammable substances in quantities exceeding the applicability thresholds.
40 CFR 70	State Operating Permit Programs	No		This regulation is not applicable, as the requirements associated with Title V are delegated to the State of New Mexico and implemented under 20 NMAC 2.70.
Title VI – 40 CFR 82	Protection of Stratospheric Ozone	No		This regulation is not applicable because the facility does not produce, manufacture, transform, destroy, import, or export ozone-depleting substances; does not maintain or service motor vehicle air conditioning units or refrigeration equipment; and does not sell, distribute, or offer for sale or distribution any product that contains ozone-depleting substances.

The Applicability of 40 CFR Part 64 to the Condensate Storage Tanks (Units T4 & T5)

40 CFR Part 64 defines control devices and inherent process equipment as follows (see § 64.1 Definitions):

> *Control device* means equipment, other than inherent process equipment, that is used to destroy or remove air pollutant(s) prior to discharge to the atmosphere. The types of equipment that may commonly be used as control devices include, but are not limited to, fabric filters, mechanical collectors, electrostatic precipitators, inertial separators, afterburners, thermal or catalytic incinerators, adsorption devices (such as carbon beds), condensers, scrubbers (such as wet collection and gas absorption devices), selective catalytic or non-catalytic reduction systems, flue gas recirculation systems, spray dryers, spray towers, mist eliminators, acid plants, sulfur recovery plants, injection systems (such as water, steam, ammonia, sorbent or limestone injection), and combustion devices independent of the particular process being conducted at an emissions unit (e.g., the destruction of emissions achieved by venting process emission streams to flares, boilers or process heaters). For purposes of this part, a control device does not include passive control measures that act to prevent pollutants from forming, such as the use of seals, lids, or roofs to prevent the release of pollutants, use of low-polluting fuel or feedstocks, or the use of combustion or other process design features or characteristics. If an applicable requirement establishes that particular equipment which otherwise meets this definition of a control device does not constitute a control device as applied to a particular pollutant-specific emissions unit, then that definition shall be binding for purposes of this part.
>
> *Inherent process equipment* means equipment that is necessary for the proper or safe functioning of the process, or material recovery equipment that the owner or operator documents is installed and operated primarily for purposes other than compliance with air pollution regulations. Equipment that must be operated at an efficiency higher than that achieved during normal process operations in order to comply with the applicable emission limitation or standard is not inherent process equipment. For the purposes of this part, inherent process equipment is not considered a control device.

The Chaco Compressor Station EVRU system is classified as inherent process equipment, since it is material recovery equipment operated to recover vapors from the condensate storage tanks (Units T4 & T5) and inject them back into pipeline ("operated primarily for purposes other than compliance with air pollution regulations"). As such, it does not meet the definition of a control device "used to destroy or remove air pollutant(s) prior to discharge to the atmosphere."

Williams Four Corners LLC (during the time they owned the facility) agreed to install the EVRU system as part of a settlement agreement; however, the violations associated with the settlement agreement were unrelated to the condensate tanks and their emissions. The reduction of VOC from the condensate tanks was chosen as a Supplemental Environmental Project for the settlement agreement, and Williams recognized the value of recovering product and injecting it back into the pipeline. The system was not installed to achieve compliance with air pollution regulations. The condensate storage tanks have been in operation for many years. Also, the condensate tanks are not subject to 40 CFR Part 60, Subparts Kb and OOOO or 40 CFR Part 63, Subpart HH. Since the emission rates identified in this application are based on normal operation, the equipment will not need to be "operated at an efficiency higher than that achieved during normal process operations in order to comply with the applicable emission limitation or standard."

As the condensate tanks do not use control devices to achieve compliance with emission limits, where pre control emissions equal or exceed the major source threshold (100 tons per year), compliance assurance monitoring is not required.

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Section 14

Operational Plan to Mitigate Emissions

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

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

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

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Section 15

Alternative Operating Scenarios

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

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

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

Harvest is permitting the option to replace the EVRU with a VRU. For details see Section 3.

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Section 16

Air Dispersion Modeling

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

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

Check each box that applies:

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

Modeling was last submitted for NSR permit number 0759-M3.

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Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

Compliance Test History Table

Unit No.	Test Description	Test Date
1	NOX and CO testing with a portable analyzer.	6/26/2018
2	NOX and CO testing with a portable analyzer.	6/26/2018
3	NOX and CO testing with a portable analyzer.	6/4/2015
4	NOX and CO testing with a portable analyzer.	6/26/2018

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Section 18

Addendum for Streamline Applications

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

Not applicable, as this is not a streamline application.

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Section 19

Requirements for Title V Program

Who Must Use this Attachment:

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

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

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

There are no sources at the station subject to 40 CFR, Part 64, Compliance Assurance Monitoring (CAM); consequently, a monitoring protocol is not required.

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 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 is provided in Section 20, Other Relevant Information. It identifies all the requirements of the current Title V operating permit and the methods and data used to determine compliance. It is assumed that compliance with the Title V operating permit ensures compliance with the construction permit and New Mexico regulations.

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

Provide a statement that your facility will continue to be in compliance with requirements for which it is in compliance at the time of permit application. This statement must also include a commitment to comply with other

applicable requirements as they come into effect during the permit term. This compliance must occur in a timely manner or be consistent with such schedule expressly required by the applicable requirement.

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

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

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

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

19.5 - Stratospheric Ozone and Climate Protection

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

---

1. Does your facility have any air conditioners or refrigeration equipment that uses CFCs, HCFCs or other ozone-depleting substances? ☐ **Yes** ☑ **No**

2. Does any air conditioner(s) or any piece(s) of refrigeration equipment contain a refrigeration charge greater than 50 lbs? ☐ **Yes** ☑ **No**
   (If the answer is yes, describe the type of equipment and how many units are at the facility.)

3. Do your facility personnel maintain, service, repair, or dispose of any motor vehicle air conditioners (MVACs) or appliances ("appliance" and "MVAC" as defined at 82. 152)? ☐ **Yes** ☑ **No**

4. Cite and describe which Title VI requirements are applicable to your facility (i.e. 40 CFR Part 82, Subpart A through G). **None**

The station does not produce, manufacture, transform, destroy, import, or export any stratospheric ozone-depleting substances (CFCs, HCFCs); does not maintain or service motor vehicle air conditioning units or refrigeration equipment; and does not sell, distribute, or offer for sale any product that may contain stratospheric ozone-depleting substances.

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

19.6 - Compliance Plan and Schedule

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

A. Description of Compliance Status: (20.2.70.300.D.11.a NMAC)
A narrative description of your facility's compliance status with respect to all applicable requirements (as defined in 20.2.70 NMAC) at the time this permit application is submitted to the department.

B. Compliance plan: (20.2.70.300.D.11.B NMAC)
A narrative description of the means by which your facility will achieve compliance with applicable requirements with which it is not in compliance at the time you submit your permit application package.

C. Compliance schedule: (20.2.70.300D.11.c NMAC)
A schedule of remedial measures that you plan to take, including an enforceable sequence of actions with milestones, which will lead to compliance with all applicable requirements for your source. This schedule of compliance must be at least as stringent as that contained in any consent decree or administrative order to which your source is subject. The obligations of any consent decree or administrative order are not in any way diminished by the schedule of compliance.

D. Schedule of Certified Progress Reports: (20.2.70.300.D.11.d NMAC)
A proposed schedule for submission to the department of certified progress reports must also be included in the compliance schedule. The proposed schedule must call for these reports to be submitted at least every six (6) months.

E. Acid Rain Sources: (20.2.70.300.D.11.e NMAC)
If your source is an acid rain source as defined by EPA, the following applies to you. For the portion of your acid rain source subject to the acid rain provisions of title IV of the federal Act, the compliance plan must also include any additional requirements under the acid rain provisions of title IV of the federal Act. Some requirements of title IV regarding the schedule and methods the source will use to achieve compliance with the acid rain emissions limitations may supersede the requirements of title V and 20.2.70 NMAC. You will need to consult with the Air Quality Bureau permitting staff concerning how to properly meet this requirement.

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

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

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

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

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

The station is located within 80 kilometers (km) of the following states, local pollution control programs, Indian tribes and pueblos:

Colorado (33.8 km)

Navajo Indian Reservation (1.6 km)
Southern Ute Indian Reservation (33.8 km)
Jicarilla Apache Indian Reservation (57.9 km)
Ute Mountain Indian Reservation (19.3 km)

19.9 - Responsible Official

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

The responsible official for the Chaco Compressor Station is Travis Jones.

Section 20

Other Relevant Information

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

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

A copy of Part 1 (Permit Requirements Certification Table) of the 2019 annual compliance certification is provided in this section. Please see the following pages

Part 1 - Permit Requirements Certification Table

Annual Compliance Certification Data for Title V Permit No. P236-R2 & P236-R2M1				
1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
FACILITY SPECIFIC REQUIREMENTS **A101 Permit Duration (expiration)** A. The term of this permit is five (5) years. It will expire five years from the date of issuance. Application for renewal of this permit is due twelve (12) months prior to the date of expiration. (20.2.70.300.B.2 and 302.B NMAC)	Submittal of a renewal application at least 12 months prior to this permit's August 19, 2021 expiration date will demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A101 Permit Duration (expiration) B. If a timely and complete application for a permit renewal is submitted, consistent with 20.2.70.300 NMAC, but the Department has failed to issue or disapprove the renewal permit before the end of the term of the previous permit, then the permit shall not expire and all the terms and conditions of the permit shall remain in effect until the renewal permit has been issued or disapproved. (20.2.70.400.D NMAC)	Submittal of a renewal application at least 12 months prior to this permit's August 19, 2021 expiration date will demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A102 Facility: Description B. This facility is located approximately one mile south of Bloomfield in San Juan County, New Mexico. (20.2.70.302.A(7) NMAC)	Semi-annual reports and this ACC are used to determine that the source continues to comply with this condition.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A103 Facility: Applicable Regulations A. The permittee shall comply with all applicable sections of the requirements listed in Table 103.A	Semi-annual reports and the annual emissions inventory are used to demonstrate compliance with the identified applicable requirements of Table 103-A.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

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

Table 103.A: Applicable Requirements

Applicable Requirements	Federally Enforceable	Unit No.
NSR Permit No: **0759-M5R1** (Per 20.2.72 NMAC)	X	Entire Facility
20.2.1 NMAC General Provisions	X	Entire Facility
20.2.7 NMAC Excess Emissions	X	Entire Facility
20.2.61 NMAC Smoke and Visible Emissions	X	Units 1, 2, 3, 4, and 5
20.2.70 NMAC Operating Permits	X	Entire Facility
20.2.71 NMAC Operating Permit Emission Fees	X	Entire Facility
20.2.72 NMAC Construction Permit	X	Entire Facility
20.2.73 NMAC Notice of Intent and Emissions Inventory Requirements	X	Entire Facility
20.2.77 NMAC New Source Performance	X	Unit 4
20.2.82 NMAC MACT Standards for Source Categories of HAPS	X	Unit 5
40 CFR 50 National Ambient Air Quality Standards	X	Entire Facility
40 CFR 60, Subpart A, General Provisions	X	Unit 4
40 CFR 60, Subpart GG	X	Unit 4
40 CFR 63, Subpart A, General Provisions	X	Unit 5
40 CFR 63, Subpart ZZZZ	X	Unit 5
Supplemental environmental Project to Settlement Agreement AQCA-09-00(CO) dated 5/18/2010	X	EVRU

A103 Facility: Applicable Regulations C. Compliance with the terms and conditions of this permit regarding source emissions and operation demonstrate compliance with national ambient air quality standards specified at 40 CFR 50, which were applicable at the time air dispersion modeling was performed for the facility's NSR Permit 0759-M3.	Semi-annual reports and the annual emissions inventory are used to demonstrate compliance with the identified applicable requirements of this permit.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A104 Facility: Regulated Sources A. Table 104.A lists the emission units authorized for this facility. Emission units	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	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

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

Table 104.A: Regulated Sources List

Unit No.	Source Description	Make/ Model	Serial No.	Maximum Capacity/ Permitted Capacity	Manufacture Date	Other
1	Turbine	Solar Saturn/ 10-1001	S401983/ OHA08-S0299	1,200 hp / 976 hp	08-JUN-71	Heat Input: 10.79 MMBtu/hr
2	Turbine	Solar Saturn/ 10-1001	S401984/ OHA10-S1717	1,200 hp / 976 hp	08-JUN-71	Heat Input: 10.79 MMBtu/hr
3	Turbine	Solar Saturn/ 10-1202	S428315/ OHA08-S0335	1,200 hp / 976 hp	19-JUL-73	Heat Input: 10.79 MMBtu/hr
4	Turbine	Solar Centaur/ 40-4002	S3020212/ OHJ12-C8442	3,961 hp / 3,222 hp	01-JAN-94	Heat Input: 51.37 MMBtu/hr
5	Standby Generator	Detroit Diesel	4A0219278	200 hp / 200 hp	01-OCT-80	
L1	Transfer - Truck loading	NA	NA	NA	NA	
T4	Fixed Roof Condensate Tank	Giant	UNKNOWN	500 bbl / 21,000 gal	19-MAY-95	
T5	Fixed Roof Condensate Tank	Giant	UNKNOWN	450 bbl / 18,900 gal	08-JAN-01	
T6	Produced Water Storage Tank	UNKNOWN	UNKNOWN	45 bbl / 1,890 gal	UNKNOWN	

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

T12	Produced Water Storage Tank	UNKNOWN	UNKNOWN	70 bbl/ 2,940 gal	UNKNOWN	Overflow for T-6
M	Facility Wide Malfunctions for venting VOCs	NA	NA	NA	NA	
SSM 1a-4a	Compressor & Associated Piping Blowdowns	NA	NA	NA	NA	

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

A105 Facility: Control Equipment A. Table 105.A lists all the pollution control equipment required for this facility. Each emission point is identified by the same number that was assigned to it in the permit application.	Semi-annual reports, periodic monitoring, the annual emissions inventory and this ACC are used to determine that the source continues to comply with control equipment requirements.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

Table 105.A: Control Equipment List:

Control Equipment Unit No.	Control Description	Pollutant being controlled	Control for Unit No.[1]
EVRU	A 3-phase separator and an EVRU[2]. The EVRU will be a two stage series ejector system.	VOC and HAP	Condensate Tanks T-4 and T-5

1 Control for unit number refers to a unit number from the Regulated Equipment List
2 EVRU means Ejector Vapor Recovery Unit and will be a two stage series ejector system.

A106 Facility: Allowable Emissions A. The following Section lists the emission units, and their allowable emission limits. (40 CFR 50; 40 CFR 60, Subparts A and GG; 40 CFR 63, Subparts A and ZZZZ; Paragraphs 1, 7, and 8 of 20.2.70.302.A NMAC; and NSR Permit 0759-M5R1)	Semi-annual reports, periodic monitoring, the annual emissions inventory and this ACC are used to determine that the source continues to comply with allowable emissions.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

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

Table 106.A: Allowable Emissions

Unit No.	[1]NO_x pph	NO_x tpy	CO pph	CO tpy	VOC pph	VOC tpy	TSP, PM_{10}, $PM_{2.5}$ pph	TSP, PM_{10}, $PM_{2.5}$ tpy
1	3.3	14.3	3.5	15.1	<	<	<	<
2	3.3	14.3	3.5	15.1	<	<	<	<
3	3.3	14.3	3.5	15.1	<	<	<	<
4	16.7	73.0	4.2	18.6	<	2.3	<	1.5
L-1	-	-	-	-	23.7	1.8	-	-
T-4/T-5	-	-	-	-	*	136.9	-	-
T-6/T-12	-	-	-	-	*	2.0	-	-

1 Nitrogen dioxide emissions include all oxides of nitrogen expressed as NO_2.
2 Title V annual fee assessments are based on the sum of allowable tons per year emission limits in Sections A106 and A107.
"-" indicates the application represented emissions as not expected for this pollutant.
"<" indicates the application represented uncontrolled emissions less than 1.0 pph or 1.0 tpy for this pollutant. Allowable limits are not imposed on this level of emissions, except for flares and pollutants with controls.
"*" indicates hourly emission limits are not appropriate for this operating situation.

A106 Facility: Allowable Emissions B. Unit 4, nitrogen dioxide emissions shall not exceed 150 ppmv at 15 percent oxygen and on a dry basis, and the fuel burned shall not contain total sulfur in excess 0.8 percent by weight (8000 ppmw). (40 CFR 60, Subpart GG)	Initial compliance testing of Unit 4, as required by GG, was completed in a previous monitoring period. CFMS monitoring in condition A205.B demonstrates compliance with GG fuel sulfur limits.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A107 Facility: Allowable Startup, Shutdown, & Maintenance (SSM) and Malfunction Emissions	Records of SSM emissions are maintained to ensure compliance.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

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

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

Unit No.	Description	VOC (tpy)	H_2S (pph)	H_2S (tpy)
SSM from [Units 01a - 04a]	[1]Compressor & Associated Piping Blowdowns during Routine and Predictable Startup, Shutdown, and/or Maintenance (SSM)	21.4	<	<
M	[1]Venting of Gas Due to Malfunction	10.0	<	<

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

A107 Facility: Allowable Startup, Shutdown, & Maintenance (SSM) and Malfunction Emissions B. The authorization of emission limits for startup, shutdown, maintenance, and malfunction does not supersede the requirements to minimize emissions according to Conditions B101.C and B107.A.	Records of SSM emissions are maintained to ensure compliance.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A107 Facility: Allowable Startup, Shutdown, & Maintenance (SSM) and Malfunction Emissions C. SSM VOC Emissions for venting of gas **Requirement**: The permittee shall perform a facility inlet gas analysis once every year and complete the following recordkeeping to	Records of SSM emissions, including an annual gas analysis, are maintained to ensure compliance.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
demonstrate compliance with routine and predictable startup, shutdown, and maintenance (SSM) emission limits in Table 107.A. (NSR 0759-M5R1 Condition A107.C)				
Monitoring: The permittee shall monitor the permitted routine and predictable startups and shutdowns and scheduled maintenance events.	Records of SSM events and associated volumes, along with extended gas analyses, are maintained to ensure compliance.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Recordkeeping: To demonstrate compliance, each month records shall be kept of the cumulative total of VOC emissions due to SSM events during the first 12 months due to SSM events and, thereafter of the monthly rolling 12 month total of VOC emissions due to SSM events. Records shall also be kept of the inlet gas analysis, the percent VOC of the gas based on the most recent gas analysis, and of the volume of total gas vented in MMscf used to calculate the VOC emissions due to SSM events. The permittee shall record the calculated emissions and parameters used in calculations in accordance with Condition B109, except the requirement in B109.E to record the start and end times of SSM events shall not apply to the venting of known quantities of VOC.	Records of SSM emissions, including the inlet gas analysis, are maintained as required and reported in the applicable semi-annual report.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall report in accordance with Section B110.	Records of SSM emissions are reported in the applicable semi-annual report.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A107 Facility: Allowable Startup, Shutdown, & Maintenance (SSM) and Malfunction Emissions	Malfunctions that occurred during the applicable monitoring peirods were recorded and used toward the permitted allowable. The gas analysis is	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
D. Malfunction Emissions **Requirement**: The permittee shall perform a facility inlet gas analysis once every year and complete the following recordkeeping to demonstrate compliance with malfunction (M) emission limits in Table 107.A. (NSR 0759-M5R1 Condition A107.D)	obtained as required.			
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.	Malfunctions that occurred during the applicable monitoring periods were recorded and used toward the permitted allowable.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Recordkeeping: To demonstrate compliance, each month records shall be kept of the cumulative total of VOC emissions due to malfunction events during the first 12 months and, thereafter of the monthly rolling 12 month total of VOC emissions due to malfunction events. Records shall also be kept of the inlet gas analysis, the percent VOC of the gas based on the most recent gas analysis, of the volume of total gas vented in MMscf used to calculate the VOC emissions, a description of the event, and whether the emissions resulting from the event will be used toward the permitted malfunction emission limit or whether the event is reported under 20.2.7 NMAC. The permittee shall record the calculated emissions and parameters used in calculations in accordance with Condition B109, except the requirement in B109.E to record the start and end times of malfunction	Malfunctions that occurred during the applicable monitoring periods were recorded and used toward the permitted allowable.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
events shall not apply to the venting of known quantities of VOC.				
Reporting: The permittee shall report in accordance with Section B110.	Malfunctions that occurred during the applicable monitoring periods were recorded and used toward the permitted allowable.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A108 Facility: Hours of Operation A. This facility is authorized for continuous operation. Monitoring, recordkeeping, and reporting are not required to demonstrate compliance with continuous hours of operation.				
A109 Facility: Reporting Schedules (20.2.70.302.E NMAC) A. A Semi-Annual Report of monitoring activities is due within 45 days following the end of every 6-month reporting period. The six month reporting periods start on April 1st and October 1st of each year.	The first semi-annual report associated with this ACC was submitted November 2, 2018. Submittal of the second semi-annual report associated with this ACC by May 15 will demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A109 Facility: Reporting Schedules (20.2.70.302.E NMAC) B. The Annual Compliance Certification Report is due within 30 days of the end of every 12-month reporting period. The 12-month reporting period starts on April 1st of each year.	This ACC will be submitted by April 30.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A110 Facility: Fuel and Fuel Sulfur Requirements A. Fuel and Fuel Sulfur Requirements (Units 1, 2, 3, and 4) **Requirement:** All combustion emission units shall combust only natural gas containing no more than 0.2 grains of total	Only natural gas is used for fuel. Fuel sulfur records are included in the applicable semi-annual report.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
sulfur per 100 dry standard cubic feet. (NSR 0759-M5R1 Condition A110.A)				
Monitoring: None **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 fuel, OR fuel gas analysis, specifying the allowable limit or less. Alternatively, compliance may be demonstrated by keeping a receipt or invoice from a commercial fuel supplier, with each fuel delivery, which shall include the delivery date, the fuel type delivered, the amount of fuel delivered, and the maximum sulfur content of the fuel. If fuel gas analysis is used, the analysis shall not be older than one year.	Only natural gas is used for fuel. Fuel sulfur records are maintained as required and are included in the applicable semi-annual report.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall report in accordance with Section B110.	Only natural gas is used for fuel. Fuel sulfur records are included in the applicable semi-annual report.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A111 Facility: 20.2.61 NMAC Opacity A. 20.2.61 NMAC Opacity Limit (Units 1, 2, 3, and 4) **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.	Only natural gas is used for fuel. No visible emissions were observed during the monitoring period.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
Monitoring: Use of natural gas fuel constitutes compliance with 20.2.61 NMAC unless opacity equals or exceeds 20% averaged over a 10-minute period. When any visible emissions are observed during operation other than during startup mode, opacity shall be measured over a 10-minute period, in accordance with the procedures at 40 CFR 60, Appendix A, Reference Method 9 (EPA Method 9) as required by 20.2.61.114 NMAC, or the operator will be allowed to shut down the equipment to perform maintenance/repair to eliminate the visible emissions. Following completion of equipment maintenance/repair, the operator shall conduct visible emission observations following startup in accordance with the following procedures: • Visible emissions observations shall be conducted over a 10-minute period during operation after completion of startup mode in accordance with the procedures at 40 CFR 60, Appendix A, Reference Method 22 (EPA Method 22). If no visible emissions are observed, no further action is required. • If any visible emissions are observed during completion of the EPA Method 22 observation, subsequent opacity observations shall be conducted over a 10-minute period, in accordance with the procedures at EPA Method 9 as required by 20.2.61.114 NMAC. For the purposes of this condition, *Startup mode* is defined as the startup period that is described in the facility's startup plan.	Only natural gas is used for fuel. No visible emissions were observed during the monitoring period.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
Recordkeeping: If no visible emissions were observed, none. If any visible emissions observations were conducted, the permittee shall keep records in accordance with the requirements of Section B109 and as follows: • For any visible emissions observations conducted in accordance with EPA Method 22, record the information on the form referenced in EPA Method 22, Section 11.2. • For any opacity observations conducted in accordance with the requirements of EPA Method 9, record the information on the form referenced in EPA Method 9, Sections 2.2 and 2.4.	Only natural gas is used for fuel. No visible emissions were observed during the monitoring period.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall report in accordance with Section B110.	Only natural gas is used for fuel. No visible emissions were observed during the monitoring period.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A111 Facility: 20.2.61 NMAC Opacity B. 20.2.61 NMAC Opacity Limit (Unit 5) **Requirement**: Visible emissions from all stationary combustion emission stacks shall not equal or exceed an opacity of 20 percent.	Annual opacity measurement records are maintained to demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Monitoring: Once every calendar year, an opacity measurement shall be performed on each Unit for a minimum of 10 minutes in accordance with the procedures of 40 CFR 60, Appendix A, Method 9.	Annual opacity measurement records are maintained to demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Recordkeeping: The permittee shall record the opacity measures with the corresponding	Annual opacity measurement records are maintained to demonstrate compliance with this	☐ **Continuous**	☒ **Yes**	☐ **Yes**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
opacity readings in accordance with Method 9 in 40 CFR 60, Appendix A.	requirement.	☒ **Intermittent**	☐ **No**	☒ **No**
Reporting: The permittee shall report in accordance with Section B110.	Annual opacity measurement records are are included in the applicable semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
EQUIPMENT SPECIFIC REQUIREMENTS **A201 Engines** A. 40 CFR 63, Subpart ZZZZ (Unit 5) **Requirement**: The unit is subject to 40 CFR 63, Subpart ZZZZ and the permittee shall comply with all applicable requirements of Subpart A and Subpart ZZZZ.	Records of maintenance and hours of operation are maintained to demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Monitoring: The permittee shall comply with all applicable monitoring requirements of 40 CFR 63, Subpart A and Subpart ZZZZ.	Records of maintenance and hours of operation are maintained to demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Recordkeeping: The permittee shall comply with all applicable recordkeeping requirements of 40 CFR 63, Subpart A and Subpart ZZZZ, including but not limited to 63.6655 and 63.10.	Records of maintenance and hours of operation are maintained to demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall comply with all applicable reporting requirements of 40 CFR 63, Subpart A and ZZZZ, including but not limited to 63.6645, 63.6650, 63.9, and 63.10.	Records of maintenance and hours of operation are included in the applicable semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A201 Engines B. Hours of Operation (Unit 5) **Requirement**: To ensure compliance with	Records of hours of operation are maintained to demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
NSR Exemption 20.2.72.202(B)(3) NMAC, the monthly rolling 12-month total hours of operation for Standby Generator Unit 5 is limited to 500 hours.				
Monitoring: The permittee shall monitor the dates and hours of operation for the unit.	Records of hours of operation are maintained to demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Recordkeeping: The permittee shall record the daily hours of operation, calculate and record the monthly rolling 12-month total hours of operation, and shall meet the recordkeeping requirements in Section B109.	Records of hours of operation are maintained to demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall report in accordance with Section B110.	Records of hours of operation are are included in the applicable semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A203 Tanks A. Tank Operations (Units T4 & T5) [with flash emissions] **Requirement:** 1) Compliance with the allowable emission limits in Table 106.A shall be demonstrated by monthly monitoring of the actual total condensate throughput and separator pressure and by calculating emission rates as required. 2) The permittee shall calculate the monthly rolling 12-month total, tpy VOC emission rates using actual measured condensate throughput, actual measured average separator pressure, and the most recent condensate VOC analysis. (NSR Permit 0759-M5R1 Condition A203.A)	Monthly condensate throughput and pressure records are maintained to demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
Monitoring: 1) The permittee shall monitor the monthly total condensate throughput, and at least once per month, the upstream separator pressure. 2) Annually the permittee shall complete a liquids analysis of the tank condensate to determine the VOC content.	Monthly condensate throughput and pressure records are maintained to demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Recordkeeping: 1) The permittee shall record the monthly total condensate throughput of liquids and the monthly average separator pressure. Each month the permittee shall use these values to calculate and record a monthly rolling 12-month total condensate throughput and a monthly rolling 12-month average separator pressure. 2) The permittee shall calculate the monthly rolling 12-month total VOC tpy emission rates using HYSYS or other previously approved thermodynamic model, such as VMGSim, etc. and Tanks 4.09d; the number of hours that the EVRU control system is non-operational as defined in Condition A203.B; the actual measured condensate throughput; the actual measured average separator pressure; and the most recent condensate VOC analysis. 3) The permittee shall keep records of the parameters, calculations, and VOC emission rates summarized in a table or spreadsheet and shall meet the recordkeeping requirements in Section B109.	Monthly condensate throughput and pressure records are maintained to demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: 1) The permittee shall report in accordance with Section B110.	Monthly condensate throughput and pressure records are included in the applicable semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
2) All excess emissions and Title V deviations of allowable emission limits shall be reported according to 20.2.7 NMAC and 20.2.70.302.E(2) NMAC.				
A203 Tanks B. Tank EVRU Operations (Units T4 & T5) **Requirement:** To demonstrate compliance with allowable emission limits in Table 106.A, emissions from T4 & T5 shall be routed to and controlled by an Ejector Vapor Recovery Unit (EVRU), as required in Table 105.A (Control Equipment List). (SFO and Settlement Agreement # AQCA 09-00(CO) dated May 18, 2010). (NSR Permit 0759-M5R1 Condition A203.B) 1) The permittee shall operate and maintain the EVRU according to manufacturer's or supplier's recommendations. 2) The permittee shall install a system to continuously monitor the tank pressure. The tank Pressure Relief Valves (PRVs) shall open only to prevent damage to the system and shall be set to open at no less than 14.4 ounces per square inch of gauge pressure. Other than venting from PRVs to avoid system damage, T4 & T5 tank emissions shall at all times be routed to and controlled by the EVRU as a closed loop system that captures and routes tank emissions back to the process.	Records of EVRU inspection, tank pressure monitoring and monthly emissions calculations are maintained to demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Monitoring: At least weekly, the permittee shall inspect the EVRU control system and tank PRVs for defects that could result in air emissions. Defects include, but are not limited to, visible cracks, holes, or gaps;	Records of EVRU inspection, tank pressure monitoring and monthly emissions calculations are maintained to demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☐ **Yes** ☒ **No**	☒ **Yes** ☐ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices. In the event that a leak or defect is detected, the permittee shall repair the leak or defect as soon as practicable and in a manner that minimizes VOC emissions to the atmosphere. In addition, the permittee shall continuously monitor the following parameters: 1) Hours of non-operation of the EVRU; and 2) Tank pressure.	As noted in Part 2 of the semiannual report submitted concurrently with this ACC, there were two instances where the weekly inspections were not performed.			
Recordkeeping: 1) For the purposes of calculating VOC emission rates, at any time a 100% capture efficiency is not achieved the EVRU control system shall be considered non-operational with a 0% control efficiency. EVRU control system non-operation includes any time PRVs open, any time leaks or defects are found during weekly EVRU control system inspections, and any other time when 100% of tank emissions are not captured. 2) The permittee shall record all dates and times that the EVRU control system was non-operational and the reason(s) that the EVRU control system is non-operational (e.g. PRVs open). 3) The permittee shall continuously record the tank pressure. 4) Each month, the permittee shall calculate and record the monthly rolling 12-month total number of hours that the EVRU is not meeting the 100% capture efficiency and is non-operational. 5) Each month, the permittee shall calculate and record the monthly rolling 12-month tpy	Records of EVRU inspection, tank pressure monitoring and monthly emissions calculations are maintained to demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
VOC emission rates from the tank as required by Condition A203.A assuming 0% control when the EVRU control system is non-operational as defined in this condition. 6) The permittee shall record the results of the EVRU inspections noting any defects, the date a defect is found, and the dates and description of any repairs and/or maintenance performed. 7) The permittee shall meet the recordkeeping requirements in Section B109.				
Reporting: 1) The permittee shall report in accordance with Section B110. 2) Any emissions exceedance of the allowable emission limit in Table 106.A, shall be reported as excess emissions and Title V deviations according to 20.2.7 NMAC, 20.2.70.302.E(2) NMAC, and Condition B110.B and C.	Records of EVRU inspection, tank pressure monitoring and monthly emissions calculations are included in the applicable semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A203 Tanks C. Tank Throughput (Units T-6 and T-12) [without flash emissions] **Requirement**: Compliance with the allowable emission limits in Table 106.A shall be demonstrated by the total produced water throughput to the unit(s) not exceeding 630,000 gallons per year (15,000 barrels/year) of combined throughput. (NSR Permit 0759-M5R1 Condition A203.C)	Records of monthly liquids thoughput are maintained to demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Monitoring: The permittee shall monitor the monthly total throughput once per month.	Records of monthly liquids thoughput are maintained to demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
Recordkeeping: The permittee shall record the monthly total throughput of liquids for both tanks and each month the permittee shall use this value to calculate and record a monthly rolling, 12-month total throughput. As represented in the application, annually the permittee shall calculate tank breathing and working losses using the USEPA Tanks program Version 4.0.9d or equivalent Department approved method. Emission rates computed using the same parameters, but with a different Department approved algorithm that exceed these values will not be deemed non-compliance with this permit. Records shall also be maintained in accordance with Section B109.	Records of monthly liquids thoughput are maintained to demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall report in accordance with Section B110.	Records of monthly liquids thoughput are included in the applicable semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A203 Tanks D. Truck Loading - Condensate Loadout (Unit L1) **Requirement**: Compliance with the allowable emission limits in Table 106.A shall be demonstrated by monitoring the total annual condensate loadout volume to ensure that it does not exceed 1,335,000 gallons per year. (NSR Permit 0759-M5R1 Condition A203.D)	Monthly condensate throughput (truck loading) records are maintained to demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Monitoring: The permittee shall monitor the condensate truck loadout volume on a monthly basis.	Monthly condensate throughput (truck loading) records are maintained to demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
Recordkeeping: The permittee shall record the monthly condensate truck loadout volume. Each month during the first 12 months of monitoring the permittee shall record the cumulative condensate loadout volume and after the first 12 months of monitoring, the permittee shall calculate and record the monthly rolling 12-month total loadout volume. Records shall also be maintained in accordance with Section B109.	Monthly condensate throughput (truck loading) records are maintained to demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall report in accordance with Section B110.	Monthly condensate throughput (truck loading) records are included in the applicable semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
A205 Turbines A. Periodic Emissions Tests (Units 1, 2, 3, and 4) **Requirement**: Compliance with the allowable emission limits in Table 106.A shall be demonstrated by conducting periodic emission tests during the monitoring period. (NSR Permit 0759-M5R1 Condition A205.A, revised)	Periodic test reports included in the applicable semi-annual reports demonstrate compliance with emissions limits.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
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. Emissions 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	Periodic test reports included in the applicable semi-annual reports demonstrate compliance with emissions limits.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
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 a calendar year (January 1 to December 31). (2) The tests shall continue based on the existing testing schedule. (3) All subsequent testing shall occur in each succeeding monitoring period. No two monitoring events shall occur closer together in time than 25% of a monitoring period. (4) The permittee shall follow the General Testing Procedures of Section B111. (5) Performance testing required by 40 CFR 60, Subpart GG may be used to satisfy these periodic testing requirements if they meet the requirements of this condition and are completed during the specified monitoring period.				
Recordkeeping: The permittee shall maintain records in accordance with Section 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.). 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.	Periodic test reports are maintained to demonstrate compliance with this requirement.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall report in accordance with Section B109, B110, and B111.	Periodic test reports included in the applicable semi-annual reports demonstrate compliance with emissions limits.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

1. Permit Condition # and Permit Condition:	2. Method(s) or other information or other facts used to determine the compliance status:	3. What is the frequency of data collection used to determine compliance?	4. Was this facility in compliance with this requirement during the reporting period?	5. Were there any deviations associated with this requirement during the reporting period?
A205 Turbines B. 40 CFR 60, Subpart GG (Unit 4) **Requirement**: The unit is 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.	Fuel sulfur monitoring records demonstratec compliance with GG sulfur standards. Initial compliance testing was completed in a previous monitoring period.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Monitoring: The permittee shall comply with the monitoring and testing requirements of 40 CFR 60.334 and 60.335.	Records of fuel sulfur monitoring are included in the applicable semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Recordkeeping: The permittee shall comply with the recordkeeping requirements of 40 CFR 60.334 and 40 CFR 60.7.	Records of fuel sulfur monitoring are included in the applicable semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**
Reporting: The permittee shall comply with the reporting requirements of 40 CFR 60.7.	Records of fuel sulfur monitoring are included in the applicable semi-annual reports.	☐ **Continuous** ☒ **Intermittent**	☒ **Yes** ☐ **No**	☐ **Yes** ☒ **No**

PART 1 B General Conditions

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

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

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

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

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

(8) In the case where an applicant or permittee has submitted information to the Department under a claim of confidentiality, the Department may also require the applicant or permittee to submit a copy of such information directly to the Administrator of the EPA. (20.2.70.301.B NMAC)

(9) The issuance of this permit, or the filing or approval of a compliance plan, does not relieve the permittee from civil or criminal liability for failure to comply with the state or Federal Acts, or any applicable state or federal regulation or law. (20.2.70.302.A.6 NMAC and the New Mexico Air Quality Control Act NMSA 1978, Chapter 74, Article 2)

(10) If any part of this permit is challenged or held invalid, the remainder of the permit terms and conditions are not affected and the permittee shall continue to abide by them. (20.2.70.302.A.1.d NMAC)

(11) A responsible official (as defined in 20.2.70.7.AE NMAC) shall certify the accuracy, truth and completeness of every report and compliance certification submitted to the Department as required by this permit. These certifications shall be part of each document. (20.2.70.300.E NMAC)

(12) Revocation or termination of this permit by the Department terminates the permittee's right to operate this facility. (20.2.70.201.B NMAC)

(13) The permittee shall continue to comply with all applicable requirements. For applicable requirements that will become effective during the term of the permit, the permittee shall meet such requirements on a timely basis. (Sections 300.D.10.c and 302.G.3 of 20.2.70 NMAC)

B. Permit Shield (20.2.70.302.J NMAC)

(1) Compliance with the conditions of this permit shall be deemed to be compliance with any applicable

requirements existing as of the date of permit issuance and identified in Table 103.A. The requirements in Table 103.A are applicable to this facility with specific requirements identified for individual emission units.

(2) The Department has determined that the requirements in Table 103.B as identified in the permit application are not applicable to this source, or they do not impose any conditions in this permit.

(3) This permit shield does not extend to administrative amendments (Subsection A of 20.2.70.404 NMAC), to minor permit modifications (Subsection B of 20.2.70.404 NMAC), to changes made under Section 502(b)(10), changes under Paragraph 1 of subsection H of 20.2.70.302 of the Federal Act, or to permit terms for which notice has been given to reopen or revoke all or part under 20.2.70.405 and 20.2.70.302J(6).

(4) This permit shall, for purposes of the permit shield, identify any requirement specifically identified in the permit application or significant permit modification that the department has determined is not applicable to the source, and state the basis for any such determination. (20.2.70.302.A.1.f NMAC)

C. The owner or operator of a source having an excess emission shall, to the extent practicable, operate the source, including associated air pollution control equipment, in a manner consistent with good air pollutant control practices for minimizing emissions. (20.2.7.109 NMAC). The establishment of allowable malfunction emission limits does not supersede this requirement.

REMARKS:
Facility was in compliance with applicable requirements during the applicable period

B102 Authority

☒ **Yes** Explain Below	☐ **No** Explain Below	☐ **N/A** Explain Below

A. This permit is issued pursuant to the federal Clean Air Act ("Federal Act"), the New Mexico Air Quality Control Act ("State Act") and regulations adopted pursuant to the State and Federal Acts, including Title 20, New Mexico Administrative Code, Chapter 2, Part 70 (20.2.70 NMAC) - Operating Permits.

B. This permit authorizes the operation of this facility. This permit is valid only for the named permittee, owner, and operator. A permit modification is required to change any of those entities.

C. The Department specifies with this permit, terms and conditions upon the operation of this facility to assure compliance with all applicable requirements, as defined in 20.2.70 NMAC at the time this permit is issued. (20.2.70.302.A.1 NMAC)

D. Pursuant to the New Mexico Air Quality Control Act NMSA 1978, Chapter 74, Article 2, all terms and conditions in this permit, including any provisions designed to limit this facility's potential to emit, are enforceable by the Department. All terms and conditions are enforceable by the Administrator of the United States Environmental Protection Agency ("EPA") and citizens under the Federal Act, unless the term or condition is specifically designated in this permit as not being enforceable under the Federal Act. (20.2.70.302.A.5 NMAC) E. The Department is the Administrator for 40 CFR Parts 60, 61, and 63 pursuant to the Modification and Exceptions of Section 10 of 20.2.77 NMAC (NSPS), 20.2.78 NMAC (NESHAP), and 20.2.82 NMAC (MACT).			
REMARKS: Only the permitted owner operated the facility during the applicable period.			
B103 Annual Fee A. The permittee shall pay Title V fees to the Department consistent with the fee schedule in 20.2.71 NMAC - Operating Permit Emission Fees. The fees will be assessed and invoiced separately from this permit. (20.2.70.302.A.1.e NMAC)	☒ **Yes** Explain Below	☐ **No** Explain Below	☐ **N/A** Explain Below
REMARKS: 2017 operating permit emission fees were submitted on May 7, 2018. The 2018 invoice had not been paid as of the end of this compliance period.			
B104 Appeal Procedures (20.2.70.403.A NMAC) A. Any person who participated in a permitting action before the Department and who is adversely affected by such permitting action, may file a petition for a hearing before the Environmental Improvement Board ("board"). The petition shall be made in writing to the board within thirty (30) days from the date notice is given of the Department's action and shall specify the portions of the permitting action to which the petitioner objects, certify that a copy of the petition has been mailed or hand-delivered, and attach a copy of the permitting action for which review is sought. Unless a timely request for a hearing is made, the decision of the Department shall be final. The petition shall be copied simultaneously to the Department upon receipt of the appeal notice. If the petitioner is not the applicant or permittee, the petitioner shall mail or hand-deliver a copy of the petition to the applicant or permittee. The Department shall certify the administrative record to the board. Petitions for a hearing shall be	☐ **Yes** Explain Below	☐ **No** Explain Below	☒ **N/A** Explain Below

sent to: Secretary, New Mexico Environmental Improvement Board 1190 St. Francis Drive, Runnels Bldg. Rm N2153 Santa Fe, New Mexico 87502			
REMARKS: Department action			
B105 Submittal of Reports and Certifications A. Stack Test Protocols and Stack Test Reports shall be submitted electronically to Stacktest.AQB@state.nm.us or as directed by the Department. B. Excess Emission Reports shall be submitted as directed by the Department. (20.2.7.110 NMAC) C. Compliance Certification Reports, Semi-Annual monitoring reports, compliance schedule progress reports, and any other compliance status information required by this permit shall be certified by the responsible official and submitted to the mailing address below, or as directed by the Department: Manager, Compliance and Enforcement Section New Mexico Environment Department Air Quality Bureau 525 Camino de los Marquez, Suite 1 Santa Fe, NM 87505-1816 D. Compliance Certification Reports shall also be submitted to the Administrator at the address below (20.2.70.302.E.3 NMAC): Chief, Air Enforcement Section US EPA Region-6, 6EN-AA 1445 Ross Avenue, Suite 1200 Dallas, TX 75202-2733	☒ **Yes** Explain Below	☐ **No** Explain Below	☐ **N/A** Explain Below

PART 1 B General Conditions

REMARKS: Stack test reports, semi-annual reports and ACCs are submitted to the appropriate regulatory personnel			

PART 1 B General Conditions

B106 NSPS and/or MACT Startup, Shutdown, and Malfunction Operations	☒ Yes Explain Below	☐ No Explain Below	☐ N/A Explain Below
A. If a facility is subject to a NSPS standard in 40 CFR 60, each owner or operator that installs and operates a continuous monitoring device required by a NSPS regulation shall comply with the excess emissions reporting requirements in accordance with 40 CFR 60.7(c). B. If a facility is subject to a NSPS standard in 40 CFR 60, then in accordance with 40 CFR 60.8(c), operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard. C. If a facility is subject to a MACT standard in 40 CFR 63, then the facility is subject to the requirement for a Startup, Shutdown and Malfunction Plan (SSM) under 40 CFR 63.6(e)(3), unless specifically exempted in the applicable subpart. (20.2.70.302.A.1 and A.4 NMAC)			

REMARKS:
NSPS requirements for affected sources (turbines) do not require a continuous monitoring device. No excess emissions occurred from affected NSPS sources.

B107 Startup, Shutdown, and Maintenance Operations	☒ Yes Explain Below	☐ No Explain Below	☐ N/A Explain Below
A. The establishment of permitted startup, shutdown, and maintenance (SSM) emission limits does not supersede the requirements of 20.2.7.14.A NMAC. Except for operations or equipment subject to Condition B106, the permittee shall establish and implement a plan to minimize emissions during routine or predictable start up, shut down, and scheduled maintenance (SSM work practice plan) and shall operate in accordance with the procedures set forth in the plan. (20.2.7.14.A NMAC)			

REMARKS:
The facility is operated in accordance with the permittee's SSM work practice plan

PART 1 B General Conditions

B108 General Monitoring Requirements (20.2.70. 302.A and C NMAC)	☒ Yes Explain Below	☐ No Explain Below	☐ N/A Explain Below

A. These requirements do not supersede or relax requirements of federal regulations.

B. The following monitoring and/or testing requirements shall be used to determine compliance with applicable requirements and emission limits. Any sampling, whether by portable analyzer or EPA reference method, that measures an emission rate over the applicable averaging period greater than an emission limit in this permit constitutes noncompliance with this permit. The Department may require, at its discretion, additional tests pursuant to EPA Reference Methods at any time, including when sampling by portable analyzer measures an emission rate greater than an emission limit in this permit; but such requirement shall not be construed as a determination that the sampling by portable analyzer does not establish noncompliance with this permit and shall not stay enforcement of such noncompliance based on the sampling by portable analyzer.

C. If the emission unit is shutdown at the time when periodic monitoring is due to be accomplished, the permittee is not required to restart the unit for the sole purpose of performing the monitoring. Using electronic or written mail, the permittee shall notify the Department's Enforcement Section of a delay in emission tests prior to the deadline for accomplishing the tests. Upon recommencing operation, the permittee shall submit any pertinent pre-test notification requirements set forth in the current version of the Department's Standard Operating Procedures For Use Of Portable Analyzers in Performance Test, and shall accomplish the monitoring.

D. The requirement for monitoring during any monitoring period is based on the percentage of time that the unit has operated. However, to invoke monitoring period exemptions at B108.D(2), hours of operation shall be monitored and recorded.

(1) If the emission unit has operated for more than 25% of a monitoring period, then the permittee shall conduct monitoring during that period.

(2) If the emission unit has operated for 25% or less of a monitoring period then the monitoring is not required. After two successive periods without monitoring, the permittee shall conduct monitoring during the next period regardless of the time operated during that period, except that for any monitoring period in which a unit has operated for less than 10% of the monitoring period, the period will not be considered as one of the two successive periods.

(3) If invoking the monitoring period exemption in B108.D(2), the actual operating time of a unit shall not exceed the monitoring period required by this permit before the required monitoring is performed. For example, if the monitoring period is annual, the operating hours of the unit shall not exceed 8760 hours before monitoring is conducted. Regardless of the time that a unit actually operates, a minimum of one of

each type of monitoring activity shall be conducted during the five year term of this permit. E. The permittee is not required to report a deviation for any monitoring or testing in a Specific Condition if the deviation was authorized in this General Condition B108. F. For all periodic monitoring events, except when a federal or state regulation is more stringent, three test runs shall be conducted at 90% or greater of the unit's capacity as stated in this permit, or in the permit application if not in the permit, and at additional loads when requested by the Department. If the 90% capacity cannot be achieved, the monitoring will be conducted at the maximum achievable load under prevailing operating conditions except when a federal or state regulation requires more restrictive test conditions. The load and the parameters used to calculate it shall be recorded to document operating conditions and shall be included with the monitoring report. G. When requested by the Department, the permittee shall provide schedules of testing and monitoring activities. Compliance tests from previous NSR and Title V permits may be re-imposed if it is deemed necessary by the Department to determine whether the source is in compliance with applicable regulations or permit conditions. H. If monitoring is new or is in addition to monitoring imposed by an existing applicable requirement, it shall become effective 120 days after the date of permit issuance. For emission units that have not commenced operation, the associated new or additional monitoring shall not apply until 120 days after the units commence operation. All pre-existing monitoring requirements incorporated in this permit shall continue to apply from the date of permit issuance. All monitoring periods, unless stated otherwise in the specific permit condition or federal requirement, shall commence at the beginning of the 12 month reporting period as defined at condition A109.B.			
REMARKS: Periodic monitoring reports will included in the applicable semi-annual reports			

PART 1 B General Conditions

B109 General Recordkeeping Requirements (20.2.70.302.D.1 NMAC)	☒ Yes Explain Below	☐ No Explain Below	☐ N/A Explain Below

A. The permittee shall maintain records to assure and verify compliance with the terms and conditions of this permit and any applicable requirements that become effective during the term of this permit. The minimum information to be included in these records is (20.2.70.302.D.1 NMAC):

(1) Records required for testing and sampling:

(a) equipment identification (include make, model and serial number for all tested equipment and emission controls);

(b) date(s) and time(s) of sampling or measurements;

(c) date(s) analyses were performed;

(d) the company or entity that performed the analyses;

(e) analytical or test methods used;

(f) results of analyses or tests; and

(g) operating conditions existing at the time of sampling or measurement.

(2) Records required for equipment inspections and/or maintenance required by this permit:

(a) equipment identification number (including make, model and serial number)

(b) date(s) and time(s) of inspection, maintenance, and/or repair

(c) date(s) any subsequent analyses were performed (if applicable)

(d) name of the person or qualified entity conducting the inspection, maintenance, and/or repair

(e) copy of the equipment manufacturer's or the owner or operator's maintenance or repair recommendations (if required to demonstrate compliance with a permit condition)

(f) description of maintenance or repair activities conducted

(g) all results of any required parameter readings

(h) a description of the physical condition of the equipment as found during any required inspection

(i) results of required equipment inspections including a description of any condition which required adjustment to bring the equipment back into compliance and a description of the required adjustments

B. The permittee shall keep records of all monitoring data, equipment calibration, maintenance, and inspections, Data Acquisition and Handling System (DAHS) if used, reports, and other supporting information required by this permit for at least five (5) years from the time the data was gathered or the reports written. Each record shall clearly identify the emissions unit and/or monitoring equipment, and the date the data was gathered. (20.2.70.302.D.2 NMAC)

C. If the permittee has applied and received approval for an alternative operating scenario, then the permittee shall maintain a log at the facility, which documents, contemporaneously with any change from one operating scenario to another, the scenario under which the facility is operating. (20.2.70.302.A.3 NMAC)

D. The permittee shall keep a record describing off permit changes made at this source that result in emissions of a regulated air pollutant subject to an applicable requirement, but not otherwise regulated under this permit, and the emissions resulting from those changes. (20.2.70.302.I.2 NMAC)

E. Unless otherwise indicated by Specific Conditions, the permittee shall keep the following records for malfunction emissions and routine and predictable emissions during startup, shutdown, and scheduled maintenance (SSM):

(1) The owner or operator of a source subject to a permit, shall establish and implement a plan to minimize emissions during routine or predictable startup, shutdown, and scheduled maintenance through work practice standards and good air pollution control practices. This requirement shall not apply to any affected facility defined in and subject to an emissions standard and an equivalent plan under 40 CFR Part 60 (NSPS), 40 CFR Part 63 (MACT), or an equivalent plan under 20.2.72 NMAC - Construction Permits, 20.2.70 NMAC - Operating Permits, 20.2.74 NMAC - Permits - Prevention of Significant Deterioration (PSD), or 20.2.79 NMAC - Permits - Nonattainment Areas. (20.2.7.14.A NMAC) The permittee shall keep records of all sources subject to the plan to minimize emissions during routine or predictable SSM and shall record if the source is subject to an alternative plan and therefore, not subject to the plan requirements under 20.2.7.14.A NMAC.

(2) If the facility has allowable SSM emission limits in this permit, the permittee shall record all SSM events, including the date, the start time, the end time, a description of the event, and a description of the cause of the event. This record also shall include a copy of the manufacturer's, or equivalent, documentation showing that any maintenance qualified as scheduled. Scheduled maintenance is an activity that occurs at an established frequency pursuant to a written protocol published by the manufacturer or other reliable source. The authorization of allowable SSM emissions does not supersede any applicable federal or state standard. The most stringent requirement applies.

(3) If the facility has allowable malfunction emission limits in this permit, the permittee shall record all malfunction events to be applied against these limits. The permittee shall also include the date, the start time, the end time, and a description of the event. **Malfunction means** any sudden and unavoidable failure of air pollution control equipment or process equipment beyond the control of the owner or operator, including malfunction during startup or shutdown. A failure that is caused entirely or in part by poor maintenance, careless operation, or any other preventable equipment breakdown shall not be considered a malfunction. (20.2.7.7.E NMAC) The authorization of allowable malfunction emissions does not supersede any applicable federal or state standard. The most stringent requirement applies. This authorization only allows the permittee to avoid submitting reports under 20.2.7 NMAC for total annual emissions that are below the authorized malfunction emission limit. (4) The owner or operator of a source shall meet the operational plan defining the measures to be taken to mitigate source emissions during malfunction, startup or shutdown. (20.2.72.203.A(5) NMAC)			
REMARKS: Records are maintained in accordance with recordkeeping requirements.			
B110 General Reporting Requirements (20.2.70.302.E NMAC) A. Reports of required monitoring activities for this facility shall be submitted to the Department on the schedule in section A109. Monitoring and recordkeeping requirements that are not required by a NSPS or MACT shall be maintained on-site or (for unmanned sites) at the nearest company office, and summarized in the semi-annual reports, unless alternative reporting requirements are specified in the equipment specific requirements section of this permit. B. Reports shall clearly identify the subject equipment showing the emission unit ID number according to this operating permit. In addition, all instances of deviations from permit requirements, including those that occur during emergencies, shall be clearly identified in the reports required by section A109. (20.2.70.302.E.1 NMAC) C. The permittee shall submit reports of all deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. These reports shall be submitted as follows: (1) Deviations resulting in excess emissions as defined in 20.2.7.7 NMAC (including those classified as emergencies as defined in section B114.A) shall be reported in accordance with the timelines specified by	☒ **Yes** Explain Below	☐ **No** Explain Below	☐ **N/A** Explain Below

20.2.7.110 NMAC and in the semi-annual reports required in section A109. (20.2.70.302.E.2 NMAC)

(2) All other deviations shall be reported in the semi-annual reports required in section A109. (20.2.70.302.E.2 NMAC).

D. The permittee shall submit reports of excess emissions in accordance with 20.2.7.110.A NMAC.

E. Results of emission tests and monitoring for each pollutant (except opacity) shall be reported in pounds per hour (unless otherwise specified) and tons per year. Opacity shall be reported in percent. The number of significant figures corresponding to the full accuracy inherent in the testing instrument or Method test used to obtain the data shall be used to calculate and report test results in accordance with 20.2.1.116.B and C NMAC. Upon request by the Department, CEMS and other tabular data shall be submitted in editable, MS Excel format.

F. At such time as new units are installed as authorized by the applicable NSR Permit, the permittee shall fulfill the notification requirements in the NSR permit.

G. Periodic Emissions Test Reporting: The permittee shall report semi-annually a summary of the test results.

H. The permittee shall submit an emissions inventory for this facility annually. The emissions inventory shall be submitted by the later of April 1 or within 90 days after the Department makes such request. (20.2.73 NMAC and 20.2.70.302.A.1 NMAC)

(1) The facility emits, or has the potential to emit, 5 tons per year or more of lead or lead compounds, or 100 tons per year or more of PM10, PM2.5, sulfur oxides, nitrogen oxides, carbon monoxide, or volatile organic compounds.

(2) The facility is defined as a major source of hazardous air pollutants under 20.2.70 NMAC (Operating Permits).

(3) The facility is located in an ozone nonattainment area and which emits, or has the potential to emit, 25 tons per year or more of nitrogen oxides or volatile organic compounds.

(4) Upon request by the department.

(5) The permittee shall submit the emissions inventory report by April 1 of each year, unless a different deadline is specified by the current operating permit.

I. Emissions trading within a facility (20.2.70.302.H.2 NMAC)

(1) For each such change, the permittee shall provide written notification to the department and the administrator at least seven (7) days in advance of the proposed changes. Such notification shall state when the change will occur

and shall describe the changes in emissions that will result and how these increases and decreases in emissions will comply with the terms and conditions of the permit. (2) The permittee and department shall attach each such notice to their copy of the relevant permit.			

PART 1 B General Conditions

REMARKS:
Reports are submitted in accordance with reporting requirements.

B111 General Testing Requirements	☒ **Yes** Explain Below	☐ **No** Explain Below	☐ **N/A** Explain Below
A. Compliance Tests			
(1) Compliance test requirements from previous permits (if any) are still in effect, unless the tests have been satisfactorily completed. Compliance tests may be re-imposed if it is deemed necessary by the Department to determine whether the source is in compliance with applicable regulations or permit conditions. (20.2.72 NMAC Sections 210.C and 213)			
(2) Compliance tests shall be conducted within sixty (60) days after the unit(s) achieve the maximum normal production rate. If the maximum normal production rate does not occur within one hundred twenty (120) days of source startup, then the tests must be conducted no later than one hundred eighty (180) days after initial startup of the source.			
(3) Unless otherwise indicated by Specific Conditions or regulatory requirements, the default time period for each test run shall be **at least** 60 minutes and each performance test shall consist of three separate runs using the applicable test method. For the purpose of determining compliance with an applicable emission limit, the arithmetic mean of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances, beyond the owner or operator's control, compliance may, upon the Department approval, be determined using the arithmetic mean of the results of the two other runs.			
(4) Testing of emissions shall be conducted with the emissions unit operating at 90 to 100 percent of the maximum operating rate allowed by the permit. If it is not possible to test at that rate, the source may test at a lower operating rate, subject to the approval of the Department.			
(5) Testing performed at less than 90 percent of permitted capacity will limit emission unit operation to 110 percent of the tested capacity until a new test is conducted.			
(6) If conditions change such that unit operation above 110 percent of tested capacity is possible, the source must submit a protocol to the Department within 30 days of such change to conduct a new emissions test.			
B. EPA Reference Method Tests			
(1) All compliance tests required by this permit, unless otherwise specified by Specific Conditions of this			

permit, shall be conducted in accordance with the requirements of 40 CFR 60, Subpart A, General Provisions, and the following EPA Reference Methods as specified by 40 CFR 60, Appendix A:

(a) Methods 1 through 4 for stack gas flowrate

(b) Method 5 for TSP

(c) Method 6C and 19 for SO_2

(d) Method 7E for NO_X (test results shall be expressed as nitrogen dioxide (NO_2) using a molecular weight of 46 lb/lb-mol in all calculations (each ppm of NO/NO_2 is equivalent to 1.194 x 10-7 lb/SCF)

(e) Method 9 for opacity

(f) Method 10 for CO

(g) Method 19 may be used in lieu of Methods 1-4 for stack gas flowrate upon approval of the Department. A justification for this proposal must be provided along with a contemporaneous fuel gas analysis (preferably on the day of the test) and a recent fuel flow meter calibration certificate (within the most recent quarter).

(h) Method 7E or 20 for Turbines per 60.335 or 60.4400

(i) Method 29 for Metals

(j) Method 201A for filterable PM_{10} and $PM_{2.5}$

(k) Method 202 for condensable PM

(l) Method 320 for organic Hazardous Air Pollutants (HAPs)

(m) Method 25A for VOC reduction efficiency

(n) Method 30B for Mercury

(2) Alternative test method(s) may be used if the Department approves the change.

C. Periodic Monitoring and Portable Analyzer Requirements

(1) Periodic emissions tests (periodic monitoring) may be conducted in accordance with EPA Reference Methods or by utilizing a portable analyzer. Periodic monitoring utilizing a portable analyzer shall be conducted in accordance with the requirements of the current version of ASTM D 6522. However, if a facility has met a previously approved Department criterion for portable analyzers, the analyzer may be operated in accordance with that criterion until it is replaced.

(2) Unless otherwise indicated by Specific Conditions or regulatory requirements, the default time period for

each test run shall be **at least** 20 minutes.

Each performance test shall consist of three separate runs. The arithmetic mean of results of the three runs shall be used to determine compliance with the applicable emission limit.

(3) Testing of emissions shall be conducted in accordance with the requirements at Section B108.F.

(4) During emissions tests, pollutant and diluent concentration shall be monitored and recorded. Fuel flow rate shall be monitored and recorded if stack gas flow rate is determined utilizing Method 19. This information shall be included with the test report furnished to the Department.

(5) Stack gas flow rate shall be calculated in accordance with 40 CFR 60, Appendix A, Method 19 utilizing fuel flow rate (scf) determined by a dedicated fuel flow meter and fuel heating value (Btu/scf) determined from a fuel sample obtained preferably during the day of the test, but no earlier than three months prior to the test date. Alternatively, stack gas flow rate may be determined by using EPA Methods 1-4.

D. Test Procedures:

(1) The permittee shall notify the Department's Program Manager, Compliance and Enforcement Section at least thirty (30) days before the test to afford a representative of the Department an opportunity to be present at the test. (40CFR 60.8(d))

(2) Equipment shall be tested in the "as found" condition. Equipment may not be adjusted or tuned prior to any test for the purpose of lowering emissions, and then returned to previous settings or operating conditions after the test is complete.

(3) Contents of test notifications, protocols and test reports shall conform to the format specified by the Department's Universal Test Notification, Protocol and Report Form and Instructions. Current forms and instructions are posted to NMED's Air Quality web site under Compliance and Enforcement Testing.

(4) The permittee shall provide (a) sampling ports adequate for the test methods applicable to the facility, (b) safe sampling platforms, (c) safe access to sampling platforms and (d) utilities for sampling and testing equipment.

(5) The stack shall be of sufficient height and diameter and the sample ports shall be located so that a representative test of the emissions can be performed in accordance with the requirements of EPA Method 1 or ASTM D 6522-00 as applicable.

(6) Where necessary to prevent cyclonic flow in the stack, flow straighteners shall be installed

(7) Unless otherwise indicated by Specific Conditions or regulatory requirements, test reports shall be submitted to the Department no later than 30 days after completion of the test.

REMARKS:
Testing that occurred during the applicable period was completed in accordance with the appropriate procedures.

PART 1 B General Conditions

B112 Compliance	☒ Yes Explain Below	☐ No Explain Below	☐ N/A Explain Below
A. The Department shall be given the right to enter the facility at all reasonable times to verify the terms and conditions of this permit. Required records shall be organized by date and subject matter and shall at all times be readily available for inspection. The permittee, upon verbal or written request from an authorized representative of the Department who appears at the facility, shall immediately produce for inspection or copying any records required to be maintained at the facility. Upon written request at other times, the permittee shall deliver to the Department paper or electronic copies of any and all required records maintained on site or at an off-site location. Requested records shall be copied and delivered at the permittee's expense within three business days from receipt of request unless the Department allows additional time. Required records may include records required by permit and other information necessary to demonstrate compliance with terms and conditions of this permit. (NMSA 1978, Section 74-2-13)			
B. A copy of the most recent permit(s) issued by the Department shall be kept at the permitted facility or (for unmanned sites) at the nearest company office and shall be made available to Department personnel for inspection upon request. (20.2.70.302.G.3 NMAC)			
C. Emissions limits associated with the energy input of a Unit, i.e. lb/MMBtu, shall apply at all times unless stated otherwise in a Specific Condition of this permit. The averaging time for each emissions limit, including those based on energy input of a Unit (i.e. lb/MMBtu) is one (1) hour unless stated otherwise in a Specific Condition of this permit or in the applicable requirement that establishes the limit. (20.2.70.302.A.1 and G.3 NMAC)			
D. The permittee shall submit compliance certification reports certifying the compliance status of this facility with respect to all permit terms and conditions, including applicable requirements. These reports shall be made on the pre-populated Compliance Certification Report Form that is provided to the permittee by the Department, and shall be submitted to the Department and to EPA at least every 12 months. For the most current form, please contact the Compliance Reports Group at submittals.aqb@state.nm.us. For additional reporting guidance see http://www.nmenv.state.nm.us/aqb/enforce_compliance/TitleVReporting.htm. (20.2.70.302.E.3 NMAC)			
E. The permittee shall allow representatives of the Department, upon presentation of credentials and other documents as may be required by law, to do the following (20.2.70.302.G.1 NMAC):			

(1) enter the permittee's premises where a source or emission unit is located, or where records that are required by this permit to be maintained are kept; (2) have access to and copy, at reasonable times, any records that are required by this permit to be maintained; (3) inspect any facilities, equipment (including monitoring and air pollution control equipment), work practices or operations regulated or required under this permit; and (4) sample or monitor any substances or parameters for the purpose of assuring compliance with this permit or applicable requirements or as otherwise authorized by the Federal Act.			

REMARKS:
Records and permits are maintained as required. Representatives have not been denied access to the facility and applicable files during the applicable period.

B113 Permit Reopening and Revocation	☒ **Yes** Explain Below	☐ **No** Explain Below	☐ **N/A** Explain Below
A. This permit will be reopened and revised when any one of the following conditions occurs, and may be revoked and reissued when A(3) or A(4) occurs. (20.2.70.405.A.1 NMAC) (1) Additional applicable requirements under the Federal Act become applicable to a major source three (3) or more years before the expiration date of this permit. If the effective date of the requirement is later than the expiration date of this permit, then the permit is not required to be reopened unless the original permit or any of its terms and conditions has been extended due to the Department's failure to take timely action on a request by the permittee to renew this permit. (2) Additional requirements, including excess emissions requirements, become applicable to this source under Title IV of the Federal Act (the acid rain program). Upon approval by the Administrator, excess emissions offset plans will be incorporated into this permit. (3) The Department or the Administrator determines that the permit contains a material mistake or that inaccurate statements were made in establishing the terms and conditions of the permit. (4) The Department or the Administrator determines that the permit must be revised or revoked and reissued to assure compliance with an applicable requirement. B. Proceedings to reopen or revoke this permit shall affect only those parts of this permit for which cause to reopen or revoke exists. Emissions units for which permit conditions have been revoked shall not be operated			

until new permit conditions have been issued for them. (20.2.70.405.A.2 NMAC)			

REMARKS:
No communication has been received from the regulating agency to indicate that the permit has been reopened, revoked or revised.

B114 Emergencies (20.2.70.304 NMAC)	☒ **Yes** Explain Below	☐ **No** Explain Below	☐ **N/A** Explain Below

A. An "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the permittee, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventive maintenance, or careless or improper operation.

B. An emergency constitutes an affirmative defense to an action brought for noncompliance with technology-based emission limitations contained in this permit if the permittee has demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An emergency occurred and that the permittee can identify the cause(s) of the emergency;

(2) This facility was at the time being properly operated;

(3) During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit; and

(4) The permittee submitted notice of the emergency to the Department within 2 working days of the time when emission limitations were exceeded due to the emergency. This notice fulfills the requirement of 20.2.70.302.E.2 NMAC. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

C. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.

D. This provision is in addition to any emergency or upset provision contained in any applicable requirement.

REMARKS:

PART 1 B General Conditions

No emergencies occurred during this period.

B115 Stratospheric Ozone (20.2.70.302.A.1 NMAC) A. If this facility is subject to 40 CFR 82, Subpart F, the permittee shall comply with the following standards for recycling and emissions reductions: (1) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices, except for motor vehicle air conditioners (MVAC) and MVAC-like appliances. (40 CFR 82.156) (2) Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment. (40 CFR 82.158) (3) Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program. (40 CFR 82.161)	☐ **Yes** Explain Below	☐ **No** Explain Below	☒ **N/A** Explain Below
REMARKS: The facililty is not subject to 40CFR 82 subpart F.			
B116 Acid Rain Sources (20.2.70.302.A.9 NMAC) A. If this facility is subject to the federal acid rain program under 40 CFR 72, this section applies. B. Where an applicable requirement of the Federal Act is more stringent than an applicable requirement of regulations promulgated under Title IV of the Federal Act, both provisions are incorporated into this permit and are federally enforceable. C. Emissions exceeding any allowances held by the permittee under Title IV of the Federal Act or the regulations promulgated thereunder are prohibited. D. No modification of this permit is required for increases in emissions that are authorized by allowances acquired pursuant to the acid rain program, provided that such increases do not require a permit modification under any other applicable requirement.	☐ **Yes** Explain Below	☐ **No** Explain Below	☒ **N/A** Explain Below

E. The permittee may not use allowances as a defense to noncompliance with any other applicable requirement. F. No limit is placed on the number of allowances held by the acid rain source. Any such allowance shall be accounted for according to the procedures established in regulations promulgated under Title IV of the Federal Act. G. The acid rain permit is an enclosure of this operating permit.			
REMARKS: The facililty is not subject to 40CFR 72.			
B117 Risk Management Plan (20.2.70.302.A.1 NMAC) A. If this facility is subject to the federal risk management program under 40 CFR 68, this section applies. B. The owner or operator shall certify annually that they have developed and implemented a RMP and are in compliance with 40 CFR 68. C. If the owner or operator of the facility has not developed and submitted a risk management plan according to 40 CFR 68.150, the owner or operator shall provide a compliance schedule for the development and implementation of the plan. The plan shall describe, in detail, procedures for assessing the accidental release hazard, preventing accidental releases, and developing an emergency response plan to an accidental release. The plan shall be submitted in a method and format to a central point as specified by EPA prior to the date specified in 40 CFR 68.150.b.	☐ **Yes** Explain Below	☐ **No** Explain Below	☒ **N/A** Explain Below
REMARKS: The facililty is not subject to 40CFR 68.			

Part 2

ACC Deviation Summary Report for Permit P236-R2 & P236-R2M1

1. Are there any deviations identified in Part 1, Column 5. If NO, no further information is required on Part 2 of this form. If YES, answer question 2 below.	☒ **Yes** ☐ **No**
2. Have all deviations identified in Part 1, Column 5 been reported to the NMED as required by 20.2.7 NMAC or in a Semi-Annual Monitoring Report (20.2.70.302.E.1 NMAC)? If Yes, no further information is required on Part 2 of this form. If No, answer question 3 below and enter the required information in the Deviation Summary Table for each deviation not yet reported to the NMED.	☒ **Yes** ☐ **No**
3. Did any of the deviations result in excess emissions? For excess emissions deviations that have not previously been reported per requirements of 20.2.7 NMAC, a completed Excess Emission Form for each deviation must be attached to this report.	☐ **Yes** ☐ **No**

Deviation Summary Table for deviations not yet reported.

No.	Applicable Requirement (Include Rule Citation)	Emission Unit ID(s)	Cause of Deviation	Corrective Action Taken
1				
2				
3				
4				
5				

Deviation Summary Table (cont.)

	Deviation Started		Deviation Ended					Did you attach an excess emission form?
No.	Date	Time	Date	Time	Pollutant	Monitoring Method	Amount of Emissions	
1								☐ **Yes** ☐ **No**
2								☐ **Yes** ☐ **No**
3								☐ **Yes** ☐ **No**
4								☐ **Yes** ☐ **No**
5								☐ **Yes** ☐ **No**

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Section 21

Addendum for Landfill Applications

Landfill Applications are not required to complete Sections 1-C Input Capacity and Production Rate, 1-E Operating Schedule, 17 Compliance Test History, and 18 Streamline Applications. Section 12 – PSD Applicability is required only for Landfills with Gas Collection and Control Systems and/or landfills with other non-fugitive stationary sources of air emissions such as engines, turbines, boilers, heaters. All other Sections of the Universal Application Form are required.

EPA Background Information for MSW Landfill Air Quality Regulations:
https://www3.epa.gov/airtoxics/landfill/landflpg.html

NM Solid Waste Bureau Website: https://www.env.nm.gov/swb/

Not applicable, as this facility is not a landfill.

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Section 22

Certification

Company Name: Harvest Four Corners, LLC

I, TRAVIS JONES, hereby certify that the information and data submitted in this application are true and as accurate as possible, to the best of my knowledge and professional expertise and experience. Signed this 18 day of SEPTEMBER, 2019, upon my oath or affirmation, before a notary of the State of New Mexico.

*Signature — Date: 9/18/2019

TRAVIS JONES — Printed Name

EHS MANAGER — Title

Scribed and sworn before me on this 18 day of September 2019.

My authorization as a notary of the State of New Mexico expires on the 30 day of October, 2019.

Notary's Signature — Date: 9/18/2019

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.AD NMAC.

OFFICIAL SEAL
MONICA SANDOVAL
Notary Public
State of New Mexico
My Commission Expires 10/30/2019